Published in final edited form as:

Fathering. 2009 January 1; 7(1): 91–102. doi:10.3149/fth.0701.91.

High-Risk Subsequent Births Among Co-Residential Couples: The Role of Fathers, Mothers, and Couples

Kristin A. Moore, Suzanne Ryan, Jennifer Manlove, Lisa Mincieli, and Erin Schelar

Child Trends

Abstract

This study examines predictors of a cumulative measure of high-risk births, rather than single risks separately, as in prior research. Using the Early Childhood Longitudinal Study-Birth Cohort survey, we incorporate data from fathers and mothers to assess characteristics associated with births subsequent to a focal child's birth within high-risk circumstances. Components of a high-risk birth include: high-parity, very closely-spaced, or births to unmarried couples, unhappy couples, or couples in high-conflict relationships. Both fathers' and mothers' pregnancy intentions affect whether couples have a subsequent high-risk birth. The odds of a high-risk subsequent birth, relative to no birth and to a low-risk birth, are more than twice as high if only the father intended the birth of the previous child rather than if the child was intended by both the mother and father. High-risk subsequent births are much more likely among couples where the prior child was high risk and where family income was low, and lower where both father and mother had lived with both biological parents. Findings highlight the importance of father data in fertility research.

Keywords

fertility; pregnancy intentions; relationship quality; nonmarital childbearing

Numerous studies have examined specific components of risky births, focusing on nonmarital birth or births within poor quality or high-conflict relationships, for example. However, cumulative or omnibus measures of risk factors more accurately reflect the intercorrelation of risk factors than do measures that assess risk factors separately. For example, people do not just have a nonmarital birth; they also have a birth in a marriage or relationship that is either happy or unhappy, and it is either a first-born or later-born child. Research finds that each of these factors predicts a number of negative outcomes. By extension, being born into more than one of these birth circumstances simultaneously (i.e., born to unmarried parents in a high-conflict relationship) would have particularly adverse consequences for child development, family stability, public dependency, and the well-being of fathers and mothers (Forehand, Biggar, & Kotchick, 1998; Logan, Moore, Manlove, Mincieli, & Cottingham, 2007; Moore, Vandivere, & Redd, 2003; Shaw, Winslow, Owens, & Hood, 1997; Simmons, Burgeson, Carlton-Ford, & Blyth, 1987). Child development research has regularly found that children experiencing multiple risks are less likely to develop well (Garmezy & Rutter, 1983; Rutter, 1985). Yet, little research has examined cumulative negative birth circumstances. Therefore, in this paper, we aggregate birth characteristics to create a measure of cumulative birth risks. We posit that nonmarital, closely-spaced, high-parity births in poor quality or high-conflict relationships are of substantially greater concern for children, adults, and for taxpayers than the occurrence of

any one of these alone. Accordingly, studying the predictors of cumulative birth risk has both scientific and policy relevance.

Previous research has also tended to focus on first births. While first births represent an important life transition (LaRossa & Sinha, 2006), subsequent births also represent an important component of family building. This study investigates father, mother, and couple-level predictors of the cumulative risk status of subsequent births. Specifically, we use data from the Early Childhood Longitudinal Study - Birth Cohort (ECLS-B) to develop and analyze an innovative measure of couple's cumulative birth risk to assess what factors are associated with whether a recent cohort of parents has subsequent high-risk births, with a particular focus on father factors. Using this dataset, and studying factors associated with the cumulative risk status specifically of "subsequent" births (i.e., births following that of the "focal" child who was the ECLS-B's primary interest), has three advantages. Data about father and mother characteristics associated with risky births are collected prior to the birth whose risk status is being predicted. The data about father characteristics are collected directly from the father, rather than mothers' reports. Finally, the risk status of the prior (the ECLS-B focal child's) birth can be controlled.

Background

Each of the five components of our subsequent risky birth index – being unmarried, high parity, close spacing, relationship conflict, and relationship unhappiness – has been found, individually, to have negative implications for children although effects may vary somewhat by context and outcome. Research generally shows that children of unmarried couples are more likely than children of married couples to grow up poor, have socioemotional and academic problems, and engage in risky sexual behaviors (McLanahan & Sandefur, 1994; Seltzer, 2000; Wu & Wolfe, 2001). Resource dilution theory (Blake, 1981, 1989) suggests that high-parity and closely-spaced births are disadvantageous because parents' material resources and time must be divided across children (and often across households, if the children have different mothers) (Bianchi, 2000; Downey, 2001; Monte, 2007), and may interfere with the quantity and quality of parent-child interactions (Furstenberg & King, 1999; Mincy, 2001). Lastly, parental conflict (Harold & Conger, 1997; Jekielek, 1998) and unhappy relationships (Hair, McPhee, Moore, & Vandivere, 2005) are associated with poorer child outcomes as well as with a greater likelihood of union dissolution (Demaris, 2000) which, in turn, has a host of negative consequences for child well-being (Amato, 2000).

