



# Adolescent Fertility Attitudes and Childbearing in Early Adulthood

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## Abstract

Teens' attitudes about adolescent childbearing predict childbearing in the short term. If these attitudes reflect persistent goals and values, they may also be linked to later outcomes. To test long-term linkages, we analyze the association of adolescent fertility attitudes with actual and prospective fertility in adulthood using Waves I (1994–1995) and IV (2007–2008) of the National Longitudinal Study of Adolescent to Adult Health and focusing on men ( $N=4275$ ) and women ( $N=4418$ ) without a teen birth. For women, we find that more negative teen attitudes predict lower hazards of a first birth up to around age 30 but that teens' attitudes are unrelated to planned childlessness among those who have not yet had children. Men's adolescent attitudes are unrelated to actual fertility or prospective intentions. For both men and women, more advantaged individuals are less likely to have had a child by around age 30; socioeconomic advantage is also related to postponement of childbearing rather than planned childlessness, though more so for women than men. We interpret the findings as evidence that, for girls, teens' attitudes toward adolescent childbearing capture an internalization of social schema about childbearing, childrearing, and sequencing with other life outcomes but do not reflect overall preferences about having children. More work is needed to understand the psychosocial factors that influence men's fertility.

**Keywords** Attitudes · Birth timing · Life course · Add Health

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Adolescence is a key developmental stage in which attitudes and orientations toward a range of short- and long-term behaviors are formed. Adolescent attitudes toward family formation, including pregnancy and childbearing, are of particular interest to demographers because of their strong link with fertility behaviors. Although the attitude–behavior association has been well-documented for both adolescent and adult women, approaches to studying attitudes and childbearing differ across life-course stages, and far less attention has been paid to men’s attitudes and fertility behaviors than to women’s. Research on the role of attitudes in predicting adult women’s fertility often focuses on the intrinsic value of children and the centrality of children in family systems (e.g., Hayford and Morgan 2008; McQuillan et al. 2015; Schoen et al. 1997). In contrast, studies of teen childbearing among women generally analyze attitudes specific to childbearing during the teen years (e.g., Driscoll et al. 2005; Jaccard et al. 2003; Mollborn 2010), such as the opportunity costs of teen births or the emotional, social, and relational consequences of early childbearing. That is, the attitudes that predict girls’ adolescent fertility are largely perceived as their views on having a birth *as a teenager*, not overall assessments of the value of children.

To date, nearly all research examining teens’ attitudes toward childbearing has taken a short-term approach, looking only at teenage behavior. The temporal focus is in part due to the logistical demands of studying outcomes over longer periods of time. But the short-term focus is also theoretically linked to the nature of adolescent childbearing as an outcome. Teenage childbearing draws social science attention as a “problem” behavior—early births are seen as detrimental for both teen parents and their children, although the causal linkage is debated (e.g., Assini-Meytin and Green 2015; Diaz and Fiel 2016; Kane et al. 2013). In trying to explain a particular type of problematic childbearing, existing research has narrowly considered the scope and influence of adolescent attitudes. In this paper, in contrast, we argue that adolescence is a key life-course stage in which broader schemas about childrearing and childbearing are formed and, as a result, adolescent fertility attitudes may have long-term influences on fertility behavior.

We test this argument using data from the National Longitudinal Study of Adolescent to Adult Health (Add Health) to analyze whether teens’ attitudes toward teen childbearing (measured at Wave I) are linked to fertility experiences that have occurred by around age 30 (measured using retrospective fertility data from Wave IV) and to intentions for future births (also at Wave IV). We first conduct factor analysis to identify latent constructs identified by individual questions about attitudes. We analyze associations between these constructs and later outcomes for men and women separately, since both social structures and biological realities shaping reproduction are different for men and women. We find that women—but not men—with more negative attitudes during adolescence about the life-course consequences of teen fertility have lower hazards of a first birth by around age 30, but that teen attitudes are not predictive of prospective intentions (i.e., planned childlessness) for either gender. Moreover, these associations persist when accounting for young women’s experiences including school enrollment and completion, employment, and cohabitation and marriage. We position this research in the larger body of work linking attitudes to behavior and suggest that adolescent girls’ fertility attitudes capture broad and persistent schemas about the meaning of childbearing and childrearing

(Johnson-Hanks et al. 2011). For young men, however, there is little evidence that adolescent attitudes toward teen fertility are indicative of long-term schemas about childbearing. While there is scant research on the psychosocial predictors of men's fertility behaviors, we draw from research on the social meaning of parenthood to suggest possible explanations for the lack of an association for men.

## The Long Reach of Adolescent Attitudes

Adolescent attitudes toward adolescent childbearing are likely linked to adult fertility through both indirect and direct pathways. Adolescent attitudes related to the educational and economic opportunity costs of childbearing in adolescence may be correlated with later achievement in these domains and thereby with fertility over the longer term. For instance, teens who perceive high opportunity costs to teen fertility could become the adults who are most likely to have (or hope to have) a high level of educational attainment, work in a high-paying job or have high career aspirations, and potentially have delayed union formation as adults. Those with higher levels of education and more lucrative careers face higher opportunity costs to childbearing at any age and are likely to delay fertility (Miller 2011a). If adolescent fertility attitudes are linked to later statuses, these attitudes would be predictive of later fertility primarily because they are associated with adult achievements; that is, the linkages are indirect. As such, any association would disappear when controlling for adult educational and economic attainment and union status.

Although we acknowledge (and our models account for) these indirect links, we propose that adolescent attitudes also have a direct association with adult fertility because differences in outlooks toward childbearing formed in adolescence persist into adulthood. Adolescence is a key life-course stage in which long-term schemas about multiple life-course domains are formed. Although attitudes and values evolve as people grow and mature, the ideas to which children and adolescents are exposed become a formative influence on later-life beliefs (e.g., Halleröd 2011; Pearce and Davis 2016; Yabiku et al. 1999), with the mid-to-late teen years a key stage for the development of schemas about family formation, careers, and life goals. From a life-course perspective, the high school years represent one of the first points in which adolescents explicitly consider their future selves (Beal and Crockett 2010). For instance, students choose (to some extent) their high school courses based on long-term goals, with some students following rigorous college prep tracks while others pursue vocational courses. Fewer activities are mandatory or driven by parental decisions, and students have both more choices (such as playing sports, joining a club, or volunteering) and more responsibilities (such as working part-time or watching over younger siblings). Teens are also cognizant of the behaviors, statuses, and norms in their neighborhood (Aneshensel and Sucoff 1996); for example, they are aware of high levels of single parenthood in their community or whether most of their fellow students go on to attend college. As they consider their future selves, then, teens are incorporating and synthesizing their own goals, their family and community characteristics and norms, and structural and social constraints.

