




Preferences Against Nonmarital Fertility Predict Steps to Prevent Nonmarital Pregnancy

Rachel M. Shattuck¹ 

Received: 22 June 2018 / Accepted: 20 February 2019 / Published online: 4 March 2019
© Springer Nature B.V. 2019

Abstract

With nonmarital births comprising roughly 40% of all births, nonmarital childbearing has become a major part of the family formation landscape in the U.S. These elevated rates of nonmarital childbearing form the context in which young women both establish individual preferences about their own future family formation behaviors, and embark on their own sexual trajectories. Although previous research has shown that girls' and young women's attitudes about sex, contraception, and pregnancy predict their likelihood of having sex and using contraception, no research to date has investigated whether their preferences specifically about nonmarital childbearing may predict their sexual and contraceptive behavior. I use the National Longitudinal Study of Adolescent to Adult Health, with a total of 6288 observations, to address this question. I investigate marital versus nonmarital sexual debut, and consistency of contraceptive use when never married and sexually active, by whether girls state a preference against nonmarital childbearing at ages 11–16. I find that girls who state a preference against nonmarital childbearing are relatively more likely to marry before first intercourse, to delay first intercourse while unmarried, and to use contraception consistently if they have sex while being never married.

Keywords Sexual debut timing · Contraception · Nonmarital fertility

Introduction

Since the mid-twentieth century, patterns of family formation behavior have changed dramatically in the United States. Declines in marriage rates (Schoen and Cheng 2006; Harknett and Kuperberg 2011), increases in cohabitation

Electronic supplementary material The online version of this article (<https://doi.org/10.1007/s11113-019-09521-6>) contains supplementary material, which is available to authorized users.

✉ Rachel M. Shattuck
rachel.m.shattuck@gmail.com

¹ University of Maryland, College Park, USA

(Smock 2000), and more permissive norms about nonmarital sex (Cherlin 2004) have resulted in increased rates of nonmarital childbearing: the annual percentage of births occurring to unmarried mothers peaked at 41% of all births in 2008 (Martin et al. 2015). These increases in nonmarital childbearing, and changed norms about unmarried parenthood, comprise the backdrop against which girls and young women in this period have both developed their own individual-level preferences about the marital or nonmarital context of their own future fertility, and have embarked on their own romantic and sexual trajectories.

Research on attitudes toward sexual behavior and contraception suggests that individuals tend to act in ways that are consistent with their attitudes in these domains. Women with positive attitudes to sex are more likely to have earlier sexual debut, while women with positive attitudes to contraception, and those who wish to avoid pregnancy, are more likely to use contraception (Bartz et al. 2007; Davies et al. 2006; Rostosky et al. 2003). No research to date, however, has investigated whether girls' and young women's preferences about the marital versus nonmarital contexts of their own potential future births may shape their sexual behaviors in ways that either increase or decrease their risk of nonmarital pregnancy. Although previous research has found that women who wish to avoid nonmarital childbearing are less likely to have nonmarital first births (Shattuck 2017), it is nonetheless unclear how they accomplish this. In particular, marrying before first intercourse, postponing sexual debut while unmarried, and using contraception consistently when unmarried and sexually active may all play a role. Examining these various mechanisms can not only clarify how women who wish to avoid nonmarital childbearing manage to do so, but also can provide insight into how individual preferences about nonmarital childbearing may influence girls' and young women's choices about sex and contraception more broadly.

In the present study, I use the National Longitudinal Study of Adolescent to Adult Health (Add Health) to investigate how the preferences about unmarried motherhood that girls state in adolescence predict the timing and marital versus nonmarital context of their sexual debut, and their contraceptive consistency when sexually active and unmarried, at ages 12–30. I consider the role of girls' nonmarital birth preferences in shaping their sexual behavior within the broader context of their social, economic, and family characteristics, controlling for race/ethnicity, mother's education, own achieved education, and future expectations. I find that girls who state a preference against nonmarital childbearing are relatively more likely to marry before sexual debut, and to postpone first intercourse while unmarried. Girls who state a preference against nonmarital fertility are also relatively more likely to use contraception consistently while sexually active and unmarried, as compared with girls who do not state this preference. These findings help to illuminate how the family formation preferences that girls develop in adolescence shape their sexual and contraceptive behavior across the early life course.

Attitudes, Preferences, and Sexual Behavior

Women's individual-level attitudes and preferences about sex and childbearing are a key mediating mechanism by which broader social norms about family influence women's own sexual and reproductive behaviors. According to the cognitive-social model of fertility intentions (Bachrach and Morgan 2013), individuals translate semi-conscious representations of particular family-related constructs (e.g., nonmarital childbearing), and the positive or negative feelings they associate with those constructs, into individual-level preferences for their own lives and behavior. Developed in childhood and adolescence, these preferences shape individual-level sexual and reproductive behavior across the life course (Huinink and Kohli 2014).

Previous research has documented a strong predictive relationship between girls' and women's attitudes about sex, contraception, and pregnancy and their sexual debut timing and contraceptive use. Girls who expect that they will feel positive emotions after sex (Rostosky et al. 2003) and those whose mothers are more accepting of teen sex (Davis and Friel 2001) are more likely to have earlier sexual debut. Girls who believe their parents will disapprove of their having sex are more likely to have later sexual debut (Bearman and Bruckner 2001). Women with positive attitudes toward contraception (Davies et al. 2006), and those who believe their friends think contraceptive use is important (Frost et al. 2012), are more likely to use contraception. Women with negative attitudes about contraception are less likely to use contraception (Nettleman et al. 2007). Women who state that they do not want to get pregnant (Frost and Darroch 2008), or that they are actively trying *not* to get pregnant (Bartz et al. 2007) are more likely to use contraception consistently. Women who are ambivalent about pregnancy (Bruckner et al. 2004), those who have fatalistic attitudes to pregnancy (Frost et al. 2007), and those who romanticize the risk of pregnancy are less likely to use contraception (Higgins et al. 2008).

Girls' and women's prospectively stated preferences and intentions about pregnancy and childbearing are also highly predictive of the timing, number, and contexts of the births they eventually have. Women who state an intention to have children are more likely to give birth, and to give birth sooner (Schoen et al. 1999). Women's intended numbers of children as stated in their teens predict their total numbers of births at the end of their childbearing years (Hayford 2009). Women who, in their teens, state a preference against nonmarital childbearing are less likely to have a nonmarital first birth (Shattuck 2017).

Frost et al. (2007) have investigated whether a belief that nonmarital childbearing is normatively acceptable *in general* predicts women's likelihood of using contraception, and found no association. However, no research to date has investigated whether girls' and young women's preferences about whether *they themselves* would consider nonmarital childbearing may affect their likelihood of contraceptive use, or the timing of their sexual debut.

Social and Economic Contexts for Preferences and Behavior

Adolescent girls' attitudes and preferences about nonmarital fertility are shaped by the behaviors they witness and the norms they experience in their families and communities (Bachrach and Morgan 2013). In addition, the social norms to which girls are exposed, and their relative access to material resources, directly enable and constrain girls' ability to avoid nonmarital childbearing. Social and economic characteristics affect girls' relative ability to find a "marriageable" partner (Cherlin 2004; Edin and Kefalas 2005; Lopoo and Western 2005), their ability to access and afford contraception (Singh et al. 2001), and the normative acceptability in their communities of engaging in or abstaining from nonmarital sex (Edin et al. 2007). Because these social and economic characteristics both affect girls' preferences, and also directly influence their marital, sexual, and contraceptive behavior, it is important that my study takes these characteristics into account.

Nonmarital childbearing in the U.S. is relatively more common among lower-income women (Shattuck and Kreider 2013). Women with low SES are also less likely to marry than those with high SES (Schwartz and Mare 2005). Thus, girls with low SES in their families of origin may be relatively more accepting of nonmarital childbearing. Previous research has shown that girls with relatively lower SES are more likely to have an earlier sexual debut, and less likely to use contraception, as compared with higher-SES girls (Longmore et al. 2001). Girls with lower SES may have difficulty affording contraception, while norms in their communities may favor nonuse of contraception as a sign of trust between couples (Edin et al. 2007).

Nonmarital childbearing in the U.S. is also relatively more common among Black and Hispanic women (Kim and Raley 2015). Due to a pool of prospective partners that is limited by Black men's relatively poorer economic prospects (Lichter et al. 1992) and disproportionate likelihood of incarceration compared to Whites, Black women are less likely to marry than White women (Lopoo and Western 2005). Relative to White girls, Black and Hispanic girls may be more likely to have family members, friends, and neighbors who have nonmarital births, and to see these nonmarital births met with acceptance (Browning and Buntington 2006). Because of differing norms about sex and contraception in girls' communities and friend groups, sexual debut timing and likelihood of contraceptive use also differ by race/ethnicity (Cavanaugh 2004; Cavazos-Rehg et al. 2009). On average, non-Hispanic Black girls have the earliest sexual debut, and non-Hispanic Asian girls have the latest sexual debut, while non-Hispanic White and Hispanic girls fall between these two groups in their sexual debut timing (Cavazos-Rehg et al. 2009). Relative to White women, Black, Hispanic, and Asian women are also less likely to use contraception (Jones et al. 2012).