These characteristics have been linked to each of the individual components in a variety of contexts. For example, racial and ethnic minorities and younger parents are more likely to have closely-spaced subsequent births (Gillmore, Lewis, Lohr, Spencer, & White, 1997; Zhu, Rolfs, Nangle, & Horan, 1999), nonmarital births (Bumpass & Lu, 2000; Hamilton, Martin, & Ventura, 2006), and births within fragile relationships (Fragile Families Research Brief, 2002); moreover, Hispanic families have a greater likelihood of a larger family size (Giachello, 1994; Marin, 1989). Likewise, older parents are more likely to experience a higher parity birth given that the likelihood of already having had one or more children increases with age (Martinez, Chandra, Abma, Jones, & Mosher, 2006).

Also, lower levels of income and education are generally associated with greater chances of nonmarital childbearing (Upchurch, Lillard, & Panis, 2002), closely-spaced subsequent childbearing (Kalmuss & Namerow, 1994; Manlove, Mariner, & Papillo, 2000), and higher parity (Forste, 2002). Family structure matters, too, as males and females who grow up in single-parent families tend to initiate childbearing at an early age and, therefore, are at greater risk of higher-parity births (McLanahan & Sandefur, 1994). In contrast, higher levels

of father involvement with an existing child are linked to better quality of marital relationships (Blair, Wenk, & Hardesty, 1994); thus, we expect father involvement to be associated with reduced chances of having a birth in a high-conflict or unhappy relationship.

Finally, the fertility intentions of both partners influence actual achieved fertility (Thomson, 1997). Couples who have an unintended birth also experience diminished relationship quality and greater relationship turbulence (Brown & Eisenberg, 1995), suggesting that having one unintended child may increase the risk that subsequent children are born into a poor quality relationship. However, until recently, minimal research has distinguished between mother and father reports of intentions.

Because both fathers' and mothers' individual and family background characteristics, as well as their past pregnancy intentions with regard to the focal child, have been linked with the individual components of the cumulative risky birth index in previous research, we hypothesize that these factors will be associated with the odds of a subsequent high-risk birth. In particular, we hypothesize that father characteristics, neglected in past research, will be linked with high-risk births.

Data and Sample

We used data from the 9- and 24-month surveys of the Early Childhood Longitudinal Study-Birth Cohort (ECLS-B), a nationally-representative study of 10,700 children born in the U.S. in 2001 (Nord, Edwards, Andreassen, Green, & Wallner-Allen, 2006). Data were collected when focal children were approximately 9 months old and 24 months old, and included both mother and father interviews. To create a file with one child per family, we randomly dropped one twin from each twin-pair included in the data file, for an initial sample of 9,900. Because our dependent variable is available only for *co-residential* couples, we began with a sample of 6,550 cases where the biological mother and biological father resided in the focal child's household at both 9 and 24 months. Finally, because we used both mother- and father-reported information for our dependent variable, we had to exclude 2,400 cases with a missing residential father survey, for a final sample of 4,150 co-residential couples with both mother and father information available. We examined sociodemographic differences between fathers who remained in our sample and those who were dropped because they did not complete a resident father survey, and those who remain in our sample are, on average, a more advantaged group. Therefore, we expect that our study underestimates the proportion of risky subsequent births.

