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2013 Working Paper Series

PSYCHOSOCIAL, PEER, AND PARENTAL INFLUENCES ON EARLY AND UNINTENDED FERTILITY AMONG YOUNG ADULTS

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Paper presented at the 2013 annual meeting of the American Sociological Association, New York, NY, August 10-13th.

This research was supported in part by the Center for Family and Demographic Research, Bowling Green State University, which has core funding from the Eunice Kennedy Shriver National Institute of Child Health and Human Development ***(R24HD050959-09)***

Abstract

The high levels of early and unintended fertility in the United States are a public health and social concern, yet declines in fertility in the young adult years, particularly unintended fertility, have stagnated. Prior research has suggested the need to examine the role of psychosocial factors and expand the definition of unintended childbearing to include more nuanced categories. We use a unique longitudinal dataset – the Toledo Adolescent Relationship Study (TARS) – to examine the role of psychological attributes and attitudes, and peer, family, and neighborhood context in adolescence on early and unintended fertility among young men and women 17-24. In addition to the rich data available on potential predictive factors, TARS contains a more nuanced characterization of unintended fertility to reflect ambivalence and risk-taking. Our findings suggest that peer, neighborhood, and parental factors during adolescence are associated with entering early parenthood, while individual-level psychological factors influence intendedness, with variation across the categories of intendedness.

It is well-known that the United States has a higher rate of teenage childbearing than other industrialized countries. In recent years, there is growing concern (though scant research) over fertility among young adults, as births in early adulthood can potentially derail educational, employment, and union formation trajectories. Another cause for concern over early fertility is that fertility among teens and young adults is overwhelmingly unintended. Among women under 20, 82% of pregnancies are unplanned, as are 58% of pregnancies among women 20-24, and in absolute numbers, there are far more unplanned pregnancies among 20-24 year olds (nearly one million a year) than among any other age group (National Campaign to Prevent Teen and Unplanned Pregnancy, 2008). Unintended births are associated with poorer maternal and child health and well-being outcomes (Logan, Holcombe, Manlove, and Ryan 2007; Santelli et al. 2003), making the reduction of unintended births in the United States a major public health goal (U.S. Department of Health and Human Services 2000, 2010). Unfortunately, unintended fertility rates have stagnated over the past decade (Finer and Zolna 2011).

Thus, there remains a need to better identify the mechanisms that underlie early and unintended fertility, especially those births that occur during the transition to adulthood. One avenue that remains largely unexplored is the role of adolescent psychosocial factors on subsequent fertility outcomes. To date, quantitative research on early or unintended childbearing has largely focused on socioeconomic and demographic correlates, generally finding that disadvantage is associated with less favorable childbearing outcomes, yet these studies have been unable to determine *why* disadvantage is important. Qualitative research has identified potential psychosocial mechanisms, such as depression, peer influences, and parental communication as important for adolescent sexuality and childbearing (Rubin, Gold, and Primack 2009), yet these studies tend to have small, non-representative, and cross-sectional samples. The current research

builds off the quantitative and qualitative literatures, using unique longitudinal data of young adults, the Toledo Adolescent Relationship Study (TARS), to examine social-psychological mechanisms that may contribute to early and unintended fertility.

An additional puzzle facing researchers who study fertility among young adults is how to adequately conceptualize such births along the standard continuum of unintended fertility, which generally categorizes births as wanted, unwanted, or mistimed; this confusion, in fact, may inhibit our ability to adequately address unintended childbearing. Unwanted births are those for which individuals report that at the time they became pregnant (or impregnated someone), they did not want to have *any* births at *any* point in the future (a number failure), while mistimed births are those identified as occurring any time earlier than desired (a timing failure). Unintended births are then the sum of all births identified as unwanted or mistimed. Although this characterization of unintended fertility provides a straightforward, simple picture, it does not seem to reflect the reality of many pregnancies and births. A growing body of qualitative work, primarily investigating young, unmarried men and women, shows that many pregnancies and births are perhaps best characterized by parental ambivalence or result from risk-taking sexual behaviors (Kendall et al. 2005; Edin, England, Shafer and Reed 2007; Augustine, Nelson, and Edin 2009). Even the few quantitative papers that consider ambivalence infer it from inconsistent responses among related questions, such as happiness about a pregnancy and birth control use/discontinuation at the time of conception (Santelli et al. 2003; Hohmann-Marriott 2011), rather than directly measuring ambivalence. Another strength, then, of the current research is that the TARS data contain nuanced measures about pregnancy intention.

We have several goals in this paper. First, we move beyond the simplistic measure of

intendedness with a unique dataset, suggesting that work on unintended childbearing might best consider birth intendedness as a psychosocial measure in itself rather than a simple descriptive characteristic. Second, our analyses allow us to more thoroughly identify characteristics that affect early fertility and intendedness. In particular, the longitudinal nature of our data, combined with a large set of individual and social measures, allows us to move beyond earlier studies (which largely used sociodemographic correlates) to investigate individual psychological attitudes and characteristics as well as peer and family influences in a causal manner. Third, we focus on a key life course stage – early adulthood, which has received less attention relative to teenage fertility or overall levels of unintended fertility. Early adulthood is key both because becoming a parent during this time period may be particularly consequential for subsequent life course transitions and attainment (such as later marriage or educational achievement) and because young adulthood is often a time of immense ambivalence about one's life course goals and plans, particularly as the transition to adulthood has become more varied (Settersten and Ray, 2010).

Fertility during the transition to adulthood

Emerging adulthood is a period of development from the late teens up to the mid-twenties, typically concentrating on ages 18 – 25 (Arnett, 2000). This is a demographically dense period with a great deal of diversity and unpredictability in the spheres of family and work life (Rindfuss, 1991). Many who are experiencing emerging adulthood do not consider themselves adolescents, but neither do they consider themselves adults. During adolescence, an important aspect of emotional maturation is the shift from peer and familial relationships to intimate relationships (Giordano, 2003), and this behavior only intensifies during the transition to adulthood. Intimate relationships during emerging adulthood are longer, more committed, and

usually involve sexual intercourse (Michael et al. 1995). Higher rates of sexual activity, in turn, bring the risk of pregnancy and childbearing. From a life course perspective, the transition to parenthood is a major transition. As noted by Morgan and Rindfuss (1999), fertility is a non-reversible event, and so understanding the circumstances in which young adults enter early parenthood are important because it sets the stage for many future events.

Like most Americans, teens and young adults tend to believe it is better to wait to have children until one is financially secure and in a stable relationship (Edin and Kefalas 2005; Thornton and Young-DeMarco 2001). Reflecting these beliefs, most teens and young adults do not become parents (Hamilton, Martin, and Ventura 2011), yet a substantial number nonetheless have children, and as mentioned earlier, most of these births are unintended, or at least not explicitly planned (Edin, England, Shafer and Reed 2007). There is a large literature linking socioeconomic disadvantage and early and unintended childbearing. Race-ethnic minorities and low-income women are more likely to experience an early and unintended birth (Chandra et al. 2005; Finer and Zolna 2011; Guzman, Wildsmith, Manlove, and Franzetta 2010), and such births are often repeated (Guzzo and Hayford 2011). The mechanisms underlying these patterns remain elusive, but researchers have speculated that some potential explanations could be: different social costs from peers and family for early and unintended births, fewer opportunity costs due to disadvantaged communities, and a personal orientation that inhibits planning sexual and childbearing behaviors (Guzzo and Hayford 2011).

Social-psychological explanations of fertility behaviors

Quantitative fertility research using nationally representative large-scale samples has generally been unable to examine the role of social-psychological mechanisms. Most work on early and unintended fertility comes from demographic studies, which usually do not include

psychosocial measures. Further, few studies are longitudinal in design, prohibiting analyses of how psychosocial factors influence the entrance into parenthood. Certainly, there is a literature, building off Ajzen and Fishbein's (1980) theories of reasoned action and planned behavior, that shows that people who have positive attitudes toward children tend to have children, while those who have positive attitudes toward activities that compete with childbearing and childrearing (such as employment, leisure time, and so on) tend to delay or have fewer or no children (see Barber and Axinn 2005 for a summary of this literature). But most of this research draws on very specific individual-level attitudes toward childbearing and competing activities, and Alwin (2005) makes a case for a broader definition of social-psychological mechanisms, moving beyond specific attitudes to include beliefs, preferences and evaluations, social norms, and personality characteristics.