At the same time that teens are considering adult educational and career goals and probable trajectories, they are also forming intimate relationships (Giordano 2003). As teens navigate whether and when to date, to enter into more serious relationships, and to engage in sexual activity, union formation and childbearing move from abstract ideals to real possibilities. Teens, especially girls, receive explicit messages about early fertility through sex ed programs and direct conversations with peers, family members, and others in their social networks (Bute and Jensen 2010; Jensen and Bute 2010; Mollborn and Sennott 2014). They also receive implicit messages through their own observations and interactions. Both explicit teachings and implicit observations link ideas about sex and childbearing to larger systems of ideas about family, parenting, and social status. For instance, sex education classes focused on preventing teenage pregnancy or promoting abstinence until marriage often emphasize the importance of finishing school and getting married prior to having children (Mann 2018). Observing single mothers who appear to be handling parenting well or for whom marriage has not worked out could instill the notion that parenthood does not necessarily require marriage (Kendall et al. 2005), whereas teens who grow up with continuously married parents may adopt the view that parenthood should only occur within a marital union (Pew Research Center 2010). Some may internalize the notion that parenthood, particularly motherhood, is natural, noble, and requires no particular sacrifice or effort, whereas others might observe harried and overwhelmed parents and think that becoming a parent is difficult and socially and economically costly.

## The Meaning of Adolescent Attitudes Toward Childbearing

Recent theoretical arguments suggest that orientations toward childbearing are part of broader cultural schemas, or systems of linked meanings, and that beliefs about having and rearing children are one element of an interconnected set of beliefs about, and associations between, family, work, religion, and other domains (Johnson-Hanks et al. 2011). As such, adolescent attitudes about the positive and negative consequences of early childbearing may reflect not only a practical assessment of the costs and benefits of *teen* births but also a more nuanced understanding of the meaning of childbearing, parenting, and family. Indeed, previous research, both qualitative and quantitative, has demonstrated how teen fertility attitudes are connected to larger social meanings (e.g., Harding 2007; Hayford et al. 2016; Edin and Kefalas 2005; Mollborn 2010). Although these schemas seem applicable to both men and women, most empirical research on fertility schemas and attitudinal influences on fertility behavior has examined women but not men. Additionally, very little consideration has been given to the underlying concepts that individual attitudinal items are measuring, though it seems likely there are both overall evaluations about having a child as an adolescent and specific concerns about the consequences of early childbearing (Guzzo et al. forthcoming).

A prominent model, or schema, of parenthood in the United States proposes that bearing and raising children is highly demanding in terms of time, money, and emotional commitment and that the resources parents devote to children are an important

influence on children's development (see, e.g., Blair-Loy 2009; Bock 2000; Hays 1998; Lareau 2003 for explorations of these ideas as they are expressed in varying forms). According to this model, childbearing should take place only when people have the financial, emotional, and relationship stability necessary to provide for children, and postponing childbearing until these circumstances are achieved is an important goal. Moreover, early fertility would be disruptive of related life-course goals, such as educational and occupational achievements. This schema, in which births should ideally occur to adults with stable relational and economic statuses who are prepared to meet the demands of parenthood, is widely recognized. However, the degree to which it is accepted varies substantially, likely by socioeconomic background (James-Hawkins and Sennott 2015; Mollborn and Sennott 2014).

An alternative schema of childbearing, also common in the United States, sees having children as something that is not fully subject to individual control. Conception and birth seem to happen on their own schedule, and successful parenting means rising to the occasion in response to a possibly unanticipated birth (Edin and Kefalas 2005; Edin and Nelson 2013). In this perspective, having a child may be an important opportunity to establish an adult identity, rather than a milestone tied to other life-course transitions that signify one has already reached adulthood. Although the literature on fertility intentions tends to categorize pregnancies and births as intended versus unintended or planned versus unplanned, a substantial minority of sexually active women report that they are "okay either way" with whether or not they become pregnant (McQuillan et al. 2011). Some women seem to view fertility with a more fatalistic or *laissez-faire* perspective (Borrero et al. 2015; Jones et al. 2016). They anticipate that they will adjust their lives if, and when, they become parents and thus are less likely to view childbearing as particularly disruptive or childrearing as particularly resource intensive.

In this paper, we suggest that attitudes about teen childbearing, such as the belief that early pregnancy would lead to growing up too fast, or that getting pregnant as a teenager is one of the worst things that can happen, can be understood as reflecting the degree to which an adolescent has internalized one (or both) of these broader schemas about the meaning of childbearing. Many adolescents will adopt schemas consistent with the view that childbearing is a major endeavor only to be undertaken after achieving other adult transitions and when adults feel truly ready to make the sacrifices and investments of childrearing. As the average ages at which people leave school, obtain a steady job, and marry increase (Settersten and Ray 2010), this stage of "readiness" for having children is also being pushed back. Thus, adolescents who have more negative attitudes about teen childbearing are more likely to have similar beliefs about fertility into adulthood and thus postpone births.

It is also possible that attitudes about teen childbearing measure how positively adolescents feel about childbearing and parenthood in general. That is, negative attitudes about childbearing during adolescence might simply represent a lower desire to ever have children. Hakim (2000) argues that attitudes about work, family, and the relative value of the two domains are stable outlooks and that most populations include a group of people with low family orientation. Although voluntary childlessness at the end of the childbearing years is often the result of a series of postponements among those who initially wanted children (Berrington 2004; Gray et al.

2013; Hayford 2009), some women report early and consistent attitudes about not wanting to have children (Kelly 2009; Settle and Brumley 2014). Less is known about men's childbearing desires throughout the life course. Certainly, individuals whose antenatal orientation develops early in the life course would likely view teenage childbearing as undesirable for many reasons. For voluntarily childless women, the perceived social, emotional, and economic costs of having children are cited as one of the major influences for their decision to remain childless (Settle and Brumley 2014). If negative attitudes about childbearing in adolescence are a marker or proxy for having a persistent low desire for children, we would expect adolescent attitudes to not only lower the odds of a birth at any point during adulthood but also to increase the likelihood that individuals plan on having no children in the future for both men and women.

As noted above, there are many studies of adolescent attitudes and teen fertility. There is substantial variation across these studies in which attitudinal indicators are included and how attitudes are operationalized. Some studies use just one or two measures (Jaccard et al. 2003) or use several items singly (Craig et al. 2014; Hayford and Guzzo 2013), while others combine various items into scales (Deptula et al. 2006; Shneyderman and Schwartz 2013). Thus, an important step in linking adolescent reproductive attitudes to adult fertility is to first determine how individual measures represent underlying dimensions.

## Gender, Attitudes, and Fertility

In the preceding sections, we described previous research on attitudes toward childbearing and how these attitudes may be associated with later childbearing. Most of this research literature excludes men in its examination of fertility behavior and its causes and consequences. As such, it is not clear the extent to which the findings from this literature apply to men, though many of the arguments do seem applicable to both genders. For example, teen boys as well as teen girls are exposed to different models of parenting and family relationships, and teen boys also formulate goals for their futures with these models in mind. However, both the events and interactions that adolescents experience, and the ways that these experiences shape their attitudes, goals, and trajectories, vary by gender. The limited prior work on gender and reproductive attitudes suggests that girls have significantly more negative attitudes toward adolescent sexual activity and fertility than their male counterparts (Marsiglio et al. 2006; Mollborn 2010). This is likely because the social, economic, and relational costs of childbearing (especially early fertility) are often higher for women than men (e.g., Bass 2015; Mollborn 2010; Weeden et al. 2016).