Measures

Dependent variable

The dependent variable is a three-category measure of whether a couple had no subsequent birth between 9 and 24 months, a "low-risk" subsequent birth, or a "high-risk" subsequent birth. A low-risk birth was defined as having none or only one of the five risk factors at 24 months, whereas a high-risk birth had at least two of these risk factors: 1) it was a nonmarital birth; 2) it occurred within a high-conflict relationship; 3) it occurred within an unhappy relationship; 4) it was a high-parity birth (4th child or higher); or 5) it was a closely-spaced birth (defined as less than 12 months after the focal child's birth because the data only provide the age of subsequent children in years, not in months, and thus we had to use a very conservative measure). Risk factors were weighted equally in the absence of evidence regarding how to differentially weight them and following the guidance of an empirical investigation of this issue that found equal weighting was the most efficient strategy (Haggerty & Land, 2007). A high-conflict relationship was one in which either parent reported that the couple argued often about one of two key issues (drinking or other

men/women) or argued often about at least two of eight other issues at the 24-month survey, including chores and responsibilities, their children, money, not showing love and affection, sex, religion, leisure time, and in-laws. An unhappy relationship was one in which either parent reported that their relationship with their spouse/partner was anything other than “very happy” at the 24-month survey. Given our key interest in fathers, the parity component of the dependent variable is based primarily on the father report of his parity; for a limited number of cases, mothers’ reports were used where father reports were missing.

Independent variables

We included mother, father, child and family characteristics, measured at the 9-month survey. For both mothers and fathers, we measured age at the birth of the focal child, race/ethnicity (comparing non-Hispanic white with other racial/ethnic groups), and education (ranging from 1=8th grade or below to 9=doctorate/professional degree). For fathers only, a scale of father involvement was included to assess their engagement with the focal child using 13 items such as the frequency with which fathers ran errands, read books, told stories, and sang songs with their children in a typical week, how often fathers played “peek-a-boo” or held the child and the frequency with which fathers talked about their child to friends and family or carried pictures of their child. Items were standardized around a mean of 0 and a standard deviation of 1 and summed so that the final father involvement scale ranged from -14 to 5. Higher values demonstrate greater involvement, and we expect that highly engaged fathers would seek to avoid a subsequent high-risk birth.

We included a measure of parents’ pregnancy intentions regarding the focal child. A measure of the intendedness of the subsequent child was not available but the benefit of this is that it positions pregnancy intentions as a prospective measure that can be used to predict the cumulative risk status of subsequent births. In models that included only mothers’ characteristics, we used a dichotomous measure of whether the mother reported the focal child was unintended to indicate whether the birth resulted from a pregnancy that was mistimed (too soon) or unwanted versus a birth from an intended pregnancy. In models including both mother and father characteristics, we instead used a four-category measure of mother/father agreement on childbearing intentions. Births were classified as (1) intended by both parents, (2) intended by the mother only, (3) intended by the father only, or (4) unintended by both parents.

Controls for focal child characteristics included gender, whether he/she had a disability, and the number of months between the 9- and 24-month interviews. Family-level controls included gross household income (ranging from 1=less than \$5,000 to 13=over \$200,000 per year) and a dichotomous variable measuring whether both the mother and the father had lived with two biological parents until age 16. In models that include only mother characteristics, family structure is measured for the mother only. Finally, we included an index of “time 1 birth risk factors” to control for the cumulative risk of the focal child’s birth (rather than the subsequent child’s birth) and assigned one point for each of the following birth risk factors: 1) nonmarital birth, 2) occurred within a high-conflict relationship, 3) occurred within an unhappy relationship, or 4) was a high-parity birth for the father.

Analytic Methods

We used multinomial logistic regression to examine which maternal, paternal, child and family characteristics predict a subsequent birth. The first set of columns shows the odds of a high-risk subsequent birth versus no subsequent birth (reference category), controlling for the third category of low-risk birth. The second set of columns presents the odds of a high-risk birth versus a low-risk birth (reference category), controlling for no subsequent birth. We chose our comparisons to reflect the conceptual distinction between not having a birth at

all versus having a high risk birth, as well as the distinction between having a high-risk and a low-risk birth (for those who have any birth). Multinomial logits allow us to look at all comparisons simultaneously and do not require that we lump together distinct behaviors (i.e., no birth, high-risk birth, and low-risk birth).

Three models were estimated: 1) includes only focal child and mother characteristics; 2) adds father and family characteristics; and 3) incorporates the time 1 risk index. Mother's family structure and pregnancy intentions were combined with father reports of these measures in models 2 and 3 to create couple-level measures, yielding more parsimonious models. All analyses were weighted and controlled for sampling design using Stata (StataCorp, 2005).