We adopt this more general definition, doing so in part because any analyses of young adult behavior – particularly behaviors involving forming partnerships and having children – must acknowledge the social, emotional, and psychological changes that often accompany the transition to adulthood. Although it is important to consider direct measures of attitudes toward sex and childbearing (such as sexual permissiveness or whether having a child before marriage would be detrimental), prior research has also linked factors such as depression, self-esteem, and religiosity to sexual behaviors and early fertility (Baumeister et al. 2003; Longmore et al. 2004; Mazzaferro et al. 2006) and intendedness (Hayford and Morgan 2008), and these change over the life course. During emerging adulthood, psychological well-being improves as depressive symptoms decrease from adolescent levels (with lower levels linked to less risky behavior) and individuals experience an increase in their self-esteem (Galambos et al., 2006), which is sometimes, and counterintuitively, linked to greater chances of risky behavior (Baumeister et al.

2003). Another psychological factor linked to sexual risk-taking is future orientation; young men and women with high educational aspirations and long-term goals tend to delay sexual initiation and take fewer risks (Harden and Mendle 2011). Religiosity similarly tends to discourage having sex, but it also discourages contraceptive use (Zaleski and Schiaffino 2000) and is linked to early fertility (Hayford and Morgan 2008).

Further, although emerging adults are increasingly able to make decisions on their own, based on their personal goals and beliefs, their goals and beliefs are often formed through peer and parental socialization. During adolescence, even as teenagers begin spending more time with their peers and establishing independence, parents retain influence and are an important source of information (Wang et al. 2009) and social expectations regarding competing obligations such as educational attainment and marriage are formed, in part, due to familial norms and expectations (Barber 2000, 2001). Adolescents who report learning about sex from their parents tend to have beliefs likely to delay the onset of sexual activity (Bleakley et al. 2009), and those who report open channels of parent-adolescent sexual communication tend to delay sexual activity and use condoms more often (Hutchinson 2002). Of course, peers are an important source of information and social norms as well. Adolescents who have a greater proportion of sexually active friends are more likely to be sexually active themselves (Sieving et al. 2007). These early parental and peer influences form the basis of the identities that young adults bring with them as they transition to adulthood. Finally, it is worth noting that even broader contextual factors matter, perhaps by affecting the evaluation of alternatives to early childbearing. Cubbins et al. (2009) found that neighborhood poverty predicted early sexual initiation among teens 15-17, and the influence of adolescent community context has long-term effects on young adults' achievements and outcomes (Wickrama 2010).

However, what makes early adulthood differ from adolescence is that more serious unions and childbearing do, in fact, become more common and acceptable. For those that have a birth, the context in which they have a birth is key. Young adults in more committed relationships are more likely to have wanted births or feel more ambivalent towards having a child, with the latter group perhaps realizing they are somewhat young to have a child but still wanting to have a child with their partner. Those who conceive a child in a less committed relationship are much more likely to perceive a child as unwanted or to have been simply not even thinking about the possibility of having a child when they engaged in casual sex. Augustine, Nelson, and Edin (2009) noted, among a sample of low-income unmarried fathers, that nearly half of the fathers reported they were not even thinking about the potential consequences of unprotected sex when they conceived their child. It is also possible that post-birth relationship stability affects how the intendedness of a birth is retrospectively categorized; a birth in a relationship that ultimately ended may be more likely to be categorized as unwanted, for instance, while a birth in a relationship that remains intact may be more likely to be categorized as wanted.

In sum, we expect that social norms and influences from peers and parents, community opportunities, and individual-level psychological attributes and attitudes influence early fertility behaviors. More positive psychological attributes (like high self-esteem) may protect against early fertility, but if a birth does occur, positive psychological attributes may translate into an ability to control their reproductive behavior and thus increase the likelihood that a birth is wanted. We expect more conservative peer norms and parental influences to protect against early fertility as well. However, if a birth does occur, it is unclear how these social factors may affect the intendedness of a birth. On the one hand, respondents may be more likely to report a

birth as wanted to avoid the appearance of irresponsibility. They may also be more ambivalent about having a birth, if they have internalized more conservative norms about sex and childbearing but still want a child. On the other hand, more conservative peer and parental norms may reduce the chances that respondents engaged in responsible sexual behavior by planning ahead and using contraception at the time of sex, resulting in an increased likelihood a birth results from sexual risk-taking. Similarly, it may increase the social costs of early childbearing and thus increase the chances the birth is unwanted. Finally, because disadvantaged communities present lower opportunity costs of childbearing, we expect that neighborhood disadvantage will increase the likelihood of having an early birth, with potential countervailing associations with intendedness of a birth. For low-income young adults, parenthood may be a desired social role and thus early births may be wanted; conversely, individuals may take more risks, be more ambivalent, or feel less empowered and thus births would not be wanted (Edin and Kefalas 2005).

We also consider the possibility that psychosocial influences do not work in the same manner across gender, as there are gender differences in how adolescents and young adults view romantic relationships, sexual activity, and pregnancy (Cuffee, Hallfords, and Waller 2006; Giordano, Manning, Longmore, and Flanigan 2012). For instance, young women, but not men, with depression in early adolescence ware more likely to have had a child by age 20 (Hammen, Brennan and Le Brocque 2011), and religiosity has been more strongly and consistently linked to later sexual debut for females than males (Rostosky, Wilcox, Wright, and Randall 2004). There is also evidence the adolescent girls weigh peer opinions and evaluations more heavily than boys (Rose and Rudolph 2006). Finally, parents are more concerned about daughters' sexual activity

than about sons; as such, they tend to communicate more with their daughters and emphasize different aspects of reproductive health and sexual behaviors (Wilson and Koo 2010).

Current research

Although most fertility researchers recognize the potential importance of social-psychological mechanisms in driving childbearing behavior, most studies have been unable to directly examine such mechanisms (e.g., Guzzo and Hayford 2011). Surveys and datasets containing detailed fertility information, such as dates, relationship contexts, and intendedness, rarely include psychosocial measures. Similarly, data rarely contain the longitudinal information necessary to establish causality between social-psychological measures and fertility; it is quite possible that an unintended birth can lead to depression, for instance. However, the dataset used here is uniquely suited to address these issues. The TARS data are longitudinal with detailed psychosocial measures and detailed fertility data. Most researchers on unintended childbearing are also increasingly concerned that the traditional measurement of unintended fertility is inadequate, resulting in a growth of work on ambivalence. Unfortunately, most quantitative work on ambivalence uses an indirect approach to identify ambivalence, usually by looking for inconsistencies across questions about a particular birth without a direct measure. For instance, studies sometimes contrast responses about wantedness with happiness, inferring ambivalence when a birth is unwanted but the respondent is happy (e.g., Hohmann-Marriott 2011). The TARS data again provides an important advantage in that ambivalence, as well as risk-taking, is included in addition to the standard response categories of wanted and unwanted.

Data

The data are from the Toledo Adolescent Relationship Study, a longitudinal study based on a stratified random sample of the year 2000 enrollment records of all youths registered for the

7th, 9th, and 11th grades in Lucas County, Ohio. Data from the 2000 U.S. Census indicate that Lucas County's socioeconomic and demographic characteristics are similar to national averages across a number of key domains (marital status, income, education, and racial distribution), and the TARS sample, indicated by the US Census, parallels the sociodemographic characteristics of the Toledo MSA. The sample is drawn from student rosters (made available through Ohio's Freedom of Information Act) from 62 schools across seven school districts, although respondents did not have to attend class to be in the sample. The sample, devised by the National Opinion Research Center, includes oversamples of Black and Hispanic adolescents, and respondents are from a range of affluent and disadvantaged urban, suburban, and rural neighborhoods. In the first interview (Wave 1) conducted in 2001, 1,321 adolescents (aged 12-19) participated in the study. Interviews were conducted in the respondent's home using preloaded laptops to administer the interview while maintaining privacy, and a primary caregiver was also interviewed at Wave 1. Subsequent interviews were conducted in 2002, 2004 and 2006; we use the fourth wave of data collection to measure fertility behaviors, when the respondents (n=1,092) are aged 17-24. We include both men and women in our study but restrict the analytical sample to those who had not had a birth prior to the first wave of data collection to produce a final sample size of 1,068.

