Teenage Women with Major Mental Illness Have Elevated Fertility Rate, Canadian Study Finds

Teenagers who have a major mental illness have a sharply higher fertility rate than their unaffected peers, according to a study conducted in Canada between 1999 and 2009.[1] About one in 25 births among 15–19-year-olds were to those with preexisting major depression, bipolar disorder or psychotic disorder. The age-specific fertility rate was almost two times as high among women with major mental illnesses as among their counterparts without such illnesses in repeated cross-sectional samples over time. Analyses showed a downward trend in the rate for both groups during the study period, but the decline was smaller for the mentally ill group.

Using population-based health administrative databases, investigators identified all women aged 15–19 in Ontario during the study period. They also ascertained major mental illnesses diagnosed before pregnancy and births taking place in hospitals, as well as socioeconomic characteristics, place of residence and parity. The investigators computed the annual age-specific fertility rate (number of live births per 1,000 women) and compared the rate between women with and without major mental illness.

Analyses were based on 60,228 person-years of observation among women with a major mental illness diagnosed in the five years before pregnancy and on 4,496,317 person-years among peers without such disorders. For any given study year, women with mental illness made up 1% of the sample. A larger proportion of the mentally ill group than of the unaffected group were multiparous (4% vs. 1%), but the two groups were similar on socioeconomic measures (about 20% lived in neighborhoods in the lowest income quintile, and 90% resided in urban areas).

Four percent of births during the study period were to women who had a major mental illness, predominantly those having nonpsychotic disorders. The unadjusted overall age-specific fertility rate was 44.9 per 1,000 women among the group with mental illness and 15.2 per 1,000 women among the unaffected group, a difference translating to a rate ratio of 3.0. In the study population overall, women had an elevated age-specific fertility rate if they were parous, lived in a neighborhood not in the highest income quintile or resided in a rural area; the rate ratio comparing women with and without major mental illness fell to 1.9 after adjustment for these characteristics. The presence of major mental illness was not associated with the rate of stillbirth, which was about seven per 1,000 births in both groups.

In an analysis that used three-year moving averages to assess trends in the age-specific fertility rate over time, the rate fell in both groups during the study period. Between the first three years of the period (1999–2001) and the last three years (2007–2009), the rate decreased by 14% among women with major mental illness, compared with 22% among unaffected peers.

The study is noteworthy as it likely is the first to identify major mental illness as a correlate of teenage parenthood, according to the investigators. Its limitations, they acknowledge, include possible confounding by unmeasured characteristics, inability to capture out-of-hospital births, lack of information on abortions and miscarriages, and exclusion of 13–14-year-olds. Nonetheless, the results underscore the importance of taking into account mental illness when designing and implementing pregnancy prevention programs and targeting antenatal and postnatal programs, the investigators maintain. "Interventions that systematically integrate adolescent mental health and reproductive health care may help reduce adolescent fertility rates as well as optimize pregnancy and child development outcomes in this group," they conclude.—*S. London*

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Street-Based Outreach Can Encourage Many to Have Their First HIV Test Ever

Over three years, a street-based program offering free, rapid HIV testing in several cities and towns in Spain attracted more than 7,000 participants, half of whom had never had an HIV test before; 0.6% of first-time test takers (including 3% of those who were men who have sex with men) were HIV-positive.[1] One in five participants who had never been tested before reported that they had no concerns about HIV infection, and three in five said that if they had not passed by the program's mobile van, they would not have had themselves tested. Correlates of not having been tested before included being younger than 30, having less than a university education and, among men who have sex with men, not being involved in the gay community.

The program, which operated between 2008 and 2011, aimed for maximizing visibility by sending a van to locations near railroad stations or on streets with heavy pedestrian traffic. Passersby could receive information about the test from an educator working in a tent outside the van; if they opted for testing, they entered the van, where they received further counseling from medical personnel and provided a blood sample. While waiting for test results, participants completed an anonymous questionnaire covering their demographic characteristics, sexual behavior and history of HIV testing; those who tested positive were referred to a collaborating diagnostic center or advised to see their regular physician.

A total of 7,552 individuals took advantage of the program; roughly one-third each were men who have sex with men, men who were exclusively heterosexual and women. Forty-six percent of all participants were aged 30 or older; 75% were from Spain or other developed countries, and the rest from developing countries, predominantly in Latin America. About half had a university education, and

eight in 10 reported that employment was their main source of income. Three percent had ever injected drugs; 59% had never received an STD diagnosis, and 8% had received one within the last 12 months. In the last year, 23% of men who have sex with men and 35–39% of the other groups had had unprotected sex with a casual partner; half of men who have sex with men, one-quarter of exclusively heterosexual men and one in five women had had five or more partners. Among men who have sex with men, 79% considered themselves homosexual, 12% bisexual and 10% heterosexual; one-quarter reported no attachment to gay culture, and one-quarter said that they met partners mainly via the Internet.