Because girls' attitudes and preferences about nonmarital fertility may be formed in conjunction with their preferences about college and careers (Barber 2001), girls who wish to pursue college and careers may view these activities as incompatible with early nonmarital motherhood. Previous research has shown that girls who achieve high academic success, and those who aspire to go to college, are more likely to have later sexual debut (Crockett et al. 1996; Smith 1997). Women who

have achieved higher educational attainment are also more likely to use contraception (Frost et al. 2007).

Many religious denominations promote a value of marriage and moral disapproval of nonmarital sex (Thornton and Camburn 1989). Thus, girls with strong religious beliefs may be more likely to want to avoid nonmarital childbearing. Research has shown that girls involved in religious congregations are more likely to have later sexual debut (Thornton and Camburn 1989). Girls whose parents espouse conservative attitudes about sex are more likely to delay their sexual debut (Jaccard et al. 1996). Girls from intact families are also more likely to have later sexual debut, and to use contraception when they begin having sex (Manlove et al. 2003; Pearson et al. 2006).

Do Preferences Against Nonmarital Childbearing Predict Steps to Prevent Nonmarital Pregnancy?

Nonmarital childbearing has become a common feature of the family formation landscape in the U.S. (Martin et al. 2018). It has also been the subject of largely negative commentary by politicians, and in the popular media (Usdansky 2008). Marriage is still widely considered the optimal context for childbearing, even among those who engage in nonmarital family formation (Edin and Kefalas 2005). Nonetheless, popular stigma against nonmarital childbearing has eroded since the latter half of the twentieth century (Cherlin 2004). In this context, young women may plausibly devise their sexual and contraceptive behaviors to be consistent with their preferences about nonmarital childbearing. If a young woman prefers not to have a nonmarital birth, is she more likely to behave in ways that reduce the risk of nonmarital pregnancy?

In the present study, I track subsequent marital status, sexual debut timing, and contraceptive consistency, among adolescent girls who had never had intercourse when they answered either “yes” or “no” to the question “Would you consider having a child in the future as an unmarried person?” I investigate whether girls who said they would not consider nonmarital childbearing are more likely to engage in behaviors that may enable them to avoid nonmarital pregnancy—by marrying before sexual debut, by delaying sexual debut while unmarried, and by using contraception consistently during nonmarital intercourse. Abortion and post-conception marriage can also be used to prevent nonmarital childbearing, and contraceptive failure can result in unintended nonmarital conception. However, to keep the present study to a manageable scope, I do not consider these events in this paper.

I consider girls’ sexual debut timing and marital versus nonmarital context, and their contraceptive consistency while unmarried, in the context of girls’ other socioeconomic and family characteristics and beliefs about their future prospects for schooling and marriage—factors that may shape both their preferences about nonmarital childbearing, and their sexual and contraceptive behavior. I expect that, net of sociodemographic characteristics, and relative to girls who do not state this preference, adolescent girls who state a preference against nonmarital childbearing will be more likely to marry before first intercourse, as well as to delay sexual debut

while unmarried, and to use contraception consistently while never married and sexually active.

Data and Methods

I use data from the restricted file of the National Longitudinal Study of Adolescent to Adult Health (Add Health). Add Health is a nationally representative survey composed of people who were in grades 7–12 in the 1994–1995 school year (Harris 2009). Add Health allows for respondents' preferences for or against nonmarital childbearing, as stated in adolescence, to be compared with their own subsequent sexual and contraceptive behavior. I know of no other survey that asks respondents whether they would or would not consider having children while unmarried.

Add Health respondents were interviewed at four waves: Wave 1 (1994–1995), Wave 2 (1996), Wave 3 (2001–2002), and Wave 4 (2008–2009). I measure my focal independent variable (preferences about nonmarital childbearing) at Wave 1. I measure my outcome variables—sexual debut timing, marital versus nonmarital context of sexual debut, and contraceptive consistency—using reports given at Waves 2, 3, and 4.

I limit my sample to female respondents from the Add Health school sample who were aged 11–16 at Wave 1 and who had never married and never had intercourse at Wave 1. These girls had a mean age of 14.9 at Wave 1. I limit the sample in this way to ensure that respondents were not retrospectively justifying any births, marriages, or sexual experiences they had already had when they were asked about their nonmarital birth preferences. I exclude girls who were older than 16 at Wave 1 because girls who had no marriages or births despite their longer exposure to these risks may be selective of those who are particularly dedicated to avoiding early family formation. In addition, girls who had not yet had intercourse at ages 17 and above may be particularly selective of girls who are purposefully delaying sex until marriage, or those who wish to avoid heterosexual sex altogether. Among the birth cohort of girls surveyed in Add Health, about half of those in the U.S. at large had intercourse by age 16, but only about 3% had intercourse before age 13 (Abma and Sonenstein 2001).

My focal independent variable is respondents' answer to the question asked at Wave 1, "Regardless of whether you have ever had a child, would you consider having a child in the future as an unmarried person?" with possible answers "yes" and "no." I code the "no" answer as "1," and treat this response as indicating that the respondent expressed a preference *against* having a nonmarital birth. A girl saying she would consider having a nonmarital birth, which I code as "0," does not necessarily indicate that she prefers to have a nonmarital birth, but merely that she would not rule it out. A limitation of this measure is that it does not control for the strength of preferences. It also does not ask respondents directly whether they wish to marry, or wish to have children. Some respondents who answer "yes" may not wish to marry. Some respondents who answer "no" may not wish to have children.

I first use descriptive statistics to compare the characteristics of girls who said they would consider a nonmarital birth to those who would not, conducting

Chi-square tests and t-tests, respectively, for differences in percentages and means between these two groups. I next use descriptive statistics to generate a graph comparing sexual debut timing and marital and nonmarital context by girls' stated preferences about nonmarital fertility.

Next, I conduct two multivariate analyses, for which I divide the overall sample of girls who had not had intercourse at ages 11–16 into two overlapping analytic sub-samples. To investigate the role of preferences about nonmarital childbearing on girls' sexual debut timing and context, I use a discrete-time competing hazard model (Hosmer et al. 2008) to estimate girls' monthly hazard of having a marital sexual debut, a nonmarital sexual debut, or not experiencing first intercourse. For this analysis, I limit the sample to girls who were interviewed through at least Wave 3 and/or 4; for brevity, I refer to this sample below as the "sexual debut timing sample." I use respondents' retrospective reports to convert their first-intercourse and marriage histories into person-months ranging from the date of their Wave 1 interview (ages 11–16) through the date of their latest interview, either at Wave 3 (ages 18–23) or at Wave 4 (ages 24–30). Respondents exit this analytic sample through attrition after Wave 3 or by experiencing sexual debut. A nonmarital sexual debut occurs for those who have intercourse and are never observed to marry, or before any observed marriages for those who are observed to marry. A marital sexual debut occurs among all those who are observed to marry before they have had intercourse; for the great majority of those who have a marital sexual debut, sexual initiation is reported as simultaneous with marriage. Thus, respondents who have a marital sexual debut are effectively censored at marriage. I weight estimates with the Wave 1 weight, as described in Add Health weight guidelines as being appropriate for time-to-event analysis (Chen and Chantala 2014). After dropping respondents with missing values, a total of 3779 girls are included in this hazard analysis; they contribute 428,182 observed person-months.

I next investigate the role of preferences about nonmarital childbearing in predicting contraceptive consistency among never-married, sexually active girls and women. The contraceptive consistency outcome variable is an ordinal variable reported retrospectively at Waves 2, 3, and 4. In all three Waves, it is measured in five categories: having used contraception "None of the time," "Some of the time," "Half of the time," "Most of the time," or "All of the time." At Waves 2 and 3, this variable measures how often the respondent used contraception when having intercourse in the past twelve months. At Wave 4, this variable measures how often the respondent used contraception with her current or most recent partner. No measure of contraceptive consistency asked at Wave 4 is available that is identical to the measures asked at Waves 2 and 3. I estimate generalized ordered logit models of contraceptive consistency at Waves 2 and 3 and at Wave 4. A generalized ordered logit model allows the beta coefficient to vary for each level of the outcome variable. Generalized ordered logit results can be interpreted to mean that the degree of intensity with which an independent variable influences the outcome variable varies at different levels of the outcome variable, and/or that respondents may use different frames of reference to interpret the different thresholds of the outcome variable. I use a generalized ordered logit model, rather than the more standard ordered logit model, because a Wald test following my

estimation of an ordered logit model with the same set of variables shows that the proportional odds assumption is not supported, and hence an ordered logit model of the outcome variable is not appropriate to the data (Williams 2016).