We have two independent variables: whether the respondent ever had a birth, and the intentionality of the first birth. We focus on births rather than pregnancies because pregnancies ending in abortion are notoriously under-reported in survey data (Jones and Kost 2006). Complete fertility histories for both men and women at Wave 4 were gathered, including the date of birth, relationship status at birth, and the intendedness of the birth. Birth intendedness is a four-category variable: wanted to get pregnant, did not want to get pregnant, had not thought

about whether [they] wanted to get pregnant, and did not care one way or another. The last two categories are unique to TARS; survey data have not included such categories before, yet qualitative data (Augustine, Nelson, and Edin 2009) suggest that many individuals simply are, in fact, ambivalent (i.e., not necessarily planning to have a child but not necessarily trying to avoid having a child either) while the behaviors of others represent risk-taking (not really thinking about pregnancy at all when engaging in sexual activity).

Independent variables

We include a number of standard socioeconomic and demographic variables, including age, gender, race-ethnicity, mother's education level, family structure during adolescence, and whether the respondent's own mother had a teenage pregnancy. Additionally, we include a measure of whether the respondent ever had a sex education class during school, scaling together responses about how much (ranging from 1=nothing at all to 5=very much) was covered in health classes in school on four topics (alpha=0.86): birth control; pregnancy; AIDS and STDs; and abstinence. In the model predicting intendedness, we also include a measure of relationship status at birth and current relationship status. We group our psycho-social measures into three groups, in addition to adding a measure of neighborhood context.

Our first set of measures are individual psychological measures measured at Wave 1. These include depression, self-esteem, self-efficacy, future orientation, and religiosity as well as two more direct fertility and sexual behavior measures. Depression is a seven-item version (alpha=0.78) of the CES-D Depressive Symptoms Scale (Ross and Morowsky, 1999) measured from self-reported of interviewees. Self-esteem is assessed using Rosenberg's six-item scale (Rosenberg et al., 1995), with alpha=0.70. Self-efficacy is a scale of three questions (alpha=0.61), with responses ranging from 1=strongly disagree to 5=strongly agree: "I can do

just about anything I really set me mind to;" "I am responsible for my own failures;" and "I am responsible for my own success." Future orientation is a summary measure of three questions (alpha=0.67), on a scale of 1=not at all to 5=definitely, about the future: "Do you see yourself working full-time?"; 'Do you see yourself being happier than you are now?"; and "Do you expect to be financially successful?" Religiosity is derived from a single question: "How important is religion in your life?" with responses ranging from 1=not at all important to 5= very important; we dichotomize this variable to indicate very/pretty important or not.

The two direct fertility and sexuality indicators, again measured at the first wave, are how the respondent would react if they became pregnant/impregnated someone and a conservative sexual attitudes measure. Reaction to becoming pregnant is based on agreement to the statement "I would be devastated if I got pregnant at this age," measured on a scale of 1=strongly disagree to 5=strongly agree, dichotomized into agree/strongly agree or not. Conservative sexual attitudes is a summary measure based on the responses to 5 questions, also measured on a scale of 1=strongly disagree to 5=strongly agree (alpha=0.65): "A person should only have sex with someone they love;" "A person should only have sex if they are married;" "I would have to be committed to someone to have sex with them;" "I would feel comfortable having sex with someone I was attracted to but did not know very well" (reverse coded); and "It's okay to sometimes date more than one person at a time" (reverse coded). Higher scores reflect less sexually permissive attitudes among respondents.

A second set of psychosocial measures includes information about peers at Wave 1. First, we combined three attitudinal measures regarding their perceptions of their friends' attitudes toward sex to create a measure of peer sexual conservativism. Respondents were asked to think of their friends, and then report how much they think their friends would agree or

disagree on a scale of 1=strongly disagree to 5=strongly agree with "It's okay to date more than one person at a time" (reverse coded); "You should only have sex with someone you love;" and "You should only have sex if you are married." Higher scores reflect the perception that friends have more conservative attitudes toward sexual behavior. Second, we created a dichotomous measure indicating that the respondent believed that most or all of their friends were sexually active at Wave 1.

We include a summary measure taken from the parent interview regarding neighborhood disorganization. This measure is a scaled variable (alpha=0.94) of 10 measures, asked on a scale of 0=not a problem, 1=somewhat a problem, and 2=big problem, "Tell me whether you think the following things are a problem in your neighborhood…": high unemployment; litter or trash on sidewalks or streets; run down and poorly kept buildings and yards; quarrels in which someone is badly hurt; drug use or drug dealing in open; youth gangs; vacant or abandoned houses or storefronts; prostitution; abandoned cars; and graffiti. Higher scores, then, reflect more disadvantaged neighborhoods.

Our fourth set of variables address parental influences on sexual attitudes and behavior. These variables come from a parallel survey of primary caregivers, given at Wave 1; for brevity, we refer to this as the "parent interview" and to these variables as "parent measures" (91% of these interviews were with a biological or adoptive parent). Parents were asked how often they discussed sex with their child, with response categories of 1=never to 5=very often; we dichotomize this into discuss sex often/very often or not. Parents were also asked how serious they feel about their child having sex, getting pregnant (or getting someone pregnant) and using birth control with response categories ranging from 1=not at all serious to 5=very serious; these measures essentially reflect how concerned parents were over these behaviors and all are

dichotomized to indicate whether the respondent's parent reported the behavior was very serious/serious or not. Parents were also asked to consider their life as a teen and whether they wish they themselves had waited longer to date, with responses ranging from 1=strongly disagree to 5=strongly agree; this is dichotomized to indicate whether the parent somewhat or strongly agreed they wished they had waited longer to date and is included as proxy over concern over early sexual activity.

In models predicting first birth intentions (described below), we include age at first birth and the relationship status at birth; we created four categories from the original seven categories: no romantic relationship (didn't know him or her/acquaintances/friends), former romantic partner (former girl- or boyfriend/went out with once in a while), committed relationship (girl- or boyfriend or fiancé(e)), and wife/husband. We also include a variable indicating the status of the first birth relationship to account for the potential that a birth occurring in a now-dissolved relationship may be retrospectively re-evaluated. This variable includes three categories: no relationship, romantically involved, and cohabiting/married.

We imputed missing data using Stata's multiple imputation estimation procedures, allowing us to retain 78 cases without full data. Missing data primarily occurred for the variables taken from the parent interview, as some respondents did not have a corresponding parent interview.

Approach

Our approach is twofold. First, we examine the role of individual psychological, peer, neighborhood, and parental influences on the likelihood of having a birth overall, using logistic regression and a series of nested models. Model 1 contains just socioeconomic and demographic measures and the sex ed measure. Model 2 adds individual psychological measures and an

indicator of early sex to Model 1. Model 3 adds peer indicators to Model 1. Model 4 adds parent measures to Model 1. Model 5 adds the neighborhood context measure to Model 1, with Model 6 being the full model. Recall that all the psychosocial measures are measured at Wave 1, prior to any birth. Second, among those who had a birth, we examine whether these early psychosocial characteristics are associated with birth intendedness using multinomial logistic regression, paying particular attention to the differences across intendedness categories to ascertain whether the more nuanced measures are significantly different from one another.

