

## **Miscarriage, Childlessness, and the Risk of Union Dissolution among Married and Cohabiting Young-Adult Couples**

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*Childbearing is a common way that many persons expect and are expected to deepen the bonds of their romantic relationships. This paper looks at what happens to marital and cohabiting relationships when this pathway to intimacy is interrupted. Using waves I, III, and IV of the National Longitudinal Study of Adolescent Health, I employ event history methods to investigate the influence of miscarriage(s) on the risk of union dissolution. I find that miscarriage is associated with a greater risk of dissolution for married childless couples but not for cohabiting childless couples. For married and cohabiting couples with children, miscarriage does not increase the risk of divorce or separation. These findings illuminate the relational dimensions of subfecundity and draw attention to the influence that unexpected health events can have on family relationships. Additionally, this paper provides new evidence that marriage and cohabitation remain distinct with respect to childbearing in the US.*

Family sociologists and demographers have long examined the influence of marital quality and union dissolution on individuals' health and well-being (*for review see Amato 2010*).

Surprisingly, there is a much smaller literature on how health, in turn, can affect relationships (Booth & Johnson 1994; Umberson et al 2005; Lyngstad & Jalovarra 2010). The latter work has also largely focused on declines in self-reported health, especially among older adults (Silverstein & Giarusso 2000). Much less attention has been paid to the consequences of major health changes for relationships in young adulthood. In particular, an unexpected illness or a sudden health event is likely to be traumatic and stressful for young couples, forcing partners to adjust psychologically and emotionally to new circumstances—and to each other—as they cope with frustration, disappointment, and uncertainty. This kind of strain undoubtedly shakes many otherwise happy couples. Yet, these kinds of health effects on union disruption remain understudied.

In this paper, I look at how miscarriage affects the risk of union dissolution for married and cohabiting young-adult couples. The infertility and “frustrated fertility” literature highlights

some key pathways through which miscarriage might increase the risk of a break-up or divorce (Griel, Slauson-Blevins, & McQuillan 2009). A miscarriage is likely to be a significant stressor in a woman's life, especially if she does not already have a child or identifies strongly with motherhood (McQuillan et al 2003). Diagnoses of subfecundity and infertility—which often follow one or more miscarriages—are also associated with greater anxiety and depression, both in the short-term and long-term (King 2003). This diminished wellbeing for women (and perhaps men) likely has negative consequences for couple dynamics and relationship quality, increasing the risk of union dissolution (Booth & Johnson 1994).

In addition, the impact of a miscarriage may be felt at the couple-level. Depending on the length of the pregnancy, a miscarriage may be experienced in ways similar to the loss of a child. In the case of multiple miscarriages or diagnoses of subfecundity, a miscarriage might even lead to uncertainty about the couple's ability to have children in the future. These *relational* aspects of childbearing are often overlooked in the demographic literature. In contrast to a rational choice perspective, which views childbearing decisions largely as a product of personal desires and economic costs, a relational perspective acknowledges that human beings often pursue relationships *as ends in and of themselves* (Smith 2010). Childbearing can arguably be understood as an expression of that pursuit. By extension, miscarriage may interrupt—and potentially close off—this important pathway through which many persons expect and are expected to deepen the bonds of their most intimate relationships. Miscarriage, thus, has the potential to injure those bonds and raise questions about a relationship's future, both for the couple and their wider circle of family and friends.

This paper also contributes to our understanding of the changing meanings of cohabitation and marriage in the US. Although rates of cohabitation have risen dramatically

since the 1970s, ambiguity remains as to what *kind* of relationship cohabitation is becoming. While some have argued cohabitation is being treated as a “trial marriage,” others have insisted it is more akin to being single (Rindfuss & VandenHeuvel 1990; Smock 2000). One key indicator that is often used to distinguish cohabitation from marriage is the relative prevalence of childbearing (Raley 2001). In countries like Sweden, for instance, more than half of first births occur within cohabitation, suggesting that these two unions are indistinguishable from each other, at least in this respect (Cherlin 2009). However, this may be the last stage in a much longer normalization process, a stage that the US has yet to reach (Heuveline & Timberlake 2004). In fact, despite being more numerous, cohabiting unions in the United States are still characterized by lower rates of childbearing and greater instability (Raley 2001; Hamilton et al. 2009).