Some 47% of participants had never had an HIV test before. The prevalence of HIV infection in this group was 0.6% overall, 0.1% for both heterosexual men and women, and 3% for men who have sex with men. Twenty-two percent of first-time test takers said that they had not been concerned about HIV infection or thought about testing before, and 34% of those with a positive result said that if they had not been tested that day, they probably or definitely would not have gone for a test within the next 12 months. While 35% reported having come to the program because they knew about it and wanted to be tested, 62% said that they had undergone the test only because they had passed by the van. Roughly half of those who had never been tested before were categorized as being at high risk of HIV infection because they had injected drugs, engaged in sex work or recently had unprotected sex with a casual partner.

Results of a logistic regression analysis revealed that among men who have sex with men, the odds of never having been tested before were elevated for those who were younger than 30 (odds ratio, 2.7), were from a developed country (1.6), lacked a university education (1.3), did not relate to the gay community (1.9), had had unprotected sex with a casual partner in the last year (1.4), had never had an STD (2.7) or had had nine or fewer male partners in the last year (1.3–2.5). Among women and exclusively heterosexual men (whose data were pooled because results for the two groups were similar), correlates of never having been tested before were being younger than 30 (2.0), being from a developed country (1.9), not having a university education (1.4), never having injected drugs (2.0), reporting recent unprotected sex with a casual partner (1.2), having had four or fewer heterosexual partners in the past 12 months (1.5–2.4) and never having had an STD (1.8).

The investigators write that their study "has made it possible to determine the ability of a street-based outreach programme of rapid HIV testing not aimed at any particular risk group to attract…individuals who have never been tested." While they acknowledge potential limitations to the generalizability of their findings, they conclude that highly visible outreach programs can overcome the lack of time, interest or knowledge about services that often serves as an impediment to testing.—*D. Hollander*

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Partnership Characteristics Associated with Condom Use in STD Clinic Patients

Inconsistent condom use may be more strongly associated with partnership characteristics than with individual-level characteristics, according to a study of heterosexual patients attending a Dutch STD clinic.[1] In multivariate analyses, partnership characteristics—defined as age and ethnic differences between partners, relationship duration, number of sex acts in the past year, participation in anal sex, concurrent partnerships and sex-related drug use—accounted for 51% of variance in condom use in steady partnerships and 70% in casual partnerships. In comparison, 11% and 15%, respectively, of variance was attributed to individual characteristics. For both steady and casual partnerships, the likelihood of inconsistent condom use was positively associated with relationship duration and with number of sex acts, participation in anal sex and sex-related drug use within the partnership.

The data come from a 2010 survey of patients attending an STD clinic in Amsterdam who reported exclusively heterosexual behavior. Patients were eligible for inclusion in the analysis if they were aged 16 or older, were able to understand written Dutch or English, and had had vaginal or anal intercourse in the past year. Via an online questionnaire, participants provided information on individual social and demographic characteristics and on sexual behavior and partner characteristics for up to four partnerships in the past year. Participants defined partnerships as steady or casual, and reported, for each partnership, whether condoms were used consistently or inconsistently. Relationships in which there was no vaginal or anal sex were excluded from the analysis.

A total of 2,144 individuals completed the survey, describing 6,401 eligible partnerships, of which they identified 2,387 as steady and 4,014 as casual. For both steady and casual partnerships, slightly more than half of participants were female, and about four-fifths were Dutch (i.e., both their parents were born in the Netherlands). Participants' median age was 25, and they had had a median of four partners in the past year. One-third of partnerships were between individuals of different ethnicities. More than half of both steady and casual partnerships for which data were available happened concurrently with another relationship, and sex-related drug use was reported in six in 10 partnerships.

In a univariate analysis, participants in steady partnerships were more likely than those in casual partnerships to report inconsistent condom use (86% vs. 67%). Inconsistent condom use was associated with only two individual characteristics: In steady partnerships, it was positively associated with respondents' having less than a college education, and in casual partnerships, it was inversely associated with age. All partnership variables were associated with inconsistent condom use, except for the relationships' being ongoing at the time of the survey (for stable partnerships) and their being concurrent with another relationship (for casual partnerships).