Results

Table 1 presents the weighted descriptive characteristics of the full sample and by gender. The sample is split equally across gender, and by Wave 4, the sample is about 20 years old on average. Just over two-thirds of the sample is white. Nearly all of the sample has a mother who at least completed high school, with about a quarter having a college-educated mother. At Wave 1, half of the sample was living with both biological parents, though more males (56%) than females (49%) lived with both parents. About a fifth of the respondents' mothers had a birth as a teen, and this is higher for girls (20%) than boys (17%).

– Table 1 here –

Looking at the psychosocial measures, measured at Wave 1, most respondents reported they would be devastated if they got pregnant, with slightly more girls (87%) than boys (82%) reporting that they agree or strongly agree that they would be devastated. Respondents scored fairly high on the self-esteem, self-efficacy, and future orientation scales, all averaging around a 4 (with a maximum of 5) and no gender differences. More girls (50%) reported being very or pretty religious than boys (44%) at Wave 1, and they hold less sexually permissive attitudes than boys. At the same time, far more girls had sex by Wave 1 than boys, at 50% vs. 31%,

respectively. For peers, girls report more conservative attitudes among their peers than boys, and boys report that more of their friends had had sex than girls.

Parents seem fairly concerned about the neighborhoods in which their children reside, with an average of 2.4 on the neighborhood disorganization scale out of a range from 1-3. Parents also feel strongly about their child's sexual behaviors. Overall, less than a third of parents discussed sex often with their adolescent by Wave 1, but this is sharply differentiated by gender – 35% of parents had discussed sex often with their daughters but only 24% had discussed sex often with their sons. Most parents are quite concerned over their child having sex, becoming pregnant, or using birth control, with more parents of daughters concerned over having sex and fewer parents concerned about their daughters using birth control compared to the parents of sons. Around 30% of primary caregivers wish they themselves had started dating at a later age.

Finally, we turn to fertility behaviors. Nearly twice as many young women (23.4%) had a birth by Wave 4 than young men (12.1%). Of the young parents, the first birth occurred around age 20. Few of the first births occurred within marriage (around 12% overall), with 71% of women's first births occurring with a boyfriend or fiancé and about 65% of men's first births with a girlfriend or fiancée. By the time of the Wave 4 interview, over a third of the parents were no longer romantically involved with their first child's biological parent, with dissolution of the birth relationship slightly more common among mothers (39%) than fathers (35%). More fathers were cohabiting or married (47%) than mothers (39%), whereas more mothers (22%) were romantically involved but not coresiding than fathers (18%). Not surprising for this age group, only a quarter of births were wanted. A third of the births were unwanted, a fourth were

among those who had not thought about getting pregnant at that time, and 17% were ambivalent. Gender differences are minimal among young parents in their first birth intendedness.

Multivariate analyses

We present the results from logistic regression predicting any birth in Table 2. We proceed with a series of nested models. Model 1 is a basic model with only socioeconomic and demographic measures, along with a measure of how much sex ed the respondent received in health class. Here, we replicate what has been seen in prior work. By young adulthood, young women are over twice as likely to have had a child as young men, consistent with an earlier entrance into parenthood among women, and the likelihood of having a birth increases with age. Blacks are about twice as likely, and Hispanics 2.7 times as likely, to have had a birth than whites. Family background characteristics matter as well. Respondents whose mother had less than a high school degree are about 80% more likely to have had a birth relative to those with a high school degree, while those whose mother had a college degree were about 70% less likely to have had a birth. Compared to those living with both biological parents at Wave 1, respondents living in other types of family structures are significantly more likely to have an early birth.

– Table 2 here –

In Model 2, we add individual psychological indicators as well as an indicator of sexual activity, all measured at Wave 1, prior to any childbearing. As with Model 1, several socioeconomic and demographic variables are significant, but none of the attitudinal measures or psychological characteristics of adolescence at Wave 1 are predictive of early childbearing by Wave 4. The only significant variable is early sex, with those who had sex by Wave 1 being over twice as likely to have had a child by Wave 4. The inclusion of this variable slightly

attenuates most of the significant socioeconomic and demographic variables in Model 1, with the exception of gender, which increases in magnitude; women are now 2.8 times more likely to have had an early birth. In models not shown, we explored whether including early sex masked the effects of the psychological indicators, but these variables remained insignificant even when excluding the early sex indicator.

In Model 3, we add our two peer measures to Model 1, and both measures are significant. Respondents who reported their peers had more conservative attitudes toward sex at Wave 1 are less likely to have had a birth by Wave 4 (OR=.76), while the more peers a respondent believes to be sexually active at Wave 1, the more likely they are to have had a birth (OR=1.64). Note again that the magnitude of the gender variable increases relative to Model 1. In Models 4 and 5, which include indicators from the parent caregiver survey at Wave 1, we see that the more disorganized a parent reported the adolescent's neighborhood, the more likely the respondent had a birth by Wave 4. Neither parents' direct concerns with their adolescents' sexual behavior nor their own regrets over when they began dating influence the odds of early parenthood; however, adolescents whose parent discussed sex with them often or very often at Wave 1 were 1.75 times as likely to have had a birth by Wave 4.

Model 6 presents the full model. Young women are nearly three times as likely to have had a birth by Wave 4 than young men after accounting for socioeconomic, demographic, and psychosocial factors. In the presence of all controls, only Hispanics are more likely to have had a birth than whites (OR=2.43). Having a college-educated parent remains protective against early fertility. Those in a single-parent family are no longer more likely to have had an early birth, although those in a step-parent family and especially those not residing with a biological parent are more likely to have an early birth. An early sexual debut (by Wave 1) increases the

odds of an early birth, while having more peers during adolescence who hold conservative sexual attitudes decrease the odds of an early birth; perceptions of peer sexual behavior is no longer significant in the full model. Neighborhood disorganization and having a parent who discusses sex often with their adolescent also remains significant.

Because prior work noted gender differences in the association between psychosocial factors, along with the existence of gender differences in the characteristics of the sample and importance of gender in predicting early fertility, we ran models predicting any birth separately by gender, shown in Table 3, and this shows gender differences in the predictors of early fertility. For instance, the more sex topics covered in a health class by Wave 1, the less likely young men are to have had a birth by Wave 4, with no effects for young women. Early sex is a far bigger predictor of an early birth for males than females (OR=3.27 and OR=1.86, respectively). Adolescent perceptions of peers' sexual attitudes and behavior are only significant for young women, as is having a parent who frequently discussed sex with their adolescent. We explored whether the association between frequent discussions of sex was driven by early sexual behavior (and thus primary caregivers were discussing sex *in response* to their adolescent's behavior) by running models for girls separately by whether they had sex. Somewhat surprisingly, the frequency of discussing sex at Wave 1 was only significant for daughters who were not yet sexually active; perhaps discussing sex with an adolescent girl who is not yet sexually active normalizes early sexual behavior and thus early fertility.

– Table 3 here –

Finally, we turn to multinomial logistic models predicting intentions among those who had a birth, shown in Table 4. Because we are interested in whether there are real differences in the more nuanced measure available in the data, we present all possible contrasts. In the interest

of brevity, we present only a full model with all controls, including birth-specific characteristics (age, relationship status at birth, and current relationship status with the other biological parent). Further, in our discussion, we focus more on significance (up to the p=.1 level) than magnitude; our small sample size (n=205) and the four-category independent variable inflates the size of the relative risk ratios.

– Table 4 here –

The first thing to note is that socioeconomic and demographic variables are not uniformly significant. Notably, there are no significant gender differences in birth intentions. There are several significant differences between young parents who categorized their first birth as "didn't care about it one way or another" (i.e., ambivalence) and the other three categories (wanted, unwanted, and hadn't thought about it). Blacks are significantly more likely than whites to report being ambivalent when they got pregnant relative to having not thought about it at all (what we consider risk-taking). Age is also important – the older the age at first birth, the more likely a young parent is to label their first birth as wanted or as ambivalent relative to either being an unwanted birth or a birth the respondent hadn't thought about at the time of pregnancy. Young parents whose mother had some college are more likely to report being ambivalent than to either report the birth as unwanted or as having not been thinking about it; those with a mother with less than high school (relative to a high school degree) are also less likely to report a birth as unwanted than as ambivalent. Those who were not living with either biological parent at Wave 1 are significantly less likely to report being ambivalent than any other category, and those who were living in a single-parent family are also less likely to be ambivalent than to report having not thought about it.

