Family, Individual and Relationship Factors Associated with a First Nonmarital Birth: Analyses by Gender and Race/Ethnicity

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Child Trends

Preliminary Draft

October, 2006

* We gratefully acknowledge research support from the National Institute of Child Health and Human Development through grant R01 HD044761-03. We would like to thank Elizabeth Terry-Humen for her help in developing and conceptualizing this paper and Suzanne Ryan for her careful editing and helpful comments.

Abstract

Context: More than one in three births in the United States occurs outside of marriage. A better understanding of factors associated with childbearing outside of marriage will help inform policies and programs aimed at reducing nonmarital childbearing.

Methods: Using data from the National Survey of Family Growth on 1,928 males and 2,859 females aged 15-29, we examine individual characteristics, family background factors, and characteristics of first sexual relationships and partners associated with the transition to a first nonmarital birth. We also use interactions to test whether predictors of nonmarital childbearing differ by race/ethnicity.

Results: For both males and females, being a racial/ethnic minority, having a mother who was a teen at first birth or who has a high school degree or less, and being younger at first sex are associated with greater odds of a first nonmarital birth. For females only, growing up with more siblings and not using contraception at first sex are also linked with greater risk of a nonmarital birth, while having a voluntary and wanted first sexual experience is protective against a nonmarital birth. Finally, we observe racial/ethnic differences in several predictors, including foreign-born status, number of children in the family, age at first sex, age difference from first partner, contraceptive use at first sex and wantedness of first sex.

Conclusions: Family, individual and relationship factors are associated with the transition to a first nonmarital birth for males and females and among whites, blacks and Hispanics. Racial/ethnic differences in nonmarital childbearing are due, in part to different family environments, early relationship characteristics and contraceptive use histories among racial and ethnic minorities compared with whites.

A large percentage of births in the U.S. occur outside of marriage, and rates of nonmarital childbearing have increased in the past several decades. In 2003, 35% of all births and 42% of first births occurred to unmarried women,[1] representing dramatic increases from earlier decades.[2] Births to women in their teens and early twenties are more likely to occur outside of marriage than births to older women. In 2003, 81% of births to teens occurred outside of marriage, as well as 53% of births to women aged 20-24, compared with 35% of all births.[1] Rates of nonmarital childbearing (measured as the number of births per 1,000 unmarried women) are highest among women in their early twenties.[1] Thus, although an extensive research literature examines the transition to a first nonmarital birth among *teens*¸ it is critical to examine factors associated with nonmarital childbearing past the teen years. The context of nonmarital childbearing has also changed in past decades, because of increases in the proportion of nonmarital births that occur within a cohabiting relationship.[3]

Racial and ethnic minorities are more likely to have a birth outside of marriage than whites, which may lead to racial/ethnic disparities in health outcomes among mothers and children because of the socioeconomic disadvantages associated with having a nonmarital birth.[4-6] In 2003, 45% of births to Hispanic women and 69% of births to black women occurred outside of marriage, compared with 24% of births to non-Hispanic white women.[1]

Less information exists on prevalence and trends in nonmarital fertility among men than among women. Recent estimates, however, suggest that males have similar nonmarital childbearing patterns as women. In 2002 approximately one-third of men who have ever fathered a child were not married at the birth of the first child.[7] In addition, the likelihood that a birth occurred outside of marriage is higher among younger fathers than older fathers, and among racial and ethnic minorities than non-Hispanic whites.[7]

The negative consequences of nonmarital childbearing for women and children have been well documented. For women, having a birth outside of marriage is associated with an increased risk of later poverty or welfare receipt [4-6,8] and reduced odds of subsequent marriage.[5,8-10] Less literature exists on consequences for males; however, one longitudinal study found that fathering children prior to the first marriage is associated with reduced likelihood of subsequent marriage, increased likelihood of cohabitation, and reduced educational attainment and full-time employment compared with men who did not have children or had children after marriage.[11] However, because children born outside of marriage are more likely to live with their biological mother than their biological father,[12] we hypothesize that the effects of nonmarital childbearing on subsequent outcomes may be more severe for mothers than fathers, especially for those women who do not receive child support.

Children born to unmarried mothers have greater odds of being poor, growing up with a single-parent, and experiencing multiple family transitions throughout their lives.[13-15] These children also experience, on average, lower educational attainment and greater odds of ever having a teen or nonmarital birth themselves, perpetuating a cycle of nonmarital fertility.[6,13,14,16]

Increases in nonmarital childbearing rates, especially among women in their twenties, and consistent research that details the potential adverse consequences for women and children, demonstrate the continued significance of nonmarital fertility as a social and economic issue in the United States. A better understanding of factors associated with the transition to a first nonmarital birth will help inform policies aiming to reduce the incidence of childbearing outside marriage. The current study extends previous research by using nationally-representative data to examine family, individual and relationship factors associated with nonmarital childbearing for both men and women among a recent cohort of adolescents and young adults. This study

employs event history analyses to examine the transition to a nonmarital birth, and tests interactions by race/ethnicity to provide more information on the markedly higher rates of nonmarital childbearing among racial and ethnic minorities.

Background

We incorporate a life course approach and an ecological framework in order to examine factors associated with the transition to a nonmarital birth among males and females. A critical life-course principle, as well as that of an ecological perspective, is that individual life-course transitions are influenced by the context of social relationships in which and individual is nested. [17-19]. Another key concept is that individual decisions are shaped by historical experiences. Thus, we address multiple domains of influence on the transition to a nonmarital birth among males and females. We posit that family environments, individual socio-demographic characteristics and behaviors and sexual relationships may influence the transition to a birth outside of marriage. Finally, life-course principles of *timing* and *sequencing* of life events are critical to an understanding the transition to nonmarital childbearing. A life-course approach also highlights the role of *timing* and *sequencing* of life events in decision-making,[20] so we hypothesize that other life-course transitions –such as the timing of transition to first sexual intercourse – will be associated with the transition to a birth outside of marriage.