Results

Dependent variable

Table 1 shows the distribution of our dependent variable and of each component of the cumulative birth risk measure. Thirteen percent of our sample had a subsequent birth between 9 and 24 months. Of those who had a subsequent birth, 78% had a low-risk birth (of these, 58% had no risks and 42% had only one risk, and 23% had a high-risk birth. Among couples who had a high-risk subsequent birth, 10% had it within a nonmarital relationship; 21% and 32% did so within a high-conflict or unhappy relationship, respectively; 20% had a high-parity subsequent birth; and 1% had a closely-spaced subsequent birth.

Multivariate results

Table 2 presents the results of multinomial logistic regression models predicting a high-risk subsequent birth. Models 1a and 2a show that higher maternal education is associated with reduced odds of a high-risk subsequent birth compared with the reference category of no birth and compared with the reference category of a low-risk subsequent birth. Mothers who reported the focal child was unintended are substantially more likely to have a high-risk subsequent birth compared with no birth or a low-risk birth.

Father and family characteristics were added to models 1b and 2b. Of key interest are the findings about couple agreement on pregnancy intendedness. The odds of a high-risk subsequent birth, relative to no birth and to a low-risk birth, are more than 2.5 times higher if only the father intended the birth of the focal child rather than if the child was intended by both the mother and father. Similarly, when the focal child's birth was unintended by both parents (versus both agreeing it was intended), the odds of a high-risk subsequent birth compared with a low-risk subsequent birth almost triple. Also, the odds of a high-risk birth compared with a low risk-birth are greater if the focal child was intended by the mother and not the father. Overall, although not all of the associations reach statistical significance, the odds of a subsequent high-risk birth are greater when one or both parents report the focal child's birth was unintended.

Other factors associated with lower odds of a high-risk subsequent birth, compared with no birth or a low-risk birth, include higher family income and mother and father living with their biological parents until age 16. With the addition of these variables, the odds ratio for maternal education becomes non-significant.

Models 1c and 2c control for time 1 risk factors. In each model, a higher score on the risk index for the focal child is associated with greater odds of a high-risk subsequent birth. The addition of this variable reduces the statistical significance of several variables in model b, particularly intendedness, reflecting that unintended focal child births were also more likely to be high risk. Subsidiary analyses indicated that two specific components of the focal child

risk index, unhappy relationship and/or high-conflict relationships at Time 1, led to the attenuation of the unintended finding. This suggests that unintended focal child births were more likely to occur within unhappy or high-conflict relationships. Also, in both models, the association between parents' family structure and a high-risk birth becomes only marginally significant.

Discussion

We have developed and analyzed an exploratory cumulative measure that assesses the joint occurrence of a number of risky birth circumstances. This work builds on a large number of studies that have examined negative birth circumstances individually (Logan et al., 2007). However, examining multiple risks concurrently is a more accurate reflection of real-life circumstances than examining risks one at a time.

Having acknowledged the importance of examining risks jointly, we must also acknowledge that our ability to assess multiple risk births is undermined by data limitations. For example, it is not possible to identify with certainty whether non-resident fathers in the ECLS-B have had a subsequent birth. Therefore, we have examined residential couples only. We found only two percent of parents in our sample had a subsequent high-risk birth, but almost one-quarter of all subsequent births that occurred within 24 months were considered high-risk.

As hypothesized, we found that maternal and family characteristics were associated with the odds of a high-risk birth. Higher maternal education was associated with reduced odds of a high-risk birth, supporting other research (Manlove et al., 2000; Upchurch et al., 2002). However, family income explains the protective effect of higher maternal education, reinforcing the connection between lower socioeconomic status and high-risk births (Forste, 2002).

Initial models (a) include only mothers' reports of intendedness and indicate that mothers who did not intend to have the focal child have greater odds of having a high-risk subsequent birth. Importantly, analyses combining maternal and paternal pregnancy intentions suggest that father intentions also influence the odds of a high-risk birth. When the focal child was unintended by either or both of the parents, the odds of a high-risk versus low-risk subsequent birth are higher. However, these findings are attenuated after controlling for subsequent relationship conflict and happiness, supporting other research linking fertility intentions to relationship dynamics (The National Campaign to Prevent Teen and Unplanned Pregnancy, 2008). Also, when the focal child's birth was intended by the father but not the mother, the odds of a subsequent high-risk birth are higher than the probability of no subsequent birth, though this finding becomes marginal when the time one risk index is included. These findings underscore the importance of joint planning for children because results suggest that when both members of the couple agree the child is intended subsequent risky births are less likely to occur. If we had not included data on fathers, we would have missed identifying the important contribution that father pregnancy intentions make to the circumstances of future childbearing; thus, this finding highlights the importance of father data in research on fertility.