Not surprisingly, relationship status at birth matters. Compared to those who were romantically involved but not coresiding, those who were married at the time of the birth are more likely to have wanted or been ambivalent about their first birth relative to having not thought about it; they are also more likely to report the birth as wanted rather than unwanted. Interestingly, those who were not romantically involved at the time they got pregnant (either having no relationship or a past relationship) are less likely to categorize the birth as wanted relative to being ambivalent, but those who were just friends with their child's biological parent are also more likely to report being ambivalent rather than having not thought about it. Relative to those who are cohabiting or married at Wave 4 to their first child's biological parent, those who are not romantically involved at Wave 4 report fairly strong feelings about their first child; they are both more likely to categorize the birth as unwanted or wanted relative to being ambivalent. Those who are currently romantically involved are also more likely to report the birth as unwanted than ambivalent relative to those who are coresident with their first child's parent.

Although the individual psychological measures at Wave 1 did not predict whether young adults had an early birth, they are moderately associated with intendedness among those that did have a birth. Young parents who reported they would be devastated if they got pregnant as adolescents are more likely to classify their first birth as unwanted or ambivalent than as hadn't thought about it and less likely to classify it as wanted than ambivalent. Young parents who reported higher levels of self-efficacy at Wave 1 are more likely to categorized their first birth by Wave 4 as unwanted than as ambivalent. Young parents who were more future-oriented as adolescents are less likely to classify the birth as unwanted or ambivalent relative to hadn't thought about it and more likely to classify the birth as wanted than as ambivalent. The measure

of future orientation may tap into a sense of optimism about the future, which could translate into more risk-taking if individuals have overly rosy expectations. Those who would have been devastated if they got pregnant as adolescents seem to be less likely to have been ignoring the risk of pregnancy when they got pregnant, with some of them having become less concerned about pregnancy as they got older (and thus becoming ambivalent) while others clearly remained continued to view an early pregnancy as problematic (and thus unwanted). Individuals with higher levels of self-efficacy as adolescents are significantly more likely to report the first birth as unwanted than as ambivalent, perhaps because they more strongly feel that an early birth should not have happened. Peer influences from adolescence are insignificant, as is the level of neighborhood disorganization. Only one parental factor from adolescence influences the intendedness of an early first birth; individuals whose primary caregiver reported they felt seriously about their child using birth control are significantly less likely to have been ambivalent when they got pregnant relative any other category.

Discussion

The transition to adulthood has emerged as a key life course stage, a stage that seems to be lengthening as young adults are increasingly struggling to achieve the traditional markers of adulthood (Settersten and Ray, 2010). Decisions, behaviors, and experiences made during the transition are perhaps more and more consequential for subsequent transitions. Arguably, no transition is more life-altering than the transition to parenthood. Although fertility rates are declining among teenagers and young adults, first birth rates remain highest for those in their late teens and early twenties (Martin et al., 2013). Thus, many individuals do become parents during the transition to adulthood and, unfortunately, many of these births are unintended (Mosher, Jones, and Abma, 2012). Although the reduction of unintended childbearing has been a major

public health goal over the past few decades, the proportion of all births that are unintended has remained stubbornly high (Finer and Zolna, 2011).

In light of the high rates of childbearing, particularly unintended childbearing, among young adults, researchers are recognizing the need to move beyond simplistic socioeconomic predictors of early fertility and narrow definitions of unintended fertility. The current research takes advantage of unique longitudinal data during the transition to adulthood with rich measures of individual psychological attributes and attitudes, peer and parental influences, and neighborhood context (measured about six years prior to the measurement of early fertility) as well as a nuanced measure of unintended fertility to explore childbearing in early adulthood.

We found that individual-level psychological factors measured in adolescence were not predictive of early fertility but were partially associated with the intention status of a birth among those who had a birth. Although our psychological measures were largely expected to be protective against early fertility, we also thought they would be positively associated with births being wanted, as they indicated strong psychological resources, but this was not the case. In contrast, peer influences and community characteristics were important for predicting the entrance into early parenthood but did not influence how young parents categorized the intendedness of their birth. Young adults who had, in adolescence, perceived their peers as being more sexually permissive and having more sexual partners are more likely to have had a birth by ages 17-24, although gender-specific analyses indicated that this association held only for females. Young adults who had been living in neighborhoods perceived by their parents as disorganized and disadvantaged had an elevated risk of an early birth. Parental behaviors and concerns during adolescence were also linked to early fertility, though in different ways. Young women whose parents frequently discussed sex with them had an elevated risk of an early birth;

this association did not exist for young men, nor did it seem to be a reactionary process in which parents' sexual discussions occurred because their daughters were sexually active. For fertility intentions, young adults whose primary caregivers reported concerns about birth control during adolescence were less likely to be ambivalent when they got pregnant. Young men, though, were less likely to have had an early birth when they covered more sex ed topics during adolescence, with sex ed unrelated to young women's fertility risk.

Our research also utilized a more nuanced definition of fertility intentions. Fertility intentions have most commonly been measured in quantitative work with a dichotomous indicator of whether a birth was wanted or not, though many studies also include mistimed births. Still, qualitative work has suggested that how men and women feel about their births is often quite complicated (e.g., Kendall et al., 2005; Edin, England, Shafer and Reed, 2007; Augustine, Nelson, and Edin, 2009), yet the concept of having ambivalent feelings (or simply not even thinking about the consequences of unprotected sex) is often subsumed under the umbrella of unintended. Although researchers sometimes analyze ambivalence (e.g., Hohmann-Marriott, 2011), this is often derived from what are perceived as inconsistent responses to seemingly related questions about a birth (i.e., wantedness vs. happiness questions) (Santelli et al., 2003); survey data rarely has directly asked about ambivalence. The TARS data is the only quantitative and longitudinal survey data containing a more detailed measure of fertility intentions, with a response category for respondents who "didn't care one way or another if they became pregnant," which we consider true ambivalence, and for respondents who "hadn't thought about whether they wanted to get pregnant," which we consider more a risk-taking attitude, along with standard categories of wanted and unwanted.

Although our sample of first births was small (n=205), we found several significant differences among socioeconomic, demographic, and social-psychological measures between the various categories of intendedness. In particular, although they comprised only 17% of young parents, those who were reported that at the time of conception they did not care one way or another if they got pregnant differed from those who were risk-taking and those who felt strongly positively or negatively about their first birth. In adolescence, these ambivalent parents were less future-oriented, less worried about the impact of an early pregnancy, and less self-efficacious. Their parents were less likely to report serious feelings about their child using birth control in adolescence, and they were more likely to have been living outside a two-parent married family. Risk-takers did not exhibit such clear differences from other categories, though they were more future-oriented but less concerned about an early pregnancy than those who felt strongly, and negatively, towards their early first birth.

We take these differences as more support for the notion that fertility intentions are, indeed, more complicated than the definition used more commonly in quantitative research. In many ways, fertility intentions are not simple descriptive categories with a set meaning but are psychosocial measures in and of themselves, reflecting social and psychological factors – individual, economic, and relational costs and benefits; individual resources; and social supports. Although research has linked births categorized as unintended to negative health and well-being among mothers, families, and children (Logan et al., 2007), the persistently high level of unintended childbearing suggests the current approaches to reduction are ineffective. This may be, in fact, because the research and public health communities have not adequately understood what an unintended birth really means to those experiencing it, and as a result, efforts and programs are not properly designed. For instance, the prevention of births that are truly

unwanted, occurring among someone who is perhaps using contraception (though maybe inconsistently or incorrectly), might entail a different approach than the prevention of births that occur to those engaging in risky sex with little thought to the consequences. Births which occur to those who are ambivalent might be the most difficult to prevent; the notion that births should be planned is not shared across all groups but is most prevalent among the middle-class and well-educated (Bachrach, Smock, and Hoelter, 2011).