Family Background Characteristics

A fairly extensive research literature has found that family background factors are associated with the risk of having a nonmarital birth. Research examining intergenerational patterns of teen and/or nonmarital fertility has found that, even after controlling for

sociodemographic factors, female children of teen or unmarried mothers are at an increased risk of having a teen or nonmarital birth themselves, and these associations are exacerbated by an increased likelihood of living in poverty and in a non-intact family.[14,16,21-24] In addition, growing up in a family structure outside of two biological parents, as well as turbulence in family environments, are associated with an increased risk of nonmarital childbearing,[25,26] and having a greater number of siblings is also associated with greater risk.[27] These studies suggest that a high risk of nonmarital fertility is passed down by generation and may be due to socialization or role modeling within single-parent families, reduced parental supervision, or to links between family instability and nonmarital childbearing[28]. Family disadvantage is also associated with nonmarital fertility. An extensive research literature has found that families with higher socioeconomic status (SES), including higher income, lower poverty and higher maternal education are associated with reduced odds of a nonmarital birth compared with lower SES families[5,26,27,29,30]. Some researchers suggest that childbearing outside of marriage (including having children within cohabiting relationships) represents a social adaptation to socioeconomic disadvantage.[25]

Religious beliefs and attendance are often fostered within a family environment.[31,32] Because of religious proscriptions against childbearing outside of marriage, we hypothesize that stronger religiosity may be linked to a reduced risk of a nonmarital birth. However, findings on childhood religious attendance have been mixed, with some studies finding that religious attendance is protective against early sexual activity, but that once a female is sexually experienced, religiosity does little to protect against a teen or nonmarital birth;[33] and others finding that religiosity and participation in religious activities are protective against ever being pregnant.[34]

Fewer studies have examined family background predictors of nonmarital fertility among males; however analyses of teens show that, similar to females, males who have a parent who was young at first birth and is less educated have an increased risk of early and nonmarital fathering.[35-37]

Individual Sociodemographic Characteristics

Researchers have found that men's and women's individual sociodemographic characteristics have important associations with their likelihood of having a child outside of marriage. For example, several studies have found that black and Hispanic females and males have greater odds of a nonmarital birth than white females and males, in part because of socio-economic disadvantage.[26,38,39] Analyses of teens have found that an older age at menarche is associated with lower odds of a nonmarital birth among females[22] and with increased odds of a teen pregnancy among non-Hispanic white females.[40] Additionally, women who were 15-19 in 1985 were significantly less likely to be sexually active and use contraception, but were significantly more likely to become pregnant than women who were aged 15-19 in 1995.[41] Finally, being born outside the U.S. is associated with reduced rates of teen and nonmarital births among all women;[1] however most research shows limited effects of foreign-born status on birth outcomes.[42] Thus, we will explore race/ethnicity and whether respondents were born outside the U.S.

Characteristics of an Individual's First Sexual Relationship

We hypothesize that characteristics of first sexual relationships and partners may also affect the likelihood of experiencing nonmarital fertility. While several studies have found an

association between cohabitation and having a birth outside of marriage,[43,44] limited research has examined the associations between the characteristics of individuals' early sexual relationships and partners, and childbearing. And reproductive health decisions made in first sexual relationships have been linked to subsequent contraceptive use as well as the risk of nonmarital and unintended childbearing.[45,46] An expanding research has linked characteristics of sexual relationships and partners to reproductive decisions that may influence nonmarital childbearing.[47-49]

Most research on first sexual relationships has focused on age at first sex and a number of studies have found that younger age at sexual initiation is associated with a greater risk of a nonmarital or teen birth for both females[43,50-52] and males,[37,43] due to greater exposure to the risk of a nonmarital birth. Studies show that relationship type is associated with contraceptive use and nonmarital childbearing in first and subsequent relationships, with more casual relationships associated with increased condom use,[49,53] but overall reduced contraceptive use,[54] relative to being in a more serious or committed relationship. Given that lack of contraception use increases the risk for pregnancy, we therefore expect that being in a casual sexual relationship will be associated with a greater likelihood of nonmarital childbearing. Among females, having an older sexual partner is linked to reduced contraceptive use and consistency, which could lead to a nonmarital birth[43] and to increased risk of teen pregnancy.[50] In addition, early abuse or coercive sexual relationships, especially among women, are associated with risky reproductive health behaviors, which may lead to a greater risk of a nonmarital birth.[40,43,55]

Gender Differences

Because unmarried mothers are more likely than unmarried fathers to have their biological children reside with them,[12] the negative consequences associated with nonmarital childbearing may be more detrimental to females than males. For example, in 2001, 91 percent of children resided with their biological mothers, compared with only 66 percent who resided with their biological father.[12] One consequence of this is that most studies on nonmarital childbearing study only females, while few focus on males only.[56] Previous research has found a dearth in the literature examining the predictors of a nonmarital or teen birth for both males and females.[24,57,58] Those studies that have examined outcomes among males suggest that similar family and individual factors influence the likelihood of experiencing nonmarital fertility for males and females, but relatively little information is available about whether relationship and partner characteristics influence nonmarital childbearing similarly for males and females.

Race/Ethnicity Differences

An examination of racial and ethnic trends is especially important given the recent decreasing nonmarital birth rates for black women, increasing rates for Hispanic women and relatively stable nonmarital birth rates for non-Hispanic white women.[1] Some research suggests that the influence of individual and family background characteristics on nonmarital childbearing differs by race/ethnicity.[16,25,28,44] For example, two studies found that the association between family structure and transitions on nonmarital childbearing are lower for black and/or Hispanics than for whites.[28,44] They posit that the larger and more varied social support networks in many black communities, or different social norms concerning having a child outside of marriage in black or Hispanic communities could explain the smaller effect of family transitions on black

women.[28,59] Another study found that the protective influence of being enrolled in school on the risk of having a nonmarital birth was weaker for black women than white or Mexican-American women. Possible explanations for this finding are that black women could be less likely to believe that education will increase their future opportunities or because school enrollment is unable to offset the negative consequences of growing up in poverty.[25]

In this paper, we will explore whether the effect of individual, family background or first sexual experience characteristics on the risk of having nonmarital births varies by race/ethnicity in order to better understand higher rates of nonmarital fertility among racial and ethnic minorities.

Hypotheses

Based on the literature review, we propose the following four hypotheses:

Hypothesis 1: Individual sociodemographic characteristics will be significantly associated with nonmarital childbearing for both men and women. In particular, being older, non-Hispanic white, foreign-born and having a older age at menarche (for females) will all be protective against having a nonmarital birth.