For my analysis of contraceptive consistency, I limit the original sample of girls who had never married and never had intercourse at ages 11–16 to include those who remained never married and had no births, but had had intercourse, when they were observed at Waves 2, 3, and/or 4. For brevity, I refer to this analytic sample below as the “contraceptive consistency sample”; some of the girls in the sexual debut timing sample are also in the contraceptive consistency sample, and vice versa. For the model of contraceptive consistency in the past twelve months, I pool information from Waves 2 and 3, including information from person-waves at which respondents had had no births. For respondents who had not had any births at either Wave 2 or Wave 3, I include two observations on the dependent variable. For respondents who reported a birth at Wave 3 but not at Wave 2, only Wave 2 responses are included. I adjust standard errors for repeated observations of the same individual. I weight estimates with the appropriate weight for the Wave (either 2 or 3) at which each respondent was last interviewed, as recommended in Add Health weight guidelines (Chen and Chantala 2014). For the model of contraceptive consistency at Wave 4, I include only one observation per person, and again use the appropriate Wave 4 weights. After dropping respondents with missing values, a total of 2509 girls are included in these analyses, with 837 observed at Wave 2, 1677 observed at Wave 3, and 687 observed at Wave 4.

In both my model investigating marriage and sexual debut timing, and my model investigating contraceptive consistency, I include the following independent variables that may influence girls’ preferences about nonmarital fertility, as well as their likelihood of postponing sexual debut, entering into marriage, and accessing and using contraception, as described in the literature review above. I control for race/ethnicity, measured in the categories of (1) non-Hispanic White alone, (2) non-Hispanic Black alone, (3) non-Hispanic other races (including girls who identify as Asian, Native American, Pacific Islander, more than one race, or some other race), and (4) Hispanic, any race. I measure whether girls’ families were intact at Wave 1. I control for respondents’ mothers’ highest educational attainment, as a measure of girls’ SES in their families of origin. The mother’s education variable includes the categories of (1) less than high school, (2) high school, (3) some college, and (4) a Bachelor’s degree or more. I control for two scale measures that capture girls’ view of their future prospects with respect to their likelihood of marrying, and their available alternatives to early motherhood. The first measure asks respondents to assess how likely they are to be married by age 25. The second measure asks them to assess how likely they are to attend college. A limitation of this latter measure is that it does not distinguish between two- and four-year colleges. Each of these measures ranges from 1 to 5, with 5 representing the highest likelihood. All of the above variables are measured at Wave 1 when girls are aged 11–16. In the sexual debut timing model, I include the girl’s age immediately prior to the person-month of exposure. In the contraceptive consistency model, I include her age at the time of the interview when the outcome variable is measured. In the sexual debut timing model, I also

include the calendar year of the person-month of exposure. In my regression analyses, I center all continuous measures at their respective means.

In the hazard model of sexual debut timing, I include four additional variables that may influence girls' sexual debut timing, and also may be closely tied to their preferences about nonmarital childbearing. I include a time-varying measure of whether a girl had ever had a romantic relationship. This variable is measured on a monthly basis through Wave 3 and/or 4. I include a time-varying measure of an individual's achieved educational attainment in the month before exposure, based on information about dates when diplomas and degrees were received, which is reported at Waves 3 and 4. Categories of this variable include (1) less than high school, (2) high school diploma, (3) Associate's degree, and (4) Bachelor's degree. I include a scale measure of girls' perceptions of their mothers' permissiveness toward sex. I also include a scale measure of girls' self-rated personal importance of religion. Both of these scale measures range from 1 to 5, with 5 representing the highest level. These scale variables are measured at Wave 1 when girls are aged 11–16. I do not include the relationship and self-perception variables in the contraceptive consistency model because they are less theoretically relevant to contraceptive consistency, and including them does not yield statistically significant results. I do not include the achieved education variable in the contraceptive consistency model because the sequencing of reported sexual activity relative to receipt of educational credentials cannot be precisely identified. The fact that I cannot account for the role of educational attainment in contraceptive consistency constitutes a limitation of this model.

Results

Table 1 shows descriptive measures of each subsample of girls' nonmarital birth preferences as stated at ages 11–16, their sexual and/or contraceptive history when subsequently observed at ages 12–30, and their sociodemographic characteristics and self-perceptions as described above. A clear majority of girls say they would *not* consider a nonmarital birth. Among the sexual debut timing sample, 80.5% said they would not consider nonmarital childbearing; among the contraceptive consistency sample, 79.5% expressed this same preference.¹

The majority of girls (roughly 85% of the sexual debut timing sample) initiated intercourse while they were observed in Add Health. The majority of these (roughly 89% of those who initiated intercourse, and 77% of the sexual debut timing sample overall) had a nonmarital sexual debut. However, consistent with my expectation, a

¹ A subset of respondents who were asked their preferences about nonmarital childbearing at Wave 1 were interviewed again 1 to 2 years later at Wave 2, and were asked this same question. Of these, about three-quarters (77.4%) maintained the same preference at Wave 2 as at Wave 1 (unweighted, results not shown). In addition, the number of individuals who changed their stated preference from preferring not to have a nonmarital birth at Wave 1 to being willing to consider it at Wave 2, and vice versa, were quite similar. The mean age of respondents who at Wave 1 said they would consider nonmarital childbearing (15.2) only differed by 0.4 years from the mean age of those who said they would not consider it (14.8) (results not shown).

Table 1 Sexual debut status up to ages 24–30, contraceptive consistency at ages 12–30, and sociodemographic characteristics by nonmarital birth preferences expressed in adolescence, among girls who had not had intercourse at ages 11–16

	Sexual debut timing sample—girls who had never had intercourse at ages 11–16, observed through at least wave 3 ^a			Contraceptive consistency sample—girls who had never had sex at ages 11–16, and were never married with no births, but had had intercourse at waves 2, 3, and/or 4 ^a				
	Total	Would consider a nonmarital birth	Would not consider a nonmarital birth	<i>p</i> value for difference of proportions or means	Total	Would consider a nonmarital birth	Would not consider a nonmarital birth	<i>p</i> value for difference of proportions or means
Percentages								
Nonmarital birth preference ^b				–				–
Would consider a nonmarital birth	19.5	–	–		20.5	–	–	
Would not consider a nonmarital birth	80.5	–	–		79.5	–	–	
Sexual debut status when last observed ^c				0.012				
Had nonmarital sexual debut	76.6	82.5	75.2		–	–	–	
Had marital sexual debut	8.3	5.9	8.9		–	–	–	
Never had sex	15.1	11.7	16.0		–	–	–	0.373
Contraceptive consistency in the past twelve months, Wave 2, ages 12–17 (N = 837)								
Never	–	–	–		7.2	10.1	6.2	
Some of the time	–	–	–		17.4	19.7	16.6	
Half of the time	–	–	–		5.5	5.3	5.5	
Most of the time	–	–	–		23.5	24.5	23.1	
Always	–	–	–		46.4	40.4	48.6	

Table 1 (continued)

	Sexual debut timing sample—girls who had never had intercourse at ages 11–16, observed through at least wave 3 ^a		Contraceptive consistency sample—girls who had never had sex at ages 11–16, and were never married with no births, but had had intercourse at waves 2, 3, and/or 4 ^a	
	Total	Would consider a nonmarital birth	Would not consider a nonmarital birth	<i>p</i> value for difference of distributions or means
Contraceptive consistency in the past twelve months, Wave 3, ages 18–23 (N = 1677)				0.048
Never	-	-	8.7	11.0
Some of the time	-	-	7.3	10.1
Half of the time	-	-	4.8	7.2
Most of the time	-	-	18.6	15.1
Always	-	-	60.7	56.6
Contraceptive consistency with current partner, Wave 4, ages 24–30 (N = 687)				0.062
Never	-	-	27.9	37.1
Some of the time	-	-	9.7	12.0
Half of the time	-	-	3.3	4.5
Most of the time	-	-	13.2	14.1
Always	-	-	45.9	32.4
Mother's educational attainment ^b				0.666
Less than high school	14.3	16.4	12.6	12.3
High school	44.1	42.7	44.9	42.9
			12.7	45.4

Table 1 (continued)