Limitations

Our study does have some limitations. First, the TARS data are not nationally representative, though the Toledo metropolitan area from which the sample was drawn is similar to the United States on several key characteristics such as race/ethnicity, marital status, educational levels and median family income (Seffrin, Giordano, Longmore, and Manning 2012). Second, the sample is still fairly young by Wave 4, and thus few have had births yet, resulting in a small sample size for the analysis of birth intentions. Third, although we consider the nuanced measure of fertility intentions as a strength of the data, it is difficult to compare our findings to research using a more traditional definition. Finally, the precise meaning of our parent measures is unclear; feeling "serious" about a child becoming pregnant or using birth control does not necessarily translate into positive or negative feelings but merely indicates some level of concern.

Conclusion

Childbearing occurring during the transition to adulthood has the potential to derail long-term educational and career achievements, and young parents may be ill-equipped to meet the demands of parenting. Further, many of the births that do occur are unintended and occur among those in unstable relationships. Understandably, then, reducing early and unintended

childbearing is an important goal, and this research contributes to our body of knowledge about such fertility. We identified separate mechanisms for the selection into early parenthood and for how such births are perceived in terms of intendedness. Future research should continue to explore psychological characteristics and social influences on childbearing behavior and continue to unpack the complex feelings many people have about childbearing. Further, we need to link whether and how, these different ways of thinking about the entrance into parenthood are associated with subsequent outcomes for parents, families, and children. Are all children resulting from a birth that is not expressly wanted at an elevated risk for negative health and developmental outcomes, or some categories of births more or less at risk? Are births for which parents felt ambivalent (not trying to get pregnant but not trying to avoid it) as much of a relationship stressor as those that are clearly unwanted? As we try to reach the *Healthy People 2020* goal of increasing the proportion of births that are intended (U.S. Department of Health and Human Services, 2010), we need to better understand the complex interplay between fertility, feelings about childbearing and childrearing, and well-being.

REFERENCES

Ajzen, I., and Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice Hall.

Alwin, D. F. (2005). Attitudes, beliefs, and childbearing. *The New Population Problem: Why Families in Developed Countries are Shrinking and What it Means.* Mahwah, NJ: Lawrence Erlbaum Associates, Inc, 115-126.

Amato, P. R., Landale, N. S., Havasevich-Brooks, T. C., Booth, A., Eggebeen, D. J., Schoen, R., & McHale, S. M. *(*2008*).* Precursors of youth women's family formation pathways. *Journal of Marriage and Family, 70*, 1271–1286.

Arnett, J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist, 55*(5), 469-480.

Augustine, J., Nelson, T., and Edin, K. (2009). Why do poor men have children? Fertility intentions among low-income unmarried U.S. fathers. *The ANNALS of the American Academy of Political and Social Science, 624*, 99-117.

Bachrach, C. A., Smock, P. J., and Hoelter, L. (2011). Social class and the timing and context of childbearing." Pp 87-110 in Johnson-Hanks et al Understanding Family Change and Variation. New York: Springer Science+Business Media.

Barber, J. S. (2000). Intergenerational influences on the entry into parenthood: Mothers' preferences for family and nonfamily behavior. *Social Forces*, *79*(1), 319-348.

Barber, J. S. (2001). The intergenerational transmission of age at first birth among married and unmarried men and women. *Social Science Research, 30*(2), 219-247.

Barber, J. S., and Axinn, W. G. (2005). How do attitudes shape childbearing in the United States. *The new population problem: Why families in developed countries are shrinking and what it means*, Mahwah, NJ: Lawrence Erlbaum Associates, Inc, 59-92.

Baumeister, R.F., Campbell, J.D., and Krueger J.I. (2003). Does high self-esteem cause better performance, interpersonal success, happiness, or healthier lifestyles? *Psychological Science in the Public Interest, (1):* 1-44.

Bleakley, A., Hennessy, M., Fishbein, M., Coles Jr, H. C., and Jordan, A. (2009). How sources of sexual information relate to adolescents' beliefs about sex. *American Journal of Health Behavior, 33*(1), 37.

Cubbin, C., Brindis, C. D., Jain, S., Santelli, J., and Braveman, P. (2010). Neighborhood poverty, aspirations and expectations, and initiation of sex. *Journal of Adolescent Health, 47*(4), 399-406.

Cuffee, J. J., Hallfors, D. D., and Waller, M. W. (2006). Racial and gender differences in adolescent sexual attitudes and longitudinal associations with coital debut. *Journal of Adolescent Health, 41*(1), 19-26.

Chandra, A., Martinez, G. M., Mosher, W. D., Abma, J. C., and Jones, J. (2005). Fertility, family planning, and reproductive health of US women: data from the 2002 National Survey of Family Growth. *Vital and health statistics. Series 23, Data from the National Survey of Family Growth*, (25), 1.

Edin, K., England, P., Shafer, E.F., and Reed, J. (2007). Forming Fragile Families: Was the Baby Planned, Unplanned, or in Between? In: England, P. and Edin, K. (eds.). *Unmarried Couples With Children*. New York: Russell Sage Foundation: 25-54.

Edin, K., and Kefalas, M. (2005). Promises I can keep: How poor women put motherhood before marriage. Berkeley: University of California Press.

Finer, L., and Zolna, M. (2011). Unintended pregnancy in the United States: incidence and disparities, 2006. *Contraception, 84*(5), 478-485.

Galambos, N.L., Barker, E.T., and Harvey, J.K. (2006). Depression, self-Esteem, and anger in emerging adulthood: Seven-year yrajectories. *Developmental Psychology 42*(2): 350-365.

Giordano, P. 2003. Relationships in Adolescence. *Annual Review of Sociology*, Vol. 29, 257-281.

Giordano, P. C., Manning, W. D., Longmore, M. A., and Flanigan, C. M. (2012). Developmental shifts in the character of romantic and sexual relationships from adolescence to young adulthood. Pp. 133-164 in A. Booth et al. . (Eds.), *Early Adulthood in a Family Context*. New York: Springer.

Guzman, L., Wildsmith, E., Manlove, J., and Franzetta, K. (2010). Unintended births: Patterns by race and ethnicity and relationship type. *Perspectives on Sexual and Reproductive Health, 42,* 176-185.

Guzzo, K., and Hayford, S. (2011). Fertility following an unintended first birth. *Demography, 48*: 1493-1516.

Hammen, C., Brennan, P. A., and Le Brocque, R. (2011). Youth depression and early childrearing: Stress generation and intergenerational transmission of depression. *Journal of Clinical and Clinical Psychology 79*(3),353-363.

Harden, K., and Mendle, J. (2011). Adolescent sexual activity and the development of delinquent behavior: The role of relationship context. *Journal of Youth and Adolescence, 40*(7), 825-838.

Hayford, S., and Morgan, S. (2008). Religiosity and fertility in the United States: The role of fertility intentions. *Social Forces, 86*(3), 1163-1188.

Hamilton, B. E., & Ventura, S. J. (2012). Birth rates for US teenagers reach historic lows for all age and ethnic groups. NCHS Data Brief No. 89. Hyattsville, MD: National Center for Health Statistics.

Hamilton, B.E., Martin, J.A., and Ventura, S.J. (2011). Births: Preliminary Data for 2010. NVSS 60:2. Bethesda, MD: National Center for Health Statistics.

Hohmann-Marriott, B. (2011). Ambivalent intentions for pregnancy: Measurement, partner effects, and future intentions. Paper presented at the 2011 annual meeting of the Population Association of America, March 31-April 2, Washington, D.C..

Hutchinson, M. K. (2004). The Influence of Sexual Risk Communication Between Parents and Daughters on Sexual Risk Behaviors. *Family Relations, 51*(3), 238-247.

Jones, R., and Kost, K. (2006). Reporting of induced and spontaneous abortion in the 2002 National Survey of Family Growth. Presented at the National Center for Health Statistics National Survey of Family Growth Research Conference, Bethesda, MD.