The experience of parenting, and thus likely the development of childbearing and childrearing schemas, also differ by gender. Generally, motherhood is expected to be more central to women's identity than fatherhood is to men's identity (Adamsons 2010; Allen and Hawkins 1999; Stryker 1987), and qualitative work suggests that women are more worried than men about their parenting abilities and more likely to believe there are certain "right" ways to parent (Walzer 1998). Additionally, since in many cases men's parenthood experiences and relationships with their children

are shaped by their female partners (Edin and Nelson 2013; Schoppe-Sullivan et al. 2008; Townsend 2002), they may feel less control over whether and when they have children. Men also have a different fertility schedule than women, with later ages at first birth (Martinez et al. 2018) and a longer period of fecundity. Finally, the accuracy of male fertility data is also potentially an issue, as men may not know they have a child or may underreport children (Joyner et al. 2012). For these reasons, we run all models separately by gender. We expect that associations may differ between adolescent attitudes and adult fertility behaviors and intentions but, given the limitations of the existing research literature, we do not formulate specific hypotheses about the nature of gender differences nor engage in formal tests of differences in multivariate analyses.

## Current Research

Our core hypothesis is that attitudes toward early childbearing, as measured in adolescence, have long-term associations with fertility behavior into adulthood. This association may come partially through the association of these attitudes with other adult outcomes (most notably, schooling, employment, and union formation), but it is also driven by the persistence of attitudes toward childbearing formed in the teenage years. Specifically, we hypothesize:

**Hypothesis 1** More negative attitudes toward early childbearing, as measured in adolescence, will be associated with lower hazards of a first birth in early adulthood (drawn from retrospective fertility data reported around age 30). This association will be robust to controls for education, employment, and union formation.

Less childbearing among individuals up to around age 30 may represent either postponement of childbearing (that will eventually be recuperated) or the early stages of planned childlessness. Of course, men and women in their thirties may not accurately predict whether they will eventually have children, and they may change their mind either about having children or about planned childlessness. Still, intentions for future fertility provide some insights into one's current outlook. We propose two competing hypotheses about the relationship between adolescent attitudes toward early childbearing and prospective fertility intentions:

**Hypothesis 2A** If adolescent attitudes toward early childbearing represent broader schemas about the appropriate contexts for having and raising children, negative attitudes in adolescence will not be associated with future fertility intentions among childless individuals.

**Hypothesis 2B** If adolescent attitudes toward early childbearing represent overall desires for children, negative attitudes in adolescence will be associated with lower intentions for future childbearing among childless individuals.



In addition to accounting for attainment of key life-course statuses, we also control for relevant sociodemographic characteristics, such as race–ethnicity and adolescent family structure, that are directly related to fertility but also reflect exposure and access to schema (Johnson-Hanks et al. 2011). Fertility tends to occur sooner among African Americans and Hispanics than among whites and Asians; among children of less advantaged parents; and among those growing up in single-parent families or with a young mother (East et al. 2007; Hamilton and Mathews 2016; Upadhyaya and Ellen 2011). Analyses also include controls for psychosocial factors that have been linked in prior work to both teen attitudes and fertility, such as feelings of control and religiosity, and for exposure to sex ed (Hayford and Morgan 2008; Kirby and Lepore 2007). Drawing on the body of work noting that aspirations—and perceptions of the possibility of enacting aspirations—also influence fertility timing (Driscoll et al. 2005; Luker 1997; Stewart 2003), we also include a limited set of measures indicating educational and career desires and expectations. Although we recognize that social, psychosocial, economic, and demographic characteristics influence the way schemas are formed, adopted, and translated into behavior, we only discuss these characteristics briefly to emphasize our larger arguments about the utility of adolescent fertility attitudes as indicative of broader schemas.

We do not consider adolescents' actual fertility desires and goals, as the dataset we use did not directly ask whether adolescents wanted or planned to have children in adulthood. Similarly, we do not have time-varying measures of contraceptive use or access to contraception in adulthood. Our approach thus conflates two types of childbearing—births that occur after individuals make the deliberate decision to have a child (i.e., intended births) and births that occur despite the absence of this decision (i.e., unintended births). Other research has shown that adolescent fertility attitudes are largely independent of explicitly formulated short-term intentions and have independent predictive power of both intended and unintended births in early adulthood (Hayford et al. 2016). Thus, focusing on births overall rather than birth intendedness should not bias estimates of the association between attitudes and outcomes. In supplementary analyses, we analyzed intended and unintended births separately. We briefly discuss key findings from these analyses where relevant in the results section.

## Data and Methods

The analyses use the National Longitudinal Study of Adolescent to Adult Health (Add Health), a nationally representative school-based sample of adolescents surveyed in 1995 (Wave I), 1996 (Wave II), 2001–2002 (Wave III), and 2007–2008 (Wave IV). At Wave I, 20,743 adolescents in grades 7–12 were interviewed, including oversamples. At Wave IV, from which we draw fertility outcomes, 15,701 respondents were re-interviewed when they were aged 24–32. We excluded 1090 respondents with pregnancies prior to Wave I to establish temporal ordering and dropped an additional 27 respondents with missing information on the date of first birth. The attitudinal questions used to indicate reproductive attitudes (discussed below) were only asked of adolescents aged 15 and older at Wave I, excluding 4431



**Table 1** Pregnancy attitude items asked of individuals aged 15 and older at Wave I of the National Longitudinal Study of Adolescent to Adult Health

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Getting pregnant at this time in your life is one of the worst things that could happen to you
It wouldn't be all that bad if you got pregnant at this time in your life
If you got pregnant, it would be embarrassing for you
If you got pregnant, it would be embarrassing for your family
If you got pregnant, you would have to quit school
If you got pregnant, you might marry the wrong person, just to get married
If you got pregnant, you would be forced to grow up too fast
If you got pregnant, you would have to decide whether or not to have the baby, and that would be stressful and difficult

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Original responses ranged from 1=strongly agree to 5=strongly disagree. All items are recoded such that 5 represents the most negative view toward pregnancy and 1 represents the most positive view toward pregnancy

respondents; additionally, 73 respondents did not provide valid answers to the attitudinal measures and were dropped. Because we are testing whether adolescent attitudes toward teen fertility are indicative of long-term fertility schemas (and not just teen births), we exclude 953 respondents with a birth before age 20.<sup>1</sup> Finally, Add Health contains a number of oversamples that do not have longitudinal weights, and we excluded 431 respondents without weights. The final sample size comprised of 8693 respondents (4418 women and 4275 men) who were 15 and older at the Wave I survey, did not have a teen birth, and who participated in the Wave IV survey.

### Identification of Concepts Underlying Adolescent Attitudes

We identified eight questions related to attitudes toward teen fertility. The eight questions included statements such as “Getting pregnant at this time in your life is one of the worst things that could happen to you” and “If you got pregnant, you would be forced to grow up too fast.” A full list of items is included in Table 1. As seen in this table, these items tap into different elements—social norms, the link between childbearing and marriage, and educational costs. All items were originally measured on a scale of 1 = strongly agree to 5 = strongly disagree. We reverse coded all but one item so that higher scores indicated more negative attitudes toward pregnancy.