Comparing the effect of miscarriage on cohabiting and married relationships offers a new perspective on this important demographic question. Although many couples *do* have children within cohabitation, cohabiting couples are more than twice as likely as married couples to report their pregnancy was unplanned, which suggests that the social expectations for cohabitation as a context for childbearing remain much lower than for marriage (Manning 2001; Musick 2002). Thus, if marriage is still viewed by couples (and their friends and family) as the primary context for having children—that is, if social expectations for childbearing remain higher for married couples rather than cohabiting ones—miscarriage should be more likely, on average, to disrupt marriages. This especially should be the case if miscarriage raises doubts about the long-term future of a relationship.

Still, there is considerable heterogeneity among cohabitators (Smock 2000). Those couples that get pregnant and do not have an abortion (and thus are *at risk* for having a miscarriage) may

have different expectations or desires for children than those who avoid childbearing and use effective means of contraception (Sweeney 2010). For the former group, a miscarriage might be just as disruptive as it is for married couples. In either case, this paper is poised to provide new evidence about the place of cohabitation in the American family system.

### Data and Methods

For this analysis, I employ event history methods using waves I, III, and IV of the National Longitudinal Study of Adolescent Health (Add Health). Although previous waves of the Add Health have been used by countless researchers, Wave IV remains an underutilized resource containing retrospective pregnancy and relationship histories for a nationally representative sample of young adults ages 24 to 32. By these ages, about half of respondents have ever married and half have had at least one child. With these data, I am able to identify the beginning and ending months of relationships, the order of cohabiting and marital relationships, the partner with whom a pregnancy occurred, the timing of miscarriages, the number of miscarriages, as well as birth history prior to miscarriage. Like all detailed retrospective data, however, Wave IV of the Add Health is not without incomplete dates and potential misreports. A major methodological contribution of this paper is to test the strengths and weaknesses (and possible biases) of this relatively new data source (Hayford & Morgan 2008).

With these detailed histories, I constructed person-episode-period files for both cohabiting and marital unions, with the length of each “episode” defined here by the beginning and ending of each relationship. The start date is the first month of marriage or cohabitation and the end date is either the month of divorce or separation (the event of interest) or the Wave IV interview date (right-censored). While cohabiting unions, unlike marriages, can technically “end” in two ways—dissolution or marriage—the focus of this analysis is on the dissolution of

the relationship rather than the exit from a cohabiting status (Manning 2004). Nearly half of cohabitators, in fact, end up getting married (Bumpass 1998). Thus, I follow cohabiting unions until the couple either separates prior to marriage or divorces, and control for whether they got married during the course of the relationship. I also control for whether married couples cohabited prior to marriage because premarital cohabitation is associated with a higher risk for divorce (Stanley et al. 2006). Finally, because many respondents report multiple cohabiting and marital relationships over the time period measured—and thus contribute multiple *at-risk* episodes—I opt for a multilevel discrete-time logistic regression, which accounts for unobserved heterogeneity between respondents (Steele 2001).

The panel design of the Add Health also allows me to control for individual characteristics *prior* to both the relationship and the miscarriage—such as mental health or religious orientation—that may influence how persons react to and cope with miscarriage both personally as well as relationally. These characteristics might also select individuals into cohabiting or married unions and help explain any differences observed between these groups. This is an improvement over other high-quality datasets like the National Survey of Family Growth that are limited by a cross-sectional design. Although the present analysis does not fully utilize this aspect of the data, I plan to explore these possible pathways more in a final version of the paper.

## Results

The focus in these preliminary results is 1) to establish a significant and substantive relationship between miscarriage and the risk of union dissolution in both bivariate and multivariate contexts, and 2) to identify any differences in the effect of miscarriage on cohabiting and marital unions.

Table 1 provides a brief demographic snapshot of respondents in married and cohabiting relationships sorted by whether the respondents reported ever having a miscarriage in that relationship. One consistent difference across marital and cohabiting unions is that respondents who report having had a miscarriage are more likely to be female—an unsurprising finding given that the event concerns women’s bodies and that men also tend to underreport pregnancies. Relationships in which a miscarriage occurred are also more likely to ever have children. The median age at the start of the relationship for respondents is similar across groups. One race/ethnic difference, consistent with previous literature on infertility, is that Blacks in both married and cohabiting relationships are more likely to report having a miscarriage (Greil et al 2011). Married respondents who report a miscarriage also appear slightly more likely to come from disadvantaged family backgrounds. Most pertinent to this analysis, the average duration for marital unions is four months shorter for relationships that experience a miscarriage relative to those that did not. The duration for cohabiting unions, however, is similar for both groups.