Furthermore, when the focal child was born within high-risk circumstances, the odds of a subsequent high-risk birth almost double compared with no birth and more than triple compared with a subsequent low-risk birth. These analyses document an ongoing pattern of risk, whereby couples who already have a high-risk baby face a substantially greater probability of a subsequent high-risk birth. Most pregnancy prevention programs are focused on preventing a birth to very young teens (Kirby, 2001); however, these findings indicate the importance of making programs and family planning services available to

couples who already have children (especially if those births were characterized by risky circumstances), so that they can prevent additional high-risk births.

Overall, our findings illustrate the importance of considering the circumstances of previous births, especially parents' pregnancy intentions, when assessing a couple's chances of having subsequent births characterized by risky circumstances. In particular, the significance of fathers' pregnancy intentions in predicting high-risk subsequent births suggests that fathers should be involved in reproductive health care and decisions. It also indicates the value of collecting data about men's fertility preferences and behaviors and the importance of assessing these preferences as well as those of women.

Acknowledgments

This study was funded by Grant No. P01 HD045610-01A1, *Transition to Fatherhood*, from the National Institute of Child Health and Human Development (NICHD) of the U.S. Department of Health and Human Services. We thank members of the *Transition to Fatherhood* P01 team for their helpful suggestions.

References

- Amato PR. The consequences of divorce for adults and children. *Journal of Marriage and the Family* 2000;62(4):1269–1287.
- Bianchi SM. Maternal employment and time with children: Dramatic change or surprising continuity? *Demography* 2000;37(4):401–414. [PubMed: 11086567]
- Blair SL, Wenk D, Hardesty C. Marital quality and paternal involvement: Interconnections of men's spousal and parental roles. *The Journal of Men's Studies* 1994;2(3):221–237.
- Blake J. Family size and quality of children. *Demography* 1981;18:621–662.
- Blake J. Number of siblings and educational attainment. *Science* 1989;145(4913):32–36. [PubMed: 2740913]
- Brown, S.; Eisenberg, L., editors. *The best intentions: Unintended pregnancy and the well-being of children and families*. Washington, D.C.: National Academy Press; 1995.
- Bumpass L, Lu H. Trends in cohabitation and implications for children's family contexts in the United States. *Population Studies* 2000;54(1):29–41.
- Demaris A. Till discord or death do us part: The role of physical and verbal conflict in union disruption. *Journal of Marriage & the Family* 2000;62(3):683–692.
- Downey DB. Number of siblings and intellectual development: The resource dilution explanation. *American Psychologist* 2001;56(6/7):497–504. [PubMed: 11413873]
- Forehand R, Biggar H, Kotchick BA. Cumulative risks across family stressors: Short- and long-term effects for adolescents. *Journal of Abnormal Child Psychology* 1998;26(2):119–128. [PubMed: 9634134]
- Forste R. Where are all the men? A conceptual analysis of the role of men in family formation. *Journal of Family Issues* 2002;23(5):579–600.
- Fragile Families Research Brief. Is marriage a viable objective for fragile families? (No. Number 9). Princeton, NJ: Center for Research on Child Well-being, Princeton University, Social Indicators Survey Center, Columbia University; 2002.
- Furstenberg, FF.; King, RB. Multi-partnered fertility sequences: Documenting an alternative family form; Paper presented at the Annual meeting of the Population Association of America; Chicago, IL. 1999 Apr.
- Garnezy, N.; Rutter, M. *Stress, Coping, and Development in Children*. New York: McGraw-Hill; 1983.
- Giachello, ALM. Maternal/Perinatal Health. In: Molina, CW.; Molina, MA., editors. *Latino Health in the United States: A Growing Challenge*. Washington, DC: American Public Health Association; 1994. p. 135-187.
- Gillmore MR, Lewis SM, Lohr MJ, Spencer MS, White RD. Repeat pregnancies among adolescent mothers. *Journal of Marriage & the Family* 1997;59(3):536–550.