Kendall, C., Afable-Munsuz, A., Speizer, I., Avery, A., Schmidt, N., & Santelli, J. (2005). Understanding pregnancy in a population of inner-city women in New Orleans—results of qualitative research. *Social Science & Medicine, 60*(2), 297-311.

Augustine, J. M., Nelson, T., & Edin, K. (2009). Why do poor men have children? Fertility intentions among low-income unmarried US fathers. *The Annals of the American Academy of Political and Social Science, 624*(1), 99-117.

Kearney, M. S., and Levine, P. B. (2012). Why is the teen birth rate in the United States so high and why does it matter? *Journal of Economic Perspectives, 26,* 141-166.

Logan, C., Holcombe, E., Manlove, J. and Ryan, S. (2007). The consequences of unintended

childbearing. A White Paper prepared by Child Trends for the National Campaign to Prevent Teen and Unplanned Pregnancy. Child Trends, Washington, DC.
Longmore, M.A., Manning, W.D. and Giordano, P.C. (2004). Self-Esteem, Depressive Symptoms, and Adolescents' Sexual Onset. *Social Psychology Quarterly,* Vol. 67, No. 3, 279-295.
Martin, J. A., Hamilton, B. E., Ventura, S. J., Osterman, M. J. K., and Mathews, T. J. (2013). Births: Final Data for 2011. National Vital Statistics Reports 62(1), National Center for Health Statistics. Bethesda, MD.
Mazzaferro, K., Murray, P., Ness, R., Bass, D., Tyus, N., Cook, R. (2006). Depression, stress, and social support as predictors of high-risk sexual behaviors and STIs in young women. *Journal of Adolescent Health, 39*(4), 601-603.
Michael, R.T., Gagnon, J.H. Laumann, E.O. & Kolata, G. (1995). *Sex in America: A definitive survey*. New York; Warner Books.
Morgan, S.P., and Rindfuss, R. (1999). Reexamining the link of early childbearing to marriage and to subsequent fertility. *Demography, 36*(1), 59-75.
Mosher, W. D., Jones, J. and Abma, J. C. (2012). Intended and unintended births in the United States: 1982-2012. National Health Statistics Reports No. 55. National Center for Health Statistics, Bethesda, MD.
National Campaign to Prevent Teen and Unplanned Pregnancy. (2008). *The DCR Report, Section A.* Washington, DC: National Campaign to Prevent Teen and Unplanned Pregnancy.
Rindfuss, R. (1991). The young adult years: Diversity, structural change and fertility. *Demography, 28*(4), 493-512.
Rose, A. J. and Rudolph, K. D. (2006). A review of sex differences in peer relationship processes: Potential trade-offs for the emotional and behavioral development of girls and boys. *Psychological Bulletin 132*(1), 98-131.
Rosenberg, M., Schooler, C., Schoenbach, C., & Rosenberg, F. (1995). Global self-esteem and specific self-esteem: Different concepts, different outcomes. *American Sociological Review*, 141-156.
Ross, C. E. & Mirowsky, J. (1999). Parental divorce, life-course disruption, and adult depression. *Journal of Marriage and Family, 61*(4), 1034-1045.
Rostosky, S. S., Wilcox, B. L., Wright, M. L. C., and Randall, B. A. (2004). The impact of religiosity on adolescent sexual behavior: A review of the evidence. *Journal of Adolescent Research 19*(6), 677-697.
Rubin, A. G., Gold, M. A., and Primack, B. A. 2009. Associations between depressive symptoms and sexual risk behavior in a diverse sample of female adolescents. *Journal of Pediatric and Adolescent Gynecology 22*(5), 306-312.
Santelli, J., Rochat, R., Hatfield-Timajchy, K., Gilbert, B.C., Curtis, K., Cabral, R.,…Other Members of the Unintended Pregnancy Working Group (2003). The measurement and meaning of unintended pregnancy. *Perspectives on Sexual and Reproductive Health, 35*(2), 94-101.
Seffin, P., Giordano, P., Manning, W., and Longmore, M. (2012). Socioeconomic disadvantage, peer and romantic relationships, and the process of criminal desistance. Working paper 2012-02, Center for Family and Demographic Research, Bowling Green, OH.
Settersten, Jr. R., and Ray. B. (2010). What's going on with young people today? The long and twisting path to adulthood. *The Future of Children, 20*(1), 19-41.

Sieving, R. E., Eisenberg, M. E., Pettingell, S., & Skay, C. (2007). Friends' influence on adolescents' first sexual intercourse. *Perspectives on Sexual and Reproductive Health*, *38*(1), 13-19.

Thornton, A., and Young-DeMarco, L. (2001). Four decades of trends in attitudes toward family issues in the United States: The 1960s through the 1990s. *Journal of Marriage and Family, 63*, 1009-1037.

U.S. Department of Health and Human Services. (2000). *Healthy People 2010. 2nd ed. With Understanding and Improving Health and Objectives for Improving Health*. 2 vols. Washington, DC: U.S. Government Printing Office.

U.S. Department of Health and Human Services. (2010). "Healthy People 2020 Topics and Objectives, Family Planning." http://www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicId=13 Accessed 11/11/11.

Wang, J., Simons-Morton, B. G., Farhart, T., & Luk, J. W. (2009). Socio-demographic variability in adolescent substance use: mediation by parents and peers. *Prevention science*, *10*(4), 387-396.

Wickrama, K. A., & Noh, S. (2010). The long arm of community: The influence of childhood community contexts across the early life course. *Journal of youth and adolescence*, *39*(8), 894-910.

Wilson, E. L., and Koo, H. P. 2010. Mothers, fathers, sons, and daughters: Gender differences in factors associated with parent-child communication about sexual topics. *Reproductive Health 7*(1), 31-40.

Zaleski, E., and Schiaffino, K. (2000). Religiosity and sexual risk-taking behavior during the transition to college. *Journal of Adolescence*, *23*(2), 223-227.

Table 1. Weighted Descriptive Characteristics for Analytical Sample of the Toledo Adolescent Relationship Study, and for Females and Males Separately

	Full (n = 1068)	Female (n = 564)	Male (n=504)
Demographic indicators			
Gender			
Male	50.6		
Female	49.4		
Age	20.3(.05)	20.2(.07)	20.3(.08)
Race-ethnicity			
White	69.0	70.6	67.5
Black	23.9	22.6	25.1
Hispanic	6.8	6.6	70.0
Mother's education			
High school	32.7	34.3	31.2
Less than high school	9.6	10.2	9.1
Some college	34.3	33.6	34.9
College or more	23.4	22.0	24.7
Family structure			
Two-biological parents	52.5	49.4	55.6
Step-parent	13.5	14.2	12.8
Single-parent	21.8	22.3	21.3
Other family	12.2	14.1	10.3
Parent pregnant as teen	18.6	20.3	16.8
Extent of sex ed by W1	3.2(.03)	3.2(.05)	3.1(.05)
Individual psychological indicators at W1			
Devastated if got pregnant	84.1	86.7	81.6
Self-esteem scale	3.9(.02)	3.9(.03)	4.0(.03)
Self-efficacy scale	4.0(.02)	4.0(.03)	4.0(.03)
Future orientation scale	4.1(.02)	4.1(.03)	4.1(.04)
Depressive symptoms scale	2.3(.04)	2.4(.05)	2.2(.05)
Religiosity	46.9	50.4	43.5
Conservative sexual attitudes scale	3.8(.02)	4.0(.03)	3.5(.04)
Had sex	27.9	50.4	31.4
Peer indicators at W1			
Peers' sexual conservatism	3.4(.03)	3.6(.04)	3.1(.04)
Peers' sexual behavior	22.1	19.0	25.0
Community at W1			
Neighborhood disorganization	2.4(.14)	2.5(.19)	2.4(.20)
Parent indicators at W1			
Discuss sex with child	29.8	35.3	24.4
Feelings: child having sex	90.4	92.5	88.5
Feelings: child pregnant	96.9	97.7	96.2
Feelings: child using birth control	83.8	81.4	86.2
Waited longer to date (parent)	29.9	31.9	28.0
Fertility behaviors			
Had a birth	17.7	23.4	12.1
Of those who had a birth			
Age at 1st birth	19.8(.11)	19.6(.14)	20.1(.19)
Status at time of pregnancy			
No romantic relationship	8.3	7.5	9.7
Former romantic partner	11.1	10.0	13.2
Committed relationship	69.0	71.2	64.8
Spouse	11.7	11.3	12.3
Current relationship type with coparent			
Cohabiting or married	41.7	38.9	47.0