Table 2 displays the percentage of relationship months that experienced a union dissolution for marital and cohabiting relationships. These bivariate results do not account for the clustering of relationships within respondents. For marital relationships, having a miscarriage is associated with a slightly elevated risk of dissolution but the difference is not significant. Cohabiting relationships that have experienced a miscarriage *are* at a significantly different risk of dissolution, but miscarriage is associated with a *reduced* chance of breaking up. This is likely due, in part, to selection among cohabitators: relationships in which the couple is either trying to get pregnant or elect not to have an abortion may be ones that are characterized by greater trust and a longer-term future<sup>1</sup>.

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<sup>1</sup> Admittedly, there are also areas of the country and socioeconomic groups for whom access to contraceptive services is limited.

The divorce and infertility literatures also suggest that the effect of miscarriage may vary by the presence of children. Married couples with children are less likely to divorce than those without children (Bumpass & Sweet 1972; South 1995). Childless women also tend to experience a greater amount of stress in response to subfecundity (McQuillan et al 2003). Table 2 shows that for married couples *without* children, a miscarriage is associated with a significantly greater likelihood of dissolution—nearly 60%. However, among married couples with children there is no difference in the risk of divorce. Among cohabiting couples without children, a miscarriage is associated with a lower likelihood of separation. Again, however, there is no difference among cohabitators with children.

The effects of multiple miscarriages were also explored (not shown). Although the risk of dissolution was greater in relationships with multiple miscarriages, there were not enough instances of multiple miscarriages reported to detect significant differences even among those without children. In the interest of maximizing the sample size for miscarriage in this initial analysis, I opted for a dichotomized measure of miscarriage. In addition, because the bivariate results indicate that the effect of miscarriage depends on whether a couple has children, I created four dummy variables to capture this interaction for the multivariate analysis.

Table 3 displays results from multilevel discrete-time logistic regressions. Although not shown, all models control for a set of basic demographic background variables: the respondent's sex, age, race, region, family structure at wave 1, and mother's education. These multilevel models also include a random intercept that accounts for variation across respondents, many of whom contributed multiple relationships to the dataset. Although a fair number of respondents reported multiple cohabitations, only a few reported more than one marriage. This explains why the random intercept for married couples is near-zero and non-significant.

Models 1 and 3 compare couples with children and couples that have had a miscarriage to childless couples that have not experienced a miscarriage. Among the married, only childless couples that have had a miscarriage are significantly more likely to divorce. Among cohabitators, however, childless cohabitators who have a miscarriage are at no greater risk of separation. In addition, cohabiting couples with children, regardless of miscarriage, are significantly *less* likely to break-up than childless couples with no miscarriage.

As a check on the robustness of these results, models 2 and 4 switch the reference group to couples that *have* children but have *not* experienced a miscarriage. This comparison may be more appropriate, especially for cohabitators, given that many childless couples that have not had a miscarriage may not have wanted children and thus were not at risk for either pregnancy or miscarriage. This alternative comparison largely confirms the findings in models 1 and 3. Among the married, childless couples that have experienced a miscarriage are the only ones, relative to couples with children that have not miscarried, that are at a significantly greater risk of divorce. Among cohabitators, childless couples that have miscarried are more likely to break up than couples with children who have not miscarried. However, childless couples with no miscarriage are also at greater risk of dissolution. In addition, cohabitators *with children* who have miscarried are not more likely to break up. This suggests that childlessness, rather than having a miscarriage, is associated with dissolution among cohabitators.

### Discussion

These initial results draw attention to relational dimensions of subfecundity that have been underemphasized in the literature. In the Add Health cohort of young adults, miscarriage is associated with an elevated risk of dissolution for married couples, but only among the childless. This significant interaction with childlessness is consistent with previous research on risk factors



for divorce and confirms findings in the infertility literature that the negative effects of subfecundity appear to be strongest for the childless. It is the threat—and, in some cases, diagnosis—of infertility and childlessness that appears to increase the risk of divorce for these young-adult couples. Whether miscarriage influences this risk by lowering wives' well-being first (which subsequently puts stress on the relationship) or by raising doubts about the childbearing future of the relationship for both partners is not entirely clear from this analysis, although the non-effect for cohabitators suggests that latter explanation may be more important. Regardless, miscarriage appears to have a couple-level *result* for childless marriages. This finding highlights the need for researchers to focus more attention on the effect of unexpected health events—particularly those related to reproductive health—on the quality and maintenance of family relationships in young adulthood.