- Haggerty M, Land K. Constructing summary indices of Quality of Life: A model for the effect of heterogeneous importance weights. *Sociological Methods and Research* 2007;35:455–497.
- Hair, E.; McPhee, S.; Moore, K.; Vandivere, S. How do parenting behaviors mediate the link between maternal depression and child well-being? Lessons from the Early Childhood Longitudinal Study, Kindergarten class 1998–1999; Paper presented at the Annual Meeting of the Association for Public Policy Analysis and Management; Washington, DC. 2005.
- Hamilton BE, Martin JA, Ventura SJ. Births: Preliminary data for 2005. *Health E-Stats*. 2006 Released November 21, 2006.
- Harold G, Conger R. Marital conflict and adolescent distress: The role of adolescent awareness. *Child Development* 1997;68(2):333–350. [PubMed: 9180005]
- Jekielek SM. Parental conflict, marital disruption, and children's emotional well-being. *Social Forces* 1998;76(3):905–936.
- Kalmuss DS, Namerow PB. Subsequent childbearing among teenage mothers: the determinants of a closely spaced second birth. *Family Planning Perspectives* 1994;26(4):149–153. 159. [PubMed: 7957815]
- Kirby, D. Emerging answers: Research findings on programs to reduce teen pregnancy. Washington, DC: National Campaign to Prevent Teen Pregnancy; 2001.
- LaRossa R, Sinha CB. Constructing the transition to parenthood. *Sociological Inquiry* 2006;76(4):433–457.
- Logan, C.; Moore, K.; Manlove, J.; Mincieli, L.; Cottingham, S. Conceptualizing a “Strong Start”: Antecedents of positive child outcomes at birth and into early childhood. Washington, DC: Child Trends; 2007.
- Manlove J, Mariner C, Papillo AR. Subsequent fertility among teen mothers: Longitudinal analyses of recent national data. *Journal of Marriage & the Family* 2000;62(2):430–448.
- Marin G. AIDS Prevention Among Hispanics: Needs, Risk, Behaviors, and Cultural Values. *Public Health Reports* 1989;104:411–415. [PubMed: 2508169]
- Martinez G, Chandra A, Abma J, Jones J, Mosher WD. Fertility, contraception, and fatherhood: Data on men and women from Cycle 6 of the 2002 National Survey of Family Growth. *Vital and Health Statistics, Series* 2006;23(26)
- McLanahan, S.; Sandefur, GD. Growing up with a single parent: What hurts, what helps. Cambridge, MA: Harvard University Press; 1994.
- Mincy, RB. Who should marry whom?: Multiple partner fertility among new parents; Paper presented at the Association for Public Policy Analysis and Management Research Conference; Washington, DC. 2001.
- Monte, LM. Blended but not the Bradys: Navigating unmarried multiple partner fertility. In: England, P.; Edin, K., editors. *Unmarried Couples with Children*. Russell Sage Foundation Publications; 2007. p. 183–203.
- Moore, KA.; Vandivere, S.; Redd, Z. Cumulative Measures of Stress, Risk, Turbulence and Community Connectedness: Item Choice, Reliability and Validity. Washington, DC: Child Trends; 2003.
- Nord, C.; Edwards, B.; Andreassen, C.; Green, JL.; Wallner-Allen, K. Early Childhood Longitudinal Study, Birth Cohort (ECLS-B), User's Manual for the ECLS-B Longitudinal 9-Month - 2-Year Datafile and Electronic Codebook (NCES2006-046). Washington, DC: National Center for Education Statistics U.S. Department of Education; 2006.
- Rutter M. Resilience in the face of adversity: Protective factors and resistance to psychiatric disorder. *British Journal of Psychiatry* 1985;147:598–611. [PubMed: 3830321]
- Seltzer JA. Families formed outside of marriage. *Journal of Marriage and the Family* 2000;62(4):1247–1268.
- Shaw DS, Winslow EB, Owens EB, Hood N. Young children's adjustment to chronic family adversity: A longitudinal study of low-income families. *Journal of the American Academy of Child & Adolescent Psychiatry* 1997;37(5):545–553. [PubMed: 9585657]
- Simmons RG, Burgeson R, Carlton-Ford S, Blyth DA. The impact of cumulative change in early adolescence. *Child Development* 1987;58(5):1220–1234. [PubMed: 3665641]
- StataCorp. Stata Statistical Software: Release 9. College Station, TX: StataCorp LP; 2005.