Hypothesis 2: Family background characteristics will be significantly associated with a nonmarital birth for both men and women. In particular, having parents who were married at the individual's birth, living with both biological parents, having a mother with higher educational attainment, who was older than age 20 when she gave birth, and who had fewer children will be associated with reduced odds of nonmarital childbearing. Because of the lower costs associated with nonmarital childbearing for men, we hypothesize that the associations between family background characteristics and nonmarital childbearing will be weaker for men.

Hypothesis 3: Characteristics of an individual's first sexual experience will be significantly associated with the risk of a nonmarital birth and we expect them to operate similarly for males and females. Specifically, we hypothesize that an older age at first sex, a smaller age difference with first partner, and using contraception at first sex will be protective against a nonmarital birth. However, a nonvoluntary sexual experience, sex with a casual partner, and sex within a cohabiting first sexual relationship will be associated with an increased risk of nonmarital fertility.

Hypothesis 4: We hypothesize that similar family and individual factors will be associated with nonmarital childbearing for whites, blacks and Hispanics, but that the effects of family background factors will be stronger for white respondents. In addition, because black teens are more likely to report casual sexual relationships, we hypothesize a weaker effect of first sexual relationship characteristics on the risk of a nonmarital birth for blacks.

Data

This paper used data from the 2002 National Survey of Family Growth (NSFG) male and female files. This nationally representative survey, conducted by the National Center for Health Statistics, interviewed 7,643 females and 4,928 males aged 15-44 in 2002, with over-samples of Hispanics, African-Americans, and teenagers. Respondents reported about their birth histories, relationships, and other factors relating to reproductive health and family growth.[60] Because we focused on predictors of recent nonmarital births, we limited our sample to the 3,809 females and 2,767 males between the ages of 15 and 29. In addition, we omitted 797 females and 737 males who were not sexually experienced, as they were not at risk of a birth. We then excluded 150 females and 101 males who reported their race/ethnicity as "non-Hispanic other" because we were only interested in differences in the risk of a nonmarital birth among Hispanics, non-

Hispanic whites and non-Hispanic blacks.[i] Finally, because our risk period for nonmarital fertility begins at age 12,[ii] we removed three female respondents and one male respondent who had a birth or a marriage before age 12. Our final samples included 2,859 females and 1,928 males who are sexually-experienced, black, white or Hispanic, 15 to 29 years old, and did not marry or have a birth prior to age 12.

Measures

The dependent variable was measured as the date of first nonmarital birth. Respondents could be censored for two reasons: 1) marrying or 2) reaching the interview date without a marriage or a birth. For these censored cases who did not have a first nonmarital birth or father a first child outside of marriage before their date of interview or date of marriage, the dependent variable measured the date of marriage or the date of interview (end of the study period).

We included a number of individual and family background measures as predictors. Individual sociodemographic characteristics included in the model were race/ethnicity (comparing Hispanics and blacks with whites), a categorical measure of cohort (comparing those born between 1978 and 1982 (ages 20 to 24 at date of interview) and between 1983 and 1988 (ages 15 to 19) with those born before 1978 (ages 25 to 29)), whether the individual was born in the United States, and age at menarche (among females only). Family background characteristics included maternal characteristics of whether the respondent's mother was a teenager at her first birth, and had a level of educational attainment beyond high school. Additionally, a continuous measure of number of children in the respondent's family of origin and dichotomous measures of family structure (such as whether or not the respondent's parents were married at his or her birth and whether or not the respondent lived with two biological

parents at age 14) were included. Frequency of religious attendance at age 14, which ranges from 1 (never attended religious services in the past year) to 5 (attended religious services more than once a week in the past year)[iii] was also included in the models.

We also examined characteristics of an individual's first sexual relationship. We included age at first sex, age difference from first sexual partner in years, relationship with first partner at time of first sex (comparing those who were married, engaged or cohabiting; going out occasionally or just friends; and just met or had some other type of relationship with those who were going out or going steady at first sex);[iv] wantedness of first sex for males (comparing those who really wanted their first sex to happen with those who had mixed feelings or did not want it to happen), whether their first sex was both voluntary and wanted for females (comparing those whose first sex was both voluntary and wanted with those who had nonvoluntary first sex, unwanted first sex or mixed feelings about their first sex),[v] and whether the respondent used any contraceptive method at first sex.[vi]

Methods

We ran bivariate lifetable analyses to examine the individual associations between each independent and a first nonmarital birth by age 20.[vii] We present information at age 20 in bivariate analyses because of the large age range of our sample, and the skewed distribution of months each respondent contributed. Variables that were coded continuously for our multivariate models were coded categorically for bivariate lifetable analysis.[viii] For multivariate models, we used Cox proportional hazard models to produce exponentiated hazard ratios, showing which characteristics were associated with the risk of a first nonmarital birth for males and females, net of controls, between the ages of 12 and 29. Cox regression models allow us to

specify the period during which respondents are at risk of a first nonmarital birth, and to use partial information for those who have not had a nonmarital birth, providing us with unbiased estimates despite the large proportion of the sample that did not have a nonmarital birth (censored cases).[61] These analyses were also weighted and controlled for primary sampling unit using the cluster option in Stata.[62]

Results

Table 1 shows descriptive statistics for the male and female samples. Significantly more females than males had a nonmarital birth during the study period (26% vs. 16%).[ix] Eighteen percent of the female sample was of Hispanic ethnicity, 66% was white and 16% was black. Males followed a similar pattern with 22% Hispanic, 63% white and 15% black.

Insert Table 1 about here

A greater percentage of females than males were born to teen mothers (37% versus 32%). And, while both males and females were younger than their first partner,[x] females had a greater age gap than males (2.53 years younger, compared with 0.73 years younger for males). Females reported more serious relationships (engaged, cohabiting or going steady with their first partner) at first sex than males. Conversely, males reported more casual relationships (going out occasionally, just friends, having just met or some other type of relationship) with their first partner at first sex than females.