In the multivariate analysis of characteristics associated with inconsistent condom use in steady partnerships, low education remained significant (odds ratio, 2.0), as did the interaction between gender and ethnicity. Compared with their Dutch peers, males of other ethnicities were at heightened odds of using condoms inconsistently (2.2–2.3). Other partnership characteristics associated with inconsistent condom use included having a partner of the same ethnicity, practicing anal sex, and using drugs before or during sex (1.5–1.7). Inconsistent condom use was also positively associated with the duration of the relationship and the number of sex acts

performed; odds of inconsistent use were highest for relationships lasting 210–270 days (3.2) and those involving at least 40 sex acts (2.7).

The multivariate analysis pertaining to casual relationships showed an association between inconsistent condom use and low education (odds ratio, 1.3), and the odds of inconsistent use decreased if individuals had had multiple sex partners in the past year (0.7–0.8). Most partnership characteristics showed a significant association with inconsistent condom use: The likelihood of inconsistent use increased slightly with increases in the duration of the partnership and the number of sex acts performed, and decreased as age difference between partners increased. Odds of inconsistent use were elevated in relationships involving partners of the same ethnicity (1.3), anal sex (2.1) and sex-related drug use (1.6), and in partnerships that were ongoing at the time of the survey (1.4).

For steady relationships, individual characteristics explained 11% of variance, while partnership characteristics explained 51%; for casual relationships, those proportions were 15% and 70%.

The researchers acknowledge several limitations to their study, including that it focused on a high-risk (nongeneralizable) population, was missing data for some variables and excluded additional partnerships in cases where participants had had more than four relationships in the study year. However, they conclude that "increased understanding of individual and partnership factors associated with inconsistent condom use could contribute to more tailored and effective" campaigns for preventing STDs, as well as condom use promotion efforts and strategies to address sexual risk behaviors in heterosexuals more generally.—*H. Ball*

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Uptake of HPV Vaccination Increasing Among U.S. Women Aged 18–26, but Disparities Persist

Between 2008 and 2012, the proportion of U.S. women aged 18–26 who had had at least one dose of human papillomavirus (HPV) vaccine grew from 12% to 34%, and increases were observed in all subgroups examined in analyses of data from the 2008–2012 rounds of the National Health Interview Survey (NHIS).[1] However, relatively low rates of uptake persist among some groups—notably, Hispanic women, women who lack health insurance and those who do not have a usual source of health care. Among unvaccinated women, interest in vaccination dropped between 2008 and 2010, as did the proportion saying that the main reason for their lack of interest was that they did not know enough about the vaccine.

The NHIS, an annual cross-sectional survey, uses face-to-face interviews to collect information from a nationally representative sample of the civilian, noninstitutionalized household population. Since 2008, it has included questions about HPV vaccination; in 2008 and 2010, it asked unvaccinated women if they would be interested in being vaccinated and, if not, why not. Researchers pooled data on the 10,513 women aged 18–26 who participated in the 2008–2012 surveys to ascertain trends in vaccination uptake (defined as receipt of at least one of the three recommended doses); they pooled data from the 2008 and 2010 rounds to explore unvaccinated women's interest in vaccination and reasons for nonvaccination. Chi-square tests and logistic regression analyses were used to examine subgroup differences and time trends.

Overall, the majority of women were aged 22–26 (57%), were white (60%) and had some type of postsecondary education (61%); one-quarter lived below the federal poverty level. Some 24% lacked health insurance, and 21% did not have a regular place to go for health care; 15% had put off or forgone needed medical care in the last year.

Twenty-three percent of women in the pooled sample had received at least one dose of HPV vaccine, 18% had received at least two doses and 14% had received three or more. The proportion reporting uptake differed by almost every background measure considered in the analyses. It was greater among 18–21-year-olds than among older women (32% vs. 17%), among whites than among other racial or ethnic groups (27% vs. 16–19%), and among participants with more than a high school education than among women with less schooling (26% vs. 18–19%). Women who had either public or private health insurance were more likely than the uninsured to have had at least one vaccine dose (21–29% vs. 12%), and those with a usual place of care were more likely to report uptake than were those with none (26% vs. 13%); uptake was less common among women who had delayed or forgone care than among others (18% vs. 24%).

Between 2008 and 2012, the proportion of women who had had one or more vaccine doses rose from 12% to 34%. Increases occurred in every subgroup studied, but the extent of the change varied and disparities persisted. For example, the level of uptake grew from 15% to 42% among white women, but only from 7% to 20% (the smallest absolute change for any subgroup) among Hispanics. Similarly, it increased from 16% to 42% among women with private insurance, but from 2% to 19% among those with no coverage at all. In each year, Hispanic women were less likely than whites to have received any HPV vaccine, uninsured women were less likely than those covered by private plans to have done so and women who did not have a regular place to go for care had a lower level of uptake than those not in this situation.