- The National Campaign to Prevent Teen and Unplanned Pregnancy. Science says: Unplanned pregnancy and family turmoil. Washington, DC: 2008.
- Thomson E. Couple childbearing desires, intentions, and births. *Demography* 1997;34:343–354. [PubMed: 9275244]
- Upchurch DM, Lillard LA, Panis CWA. Nonmarital childbearing: Influences of education, marriage, and fertility. *Demography* 2002;39(2):311–329. [PubMed: 12048954]
- Wu, LL.; Wolfe, B. Out of wedlock: Causes and consequences of nonmarital fertility. New York: Russell Sage Foundation; 2001.
- Zhu B, Rolfs RT, Nangle BE, Horan JM. Effect of the interval between pregnancies on perinatal outcomes. *New England Journal of Medicine* 1999;340:589–594. [PubMed: 10029642]

Table 1

Distribution of dependent variable

	Percent of full sample (N=4,150)	Percent of subsequent births (N=500)
<i>Dependent variable</i>		
Risky subsequent birth		
No subsequent birth	87.2%	--
Low-risk birth	9.9%	77.5%
High-risk birth	2.9%	22.5%
Components of a risky subsequent birth ^{a, b}		
Nonmarital birth	1.3%	10.3%
High-conflict relationship	2.7%	20.9%
Unhappy relationship	4.1%	32.3%
High-parity birth	2.6%	20.4%
Closely-spaced birth	0.1%	1.1%

^a Note: The components of a risky birth are not mutually exclusive. Some births had none of these risk characteristics, whereas other births fit into multiple risk categories simultaneously.

^b Correlations between factors range from .0005 to .3 among those who had a subsequent birth.

Table 2

Multinomial logit models predicting a high-risk subsequent birth

	High-risk birth vs. no birth			High-risk birth vs. low-risk birth		
	Model 1a	Model 1b	Model 1c	Model 2a	Model 2b	Model 2c
<i>Focal child characteristics</i>						
Male	1.08	1.03	1.08	1.03	0.98	1.08
Child has disability	1.17	1.11	1.18	2.06	1.96	2.17
Months between Wave 1 and Wave 2 (3–29)	1.07	1.07	1.05	1.07	1.08	1.07
<i>Bio mother's individual characteristics</i>						
Mother's age at birth	0.98	1.00	1.00	1.05	1.07 +	1.07 +
Non-Hispanic white race/ethnicity	0.77	0.85	0.74	0.73	0.95	0.83
Educational attainment (1–9)	0.84 *	0.97	0.99	0.75 **	0.89	0.91
Lived with both bio parents until age 16	0.84	--	--	0.69 +	--	--
<i>Intendedness of focal child</i>						
Mother did not intend pregnancy	1.76 *	--	--	2.45 **	--	--
Parent Agreement on Intendedness	--	--	--	--	--	--
Intended by both parents (ref.)	--	(1.00)	(1.00)	--	(1.00)	(1.00)
Intended by father, not by mother	--	2.91 *	2.25 +	--	2.70 +	1.73
Intended by mother, not by father	--	1.42	1.17	--	2.56 *	1.88
Unintended by both parents	--	1.43	1.02	--	2.88 **	1.58
<i>Father's individual characteristics</i>						
Father's age at birth (12–74)	--	1.01	1.01	--	1.01	1.00
Non-Hispanic white race/ethnicity	--	1.14	1.27	--	0.97	1.15
Educational attainment (1–9)	--	1.04	1.06	--	1.01	1.05
Involvement with focal child (–14–5)	--	0.91	0.93	--	0.94	0.97
<i>Family characteristics</i>						
Income at Wave 1 (1–13)	--	0.80 ***	0.82 ***	--	0.80 ***	0.83 **
Both father and mother lived with both biological parents until age 16	--	0.48 *	0.55 +	--	0.40 *	0.50 +
<i>Time 1 risks</i>						
Risk index of focal child's birth (0–4)	--	--	1.76 ***	--	--	3.63 ***

	High-risk birth vs. no birth			High-risk birth vs. low-risk birth		
	Model 1a	Model 1b	Model 1c	Model 2a	Model 2b	Model 2c
<i>F</i> value (<i>df</i>)	4.34(16) ***	5.47(24) ***	8.26(26) ***	4.34(16) ***	5.47(24) ***	8.26(26) ***
+ (<i>p</i> < .10),						
* (<i>p</i> < .05),						
** (<i>p</i> < .01),						
*** (<i>p</i> < .001)						

Note: All independent variables measured at Wave 1, with the exception of months between Wave 1 and Wave 2