Appendix A shows descriptive information on racial/ethnic sub-populations by gender. This table shows a higher proportion of nonmarital births to black and Hispanic males and females than to whites. For example, 46% of black females and 39% of Hispanic females in our

sample had a nonmarital birth, compared with 18% of white females. Among males, 23% of blacks and 27% fathered a first child outside of marriage, compared with 11% of whites.[xi]

Table 2 presents results from the bivariate life table analyses showing the probabilities of having a first nonmarital birth by age 20, by sociodemographic, family background and relationship characteristics for both men and women. The probability of having a first nonmarital birth by age 20 varied by race/ethnicity, with black respondents having the highest probability of a birth by age 20, and whites having the lowest probability, regardless of gender. Cohort was significantly associated with risk of a first nonmarital birth for women only. The youngest women (born in 1983-1988 had the highest probability of a nonmarital birth by age 20 (23%), while women born before 1978 and from 1978-1982 had risks of 20% and 18%, respectively. Age at menarche was also significantly associated with risk of a nonmarital birth for women, indicating that those who experienced menarche earlier had a greater risk of an early nonmarital birth. For both males and females, probability of a nonmarital birth by age 20 was higher for respondents whose families had three or more children, had a mother who was a teenager at first birth, had a mother with a high school diploma or less; who did not live with both biological parents at age 14; and whose parents were not married at their birth.

Insert Table 2 about here

Many characteristics of an individual's first sexual relationship were also significantly associated with risk of a first nonmarital birth by age 20. Younger age at first sex and not using contraception at first sex were associated with having a higher probability of a birth by age 20 for both males and females. Among both males and females, respondents who were younger than their first sexual partner had a greater risk of a nonmarital birth than those who were older than their first partner or had a partner of the same age. Relationship with first sexual partner

and voluntariness of first sex were significant predictors for females only. Females in the most serious relationships at their first sex had the lowest risk of a nonmarital birth, whereas those whose first sexual partner was more casual had the greatest risk. Over a quarter of females who reported their first sex was nonvoluntary (27%) will have a nonmarital birth by age 20, compared with a 12% for females who reported their first sex was voluntary and wanted.

Multivariate Results

Table 3 reports the results of event-history analyses, testing for associations between sociodemographic, family background, and first sexual relationship characteristics and the risk of having a nonmarital birth for both men and women. Model 1 presents the results of only the individual's sociodemographic and family background characteristics on the risk of a first nonmarital birth. For females, before adding first sexual relationship characteristics to the model, Hispanic or black race/ethnicity, being younger, having a greater number of siblings, and having a mother who was a teen at her first birth were associated with a greater risk of a first nonmarital birth. Being foreign-born, being older at menarche, having a mother who had more than a high school education, and having lived with both biological parents at age 14 were protective against a first nonmarital birth. Hispanic or black race/ethnicity were both associated with more than double the risk of a nonmarital birth than white race/ethnicity, while having a mother who was a teen at her first birth was associated with 46 percent greater odds of a nonmarital birth.

Model 2 shows the risk of a nonmarital birth after adding characteristics of an individual's first sexual relationship to the model. Many family background characteristics remained significant, however, cohort, being foreign-born, age at menarche and living with both

biological parents at age 14 were no longer significant after adding first sexual relationship characteristics into the model. Relationship factors associated with higher risk of a nonmarital birth included larger age difference with first sexual partner, and reporting first sex as anything other than voluntary and wanted. Protective relationship factors against a nonmarital birth for females included older age at first sex, and contraceptive use at first sex. Using some type of contraception at first sex was associated with 31 percent lower odds, while each one year increase in age at first sex was associated with a 23 percent reduction in the risk of a nonmarital birth. Also, females who just met or had some other type of relationship with their first sexual partner had a lower risk of a nonmarital birth than females who were going out or going steady with their first partner. Note that separate models excluding age at first sex showed a 33% increase in the odds of a nonmarital birth among females who just met or had some other type of relationship with their first sexual partner. The direction of the coefficient shifted after controlling for age at first sex, indicating a potential interaction between relationship type and age at sex. These casual first sexual relationships occurred at much younger ages than steady relationships (14.1 years vs. 16.4 years), and bivariate analyses indicate an increased incidence of nonmarital childbearing among casual relationships that occurred before age 14 but a reduced incidence of nonmarital births among very young teens (<14) who reported they just met or had some other type of relationship with their first partner.

Insert Table 3 about here

Table 3 also presents those characteristics associated with risk of a nonmarital birth for males. There were no differences in the significance of individual and family background characteristics between Model 1 and Model 2. Similar to females, Hispanic and black males had a greater risk of a nonmarital birth than white males. The only other factor indicating greater

odds of a nonmarital birth for males was having a mother who was a teenage mother, which was associated with 42 percent greater odds of a nonmarital birth. Mother's education was protective against a nonmarital birth, and having more than a high school degree was associated with a 47 percent reduction in the risk of a nonmarital birth for males. Additionally, each one-year increase in age at first sex was associated with 16 percent reduced odds of a nonmarital birth.

Interactions examine whether the partial effect of a predictor variable varies by another predictor variable.[63] In this paper, we tested whether the effect of any of the explanatory variables varied by our three categories of race/ethnicity. Table 4 reports any variables where significant interactions were found between background characteristics and race/ethnicity. The table shows each race/ethnicity category for which the predictor variable was significant, and the direction of the association. For example, the first line of the table shows that being foreign-born was significant only for black females and that the association was negative. In other words, the risk of a nonmarital birth was lower for foreign-born Blacks, compared with US-born Blacks. For white females only, age difference with first partner was associated with an increased risk of a birth, while reporting first sex as voluntary and wanted (compared with anything else) was associated with lower odds of a first nonmarital birth. Having used any sort of contraception at first sex was associated with a reduced risk of a first nonmarital birth for both white and Hispanic females, but not black females. For males, having a greater number of children in the family was associated with a greater risk of a birth for Hispanics only. Older age at first sex was associated with reduced risk of a first nonmarital birth for all three race/ethnicity groups, but the effect was stronger for white and black males than Hispanic males.