	Sexual debut timing sample—girls who had never had intercourse at ages 11–16, observed through at least wave 3 ^a				Contraceptive consistency sample—girls who had never had sex at ages 11–16, and were never married with no births, but had had intercourse at waves 2, 3, and/or 4 ^a			
	Total	Would consider a nonmarital birth	Would not consider a nonmarital birth	<i>p</i> value for difference of proportions or means	Total	Would consider a nonmarital birth	Would not consider a nonmarital birth	<i>p</i> value for difference of proportions or means
Some college	17.4	18.3	17.2		16.6	18.8	16.0	
Bachelor's degree or more	24.2	22.6	24.6		25.9	25.9	25.9	
Family intact at ages 11–16 ^b	72.6	66.9	73.9	0.003	72.0	68.7	72.9	0.134
Race/ethnicity ^b				0.000				0.001
White alone, non-Hispanic	68.6	61.0	70.5		70.9	64.2	72.7	
Black alone, non-Hispanic	13.6	22.0	11.6		13.3	19.5	11.7	
Other, non-Hispanic	6.5	5.8	6.7		6.5	5.7	6.7	
Hispanic any race	11.2	11.1	11.2		9.3	10.6	9.0	
Ever had a romantic relationship when last observed ^c	90.1	91.6	89.7	0.317	—	—	—	—
Highest educational attainment when last observed ^c				0.006				—
Less than high school	5.9	7.7	5.5		—	—	—	
High school	50.8	56.0	49.6		—	—	—	
Associate's degree	10.9	10.2	11.1		—	—	—	
Bachelor's degree	32.4	26.2	33.9		—	—	—	

Table 1 (continued)

	Sexual debut timing sample—girls who had never had intercourse at ages 11–16, observed through at least wave 3 ^a			Contraceptive consistency sample—girls who had never had sex at ages 11–16, and were never married with no births, but had had intercourse at waves 2, 3, and/or 4 ^a				
	Total	Would consider a nonmarital birth	Would not consider a nonmarital birth	<i>p</i> value for difference of distribution of proportions or means	Total	Would consider a nonmarital birth	Would not consider a nonmarital birth	<i>p</i> value for difference of distribution of proportions or means
Means								
Perceived likelihood of being married by age 25 (scale of 1 to 5) ^b	3.3	3.3	3.4	0.380	3.3	3.3	3.3	0.342
Perceived likelihood of attending college (scale of 1 to 5) ^b	4.4	4.1	4.4	0.000	4.4	4.2	4.5	0.000
Perceived maternal permissiveness toward sex (scale of 1 to 5) ^b	1.3	1.6	1.3	0.000	—	—	—	—
Personal importance of religion (scale of 1 to 5) ^b	3.4	3.2	3.4	0.000	—	—	—	—
N	3779	800	2979		2509	544	1965	

Source National Longitudinal Study of Adolescent to Adult Health (Add Health)

****p* < 0.001, ***p* < 0.01, **p* < 0.05, [†]*p* < 0.1. Estimates are weighted

^aIndividuals were aged 12–18 at Wave 2, 18–23 at Wave 3, and 24–30 at Wave 4

^bMeasured at Wave 1, ages 11–16

^cMeasured at the last Wave when respondent was observed, either Wave 3 or Wave 4

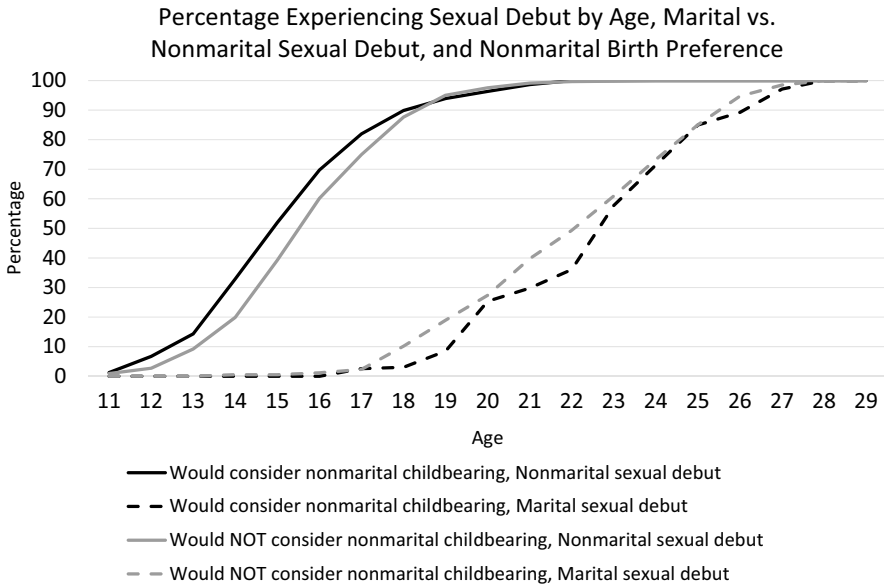


Fig. 1 Percentage experiencing sexual debut by age, marital versus nonmarital sexual debut, and nonmarital birth preference. *Source* National Longitudinal Study of Adolescent to Adult Health. *Note:* Sample is limited to respondents who experienced sexual debut while observed in Waves 2–4, among the sexual debut timing sample—girls who had never had intercourse at ages 11–16, observed through at least Wave 3 (ages 18–30)

lower percentage of girls who stated a preference against nonmarital childbearing experienced a sexual debut while unmarried (75.2% vs 82.5%). A higher percentage of girls who stated a preference against nonmarital childbearing did not initiate intercourse in the observation period (16.0% vs 11.7%). In addition, a higher percentage of girls who stated a preference against nonmarital childbearing married before having intercourse (8.9% vs 5.9%).

Nonmarital sexual debuts occurred earlier on average than marital sexual debuts, with a nonmarital sexual debut median age of 16.0, as compared with 23.4 among those who married before first intercourse (results not shown). Figure 1 shows the percentages having experienced sexual debut by age, marital versus nonmarital sexual debut, and preferences about nonmarital fertility, among members of the sexual debut timing sample who reported initiating intercourse at Waves 2–4 of Add Health. Among this group, lower percentages of girls who stated a preference against nonmarital childbearing had had intercourse in their teens relative to those who said they would consider nonmarital childbearing. For example, among those who had a nonmarital sexual debut, only 39% of girls who stated a preference against nonmarital childbearing had initiated intercourse by age 15, as compared with 52% of those who said they would consider a nonmarital birth. However, by age 19, percentages experiencing nonmarital sexual debut were roughly equal among those who said they would and would not consider nonmarital childbearing, with about 90% of both groups having had intercourse. By contrast, results in Fig. 1 suggest that girls who stated a

preference against nonmarital childbearing and had a marital sexual debut married younger, on average, than the girls who went on to marry before first intercourse but did not previously express a preference against nonmarital childbearing. These results suggest that for the majority of girls with a preference against nonmarital childbearing, these preferences may have motivated a somewhat later initiation of nonmarital intercourse. For a smaller number of girls, however, preferences against nonmarital childbearing appear to have motivated an earlier entry into marriage. Table 4 in the Appendix shows the characteristics of girls who stated a preference against nonmarital childbearing and married before first intercourse. These girls appear on average to have had more socioeconomically advantaged and socially conservative upbringings relative to the rest of the girls observed in the sexual debut timing sample.

Additional bivariate results in Table 1 are also consistent with my expectation that girls who stated a preference against nonmarital childbearing would be more likely to use contraception consistently once they became sexually active while still unmarried, relative to girls who did not state this preference. Among all girls, the percentages always using contraception were 46.4% at ages 12–17 (Wave 2), 60.7% at ages 18–23 (Wave 3), and 49.9% at ages 24–30 (Wave 4). Differences by preference against nonmarital childbearing in the distribution of contraceptive consistency are statistically significant at the 0.05 and 0.10, respectively, at Waves 3 and 4. In both Waves, those who had said they would not consider nonmarital childbearing exhibited more consistent contraceptive use. At ages 18–23 (Wave 3), a higher percentage of girls who said they would not consider nonmarital childbearing had used contraception in the past twelve months either all of the time (61.7% vs 56.6%) or most of the time (19.4% vs 15.1%), and lower percentages had used contraception half of the time, some of the time, or none of the time. At ages 24–30 (Wave 4), a higher percentage who said they would not consider nonmarital childbearing had used contraception with their current or most recent partner all of the time (49.4% vs 32.4%), and lower percentages had used contraception half of the time, some of the time, or none of the time. Results from the measure of contraceptive consistency in the past twelve months at Wave 2 are in the expected direction by preferences about nonmarital childbearing, but are not statistically significant.

The rest of Table 1 shows differences in sociodemographic characteristics, future perceptions, family characteristics, and eventual achieved education between girls who would and would not consider nonmarital childbearing. Despite well-documented differences in realized levels of nonmarital childbearing by SES (Shattuck and Kreider 2013), there are no statistically significant differences by mother's educational attainment between girls who said they would consider a nonmarital birth versus girls who said they would not. Among the sexual debut timing sample, lower percentages of girls who said they would consider a nonmarital birth had intact families at Wave 1 than those said they would not consider a nonmarital birth (66.9% vs 73.9%). Girls who said they would consider a nonmarital birth included more non-Hispanic Black girls (about 20–22% vs about 11–12% of those who would not consider a nonmarital birth) and fewer non-Hispanic White girls (about 61–64% vs about 71–73%). However, it is worth noting that the difference between the stated preferences of non-Hispanic White and Black girls is small in comparison with the roughly 30–50 point difference in the percentages of actual nonmarital births among

Black versus White women of the same birth cohort (Martin et al. 2011; Ventura and Bachrach 2000). Percentages of other race/ethnic groups were about equivalent between girls who would and would not consider nonmarital childbearing.