The null finding for cohabiting unions is intriguing and warrants further investigation. Cohabiting couples who have children or who are trying to get pregnant are a select group, even among cohabitators. In the full version of this paper that I will present at the Population Association of America, I will examine the socio-demographic characteristics of this group more closely in order to account for possible selection effects driving these results. In addition, the present analysis does not distinguish between couples that give birth to children within cohabitation and those that conceive in cohabitation but get married prior to birth—the latter group is more likely to share the protective effects of children that married couples enjoy against the risk of union dissolution (Manning 2004). Accounting for the type of relationship in which the miscarriage occurs—cohabitation or marriage—may help explain why miscarriage does not appear to increase the risk of dissolution in cohabiting unions.

However, these initial results suggest that one key reason for the non-effect of miscarriage among cohabiting unions may be that marriage is still the more normative context for childbearing, both in the minds of couples and their immediate friends and family. Cohabitation in the US remains an “incomplete institution” characterized by greater instability, lower fertility rates (relative to marriage), and more ambiguous social expectations, particularly in regards to childbearing (Cherlin 1978; Raley 2001; Heuveline & Timberlake 2004). Fears about childlessness generated by a miscarriage may be more salient among married couples and, thus, fail to increase the risk of dissolution among cohabitators. These findings offer a new perspective on the place of cohabitation in the American family system and suggest that marriage remains a distinct social institution, at least with respect to fertility.

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**Table 1. Demographic description of married and cohabiting unions by miscarriage.**

	Married		Cohabitation	
	No Miscarriage	Has had Miscarriage	No Miscarriage	Has had Miscarriage
<b><i>Respondent-focused</i></b>				
Female	58.32%	71.58%	53.65%	61.54%
Race/ethnicity				
White	64.15%	58.63%	60.70%	57.34%
Black	13.14%	19.06%	20.92%	29.74%
Hispanic	14.33%	14.75%	11.70%	12.31%
Other	8.37%	7.55%	7.58%	7.18%
Intact bio-family (w1)	56.05%	47.12%	47.25%	47.18%
Mother has a bachelor's degree (w1)	18.17%	12.23%	17.60%	17.44%
<b><i>Relationship-focused</i></b>				
Avg. duration (months)	54.72	50.43	44.01	44.71
Median age at start of relationship	24.33	24.79	23.92	24.08
Children (One or more)	59.77%	75.97%	33.62%	58.33%

Note: Some respondents contribute multiple relationships and, thus, are present more than once in these counts.

**Table 2. Percentage of unions that have dissolved (in relationship-months) by miscarriage and presence of children.**

	Married			Cohabiting		
	All	Without Children	With Children	All	Without Children	With Children
<i>#Relationship months</i>	337,207	146,861	190,346	463,975	279,375	184,600
No miscarriage	0.31	0.28	0.33	1.16	1.49	0.62
One or more miscarriages	0.34	0.44*	0.30	0.80***	1.15*	0.59

\* p<0.05 \*\* p<0.01 \*\*\* p<0.001

**Table 3. Coefficients from multilevel discrete-time logistic regression models predicting log odds of union dissolution for marital and cohabiting unions.**

<i>Effects</i>	Married				Cohabiting			
	1		2		3		4	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
No miscarriage, no kids	-		0.01	(0.07)	-		0.29***	(0.04)
No miscarriage, kids	0.01	(0.07)	-		-0.30***	(0.04)	-	
Miscarriage, no kids	0.37**	(0.16)	0.38*	(0.15)	0.13	(0.09)	0.43***	(0.09)
Miscarriage, kids	-0.18	(0.13)	-0.13	(0.13)	-0.29***	(0.11)	0.01	(0.11)
Individual random-effects	2.51E-06	(0.17)	4.46E-06	(0.17)	0.75***	(0.03)	0.75***	(0.03)

\* p<0.05 \*\* p<0.01 \*\*\* p<0.001

Note: All models control for respondent's sex, age, race, region, family structure at w1, and mother's education. Married models control for premarital cohabitation. Cohabiting models control for whether the union turned into marriage prior to dissolution.