Insert Table 4 about here

Discussion

This paper contributes to previous research by using recent nationally-representative data to examine family, individual and partner factors associated with the transition to a first nonmarital birth among males and females. We found some support for our hypothesis that there are multiple domains of influence on childbearing outside of marriage. We hypothesized that individual socio-demographic factors would be associated with nonmarital childbearing, indicating potential target populations at especially high risk of having a child outside of marriage. We found strong racial/ethnic differences indicating that African Americans and Latinos are at a greater risk of a nonmarital birth. Even after controlling for other family, individual and partner factors, Latino and African American males and females had more than twice the odds of a nonmarital birth than non-Hispanic whites. These findings support other research findings,[25,26,38,39] reflecting, in part, low marriage rates among African Americans[4,39] and fairly high levels of cohabitation among Hispanics.[64] In fact, some research suggests that births to cohabiting Hispanic couples are especially likely to be intended,[65] suggesting that cohabitation may be an adaptation to disadvantage among low-income Hispanic parents.[25] Note also that while Hispanic females reported the oldest average age of first sex among the racial/ethnic groups, they also reported the lowest likelihood of contraceptive use, confirming other research highlighting low contraceptive use among Hispanics.[66]

Among females, being born outside the U.S. is associated with reduced odds of nonmarital fertility, especially among African American females. However, this association appears to operate through sexual relationships among these women, in part because foreign-born black females had a later timing of first sexual experience than native-born blacks. More recent cohorts of females have greater odds of a nonmarital birth than earlier cohorts; however,

this effect operates through partner characteristics and contraceptive use. We surmise that this finding is a function of our sample selection -- the most recent cohort of sexually active teen females report an earlier age of first sex than women who retrospectively reported on first sexual experiences.

As hypothesized, several family background factors are also associated with the odds of a nonmarital birth. For example, early childbearing in the parents' generation is linked to an increased risk of nonmarital childbearing among both male and female children, confirming some previous research[14,24] and indicating that teenage parenthood is a marker for disadvantaged family environments.[67] As found in other research, living with both biological parents is protective; however, our analyses found this significant for females but not males, suggesting that other family and individual factors are more important influences on fathering a child outside of marriage. Interestingly, respondents' parental marital status at birth was not associated with the odds of themselves having a nonmarital birth after controlling for other family and individual factors, suggesting that family experiences after the birth of a child may play a greater role in their family formation experiences than status at the birth of the child. Moreover, some research suggests that family turbulence is more of a risk factor for nonmarital childbearing than single-time measures of family structure.[28]

Among females, an early age at menarche is associated with a greater risk of nonmarital childbearing. The effects of an early age at menarche operate through relationship and partner characteristics, and may be due, in part, to earlier sexual initiation and older partners among these girls,[68-70] both of which are linked to nonmarital childbearing.[43,50]

Relationship Factors

We hypothesized that characteristics of sexual relationships and partners would be associated with nonmarital childbearing. However, because the NSFG data are cross-sectional and rely on retrospective reports, we only have information on first sexual relationships and partners in our analyses. Among both males and females, a later age at first sex was associated with reduced odds of a nonmarital birth, which supports other research linking early sexual experiences with subsequent reproductive health behaviors,[71-73] leading to a reduced risk of nonmarital childbearing.[22,74] These findings suggest that programs that are effective at delaying first sexual intercourse may help reduce the incidence of childbearing outside of marriage. Recent declines in sexual experience among teens[75] may thus be linked to subsequent reductions in nonmarital fertility into the future.

Characteristics of the first sexual relationship are associated with the risk of a nonmarital birth for females only. Specifically, having an older first sexual partner is associated with increased odds of a nonmarital birth, while having a voluntary and wanted first sexual relationship is associated with reduced odds compared with other relationships. The positive association between having an older partner and the increased risk of a nonmarital birth for girls confirms other research showing poor reproductive health outcomes – including reduced contraceptive use and condom use and an increased risk of a teen birth -- among females who have a sexual experience with an older partner.[49,54,76-78] Some researchers suggest having an older sexual partner reduces females' negotiating power within relationships, which may place them at risk of making poor reproductive health decisions.[49,76] In contrast, having a voluntary and wanted first sexual experience was associated with reduced odds of nonmarital childbearing among females relative to females who had mixed feelings, didn't want their first sexual

experience or who reported that sexual experience was nonvoluntary. This finding matches other research linking rational decision-making to improved reproductive health outcomes,[79] as well as research linking early abusive or coercive relationships to subsequent risky reproductive health behaviors.[72,80]

In this sample, the association between casual first sexual relationships and nonmarital childbearing was dependent on age at first sex. Net of family, individual and relationship controls, having a casual first sexual relationship was associated with increased odds of a nonmarital birth for females. However, this effect reversed after controlling for age at first sex, and further analyses indicated reduced odds of nonmarital childbearing among the youngest sexually experienced females who reported they just met or were in another type of relationship with their first partner. Future analyses will better tease out the relevance of this potential interaction, as well as address how early sexual experiences may influence subsequent choice of sexual partners and trajectories of behaviors that place individuals at risk of nonmarital childbearing.

Finally, using a method of contraception at first sex is associated with reduced odds of a nonmarital birth, but for females only. This finding suggests that contraceptive decisions in early sexual experiences may be linked to females' decisions to contraception in subsequent relationships and thus better improve their odds of controlling their reproductive health.

Gender Differences

We hypothesized that there would be gender differences in the association between background factors and nonmarital childbearing. We found that at least one measure in each domain --family background, individual characteristics and sexual relationships -- was associated

with the risk of a nonmarital birth for both males and females. Lower maternal education, having a mother who was a teen at her first birth, growing up with a large number of siblings and racial and ethnic minority status are all associated with increased odds of a first nonmarital birth for both males and females, as was and early timing of a first sexual relationship. However, as hypothesized, there were fewer significant predictors of nonmarital fertility among males than females, especially in the relationship and partner domain. Specifically, having an older partner, a casual sexual relationship, a wanted first sexual relationship and contraceptive use were all associated with the subsequent transition to a nonmarital birth for females but were not associated with the odds of fathering a child among males. In some cases, gender differences may be due to reporting. For example, males tend to under-report children they have outside of marriage,[20] and they may be especially unlikely to know whether a casual relationship partner has had a child. Other relationship factors may have a more significant influence on female than male reproductive health behaviors. For example, an extensive research literature has shown an association between partner age difference, unwanted sexual experiences and reproductive health behaviors for females,[43,50] suggesting potential power imbalances in these relationships, which may be linked to subsequent decisions leading to a nonmarital birth. But the relatively few research studies assessing whether these relationship characteristics are important for males have shown mixed findings, with often non-significant results.[43,81] Contraceptive use history is more important for a transition to a nonmarital birth for females than males. This finding for females is consistent with the greater reliance on female-centered methods of contraception (such as birth control pills) in longer-term sexual relationships and among females with longer sexual histories.[75]

Racial/Ethnic Differences

This paper also tested for racial/ethnic differences in factors associated with nonmarital childbearing. On average, African American and Hispanics had a higher probability of a nonmarital birth than whites. In general, we found that family, individual and relationship factors showed a significant association with nonmarital fertility for white, black and Hispanic males and females, with some exceptions. The only interaction factor among males showed that family size in family of origin was associated with increased odds of a nonmarital birth for Latinos only. Among females, we found that age difference with partner and voluntary/wanted sexual relationships were significant among white but not black or Hispanic females. In addition, using a method of contraception at first sex was associated with reduced odds of nonmarital childbearing for white and Hispanic females but not for African American females.