Consistent with the theory indicating that college and careers compete for time with early nonmarital childbearing (Barber 2001), girls who said they would not consider a nonmarital birth perceived a higher likelihood that they would attend college out of a five-point scale: 4.4 versus 4.1 among the sexual debut timing sample, and 4.5 versus 4.2 among the contraceptive consistency sample. Girls who stated a preference against nonmarital childbearing eventually earned higher educational credentials than girls who did not state this preference. A higher percentage of girls who stated a preference against nonmarital childbearing went on to earn Bachelor's degrees (33.9% vs 26.2%), and a lower percentage had a high school diploma only when last observed (49.6% vs 56.0%). There was no difference by nonmarital birth preferences in the perceived likelihood of being married by age 25. Girls who would consider a nonmarital birth perceived their mothers as being more permissive about sex (mean of 1.6 vs 1.3); this is consistent with the theory suggesting that parents pass their attitudes about sex on to their children (Barber 2000). Likely due to an association between religiosity and conservative values about sex and family (Thornton and Camburn 1989), girls who would not consider a nonmarital birth felt a stronger personal importance of religion (mean of 3.4 vs 3.2). There was no statistically significant difference by nonmarital birth preferences in the measure of whether or not respondents had ever had a romantic relationship at the time they were last observed in the hazard model. In results not presented, there were no statistically or substantively significant differences in exposed person-months on the time-varying variables (observed age, having had a romantic relationship, and educational attainment in the month prior to exposure).

Table 2 shows the results of the multinomial logistic regression model of the competing hazard in a given month of having a marital sexual debut, or not having intercourse in the person-month, relative to the reference outcome of a nonmarital first intercourse. Model 1 includes sociodemographic background variables, future perception variables, the measure of whether the respondent had ever had a romantic relationship, and the measure of the respondent's achieved educational attainment. The main explanatory variable is again whether, at ages 11–16, a girl stated a preference against having a nonmarital birth. Consistent with my expectation, even after controlling for sociodemographic variables, girls who stated a preference against nonmarital childbearing were more likely to have a marital sexual debut, and more likely not to initiate intercourse in a given month.

Other variables predicting sexual debut timing and marital or nonmarital context in a given person-month are as follows, and are consistent with expectations from the literature. Girls with high SES (those whose mothers have a Bachelor's degree or more) were more likely not to initiate intercourse than to have a nonmarital sexual debut. Girls whose families were intact at Wave 1 were more likely to avoid a nonmarital sexual debut, either by marrying before first intercourse or by not initiating intercourse. Relative to non-Hispanic White girls, non-Hispanic Black girls were more likely to have nonmarital sexual debut, versus either marrying before first intercourse or not initiating intercourse. Non-Hispanic girls of other races were more likely to have a nonmarital sexual debut than to marry before first intercourse.

Table 2 Multinomial logistic regression coefficients for the monthly hazard of having a marital sexual debut or deferring first intercourse (vs. having a nonmarital sexual debut), among women who had never had intercourse at ages 11–16, observed at ages 12–30

	Model 1		Model 2	
	Marital sexual debut vs. Nonmarital sexual debut	Did not initiate intercourse vs. Nonmarital sexual debut	Marital sexual debut vs. Nonmarital sexual debut	Did not initiate intercourse vs. Nonmarital sexual debut
Time-constant variables, measured at Wave 1				
Stated a preference against nonmarital childbearing				
Mother's educational attainment (vs. Less than high school)	0.92** (0.294)	0.30* (0.130)	0.74* (0.290)	0.19 (0.135)
High school	-0.64† (0.340)	0.08 (0.157)	-0.63† (0.332)	0.07 (0.164)
Some college	-0.20 (0.401)	0.18 (0.195)	-0.23 (0.394)	0.16 (0.208)
Bachelor's degree or more	-0.48 (0.340)	0.51** (0.178)	-0.46 (0.332)	0.49** (0.186)
Family intact at Wave 1	0.72* (0.320)	0.41*** (0.107)	0.57† (0.319)	0.33** (0.107)
Race/ethnicity (vs. White, non-Hispanic)				
Black, non-Hispanic	-0.77* (0.349)	-0.41** (0.138)	-1.05** (0.360)	-0.52*** (0.153)
Other, non-Hispanic	-0.76† (0.420)	0.05 (0.169)	-0.80† (0.406)	0.01 (0.176)
Hispanic, any race	0.14 (0.381)	0.52** (0.193)	0.08 (0.377)	0.48* (0.193)
Perceived likelihood of being married by age 25	0.10 (0.124)	-0.01 (0.047)	0.04 (0.121)	-0.04 (0.044)
Perceived likelihood of going to college	0.06 (0.146)	0.08 (0.056)	-0.01 (0.151)	0.03 (0.059)
Perceived maternal permissiveness toward sex			-0.54* (0.224)	-0.36*** (0.085)
Personal importance of religion			0.76*** (0.218)	0.29*** (0.082)
Time-varying variables, measured at Waves 2–4^a				
Age	0.11 (0.111)	-0.32*** (0.041)	0.17 (0.111)	-0.27*** (0.042)
Age-squared	-0.02* (0.007)	0.02*** (0.002)	-0.01† (0.007)	0.02*** (0.002)
Year	0.22* (0.099)	0.15*** (0.040)	0.17† (0.099)	0.10* (0.041)
Ever had a romantic relationship	-1.99*** (0.265)	-2.49*** (0.130)	-2.00*** (0.254)	-2.51*** (0.137)

Table 2 (continued)

	Model 1		Model 2	
	Marital sexual debut vs. Nonmarital sexual debut	Did not initiate intercourse vs. Nonmarital sexual debut	Marital sexual debut vs. Nonmarital sexual debut	Did not initiate intercourse vs. Nonmarital sexual debut
Current highest educational attainment (vs. Less than high school)				
High school diploma	0.66 (0.501)	0.02 (0.109)	0.66 (0.529)	- 0.00 (0.114)
Associate's degree	1.18* (0.550)	- 0.02 (0.230)	1.15* (0.574)	- 0.08 (0.236)
Bachelor's degree	0.93 [†] (0.515)	0.18 (0.194)	0.90 [†] (0.539)	0.14 (0.195)
Constant	- 10.95*** (1.668)	- 0.19 (0.711)	- 9.87*** (1.645)	0.71 (0.746)
Observations	425,182	425,182	425,182	425,182

Source National Longitudinal Study of Adolescent to Adult Health (Add Health)

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, [†] $p < 0.10$. Robust standard errors in parentheses. Estimates are weighted

^aTime-varying variables, including age, are measured in the month immediately prior to exposure

Hispanic girls were more likely not to initiate intercourse than to have a nonmarital sexual debut. Likely due to greater opportunity for sexual initiation, girls who had ever had a romantic relationship were more likely to have a nonmarital sexual debut, versus either a marital sexual debut or not initiating intercourse. Individuals who earned an Associate's degree were more likely to marry before first intercourse; those who earned a Bachelor's degree were also more likely to marry before first intercourse, with results significant at the 0.10 level. Individuals observed in later years were more likely to marry before first intercourse or not to initiate intercourse than to have a nonmarital sexual debut. There was no statistically significant relationship of expectations about marriage or postsecondary education to sexual debut timing and marital or nonmarital context. Individuals who were older were more likely to have a nonmarital sexual debut than to not initiate intercourse. The age-squared variable indicates that the greater the likelihood of marital sexual debut at older ages became more pronounced the more the individuals aged, likely due to the fact that women's first marriage is more likely to occur in women's twenties rather than their teens (Copen et al. 2012). Results in Fig. 1 support this interpretation.

Many girls who do not engage in early and nonmarital sex may do so because they are members of religious congregations that frown on nonmarital sex, or because they have grown up in homes with conservative attitudes to sex; girls who wish to avoid nonmarital childbearing may also be among these numbers. In order to differentiate the motivation to avoid nonmarital childbearing in itself from religious beliefs and conservative parental attitudes, Model 2 introduces the variables measuring religiosity and perceived maternal permissiveness to sex. Girls whose mothers were more permissive toward sex were more likely to have a nonmarital sexual debut than to have a marital sexual debut or not to initiate intercourse. Girls who espoused a higher personal importance of religion were more likely to marry before first intercourse or to not begin intercourse, versus having a nonmarital sexual debut. After additionally controlling for girls' mothers' permissiveness about sex and girls' own personal importance of religion, the coefficient for the association of preference against nonmarital childbearing remains statistically significant, though it decreases in magnitude. This suggests that although a girl's own preference against nonmarital childbearing has an effect on a girl's decision to have sex only after marriage that is independent of religiosity and maternal permissiveness, the effect of religiosity on sexual debut timing operates largely through girls' earlier entry into marriage. Including these permissiveness and religiosity controls eliminates the statistical significance of the association between preferences against nonmarital childbearing and not initiating intercourse in the person-month, although the coefficient is still positive.