We then conducted both exploratory and confirmatory factor analyses (EFA and CFA, respectively) in Mplus 7 to identify the underlying constructs among those

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<sup>1</sup> Men and women who reach age 20 without having a live birth are a select group. In preliminary analyses, we included all individuals and controlled for age groups. Analyses in which teen births were included (not shown) resulted in an even stronger association between adolescent attitudes and having a first birth, as teen births are strongly predicted by teen attitudes (this relationship has been well established in prior research). Teen attitudes were predictive of fertility at older ages as well as of teen births. The current research focuses only on those who reached 20 without a live birth to make the connection to adult fertility more clearly and distinguish this work from the well-established body of research linking teen attitudes and teen fertility.

eight items, if any (Guzzo et al. forthcoming). We compared the fit of models with different numbers of items and factors using two goodness-of-fit criteria, Root Mean Squared Error of Approximation (RMSEA), and Comparative Fit Index (CFI), and we conducted a  $\chi^2$  test of model fit to determine significant differences in the improvement of model fit across models (Hu and Bentler 1999). RMSEA values of .01, .05, and .08 are indicators of excellent, good, and mediocre fit, respectively (Brown and Cudeck 1992; MacCallum et al. 1996). We used a cutoff of .05 or lower to indicate a good-fitting model. The CFI ranges from 0 (poor fit) to 1 (perfect fit), and values of a .90 or higher provide evidence for adequate model fit, with scores above .95 indicating excellent fit (Hu and Bentler 1999).

The resulting factor structure used six of the eight items and contained two factors (shown in the “Appendix”). The questions about “marry[ing] the wrong person” and “hav[ing] to decide whether to have the baby” did not fit into any factorial pattern and so are not used in the analyses predicting fertility and prospective intentions.<sup>2</sup> The first factor, which we term *feelings toward pregnancy*, assesses how respondents feel about a hypothetical pregnancy. The second factor, which we term *life-course consequences*, measures how a hypothetical pregnancy, and specifically a pregnancy during the teen years, would impact particular aspects of the respondent’s life. We also ran this same factor analysis separately by gender and arrived at the same model. After identifying these two factors, we used the items that were identified as contributing to each factor and averaged the values on the items in each factor to calculate measures representing *feelings toward pregnancy* and *life-course consequences*. In models not shown, we used factor scores (i.e., averages of the items that are weighted based on factor loadings) rather than simple averages, and the results were virtually identical. We chose to use simple averages rather than factor scores because the former are more intuitive and straightforward to interpret.

## Modeling Strategy

To examine how these two sets of attitudes toward early childbearing are associated with fertility behaviors in adulthood, we conduct two sets of analyses separately by gender. The first analysis uses discrete time event history methods to predict the timing of first births. We use person-months as the unit of analysis; respondents enter the analysis in the month they turned 20 and exit the month of their first birth or are censored at the Wave IV interview if they remained childless. The dependent variable in this analysis is whether the respondent had a birth in the month, analyzed using a logit link. The second analysis predicts respondents’ prospective fertility intentions at Wave IV. At this wave (but not in prior interviews), respondents were asked, “Including any children you may already have, how many children, in total, do you intend to have?” Combining this question with actual fertility by Wave IV, we created a three-category variable: respondent does not have children but plans to have children in the future (“postponers”); respondent does not have children and

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<sup>2</sup> We did enter both of these items singly into the analyses, but neither were significant predictors of any outcome (not shown).

does not plan to (“planned childless”); and respondent already has children (“parents”). We use multinomial logistic regression to predict prospective fertility intentions at Wave IV, using the same analytical sample (men and women aged 15 or older at Wave I who did not have a birth prior to age 20). We first set parents as the reference category (producing contrasts for “postponers vs. parents” and “planned childless vs. parents”) and then rerun the same multinomial logistic regression with planned childless as the reference category to produce the contrast of “postponers versus planned childless.”

We also include a wide range of demographic, socioeconomic, and psychosocial measures that may be correlated with both fertility attitudes and fertility outcomes. In both analyses, we include several fixed characteristics. From Wave I, time-invariant demographic and socioeconomic variables include race–ethnicity, nativity status, family structure at the time of the interview, and family socioeconomic status (using Bearman and Moody’s (2004) operationalization, which combines information on occupation and education for both mothers and fathers to create an index for each parent ranging from 1 to 10 and then uses the higher of the two scores). Psychosocial variables from Wave I (also time-invariant) include a dichotomous indicator of whether the respondent reported ever discussing pregnancy or AIDS in school as a proxy for sex ed, religiosity (a scaled measure of four items about religious service attendance, prayer, and importance,  $\alpha=0.85$ ), the Peabody Picture Vocabulary Test (an aptitude test), a scaled measure of the respondent’s locus of control (with eight items such as “when you have a problem to solve, one of the first things you do is get as many facts about the problem as possible” and “when you get what you want, it’s usually because you worked hard for it,”  $\alpha=0.63$ ), and a dichotomous indicator of whether the respondent both highly wanted and highly expected to go to college.

In the event history analysis predicting first births, we also include monthly time-varying measures. Union status is a three-category time-varying variable: no union, cohabiting, or married. Educational attainment is a time-varying categorical measure: less than high school, high school, associate’s degree, or bachelor’s degree or higher. (Individuals who attended college but did not complete a degree are included in the high school category.) To construct this variable, we used data from Waves III and IV. In Wave III, respondents were asked the month and year of high school graduation. However, this information was not collected again for respondents who participated in Wave IV but who had not participated in Wave III; instead, there is only information on whether they had finished high school. For these respondents, we assigned a June graduation month for the year they would have graduated high school based on their grade at Wave I and assuming no repeated grades. An examination of the Wave III data showed that following this assumption for those that did participate in Wave III corresponded with the actual month and year of graduation in 85% of cases, with most of the remaining 15% largely due to graduation dates in May or July. Grade retention (i.e., repeating a grade) is rare in higher grades; for instance, less than 3% of ninth-graders repeated a grade in the years 1995–2010 (Warren et al. 2014). The Wave IV data also contain information on the year respondents obtained associate’s and bachelor’s degrees, but the month was not included. Following other work using these data (e.g., Augustine 2016), we assigned a May graduation date to respondents with a post-secondary degree. All

respondents enter at exact age 20, and we capture the non-linear risk of a birth with age by including two time-varying indicators of duration: months since age 20 and months since age 20 squared.

In the analysis predicting prospective fertility intentions, age is centered and measured as a linear variable; there is little variation in age since this analysis uses the cross-sectional Wave IV data, and 92% of the analytical sample is between the ages of 28 and 32. In addition to the Wave I time-invariant demographic, socioeconomic, and psychosocial variables discussed above, we were also able to include a broader range of socioeconomic variables measured at Wave IV that were not included in the event history analysis since we did not have retrospective data for these measures. In addition to education (same categories as above but indexed to the time of the survey) and union status (same categories as above but indexed to the time of the survey), socioeconomic measures include household income (twelve categories ranging from less than \$5000 to \$150,000 or more; we treat this as a continuous variable) and a dichotomous indicator of whether the respondent is employed full time (35 or more hours a week). We also include two indicators of socioeconomic aspirations measured at Wave IV to proxy status attainment and competing goals. The first is a three-category variable indicating whether the respondent has achieved his or her educational goals: achieved desired education, has not achieved desired education but believes s/he will, and has not achieved desired and does not believe s/he will. The second is a four-category variable capturing how the respondent's current or most recent job relates to long-term career goals: part of goals, preparation for goals, not related to goals, and no goals/never worked. Descriptive statistics for the analytic sample, shown separately by gender, are shown in Table 2.