Supplemental analyses comparing the effects of race/ethnicity on nonmarital childbearing before and after controls show that family, individual and relationship factors help explain some but not all of the association between race/ethnicity and the odds of a nonmarital birth. These findings, combined with characteristics of populations listed in Appendix A, suggest that racial/ethnic differences in family environments explain part of the racial/ethnic differences in nonmarital childbearing. Among African Americans, a greater likelihood of having a mother who was a teen parent and a reduced likelihood (among females) of growing up with two biological parents, combined with a lower age at first sex, help explain the higher risk of a nonmarital birth. Among Hispanics, living in household with more children, a greater likelihood of having a mother who was a teen parent, and lower maternal education help explain higher nonmarital childbearing. In addition, although Hispanic women have an older age at first sex

than other racial/ethnic groups, they are also report older first sexual partners and reduced use of contraception, which place them at a greater risk of a nonmarital birth.

However, as other researchers have found, family, individual and relationship controls did not completely explain racial/ethnic differences in nonmarital childbearing. Black and Hispanics still had more than twice the odds of a nonmarital birth than whites, indicating the need for future research on this topic. Other research suggests that differences in attitudes and norms, income status, and neighborhood environments may help explain these remaining effects.[25,26,82-84] Also, since other research has found strong associations between cohabitation and nonmarital childbearing, especially among Hispanics, future research should address the relationship context of nonmarital births. Interestingly, one in four Hispanic women in our sample reported they were engaged or cohabiting at first sex (compared with 12% of the full sample), indicating more serious relationships. However, more than three-quarters of males and females in this relationship category were censored from our study due to marriage.

Limitations

There are several limitations to this study, in part because of data issues and in part because of our focus on several sub-populations. First, although we provide gender comparisons, there males may be more likely to under-report nonmarital births than females,[85] which may introduce some bias into our analyses of nonmarital fertility among males. In particular, fathers who are not involved with their child may be especially likely to under-report births. Ideally, we would measure relationship histories among our respondents, but because of the cross-sectional nature of the NSFG data, we examined only characteristics of first sexual relationships. In addition, we have not addressed whether first nonmarital births occur within or

outside of cohabitation. Some research suggests that predictors of having a nonmarital birth within a cohabiting union may differ from predictors of a nonmarital birth outside of cohabitation.[86] For future analyses, we plan to examine a time-varying measure of cohabitation to assess whether and how the transition to a cohabiting relationship influences the odds of a nonmarital birth. However, because of gender differences in the NSFG 2002 survey, we can measure the timing of cohabitations for females only; the timing of cohabitations are not measured for males within the timeframe of this study.

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Endnotes

[i] Henceforth non-Hispanic white and non-Hispanic black will be referred to as "white" and "black", respectively.

[ii] Because the average age at menarche for our sample was 12.5, our analysis risk period starts at age 12.

[iii] This measure is only available for respondents aged 15-24. N's are 1,677 for the female sample and 1,307 for the male sample.

[iv] Six males and 60 females in the samples reported being married at first sex; however, we doubted the validity of their response as they either had no reported date of first marriage, or a date of first marriage that was later than their date of first sex. Three of the male respondents had a birth prior to their first marriage, and the other 3 had no birth but had reported dates of first sex before their date of marriage. All 6 of these men were recoded into the "going out, going steady" category. For the women, 16 of the 60 women had marriage dates exactly 1 or 2 years after their date of first sex or 1 month after their date of first sex. We assumed these respondents were either engaged or their information was incorrectly entered and they remained in the "married, engaged, cohabiting" category. An additional 4 respondents had cohabitation start dates equal or prior to their date of first sex, so they also remained in the "married, engaged, cohabiting" category. The remaining 40 respondents had no evidence that they were married or cohabiting prior to their first sex and were recoded into the "going out, going steady" category.

[v] This measure is restricted to respondents aged 18 and older. N's are 2,664 for the female sample and 1,722 for the male sample.

[vi] Passive methods such as rhythm, sterilization and withdrawal are included in the "no method" category.

[vii] Although analyses were weighted, Stata commands for bivariate event history analysis do not currently allow for survey design adjustments. In the multivariate models Stata allows a control for PSU only.

[viii] Age at menarche was coded as a four-level measure with the following categories: under 10; 11-12; 13-14; and 15 or older. Number of children in family was coded into three categories: one; two or three or more children in family. Religious attendance was coded as a five-category measure (where 1 was equal to never attending religious services; 2=attended less than once a month; 3=attended 1-3 times a month; 4=attended about once a week; and 5=attended more than once a week). Age at first sex was coded into three categories: before age 15; age 15 to 17; and age 18 or older. Age difference with first sexual partner was also coded into three categories: respondent older than first partner; respondent and partner the same age; and respondent younger than first partner.

[ix] Twenty-nine percent of females were censored because of marriage and 45% because they reached the interview date without a marriage or a birth. Among males, 23% were censored

because of marriage and 61% because they reached the interview date without a marriage or a birth.

[x] 66 percent of males reported being the same age or older than their first sexual partner, while 44 percent of male respondents reported being younger than their first sexual partner. The average age difference with first partner is negative because, although more males report being the same age or older than their partners, the large age gap among males who do have older partners pulls the mean down (mean for males with older partners is -2.98, mean for males with younger partners is 1.70).

[xi] There were racial/ethnic differences in the proportion of males and females who were censored due to marriage. Among females, 33% of whites were censored because of marriage, compared with 10% of blacks and 33% of Hispanics. Among males, 25% of whites were censored because of marriage, compared with 9% of blacks and 23% of Hispanics.