Further results suggest that preferences against nonmarital childbearing also motivate more consistent contraceptive use among girls and young women who engage in nonmarital sex. Table 3 shows the results of a generalized ordered logit model of contraceptive consistency among girls and young women who had never married and never had intercourse at ages 11–16, and were unmarried, with no births, but sexually active at subsequent waves. For results measured at Waves 2 and 3, contraceptive consistency is operationalized as how often the respondent used contraception in the past year; for results measured at Wave 4, it reflects how often she used contraception with her current or most recent partner.

Table 3 Generalized ordered logit coefficients for the likelihood of using contraception consistently on a scale ranging from 1 (“none of the time”) to 5 (“all of the time”) among women who were never married and had no births when the outcome variable was observed

	Contraceptive consistency in the past twelve months (observed at ages 12–23, waves 2 and 3)					Contraceptive consistency with current or most recent partner (observed at ages 24–30, wave 4)				
	Threshold between ^a					Threshold between ^a				
	1 and 2	2 and 3	3 and 4	4 and 5		1 and 2	2 and 3	3 and 4	4 and 5	
Stated a preference against nonmarital childbearing ^b	0.119 (0.216)	0.38* (0.161)	0.45*** (0.144)	0.25† (0.131)		0.38 (0.273)	0.38 (0.254)	0.65* (0.258)	0.69* (0.271)	
Mother's educational attainment (vs. less than high school)										
High school	0.16 (0.306)	0.38 (0.233)	0.41* (0.208)	0.15 (0.189)		0.28 (0.389)	0.31 (0.362)	-0.06 (0.371)	-0.01 (0.404)	
Some college	0.22 (0.357)	0.38 (0.276)	0.52* (0.241)	0.20 (0.214)		0.56 (0.456)	0.36 (0.413)	0.11 (0.416)	0.19 (0.444)	
Bachelor's degree or more	0.47 (0.359)	0.66* (0.275)	0.65*** (0.241)	-0.00 (0.212)		0.67 (0.424)	0.45 (0.382)	0.13 (0.379)	0.26 (0.409)	
Family intact at Wave 1	0.29 (0.213)	0.22 (0.154)	0.07 (0.144)	-0.09 (0.131)		-0.02 (0.269)	-0.02 (0.246)	0.20 (0.246)	0.38 (0.262)	
Race/ethnicity (vs. White, non-Hispanic)										
Black, non-Hispanic	-0.37 (0.263)	-0.24 (0.181)	-0.36* (0.171)	-0.31† (0.157)		0.37 (0.303)	-0.29 (0.278)	-0.36 (0.269)	-0.12 (0.284)	
Other, non-Hispanic	-0.36 (0.394)	-0.03 (0.283)	-0.08 (0.245)	-0.27 (0.221)		0.18 (0.439)	-0.39 (0.358)	-0.26 (0.349)	-0.52 (0.414)	
Hispanic, any race	-0.74*** (0.288)	-0.65*** (0.229)	-0.57*** (0.208)	-0.46* (0.199)		0.67† (0.409)	0.69† (0.384)	0.05 (0.358)	-0.16 (0.355)	
Age ^c	-0.06 (0.045)	0.08* (0.032)	0.09*** (0.028)	0.10*** (0.025)		-0.02 (0.096)	0.03 (0.090)	-0.03 (0.085)	-0.04 (0.090)	
Perceived likelihood of being married by age 25	-0.06 (0.091)	-0.05 (0.065)	-0.09 (0.062)	-0.03 (0.056)		0.24† (0.141)	0.40*** (0.127)	0.13 (0.153)	0.14 (0.165)	
Perceived likelihood of going to college	0.14 (0.110)	0.15* (0.073)	0.14* (0.065)	0.19*** (0.062)		0.03 (0.118)	0.05 (0.098)	0.05 (0.094)	0.06 (0.099)	
Constant	2.68*** (0.559)	-0.00 (0.406)	-0.34 (0.343)	-0.89*** (0.310)		0.42 (1.723)	-0.61 (1.634)	0.24 (1.551)	-0.43 (1.587)	
Person-wave observations	2203	2203	2203	2203		687	687	687	687	

Source National Longitudinal Study of Adolescent to Adult Health (Add Health)

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, † $p < 0.1$. Robust standard errors in parentheses

^a 1 = none of the time, 2 = some of the time, 3 = half of the time, 4 = most of the time, 5 = all of the time

^b Observed women had not yet had intercourse when they stated their preferences about nonmarital childbearing

^c Age is measured at the time of interview

Consistent with my expectations, results indicate that girls who stated a preference against nonmarital childbearing were relatively more likely to use contraception consistently, compared with girls who did not state this preference, controlling for SES, family intactness, race/ethnicity, age, and future perceptions. Girls who stated a preference against nonmarital childbearing were more likely to use contraception half of the time versus some of the time, most of the time versus half of the time, and all of the time versus most of the time, over the past twelve months at ages 12–23. Those who stated a preference against nonmarital childbearing were also more likely to use contraception most of the time versus half of the time, and all of the time versus most of the time with their current or most recent partner at ages 24–30.

Other variables predicting contraceptive consistency are as follows, and again consistent with expectations from the literature. For the outcome variable measuring contraceptive consistency in the past twelve months, girls whose mothers had relatively higher education were more likely to use contraception either half of the time versus some of the time (for those whose mothers have a Bachelor's degree) or most of the time versus half of the time (for those whose mothers have a high school diploma or some college or a Bachelor's degree). Relative to White girls, Black girls were less likely to use contraception most of the time versus half of the time or all of the time versus most of the time. Hispanic girls had an overall lower likelihood of contraceptive consistency than White girls. Girls who were observed at older ages were more likely to use contraception half of the time versus some of the time, most of the time versus half of the time, or all of the time versus most of the time. Girls with a relatively higher expectation of going to college were more likely to use contraception half of the time versus some of the time, most of the time versus half of the time, or all of the time versus most of the time. For the outcome variable measured with respect to individuals' current or most recent partner, Hispanic women were more likely to use contraception some of the time versus none of the time, or half of the time versus some of the time, relative to White women. Perhaps because they were confident that they could hold out for marital births, those who at ages 11–16 had perceived a relatively higher likelihood of being married by age 25 were more likely to use contraception some of the time versus none of the time or half of the time versus some of the time.²

² Because I limit the contraceptive consistency analytic sample at each Wave to girls who have never been married or had a birth, at each subsequent Wave, this analytic sample may become progressively more selective of individuals who either have particularly strong preferences against nonmarital childbearing, or are particularly dedicated contracepters. I conducted a sensitivity test—discussed in the Online Appendix—that suggests that although respondents in who remain unmarried and nulliparous at later Waves may be somewhat selective of stronger contracepters, the positive effect of preferences against nonmarital childbearing on contraceptive consistency remains consistent in earlier and later analytic samples.

Discussion and Conclusions

This study is the first to investigate whether girls' and young women's stated preferences about nonmarital childbearing (namely whether they would or would not consider having a child while unmarried) predict whether they engage in behaviors that reduce their exposure to the risk of nonmarital pregnancy. I ask whether girls who stated a preference against nonmarital childbearing are more likely to marry before first intercourse, to postpone sexual debut while unmarried, and to use contraception consistently while unmarried and sexually active. I find evidence for all three of these mechanisms among girls who stated a preference against nonmarital childbearing at ages 11–16, prior to sexual debut.

Although most girls' sexual debut occurs while they are unmarried, for girls who express a preference against nonmarital childbearing, nonmarital sexual debut occurs somewhat later, compared with girls who say they would consider nonmarital childbearing. Girls who state a preference against nonmarital childbearing are also relatively more likely to marry before first intercourse. In addition, girls who state a preference against nonmarital childbearing are relatively more likely to use contraception consistently when they are unmarried and sexually active, as compared with girls who do not state this preference. In particular, they are more likely to use contraception most of the time versus half of the time, and all of the time versus most of the time. The role of preferences against nonmarital childbearing in predicting marital sexual debut, later nonmarital sexual debut, and consistent contraceptive use is largely robust to controls for other factors that may both shape girls preferences about nonmarital childbearing, and also affect their practical ability to postpone sex, marry, and access contraception—namely girls' socioeconomic status, family characteristics, race/ethnicity, perceptions of their future college and marital prospects, and achieved educational attainment. Although some confounding variables that underlie the relationship between stated preferences and sexual and contraceptive behavior may remain unmeasured in my models, my findings nonetheless suggest that preferences against nonmarital childbearing may motivate girls and young women in their teens and twenties to engage in various behaviors that minimize the risk of nonmarital pregnancy.