To account for the sampling design of Add Health, all analyses are weighted with Wave IV longitudinal weights using Stata 14's *svy* commands. We used multiple imputation for missing data using Stata's *mi* commands. We did not impute the dependent variables or the attitudinal items that contributed to the *feelings toward pregnancy* and *life-course consequences* indicators. Missing data was the most common for the Wave I aptitude test scores (missing for 405 cases) and Wave IV income (missing for 506 cases); 20 or fewer cases were imputed for other measures (Wave I: locus of control, wanting/expecting to go to college, learning about pregnancy or AIDs in school; Wave IV: education, employment, achieved desired education, and whether job is part of long-term goals).

## Results

We begin by presenting the bivariate association between the Wave I *feelings toward pregnancy* measure and the *life-course consequences* measure and Wave IV fertility for both men and women. We then present multivariate analyses, all shown separately by gender. The first set of multivariate analyses tests Hypothesis 1 and predicts, among childless respondents aged 20 and older, the odds of having a first birth with logistic regression discrete time event history models. The second analysis predicts respondents' prospective fertility intentions at Wave IV to test Hypotheses 2a and 2b with multinomial logistic regression.

**Table 2** Weighted descriptive statistics for the analytical sample of respondents reaching age 20 with no live births in the National Longitudinal Study of Adolescent to Adult Health

	Proportion or mean (SD)	
	Women	Men
Wave I feelings toward pregnancy scale (1–5)	4.40 (.802)	4.36 (.765)
Wave I life-course consequences scale (1–5)	3.57 (.888)	3.42 (.851)*
Race–ethnicity		
Non-Hispanic white	69.7%	69.4%
Non-Hispanic black	14.9%	13.9%
Hispanic	11.0%	11.0%
Asian/other	4.5%	5.7%
Foreign-born	6.4%	6.6%
Wave I family structure		
Both biological parents	59.2%	56.7%
Stepfamily	14.4%	16.2%
Single parent	21.5%	21.6%
Other	4.9%	5.5%
Wave I family socioeconomic status (1–10 scale)	5.67 (2.781)	5.65 (2.541)
Wave I discussed pregnancy or AIDS at school	91.4%	88.4%*
Wave I religiosity (1–4 scale)	3.55 (1.606)	3.53 (1.622)
Wave I highly wanted & expected to attend college	58.9%	45.1%*
Wave I aptitude test	101.1 (15.130)	102.1 (13.210)
Wave I locus of control (1–5 scale)	3.66 (.491)	3.70 (0.472)*
Wave IV age	29.8 yrs (1.23)	29.9 yrs (1.204)*
Wave IV education*		
Less than high school	3.5%	7.0%
High school	45.1%	55.3%
Associate's degree	9.9%	7.1%
Bachelor's degree or higher	41.5%	30.1%
Wave IV educational aspirations*		
Achieved desired education	29.4%	27.1%
Not achieved but believe I will	63.6%	60.4%
Not achieved, do not believe I will	6.9%	12.5%
Wave IV current/most recent job and job goals		
Part of goals	41.9%	45.2%
Preparation for goals	22.8%	23.8%
Not related to goals	25.7%	22.7%
No goals/never worked	9.6%	8.3%
Wave IV household income (modal category)	\$40–49,999	\$40–49,999
Wave IV employed FT	64.5%	80.3%
Wave IV relationship status (at interview)*		
Not in a coresidential union	32.3%	39.5%
Cohabiting	16.0%	16.9%
Married	51.8%	43.6%
Number of observations	4418	4275

Significant differences between men and women from Pearson  $\chi^2$  test \* $p \leq .05$

## Bivariate Results

Table 3 documents the association between the two attitudinal measures and fertility at Wave IV, when respondents were on average around age 30. More specifically, we show, separately by gender, the percentage with at least one birth (“parents”), the proportion who have not had any children but intend to (“postponers”), and the proportion who have not had any children but do not intend to (“planned childless”) overall and for each measure, across four attitude score ranges: less than or equal to 2;  $2 \leq 3$ ;  $3 \leq 4$ , and greater than 4. These are weighted percentages, and both measures range from 1 to 5, with higher scores indicating more negative attitudes toward pregnancy in adolescence. For *feelings toward pregnancy*, both boys and girls had a mean of about 4.4 (shown in Table 2), demonstrating that the adolescents in the sample had a fairly negative overall orientation toward having a child during the teenage years. Feelings toward pregnancy are highly skewed, with few adolescents reporting positive feelings about pregnancy (scores of 2 or less). However, a substantial minority (about a third) of adolescents reported neutral attitudes (greater than 2 and less than or equal to 4). For *life-course consequences*, the mean for girls was about 3.6 and for boys, it was 3.4 (Table 2); there is much less skew for this measure, with about two-thirds of the sample reporting neutral attitudes. The means for *life-course consequences* are statistically significantly different, such that girls perceived more negative consequences of teen childbearing than boys; still, both groups perceived a fair degree of costs for having a birth during adolescence.

Looking first at women, slightly more than half of women who were childless at age 20 had a birth by the Wave IV survey, and the majority of those without a birth are postponers. Only 8% expected to remain childless in the future. However, there is a clear linear and statistically significant relationship between both Wave I attitudinal measures and having a child by Wave IV among women. In the lowest range of scores, representing the most favorable *feelings toward pregnancy* attitudes in adolescence, 71% of respondents have at least one child by Wave IV. At the highest scores, those with the least favorable attitudes toward pregnancy, less than half (48%) are parents by Wave IV. The pattern is similar for *life-course consequences*—62% of those with the most favorable attitudes in adolescence have a child by Wave IV but only 44% of those with the least favorable attitudes are parents.

Across all levels of Wave I *feelings toward pregnancy* and *life-course consequences*, a relatively small proportion intend to have no children, ranging from 6.6 to 8.7%. Of those who are childless, the percentage who intend to have children is higher among those with less favorable scores on either attitudinal measure. For instance, among women who are childless at Wave IV, 47% of those with scores above four on the *life-course consequences* measure (perceiving the most negative consequences to have a child during adolescence) intend to have children compared to only 30% of those with scores below two (perceiving the fewest consequences of having a child during adolescence). These patterns are suggestive of delayed fertility rather than planned childlessness.

**Table 3** Weighted Wave IV current and prospective fertility plans among respondents reaching age 20 with no live births in the National Longitudinal Study of Adolescent to Adult Health, by score on the feelings toward Pregnancy Scale and the Life Course Consequences Scale

	Overall	Feelings toward pregnancy scale				Life-course consequences scale				
		≤2	>2 to ≤3	>3 to ≤4	>4	≤2	>2 to ≤3	>3 to ≤4	>4	
<b>Women</b>										
Has children	52.1%	71.4%	62.2%	57.1%	48.2%	61.8%	50.9%	44.1%	*	
Does not have children but intends to	39.9%	19.9%	29.5%	36.3%	43.3%	30.6%	41.4%	47.2%		
Does not have children but does not intend to	8.0%	8.7%	8.3%	6.6%	8.5%	7.7%	7.7%	8.7%		
N	4418	92	443	1047	2836	298	1907	1233		
<b>Men</b>										
Has children	39.9%	54.9%	42.9%	42.2%	38.0%	45.3%	37.4%	33.7%	*	
Does not have children but intends to	49.3%	31.4%	46.4%	48.2%	50.9%	44.9%	50.6%	56.2%		
Does not have children but does not intend to	10.8%	16.6%	10.8%	9.7%	11.2%	9.8%	12.0%	10.0%		
N	4275	79	453	1087	2656	381	1771	964		

\*Significant differences within genders across attitudinal levels from Pearson  $\chi^2$  tests ( $p \leq .05$ )



For men, the pattern is similar, though the differences across levels of *feelings toward pregnancy* are not significant. The modal category are postponers (49%); only 40% of men had children by Wave IV. The highest proportion of men with children occurs among those with the most favorable attitudes toward teen fertility—slightly more than half who reported a score of two or lower on the *life-course consequences* measure are parents by Wave IV compared to only a third of those with scores above four. Postponement is the most common among those with the most negative attitudes toward childbearing during adolescence. There is fairly little variation in the proportion of planned childlessness across the categories of the *life-course consequences* measure or across most of the categories of the *feelings toward pregnancy* measure, generally ranging from 9.7 to 12.0% (although 17% of those scoring two or lower on *feelings toward pregnancy* do not intend to have a child). Again, the patterns are consistent with delayed fertility.