Table 1. Weighted percentage or mean value of independent variables, by gender

Characteristic	Females	Males	
Nonmarital birth	26.1%	16.2%	*
Individual Sociodemographic Characteristics			
Cohort			
Before 1978	42.4%	40.7%	
1978-1982	38.7%	39.5%	
1983-1988	19.0%	19.9%	
Race/ethnicity			
Hispanic	17.5%	22.0%	
Non-Hispanic white	66.0%	63.2%	
Non-Hispanic black	16.4%	14.8%	
Born outside U.S.	12.2%	14.7%	
Age at menarche (7 - 22)	12.48	--	
Family Background			
Number of children in family (1-6)	3.18	3.15	
Mother a teen at first birth	36.9%	31.8%	*
Mother had greater than high school diploma	46.2%	46.3%	
Parents married at birth	82.8%	85.0%	
Lived with both biological parents at age 14	65.2%	68.9%	
Church attendance at age 14[a] (1-5)	3.17	3.08	
First Sexual Relationship and Partner Characteristics			
Age at first sex (3-28)	16.58	16.44	
Age difference with first partner (-10 - +8)[b]	-2.53	-0.73	*
Relationship with first sexual partner			
Engaged or cohabiting	11.7%	6.3%	*
Going out or going steady	66.8%	47.8%	*
Going out occasionally or just friends	16.0%	35.5%	*
Just met or something else	5.6%	10.4%	*
First sex was voluntary and wanted (females)[c]		--	
Nonvoluntary	8.2%	--	
Voluntary - not wanted	6.4%	--	
Voluntary - mixed feelings	47.8%	--	
Voluntary - wanted	37.6%	--	
Wantedness of first sex (males)[c]	--		
Really didn't want it to happen	--	4.8%	
Mixed feelings	--	30.1%	
Really wanted it to happen	--	65.1%	
Used any method of contraception at first sex	68.1%	72.1%	
N=	**2,859**	**1,928**	

***p<.001 **p<.01 *p<.05 +p<.10

[a] Valid only for those respondents age 15-24 at interview date. N for female sample is 1,676 and N for male sample is 1,307

[b] 7% of female respondents reported being older than their first sexual partner; 44 percent of male respondents reported being younger than their first sexual partner.

[c] Valid only for those respondents 18 or older at interview date. N for female sample is 2,664 and N for male sample is 1,722

Table 2. Probability of having a first nonmarital birth by age 20 among sexually experienced 15-29 year old women and men, by selected characteristics

	Females		Males	
Total	19.7%		6.5%	
Individual Sociodemographic Characteristics				
Cohort		*		
Before 1978	19.9%		6.6%	
1978-1982	18.0%		6.1%	
1983-1988	22.6%		7.1%	
Race/ethnicity		***		***
Hispanic	31.9%		10.3%	
Non-Hispanic white	12.4%		3.8%	
Non-Hispanic black	36.9%		12.9%	
Born outside U.S.				+
No	19.8%		6.7%	
Yes	18.9%		5.4%	
Age at menarche		**	--	
10 or Under	29.4%		--	
11-12	22.1%		--	
13-14	16.4%		--	
15+	14.2%		--	
Family Background				
Number of children in family		***		**
One	13.2%		5.6%	
Two	14.4%		3.5%	
Three or more	23.5%		8.3%	
Mother a teen at first birth		***		***
No	13.4%		3.8%	
Yes	31.1%		12.6%	
Mother had greater than high school diploma		***		***
High school diploma or less	26.7%		8.1%	
Some college or more	11.4%		4.7%	
Parents married at birth		***		***
No	35.1%		12.1%	
Yes	16.7%		5.7%	
Lived with both biological parents at age 14		***		*
Both biological parents	15.5%		4.9%	
Any other family situation	28.3%		10.2%	
Church attendance at age 14[a]				
Never	22.0%		7.5%	
Less than once a month	20.9%		6.5%	
1-3 times a month	17.4%		3.9%	
Once a week	19.0%		7.9%	
More than once a week	17.3%		4.8%	
First Sexual Relationship and Partner Characteristics				
Age at first sex		***		***
Before age 15	42.1%		16.2%	
15-17	22.8%		6.8%	
18+	3.9%		0.0%	
Age difference with first partner		***		**
Respondent younger than partner	21.9%		8.3%	
Respondent and partner same age	12.6%		6.6%	
Respondent older than partner	14.6%		3.8%	
Relationship with first sexual partner		***		
Engaged or cohabiting	10.2%		0.0%	
Going out or going steady	19.4%		7.2%	
Going out occasionally or just friends	26.3%		7.4%	
Just met or something else	24.0%		5.4%	
First sex was voluntary and wanted (females)[b]		***	--	
Nonvoluntary	26.5%		--	
Voluntary - not wanted	24.9%		--	
Voluntary - mixed feelings	23.1%		--	
Voluntary - wanted	11.6%		--	
Wantedness of first sex (males)[b]	--			
Really didn't want it to happen	--		9.8%	
Mixed feelings	--		6.5%	
Really wanted it to happen	--		6.6%	
Used any method of contraception at first sex		***		*
No	30.8%		7.2%	
Yes	14.7%		6.3%	
N=	**2,859**		**1,928**	

***p<.001 **p<.01 *p<.05 +p<.10

[a] Valid only for respondents ages 15-24 (N for females is 1,676; N for male sample is 1,307)

[b] Valid only for respondents age 18-29 (N for female sample is 2,664; N for male sample is 1,721)

Table 3. Proportional hazard ratios predicting a first nonmarital birth among respondents age 15-29, by selected characteristics, according to gender