Previous studies have shown that women's general attitudes about pregnancy and contraception, and their personal feelings about using contraception and getting pregnant, affect their likelihood of using contraception (Bruckner et al. 2004; Davies et al. 2006). The present study differs from previous work insofar as it considers girls' and young women's vision of their long-term preferences about their own future family formation behavior—whether marital or nonmarital—as the context in which their nearer-term decisions about sexual debut timing and contraceptive use take shape. My findings suggest that the desire to avoid *specifically nonmarital* childbearing can motivate girls and young women to marry before first intercourse, to postpone their sexual debut while unmarried, and to use contraception consistently after becoming sexually active while still unmarried. The present study also builds evidence for a life-course perspective on girls' and young women's sexual and contraceptive behavior (Bachrach and Morgan 2013; Huinink and Kohli 2014). My findings suggest that the preferences about nonmarital fertility

that girls express in adolescence shape their choices as they embark on their sexual and romantic trajectories, in their teens and into early adulthood. Future research with data from the forthcoming Add Health Wave 5 might productively investigate whether these effects persist into women's 30 s and 40 s. In addition, future research might productively consider whether—similar to girls—adolescent boys primarily state preferences against nonmarital fertility, and whether these preferences also influence their sexual debut timing and contraceptive behavior.

My finding that individual preferences about nonmarital fertility predict unmarried girls' and young women's timing of sexual debut and likelihood of using contraception can help to refine survey measurement and conceptual models of pregnancy intentions. With about two-fifths of all births in the U.S. occurring outside of marriage (Martin et al. 2018), nonmarital childbearing is now common enough that the default assumption of survey questions is that respondents' future births will not necessarily take place in the context of marriage. Despite increases in nonmarital childbearing, however, the different sociodemographic profiles of women who engage in marital and nonmarital childbearing (Shattuck and Kreider 2013; Kim and Raley 2015; McLanahan and Jacobson 2015) may mean that girls and young women may view marital and nonmarital childbearing differently, and therefore that a hypothetical marital or nonmarital context may influence their intentions for future births. Previous studies have argued that measures of pregnancy intentionality should include assessment of women's desire to get pregnant or not to get pregnant with a particular partner (Zabin et al. 2000). I would argue that the marital or nonmarital context of a prospective birth could also productively be incorporated into models of pregnancy intentions. Surveys could ask currently nonpregnant women if they would prefer to get pregnant only when married, or whether they would consider nonmarital childbearing. Adapting questions about pregnancy intentions to include marital status as an influencer of pregnancy intentions could thereby enrich understanding of pregnancy intentions and intendedness. In addition, because my findings indicate that girls' stated preferences about nonmarital fertility predict their subsequent sexual debut timing and contraceptive behavior, these findings make a case for the potential utility of incorporating girls' and women's preferences about nonmarital childbearing into conceptual models of pregnancy prevention behavior (Ajzen and Fishbein 1977). Such preferences could be considered along with attitudes and social context variables as crucial influencers of girls' and women's intentions to prevent pregnancy and their likelihood to actually do so.

In sum, my study shows that girls' and young women's stated preferences against nonmarital childbearing predict that they will engage in behaviors that reduce the risk of nonmarital pregnancy. Better understanding of how women's sexual and contraceptive behavior are influenced by their long-term vision of their own marital versus nonmarital family formation goals can contribute to better alignment between women's preferred family formation timing and contexts and their own eventual family formation behavior.

Acknowledgements I am grateful for helpful comments from participants at the 2017 American Sociological Association annual meeting, as well as the published version's anonymous reviewers. I am also grateful for support from the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development under population research infrastructure Grant R24-HD41041.

Appendix

See Table 4.

Table 4 Selected sociodemographic characteristics of girls who stated a preference against nonmarital childbearing and had a marital sexual debut, compared to all girls in the sexual debut timing sample^a

	All girls in the sexual debut timing sample	Girls who stated a preference against nonmarital childbearing and had a marital sexual debut	<i>P</i> value for difference of distribution of proportions or means
Percentages			
Mother's educational attainment ^b			0.062
Less than high school	14.3	15.6	
High school	44.1	34.1	
Some college	17.4	19.5	
Bachelor's degree or more	24.2	30.7	
Family intact at ages 11–16 ^b	72.6	86.9	0.000
Race/ethnicity ^b			0.025
White alone, non-Hispanic	68.6	76.0	
Black alone, non-Hispanic	13.6	5.4	
Other, non-Hispanic	6.5	5.7	
Hispanic any race	11.2	12.8	
Highest educational attainment when last observed ^c			0.002
Less than high school	5.9	3.4	
High school	50.8	38.7	
Associate's degree	10.9	11.2	
Bachelor's degree	32.4	46.7	
Means			
Perceived likelihood of being married by age 25 (scale of 1 to 5) ^b	3.3	3.5	0.002
Perceived likelihood of attending college (scale of 1 to 5) ^b	4.4	4.6	0.001
Perceived maternal permissiveness toward sex (scale of 1 to 5) ^b	1.3	1.2	0.000
Personal importance of religion (scale of 1 to 5) ^b	3.4	3.7	0.000
<i>N</i>	3779	295	

Source National Longitudinal Study of Adolescent to Adult Health (Add Health)

Estimates are weighted

^aThe sexual debut timing sample includes girls who had never had sex at Wave 1 (ages 11–16) and were observed through at least Wave 3 (ages 18–30)

^bMeasured at Wave 1 (ages 11–16)

^cMeasured at the last Wave when respondent was observed, either Wave 3 or Wave 4 (ages 18–30)

References

- Abma, J. C., & Sonenstein, F. L. (2001). *Sexual activity and contraceptive practices among teenagers in the United States, 1988 and 1995*. Vital and Health Statistics, Series 23: Data from the National Survey of Family Growth, No. 21. Hyattsville, MD: National Center for Health Statistics.
- Ajzen, I., & Fishbein, M. (1977). Attitude-behavior relations: A theoretical analysis and review of empirical research. *Psychological Bulletin*, *84*(5), 888–918.
- Bachrach, C., & Morgan, S. P. (2013). A cognitive-social model of fertility intentions. *Population and Development Review*, *39*(3), 459–485.
- Barber, J. S. (2000). Intergenerational influences on the entry into parenthood: Mothers' preferences for family and nonfamily behavior. *Social Forces*, *79*, 319–348.
- Barber, J. S. (2001). Ideational influences on the transition to parenthood: Attitudes toward childbearing and competing alternatives. *Social Psychology Quarterly*, *64*(2), 101–127.
- Bartz, D. B. M., Shew, S., Ofner, & Fortenberry, J. D. (2007). Pregnancy intentions and contraceptive behavior among adolescent women: A coital event level analysis. *Journal of Adolescent Health*, *41*(3), 271–276.
- Bearman, P. S., & Bruckner, H. (2001). Promising the future: Virginity pledges and first intercourse. *American Journal of Sociology*, *106*(4), 859–912.
- Browning, C. R., & Burrington, L. A. (2006). Racial differences in sexual and fertility attitudes in an urban setting. *Journal of Marriage and Family*, *68*(1), 236–251.
- Bruckner, H., Martin, A., & Bearman, P. S. (2004). Ambivalence and pregnancy: Adolescents' attitudes, contraceptive use, and pregnancy. *Perspectives on Sexual and Reproductive Health*, *36*(6), 248–257.
- Cavanaugh, S. E. (2004). The sexual debut of girls in early adolescence: The intersection of race, pubertal timing, and friendship group characteristics. *Journal of Research on Adolescence*, *14*(3), 285–312.
- Cavazos-Rehg, P. A., Krauss, M. J., Spitznagel, E. L., Schootman, M., Bucholz, K. K., Peipert, J. F., et al. (2009). Age of sexual debut among US Adolescents. *Contraception*, *80*(2), 158–162.
- Chen, P., & Chantala, K. (2014). *Guidelines for analyzing add health data*. Chapel Hill: Carolina Population Research Center, University of North Carolina-Chapel Hill. https://www.cpc.unc.edu/projects/addhealth/documentation/guides/wt_guidelines_20161213.pdf.
- Cherlin, A. (2004). The deinstitutionalization of American marriage. *Journal of Marriage and Family*, *66*(4), 848–861.
- Copen, C. E., K. Daniels, J. Vespa, and W.D. Mosher. (2012). First marriages in the United States: Data from the 2006-2010 National Survey of Family Growth. *National Health Statistics Reports* 49. Hyattsville, MD: National Center for Health Statistics.
- Crockett, L. J., Bingham, C. R., Chopak, J. S., & Vicary, J. R. (1996). Timing of first sexual intercourse: The role of social control, social learning, and problem behavior. *Journal of Youth and Adolescence*, *25*(1), 89–111.
- Davies, S. L., DiClemente, R. J., Wingood, G. M., Person, S. D., Dix, E. S., Harrington, K., et al. (2006). Predictors of inconsistent contraceptive use among adolescent girls: Findings from a prospective study. *Journal of Adolescent Health*, *39*(1), 43–49.
- Davis, E. C., & Friel, L. V. (2001). Adolescent sexuality: Disentangling the effects of family structure and family context. *Journal of Marriage and Family*, *63*(3), 669–681.
- Edin, K., England, P., Schafer, E. F., & Reed, J. (2007). Forming fragile families: Was the baby planned, unplanned, or in between? In P. England & K. Edin (Eds.), *Unmarried couples with children* (pp. 25–54). New York: Russell Sage Foundation.
- Edin, K., & Kefalas, M. (2005). *Promises I can keep: Why poor women put motherhood before marriage*. Berkeley: University of California Press.
- Frost, J. F., & Darroch, J. E. (2008). Factors associated with contraceptive choice and inconsistent method use, United States, 2004. *Perspectives on Sexual and Reproductive Health*, *40*(2), 94–104.
- Frost, J. F., Lindberg, L. D., & Finer, L. B. (2012). Young adults' contraceptive knowledge, norms and attitudes: Associations with risk of unintended pregnancy. *Perspectives on Sexual and Reproductive Health*, *44*(2), 107–116.
- Frost, J. F., Singh, S., & Finer, L. B. (2007). Factors associated with contraceptive use and nonuse, United States, 2004. *Perspectives on Sexual and Reproductive Health*, *39*(2), 90–99.
- Geronimus, A. T. (2003). Damned if you do: Culture, identity, privilege, and teen childbearing in the United States. *Social Science and Medicine*, *57*(5), 881–893.