### Multivariate Results: Predicting First Births

Table 4 displays the odds ratios (OR) from event history models predicting a first birth by Wave IV, shown separately by gender. These models include the two attitudinal measures as well as time-invariant demographic, socioeconomic, and psychosocial variables (measured at Wave I), and time-varying measures of educational attainment and relationship status. The odds ratio for the *feelings toward pregnancy* measure is 0.93 and is marginally significant ( $p=0.051$ ), suggesting that a more negative overall attitude toward adolescent childbearing does reduce the hazard of having a first birth by Wave IV among women. The *life-course consequences* measure appears to be more strongly and negatively associated with first birth hazards, with an odds ratio of 0.91. However, when turning to men, neither *feelings toward pregnancy* nor *life-course consequences* are significantly associated with fertility. Thus, our core hypothesis (Hypothesis 1), that there is a robust long-term association between adolescent attitudes toward teen fertility and adult fertility behavior, is supported for women but not for men.

For both men and women, socioeconomic and demographic characteristics are linked to fertility in ways consistent with prior research. African American men and women have a higher risk of birth in a given month, while higher levels of parental socioeconomic status and, for only women, higher adolescent scores on the aptitude test are associated with a lower birth risk among adults up to around age 30. Individuals' own life-course experiences are also predictive of fertility; those who earn a college degree have lower odds of having a child, while cohabitation and especially marriage increase birth rates. For women, but not men, the risk of a birth increases over time, with the risk highest at later months. It is interesting to note that sociodemographic characteristics and family background are associated with fertility even when both indicators of adolescent attitudes are included. For women, then, to the extent that adolescent attitudes reflect schemas about childbearing, these schemas do not simply capture psychosocial and demographic characteristics but instead provide additional explanatory power.

**Table 4** Odds ratios from event history models predicting a first birth among respondents reaching age 20 with no live births in the National Longitudinal Study of Adolescent to Adult Health

	Women	Men
WI feelings toward pregnancy scale	0.93 <sup>+</sup>	0.94
WI life-course consequences scale	0.91**	0.94
Race–ethnicity		
Non-Hispanic white	–	–
Non-Hispanic black	1.43***	1.43**
Hispanic	0.90	0.97
Asian/other	0.92	0.89
Foreign-born	1.01	0.87
WI family structure		
Both biological parents	–	–
Stepfamily	1.17 <sup>+</sup>	1.07
Single parent	1.11	1.02
Other	1.07	0.99
WI family socioeconomic status	0.96***	0.97*
WI discussed pregnancy or AIDS at school	1.11	1.16
WI religiosity	1.01	0.99
WI highly wanted & expected to attend college	1.06	0.90
WI aptitude test	0.99*	1.00
WI locus of control	1.02	1.11
Education (time-varying)		
Less than high school	1.10	0.99
High school	–	–
Associate's degree	0.95	0.98
Bachelor's degree or higher	0.73***	0.79*
Union status (time-varying)		
Not in a coresidential union	–	–
Cohabiting	4.45***	6.59***
Married	12.79***	18.18***
Duration in months (time-varying)	0.99**	1.00
Duration in months squared (time-varying)	1.00**	1.00
Constant	0.01***	0.00***
Persons	4418	4275
Person-months	375,323	414,527

<sup>+</sup> $p \leq .055$ , \* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$

As mentioned above, we also estimated supplementary models distinguishing between intended and unintended first births. Results from these models (available on request) are consistent with analyses above: adolescent attitudes toward childbearing are associated with adult women's entry into parenthood, with more negative attitudes associated with lower risks of both an intended and unintended first

birth relative to no birth. That is, among those who had a birth by around age 30, women who reported more negative fertility attitudes as adolescents are no more or less likely to report their first birth as unintended relative to an intended birth. Men's adolescent attitudes continue to be unrelated to adult fertility.

### **Multivariate Results: Predicting Future Fertility**

Next, we turn to analyses predicting future fertility plans, measured at Wave IV, in Table 5 (women) and Table 6 (men). Recall that this variable has three categories: postponers, planned childless, and parents. We first show the multinomial logistic results when parents are the reference group. The contrasts between those who already have children and the two groups who do not (the postponers and planned childless) essentially replicate the event history analyses above, with attitudes predicting whether women (but not men) have become parents or not. Instead, we direct the reader to the last column of both tables in which we reran the multinomial logistic regression with planned childless as the reference group to specifically show the contrast between those who plan to have children in the future and those who do not among individuals who were childless at Wave IV (postponers vs. planned childless). The results in the latter column thus represent the key test of Hypotheses 2a and 2b. Looking first at women, although the two measures of adolescent fertility attitudes are predictive of parenthood by Wave IV, they are not related to whether childless respondents still plan to have a child in the future. The relative risk ratio (RRR) for the contrast between postponers and planned childless respondents is small in magnitude and not statistically significant. Looking at the results for men in Table 6, there is further evidence that adolescent fertility attitudes are not predictive of either achieved fertility or prospective fertility. Thus, more negative adolescent attitudes depress actual fertility for women but not prospective fertility intentions, providing support for Hypothesis 2a rather than Hypothesis 2b (but only among women).

For women, sociodemographic characteristics and family background continue to predict childbearing experiences and expectations at Wave IV. Relative to non-Hispanic white women, Asian/other women are more likely to fall in the planned childless vs. parent category (RRR = 2.32) and less likely to be in the postponer category relative to planned childless (RRR = 0.44). Childless foreign-born women are about twice as likely to intend to have children in the future than to plan childlessness. Educational achievement, indicated by having a bachelor's degree or more, is positively associated with both postponement and planned childlessness versus parenthood by Wave IV. Further, compared to those who have achieved their educational goals, women who have yet to achieve their educational goals but believe they will are less likely to be in the planned childless category relative to either the parent or postponer categories. Women employed full-time are less likely to be parents, but full-time employment does not differentiate between planned childlessness and postponement. However, women whose employment is unrelated to their career goals are less likely to be postponers than to anticipate permanent childlessness relative

**Table 5** Relative risk ratios from multinomial logistic regression predicting women's future fertility plans at Wave IV among women reaching age 20 with no live births in the National Longitudinal Study of Adolescent to Adult Health