	Romantically involved	20.6	22.1	17.9
	No relationship	37.7	39.1	35.2
Birth intendedness				
	Wanted	25.4	25.1	25.9
	Unwanted	32.5	32.7	32.1
	Hadn’t thought about it	25.4	24.3	27.6
	Ambivalent	16.7	17.9	14.4

Table 2. Odds ratios from logistic regression predicting 'any birth' versus 'no birth' in young adulthood (N=1068)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Demographic indicators						
Female	2.35***	2.79***	2.90***	2.43***	2.26***	2.90***
Race-ethnicity						
(White)						
Black	1.98**	1.87**	1.77**	1.56*	1.59*	1.19
Hispanic	2.68***	2.46**	2.68***	2.57***	2.62***	2.43**
Age	1.37***	1.22**	1.28**	1.39***	1.40***	1.22**
Mother's education at W1						
(High school)						
Less than high school	1.77*	1.73*	1.73*	1.43	1.48	1.26
Some college	.78	.79	.80	.83	.79	.85
College or more	.28***	.29***	.28***	.31***	.30***	.33**
Family structure at W1						
(Two-biological parents)						
Step-parent	2.00**	1.89*	1.90*	2.00**	1.92*	1.79*
Single-parent	1.64*	1.46	1.42	1.47	1.66*	1.26
Other family	2.91***	2.63***	2.80***	2.85***	3.10***	2.77***
Parent pregnant as teen	1.34	1.29	1.28	1.27	1.15	1.06
Extent of sex ed by W1	1.03	1.01	1.05	1.02	1.02	1.00
Individual psychological indicators at W1						
Devastated if got pregnant		.80				.82
Self-esteem scale		1.06				1.01
Self-efficacy scale		1.12				1.17
Future orientation scale		1.00				1.05
Depressive symptoms scale		1.06				1.04
Religiosity		1.18				1.18
Conservative sexual attitudes scale		.93				1.12
Had sex		2.37***				2.07**
Peer indicators at W1						
Peers' sexual conservatism			.76*			.76*
Peers' sexual behavior			1.64*			1.22
Community at W1						
Neighborhood disorganization				1.09***		1.08***
Parent indicators at W1						
Discussed sex with child					1.75**	1.61*
Feelings: child having sex					1.08	1.10
Feelings: child pregnant					.45	.50
Feelings: child using birth control					1.05	1.04
Waited longer to date (parent)					1.36	1.22
F	11.67***	7.91***	10.54***	11.39***	8.58***	5.86***

†p<.10; *p<.05; **p<.01; ***p<.001

Table 3. Odds ratios from logistic regression predicting 'any birth' versus 'no birth' in young adulthood by gender

	Female (n = 564)	Male (n = 504)
Demographic indicators		
Race-ethnicity		
(White)		
Black	1.55	.73
Hispanic	2.68	2.31†
Age	1.23	1.18
Mother's education at W1		
(High school)		
Less than high school	1.79	.78
Some college	1.28	.46*
College or more	.26**	.42
Family structure at W1		
(Two-biological parents)		
Step-parent	1.80	1.83
Single-parent	1.19	1.70
Other family	2.89	2.13
Parent pregnant as teen	1.11	1.12
Extent of sex ed by W1	1.19	.76†
Individual psychological indicators at W1		
Devastated if got pregnant	.60	1.15
Self-esteem scale	.91	1.28
Self-efficacy scale	1.10	1.09
Future orientation scale	1.03	1.03
Depressive symptoms scale	1.10	.90
Religiosity	1.18	1.42
Conservative sexual attitudes scale	1.38	.95
Had sex	1.86†	3.27**
Peer indicators at W1		
Peers' sexual conservatism	.72†	.77
Peers' sexual behavior	1.84†	.83
Community at W1		
Neighborhood disorganization	1.11***	1.05†
Parent indicators at W1		
Discuss sex with child	1.86*	1.33
Feelings: child having sex	1.79	.78
Feelings: child pregnant	.47	.26
Feelings: child using birth control	.86	1.37
Waited longer to date (parent)	.98	1.56
F	3.83***	2.40***

†p<.10; *p<.05; **p<.01; ***p<.001

Table 4. Relative risk ratios from multinomial logistic regression predicting the intendedness of the first birth in young adulthood, among those who had a birth (n=205)

	Wanted vs. Hadn't thought about it	Unwanted vs. Hadn't thought about it	Ambivalent vs. Hadn't thought about it	Wanted vs. Ambivalent	Unwanted vs. Ambivalent	Wanted vs. Unwanted
Demographic indicators						
Female	1.57	2.19	2.89	.54	.76	.72
Race-ethnicity						
(White)						
Black	1.59	2.17	4.59†	.35	.47	.73
Hispanic	2.05	.99	1.79	1.14	.55	2.07
Age at first birth	1.40†	1.16	1.83**	.76	.63*	1.20
Mother's education at W1						
(High school)						
Less than high school	1.22	.56	2.98	.41	.19†	2.17
Some college	2.19	1.31	7.27*	.30	.18*	1.67
College or more	4.31	2.60	3.71	1.16	.69	1.66
Family structure at W1						
(Two biological parent)						
Step-parent	1.13	2.13	1.56	.72	1.39	.53
Single-parent	.33	.44	.15*	2.25	2.96	.76
Other family	1.98	.91	.06*	35.05**	16.11*	2.18
Parent pregnant as teen	.79	1.71	1.61	.49	1.07	2.18
Extent of sex ed by W1	.91	.87	.86	1.05	1.01	1.04
Relationship status indicators						
Current relationship status with coparent						
(Cohabiting/married)						
Dating	1.30	2.69	.71	1.83	3.80†	.48
No relationship	2.37	2.50	.41	5.83*	6.13*	.95
Status at time of pregnancy						
No romantic relationship	1.00	2.02	7.65†	.13†	.26	.49
Former romantic partner	.33	2.73	2.97	.11†	.92	.12*
(Committed relationship)						
Spouse	8.25*	1.66	9.24*	.89	.18	4.98*
Individual psychological indicators at W1						
Devastated if got pregnant	1.11	2.94†	5.45†	.20†	.54	.38
Self-esteem scale	.98	1.06	1.21	.81	.88	.92
Self-efficacy scale	1.28	1.50	.51	2.52	2.96*	.85
Future orientation scale	.80	.51†	.32*	2.52*	1.61	1.56
Depressive symptoms scale	1.01	.93	1.45	.70	.64	1.09
Religiosity	.51	1.17	.61	.83	1.92	.43
Conservative sexual attitudes scale	1.13	.64	1.36	.83	.47	1.77
Had sex	.75	.73	1.56	.48	.47	1.03
Peer indicators at W1						
Peers' liberal relationships scale	.67	1.02	.98	.68	1.05	.65
Peers' sexual behavior	.85	.82	.36	2.37	2.29	1.03
Community at W1						
Neighborhood disorganization	.97	.96	.92	1.05	1.04	1.01
Parent indicators at W1						
Discuss sex with child	1.25	.80	.84	1.49	.96	1.56
Feelings: child having sex	.58	.57	.54	1.07	1.05	1.02
Feelings: child pregnant	1.00	1.16	7.21	.14	.16	.86
Feelings: child using birth control	.40	1.02	.09**	4.25†	10.89**	.39
Waited longer to date (parent)	.85	.69	1.10	.77	.63	1.22

†p<.10; *p<.05; **p<.01; ***p<.001