- Harknett, K., & Kuperberg, A. (2011). Education, labor markets and the retreat from marriage. *Social Forces*, *90*(1), 41–63.
- Harris, K. M. (2009). *The National Longitudinal Study of Adolescent to Adult Health (Add Health), Waves I & II, 1994–1996; Wave III, 2001–2002; Wave IV, 2007–2009 [machine-readable data file and documentation]*. Chapel Hill, NC: Carolina Population Center, University of North Carolina at Chapel Hill.
- Hayford, S. R. (2009). The evolution of fertility expectations over the life course. *Demography*, *46*(4), 765–783.
- Higgins, J. A., Hirsch, J. S., & Trussell, J. (2008). Pleasure, prophylaxis and procreation: A qualitative analysis of intermittent contraceptive use and unintended pregnancy. *Perspectives on Sexual and Reproductive Health*, *40*(3), 130–137.
- Hosmer, D. W., Lemeshow, S., & May, S. (2008). *Applied survival analysis: Regression modeling time-to-event data*. Hoboken: Wiley.
- Huinink, J., & Kohli, M. (2014). A life course approach to fertility. *Demographic Research*, *30*(45), 1293–1326.
- Jaccard, J., Dittus, P., & Gordan, V. (1996). Maternal correlates of adolescent sexual and contraceptive behavior. *Family Planning Perspectives*, *28*(4), 159–165.
- Jones, J., W. Mosher, and K. Daniels, (2012), *Current contraceptive use in the United States, 2006–2010, and changes in patterns of use since 1995*. National Health Statistics Reports, 60. Hyattsville, MD: National Center for Health Statistics.
- Kim, Y., & Raley, R. K. (2015). Race-ethnic differences in non-marital fertility rates in 2006–2010. *Population Research and Policy Review*, *34*(1), 141–159.
- Lee, V. E., & Bryk, A. S. (1988). Curriculum tracking as mediating the social distribution of high school achievement. *Sociology of Education*, *61*, 78–94.
- Lichter, D. T., McLaughlin, D. K., Kephart, G., & Landry, D. J. (1992). Race and the retreat from marriage: A shortage of marriageable men. *American Sociological Review*, *57*(6), 781–799.
- Longmore, M. A., Manning, W. D., & Giordano, P. C. (2001). Preadolescent parenting strategies and teens' dating and sexual initiation: A longitudinal analysis. *Journal of Marriage and Family*, *63*(2), 322–335.
- Lopov, L. M., & Western, B. (2005). Incarceration and the formation and stability of marital Unions. *Journal of Marriage and Family*, *67*(3), 721–734.
- Manlove, J. (1998). The influence of high school dropout and school disengagement on the risk of school-age pregnancy. *Journal of Research on Adolescence*, *8*, 187–220.
- Manlove, J., Ryan, S., & Franzetta, K. (2003). Patterns of contraceptive use within teenagers' first sexual relationships. *Perspectives on Sexual and Reproductive Health*, *35*(6), 246–255.
- Martin, J. A., Hamilton, B. E., Osterman, M. J. K., Curtin, S. C., & Mathews, T. J. (2015). *Births: Final data for 2013*. National Vital Statistics Reports, 64.1. Hyattsville: National Center for Health Statistics.
- Martin, J. A., Hamilton, B. E., Osterman, M. J. K., Driscoll, A. K., & Drake, P. (2018). *Births: Final data for 2016*. National Vital Statistics Reports 67.1. Hyattsville: National Center for Health Statistics.
- Martin, J. A., Hamilton, B. E., Ventura, S. J., Osterman, M. J. K., Kirmeyer, S., Mathews, T. J., et al. (2011). Births: Final data for 2009. *National Vital Statistics Reports*, *64*, 1.
- McLanahan, S., & Jacobsen, W. (2015). Diverging destinies revisited. In P. Amato, A. Booth, S. M. McHale, & J. Van Hook (Eds.), *Families in an era of increasing inequality: Diverging destinies* (pp. 3–24). New York: Springer.
- McLanahan, S., & Sandefur, G. (1994). *Growing up with a single parent. What hurts, what helps*. Cambridge, MA: Harvard University Press.
- Mosher, W.D., Jones, J., & Abma, J.C. (2012). *Intended and unintended births in the United States: 1982–2010*. National Health Statistics Reports, 55. Hyattsville: National Center for Health Statistics.
- Nettleman, M. D., Chung, H., Bewer, J., Ayoola, A., & Reed, P. L. (2007). Reasons for Unprotected intercourse: Analysis of the PRAMS survey. *Contraception*, *75*(5), 361–366.
- Pearson, J., Muller, C., & Frisco, M. (2006). Parental involvement, family structure and adolescent decision-making. *Sociological Perspectives*, *49*(1), 67–90.
- Rostosky, S. S., Regnerus, M., & Wright, M. L. C. (2003). Coital debut: The role of religiosity and sex attitudes in the Add Health survey. *The Journal of Sex Research*, *40*(4), 358–367.
- Schoen, R., Astone, N. M., Kim, Y. J., Nathanson, C. A., & Fields, J. M. (1999). Do fertility intentions affect fertility behavior? *Journal of Marriage and Family*, *61*(3), 790–799.

- Schoen, R., & Cheng, Y.-H. A. (2006). Partner choice and the differential retreat from marriage. *Journal of Marriage and Family*, 68(1), 1–10.
- Schwartz, C. R., & Mare, R. D. (2005). Trends in educational assortative mating from 1994 to 2003. *Demography*, 42(4), 621–646.
- Shattuck, R. M. (2017). Does it matter what she wants? The role of individual preferences against unmarried motherhood in young women's likelihood of a nonmarital first birth. *Demography*, 54, 1451–1475.
- Shattuck, R.M., & Kreider, R.M. (2013). *Social and economic characteristics of currently unmarried women with a recent birth: 2011*. American Community Survey Reports. Suitland: U.S. Census Bureau.
- Singh, S., Darroch, J. E., & Frost, J. J. (2001). Socioeconomic disadvantage and adolescent women's reproductive behavior: The case of five developed countries. *Family Planning Perspectives*, 33(251–258), 289.
- Smith, C. A. (1997). Factors associated with early sexual activity among urban adolescents. *Social Work*, 42(4), 334–346.
- Smock, P. J. (2000). Cohabitation in the United States: An appraisal of research themes, finding and implications. *Annual Review of Sociology*, 26, 1–20.
- Thornton, A., & Camburn, D. (1989). Religious participation and adolescent sexual behavior and attitudes. *Journal of Marriage and Family*, 51(3), 641–653.
- Urdansky, M. L. (2008). The emergence of a social problem: Single-parent families in U.S. popular magazines and social science journals, 1900-1998. *Sociological Inquiry*, 78(1), 74–96.
- Ventura, S. J., & Bachrach, C. A. (2000). Nonmarital childbearing in the United States, 1940-1999. *National Vital Statistics Reports*, 48, 16.
- Williams, R. (2016). Understanding and interpreting generalized ordered logit models. *The Journal of Quantitative Sociology*, 40(1), 7–20.
- Zabin, L. S., Huggins, G. R., Emerson, M. R., & Cullins, V. E. (2000). Partner effects on women's intention to conceive 'Not with this partner'. *Family Planning Perspectives*, 32(1), 39–45.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.