	Females				Males			
Characteristic	**Model 1**		**Model 2**		**Model 1**		**Model 2**	
Individual Sociodemographic Characteristics								
Cohort								
Before 1978 (ref)	(1.00)		(1.00)		(1.00)		(1.00)	
1978-1982	1.04		0.95		1.11		1.08	
1983-1988	1.36	*	1.20		1.39		1.30	
Race/ethnicity								
Hispanic	2.35	***	2.72	***	2.35	***	2.07	***
Non-Hispanic white (ref)	(1.00)		(1.00)		(1.00)		(1.00)	
Non-Hispanic black	2.23	***	2.12	***	2.11	**	1.82	*
Born outside U.S.	0.51	***	0.77		0.76		0.84	
Age at menarche	0.94	*	1.00		--		--	
Family Background								
Number of children in family	1.11	***	1.15	***	1.09		1.09	
Mother a teen at first birth	1.63	***	1.46	***	1.44	*	1.42	*
Mother had greater than high school diploma	0.54	***	0.62	***	0.51	**	0.53	**
Parents married at birth	0.91		0.90		0.76		0.79	
Lived with both biological parents at age 14	0.68	***	0.83		0.86		0.96	
First Sexual Relationship and Partner Characteristics								
Age at first sex	--		0.77	***	--		0.84	***
Age difference with first partner	--		1.02	*	--		0.97	
Relationship with first sexual partner	--				--			
Engaged or cohabiting	--		1.17		--		1.50	
Going out or going steady (ref)	--		(1.00)		--		(1.00)	
Going out occasionally or just friends	--		1.23		--		0.93	
Just met or something else	--		0.67	*	--		1.14	
Used any method of contraception at first sex	--		0.69	***	--		1.14	
Wald chi square	354.35	***	786.39	***	111.98	***	227.17	***
Degrees of freedom	12		18		11		17	
Model Restricted to Respondents 18 or older[a]					**--**			
First sex was voluntary and wanted (females)	--		0.66	***	--		--	
Really wanted first sex to happen (males)	--		--		--		0.91	
Wald chi square	--		722.60	***	--		247.50	***
Degrees of freedom	--		21		--		19	
Model Restricted to Respondents aged 15-24[b]					**--**			
Church attendance at age 14	--		1.02		--		1.00	
Wald chi square	--		721.30	***	--		150.92	***
Degrees of freedom	--		19		--		18	
N=	**2,859**		**2,859**		**1,928**		**1,928**	

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

[a] Model is restricted to respondents who were 18 or over at interview date and controls for all characteristics in model 2. N for female sample is 2,664 and N for male sample is 1,721.

[b] Model is restricted to respondents who were 15-24 at interview date and controls for all characteristics in model 2. N for female sample is 1,676 and N for male sample is 1,307.

Table 4. Significant interactions between race/ethnicity and respondent characteristics

	Females	Males
Born outside the U.S.	B -	--
Number of children in family	--	H+
Age at first sex	--	W -, B -, H -
Age difference with first partner	W+	--
First sex voluntary and wanted	W -	--
Used contraception at first sex	W -, H -	--

B: indicates a significant interaction for black, compared with whites or Hispanics.
H: indicates a significant interaction for Hispanics, compared to whites or Blacks.
W: indicates a significant interaction for whites, compared to blacks or Hispanics
+: indicates an increased risk for a nonmarital birth
-: Indicates a decreased risk for a nonmarital birth
--: Indicates no interaction effect

Appendix A. Weighted percentage of or mean value for all sexually experienced respondents, by race/ethnicity

	Females				Males			
Characteristic	**Non-Hispanic white**	**Non-Hispanic black**	**Hispanic**		**Non-Hispanic white**	**Non-Hispanic black**	**Hispanic**	
Reason for exit				***				***
Nonmarital birth	17.6%	46.3%	38.8%		10.7%	23.2%	27.3%	
Marriage	32.8%	10.0%	33.1%		25.5%	9.3%	22.9%	
End of Survey	49.5%	43.7%	28.1%		63.9%	67.6%	49.8%	
Individual Sociodemographic Characteristics								
Cohort								
Before 1978	42.4%	39.0%	45.5%		41.7%	34.1%	42.3%	*
1978-1982	38.9%	37.9%	38.5%		39.9%	37.6%	39.6%	
1983-1988	18.7%	23.0%	16.1%		18.5%	28.3%	18.2%	
Born outside U.S.	3.7%	9.4%	46.6%	***	4.9%	7.8%	47.5%	***
Age at menarche	12.59	12.19	12.36	***				
Family Background								
Number of children in family	2.88	3.35	4.16	***	2.86	3.11	4.04	***
Mother a teen at first birth	28.0%	52.6%	55.7%	***	23.6%	41.2%	48.9%	***
Mother had greater than high school diploma	53.4%	41.3%	23.7%	***	55.2%	49.1%	19.1%	***
Parents married at birth	92.2%	49.7%	78.8%	***	90.7%	63.0%	83.4%	***
Lived with both biological parents at age 14	69.3%	43.7%	70.1%	***	70.2%	54.5%	74.8%	***
Church attendance at age 14[a]	3.07	3.54	3.22	***	2.93	3.58	3.15	***
First Sexual Relationship and Partner Characteristics								
Age at first sex	16.62	15.77	17.19	***	16.87	15.14	16.09	***
Age difference with first partner	-2.40	-2.43	-3.09	***	-0.49	-1.11	-1.19	***
Relationship with first sexual partner				***				***
Engaged or cohabiting	10.4%	1.9%	25.6%		7.7%	0.5%	6.1%	
Going out or going steady	68.8%	71.0%	55.1%		51.5%	36.8%	44.5%	
Going out occasionally or just friends	14.6%	22.6%	15.0%		31.2%	51.4%	37.1%	
Just met or something else	6.2%	4.5%	4.3%		9.5%	11.3%	12.3%	
First sex was voluntary and wanted[b]				***				
Nonvoluntary	7.7%	9.2%	9.5%		--	--	--	
Voluntary - not wanted	5.9%	7.7%	7.1%		--	--	--	
Voluntary - mixed feelings	45.3%	55.9%	50.3%		--	--	--	
Voluntary - wanted	41.2%	27.3%	33.1%		--	--	--	
Wantedness of first sex (males)[c]								*
Really didn't want it to happen	--	--	--		3.9%	8.6%	5.1%	
Mixed feelings	--	--	--		28.9%	34.7%	31.0%	
Really wanted it to happen	--	--	--		67.2%	56.8%	63.9%	
Used any method of contraception at first sex	74.7%	64.2%	47.1%	***	76.6%	75.9%	56.5%	***
N=	**1569**	**620**	**670**		**993**	**411**	**524**	

***p<.001 **p<.01 *p<.05 +p<.10

[a] Valid only for those respondents age 15-24 at interview date. N for female sample is 1677; N for male sample is 1307.

[b] Valid only for those female respondents 18 or older at interview date. N=2664

[c] Valid only for those male respondents 18 or older at interview date. N=