	Postponers vs. parents	Planned childless vs. parents	Postponers vs. planned childless
W1 feelings toward pregnancy scale	1.17*	1.28	0.92
W1 life-course consequences scale	1.20**	1.29*	0.93
Age at WIV	0.80***	1.03	0.78**
Race-ethnicity			
Non-Hispanic white	—	—	—
Non-Hispanic black	0.95	0.60	1.59
Hispanic	1.32	1.29	1.03
Asian/other	1.02	2.32*	0.44*
Foreign-born	1.34	0.60	2.22*
W1 family structure			
Both biological parents	—	—	—
Stepfamily	0.81	1.01	0.80
Single parent	0.80	0.83	0.96
Other	1.38	0.60	2.29
W1 family socioeconomic status	1.06**	0.98	1.08
W1 discussed pregnancy or AIDS at school	0.84	0.65	1.29
W1 religiosity	0.99	1.00	0.99
W1 highly wanted & expected to attend college	0.92	0.52**	1.77***
W1 aptitude test	1.01	1.01	0.99
W1 locus of control	1.11	0.79	1.41*
WIV education			
Less than high school	1.20	0.93	1.30
High school	—	—	—
Associate's degree	1.13	1.08	1.04
Bachelor's degree or higher	3.22***	2.09***	1.54*
WIV educational aspirations			
Achieved desired education	—	—	—
Not achieved but believe I will	0.88	0.55**	1.60**
Not achieved, do not believe I will	0.85	0.48*	1.77
WIV current/most recent job and job goals			
Part of goals	—	—	—
Preparation for goals	0.97	1.09	0.89
Not related to goals	0.84	1.51*	0.56**
No goals/never worked	1.55 <sup>+</sup>	2.53*	0.61
WIV household income	1.04	0.97	1.07
WIV employed FT	2.42***	2.27***	1.06
Union status			
Not in a union	—	—	—
Cohabiting	0.59**	0.53**	1.13
Married	0.14***	0.07***	1.88**
Constant	0.05*	0.11	0.40
N	4418	4418	4418

<sup>+</sup> $p \leq .055$ , \* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$

**Table 6** Relative risk ratios from multinomial logistic regression predicting men's future fertility plans at Wave IV among men reaching age 20 with no live births in the National Longitudinal Study of Adolescent to Adult Health

	Postponers vs. parents	Planned childless vs. parents	Postponers vs. planned childless
W1 feelings toward pregnancy scale	1.09	1.13	0.96
W1 life-course consequences scale	1.11	1.11	1.00
Age at WIV	0.90	0.92	0.99
Race-ethnicity			
Non-Hispanic white	–	–	–
Non-Hispanic black	0.65**	0.28*	2.32***
Hispanic	1.10	0.50*	2.21**
Asian/other	1.56	0.61	2.57*
Foreign-born	1.16	0.61	
W1 family structure			
Both biological parents	–	–	–
Stepfamily	0.86	1.21	0.94
Single parent	0.93	0.95	0.77
Other	0.86	0.95	0.91
W1 family socioeconomic status	1.04	1.05	0.99
W1 discussed pregnancy or AIDS at school	0.95	0.72	1.31
W1 religiosity	0.99	1.09*	0.90*
W1 highly wanted & expected to attend college	1.11	0.96	1.15
W1 aptitude test	0.99	1.00	1.00
W1 locus of control	0.77*	0.82	0.94
WIV education			
Less than high school	0.81	0.71	1.14
High school	–	–	–
Associate's degree	1.89	1.04	1.24
Bachelor's degree or higher	2.73	2.02*	1.35
WIV educational aspirations			
Achieved desired education	–	–	–
Not achieved but believe I will	1.18	0.81	1.46*
Not achieved, do not believe I will	0.85	0.92	0.92
WIV current/most recent job and job goals			
Part of goals	–	–	–
Preparation for goals	0.83	1.03	0.81
Not related to goals	0.69*	1.43	0.48**
No goals/never worked	0.79	1.36	0.58
WIV household income	1.01	1.05	0.96
WIV employed FT	0.78	0.71	1.10
Union status			
Not in a union	–	–	–
Cohabiting	0.36***	0.31***	1.13
Married	1.11***	0.04***	2.82***
Constant	8.17***	1.41	6.87
N	4275	4275	4275

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$

to those whose current employment situation fits into their career goals. Finally, and not surprisingly, marriage is strongly predictive of postponement versus planned childlessness relative to those who are single.

For men, relative to non-Hispanic whites, all other race-ethnic groups are more likely to be postponing childbearing rather than planning to have no children. For childless men, higher religiosity scores during adolescence are associated with lower odds of postponement relative to planned childlessness. Although neither educational achievement nor employment status at Wave IV is associated with fertility intentions, men who anticipate meeting their educational goals are 1.5 times as likely to be postponers versus planned childless relative to men who have already met their goals. Men whose most recent job is not part of their goals are about half as likely to still intend to have children relative to expecting to not have children compared to those whose job is part of their goals. Finally, as with women, married men without children are significantly more likely to intend to have a child in the future ( $RRR = 2.8$ ) than anticipate childlessness relative to single men.

## Discussion

Demographers have long recognized the link between attitudes toward childbearing and fertility behaviors (Fishbein 1972; Kiser and Whelpton 1953; Miller 2011b; Zabin et al. 1993). Much of this research has examined associations over a relatively short time frame, especially when considering adolescent attitudes toward childbearing. This short-term focus is due in large part to social and policy concerns over teenage childbearing, and many of the most commonly used measures of attitudes toward childbearing address specific concerns related to childbearing as a teenager (Driscoll et al. 2005; Jaccard et al. 2003; Mollborn 2010). In this article, we extend this research by proposing that attitudes in adolescence may have long-term effects on childbearing. We argue that teens' attitudes toward early childbearing are not only a concrete assessment of practical costs and benefits but represent elements of a larger system of meaning connecting childbearing with ideas about family, work, and parenting. Specifically, we first posited that more negative attitudes toward early childbearing would depress hazards of a first birth up to around age 30 (Hypothesis 1). Second, we suggested two competing links between adolescent attitudes and prospective fertility intentions: that if adolescent attitudes are indicative of schema, they would be unrelated to future fertility intentions (Hypothesis 2a), whereas if adolescent attitudes represent overall desires for children, negative attitudes would be associated with lower intentions for future childbearing (Hypothesis 2b).

The findings support our core arguments, at least for women. We demonstrate that perceiving more *life-course consequences* of early childbearing is significantly associated with lower birth rates among young childless women in the peak childbearing years, and the more global indicator of *feelings toward pregnancy* is marginally and negatively associated with fertility as well, consistent with Hypothesis 1. However, these attitudes are not associated with intentions for future childbearing among women who have not had a child by around age 30,

and so Hypothesis 2a is supported over Hypothesis 2b. For women, adolescent fertility attitudes seem to reflect persistent understandings about the appropriate timing and context of childbearing, but they do not seem to capture a general orientation to wanting, or not wanting, children. Thus, more negative attitudes are associated with delayed fertility rather than planned childlessness.

For men, we found no evidence that adolescent attitudes toward early childbearing were predictive of either actual or intended fertility. There are several possible reasons for this. One concern is practical—men often view reproductive decisions as ultimately women’s domain (Fennell 2011), and so men’s characteristics in general may be less predictive of fertility than women’s characteristics. Relatedly, both biological and social factors permit men to have a different fertility schedule than women. Because men enter parenthood later, on average, they may experience less pressure to have (or avoid) having children at a certain time, and, potentially, may be less focused on making decisions about childbearing. It is also possible that men’s fertility and childrearing schemas exist but are more abstract than women’s—boys are not socialized about future parenthood roles during childhood in the same way that girls are, given gendered toys, activities, and chores (McHale et al. 2003). The opportunity costs of childbearing are mostly borne by women as well (Koropeckyj-Cox and Pendell 2007), likely pushing women to give more thought to the question of whether and when to have children. As such, adolescent males’ answers to questions about childbearing may not capture deeper and more strongly held beliefs as well as women’s answers to these questions do. Finally, data on men’s fertility are less accurate than women’s data—men may not know about births, men may fail to report certain births (usually those that occur outside of marriage and at young ages), and some of the men most likely to have births at younger ages (and thus by Wave IV of Add Health) may not participate in surveys due to data collection issues (Joyner et al. 2012). As such, it is possible that differences across gender in the association between adolescent attitudes and adult fertility are more apparent than real.

Our results speak of the increasing importance of postponing childbearing over multiple stages of the life course. Over the past few decades, marriage, school-leaving, residential independence, and economic stability have been delayed to later ages (Settersten and Ray 2010). The adolescents who feel most strongly that childbearing during the teenage years would be disruptive appear also to be the most likely to delay having a birth through their twenties as they progress through the transition to adulthood and achieve key adult roles. This possibility is supported by the results showing that, among women, those most educated or who anticipate future education expect to recoup their delayed fertility rather than forego having children entirely. Further, despite shifts in the context of childbearing, such as the rise of non-marital fertility, certain adult statuses are still widely seen as desirable, if not always necessary, preconditions for childbearing (Thomson et al. 2013).

Both models of parenting and pathways into parenthood are highly differentiated by socioeconomic status. “Concerted cultivation,” the intensive model of parenting identified by Lareau (2003), is more common among middle- and upper-class families than among working-class families, and highly educated women are much



more likely to delay parenthood, and to limit childbearing to marriage, than women without a college degree (McLanahan 2004; Smock and Greenland 2010). Fertility timing and parenting practices, in turn, contribute to children's health and economic outcomes, and thus to the intergenerational transmission of status. Our results therefore have important implications for understanding socioeconomic inequality as well as family behaviors.

## Limitations

Our analysis extends only until the late twenties and early thirties (the average age of the analytical sample at Wave IV was just under 30). Thus, we are unable to track completed fertility among women who still want children but have not yet had them. We focused only on first birth timing and did not consider higher-order births, spacing, or the union context of births. Our analysis is also limited by the inability to directly measure attitudes toward childbearing and childrearing among adult women. We argue that the cultural outlooks that produce adolescent attitudes persist into adulthood, but we cannot directly measure this persistence because Add Health did not include similar attitudinal items in later waves.

By focusing on individual attitudes toward adolescent childbearing, we implicitly assume that childbearing is the product of individual choice. Yet fertility outcomes inherently reflect couple-level behaviors, and these outcomes are further constrained by variation in access to contraception and abortion (Dehlendorf et al. 2010). The high levels of unintended fertility in the United States provide further evidence of the importance of factors beyond individual choice that shape childbearing (Finer and Zolna 2016; Mosher et al. 2012). To the extent that experiences with sex, contraception, and romantic relationships in adolescence shape both adolescent fertility attitudes and later attitudes and outcomes, these supra-individual factors may also be an important pathway connecting adolescent attitudes and adult fertility. Our supplementary analyses separating intended and unintended fertility suggest that the nature of the relationship between adolescent attitudes and later fertility outcomes is similar for intended and unintended births. Still, in examining the role of individual fertility attitudes, this article illuminates only one element of the broad set of fertility determinants.

## Conclusions

The lengthening of the transition to adulthood has included delays in becoming a parent. This delay likely reflects the view that individuals have a set of conditions they would like to reach before becoming parents; that is, they have a schema about how childbearing and parenthood should fit into their lives. We suggest that fertility schemas develop in adolescence as teens begin to explicitly consider their future selves and long-term goals. Other schemas are also likely forming at this life-course stage. It is possible that if adolescent attitudes toward other key transitions and statuses, such as marriage and employment, were available, we might find

a similar long-term association between adolescent attitudes in these domains and adult behavior.

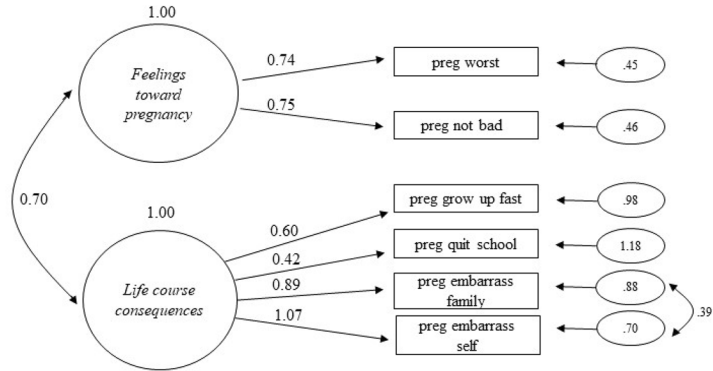
To the extent that the schemas represented by attitudes toward teenage childbearing reflect women's ideal or preferred context and circumstances in which to have children, the women in our sample seem to be delaying fertility until reaching that point but do not wish to forego fertility entirely. However, it remains to be seen if women who are childless at Wave IV but still plan to have children are able to achieve their fertility goals. It is possible that women who have the clearest ideas about the appropriate conditions for having and raising children may be constrained in reaching these goals. For instance, women who strongly believe in having children within a stable relationship may forego childbearing if they do not marry. At the population level, increases in the proportion of women who do not marry has been a major factor in increased rates of childlessness (Hayford 2013); this phenomenon may result from specific schemas about the relationship between childbearing and marriage.

Our results also suggest that it might be important to consider how people think about the meaning of *raising* children as they make decisions about pregnancy and birth. A growing body of sociological research examines the meaning and practice of parenthood in the United States (e.g., Hamilton 2016; Hays 1998; Kane 2012; Lareau 2003). This scholarship has not yet been directly linked to research on the decision to enter into parenthood. However, there are clear connections between how people envision parenting and how they make plans to enter parenthood. The highly demanding form of parenting described in Lareau's (2003) model of "concerted cultivation," for instance, carries with it a set of implications for when and how to enter into parenthood. Women from more advantaged backgrounds—themselves the recipients of concerted cultivation—are likely socialized both directly (through their parents' emphasis on educational and career attainment) and indirectly (as they witness their parents' time- and labor-intensive parenting behaviors) into this form of parenting. More social and economic advantage, of course, also makes it easier to achieve educational and career goals, form a stable partnership (often with a similarly advantaged partner), and make the kinds of investments in children that help perpetuate advantages. Future research on the transition to parenthood and fertility timing should examine models of parenting as well as broader notions of life-course planning and how individuals consider multiple domains when making fertility decisions.

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for this analysis. A version of this paper was presented as a poster at the 2017 annual meeting of the Population Association of America meeting in Chicago, IL, April 27th–29th.

## Appendix: Factorial Model of Pregnancy Attitudes from Confirmatory Factor Analysis (CFA), Add Health



Model Fit: RMSEA: .036, CFI: .992 (note: all factor loadings, covariances, and residual variances are significant,  $p < .001$ )

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