One-third of unvaccinated participants in the combined 2008 and 2010 sample were interested in vaccination. The level of interest was lower in 2010 than it had been two years earlier (29% vs. 40%), and the difference remained significant in analyses controlling for background and relevant health characteristics (odds ratio, 0.5). Hispanic women and non-Hispanics of races other than black had a higher level of interest than whites (1.5 and 1.9, respectively), and Southern residents expressed greater interest than women living in the Northeast (1.5). Levels of interest also were elevated among women who had no health coverage or had public insurance (1.3–1.5), had no usual place of care (1.6), had recently delayed or forgone care (1.5), had heard of the vaccine (2.7) or had had other recommended vaccinations (1.6). Married women had reduced odds of reporting interest in being vaccinated (0.7).

In both 2008 and 2010, the most common reason unvaccinated women cited for their lack of interest in vaccination was that they did not consider themselves in need of it

(36% and 41%, respectively). Lack of knowledge about the vaccine was also mentioned fairly frequently, although the proportion giving this reason declined significantly (from 17% to 12%) between surveys. Other commonly cited reasons were worries about safety (12–13% in each year) and lack of sexual activity (8–10%).

The researchers point out a number of limitations of their study, among them that the NHIS lacked information about whether women's doctors had recommended that they be vaccinated, about women's attitudes toward vaccination in general, and about interest in vaccination and reasons for lack of uptake among unvaccinated participants in the 2012 survey. Despite these shortcomings, they write, "the results present a nationally representative sample…that contributes to the knowledge of the trends in HPV vaccination uptake in young women." They conclude that their findings of low vaccination rates among women "with low access to care" and of declining interest among unvaccinated women highlight the need for "continued efforts by policymakers and educational vaccination initiatives to develop strategies and interventions to improve HPV vaccine initiation and completion in the US population."—*D. Hollander*

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Drinking Was Not Associated with Condom Use In a Sample of Female First-Year College Students

In a yearlong study of women who entered a Northeastern university in 2009, drinking at the time of sexual intercourse was not related to the likelihood of condom use on that occasion; however, when alcohol was consumed, the greater the number of drinks, the less likely it was that a condom was used.[1] Marijuana use at the time of intercourse was linked to reduced odds of condom use with an established partner, but with elevated odds with a new romantic partner or with a casual partner who was a friend or an ex-boyfriend. In contrast to "event-level" measures, personal characteristics were largely unrelated to the likelihood of condom use.

Study participants were a subsample of those enrolled in a larger project examining health behaviors among first-year college women. Students were recruited through a variety of strategies; after completing an initial survey at the end of an orientation session, participants completed online questionnaires monthly for one year. Each follow-up survey asked about women's most recent experiences of oral and vaginal sex with both romantic and casual partners in the past month, as well as their use of substances and other contraceptives at each sexual event. Demographic, socioeconomic and psychosocial characteristics were assessed at baseline, and sexually active women's beliefs about the relationship between drinking and unsafe sexual behavior were measured in four survey rounds.

The analyses are based on data from the 297 participants who reported any sexual event during the year; together, they provided data on 1,856 sexual events. Reflecting the makeup of women in the university's entering class, 71% of participants were white, 13% were black, 8% were Asian and 7% belonged to other racial groups; 11% were Latina.

Overall, 20% of sexual events were preceded by any drinking, 13% by heavy episodic drinking (i.e., four drinks or more) and 6% by marijuana use. The prevalence of these behaviors was significantly lower with romantic partners (9%, 5% and 3% of events, respectively) than with casual ones (53%, 38% and 15%, respectively); it was greater with new romantic partners (i.e., in a relationship of no more than three months' duration) than with established ones. Sexual events involving alcohol use were more common with relatively unknown casual partners (i.e., acquaintances and strangers) than with friends, and more common with friends than with ex-boyfriends. Marijuana use at the time of sex did not vary by type of casual partner.

Condoms were used during 61% of reported sexual events, but significantly less with romantic partners than with casual ones (58% vs. 72% of events). The level of use ranged from 55% with established romantic partners to 79% with acquaintances.

In preliminary analyses, partner type, use of reliable contraceptives, race and number of months during which heavy episodic drinking occurred were associated with condom use. Consequently, these measures were included in multivariate models that separately examined whether any drinking, heavy episodic drinking, number of drinks (when any alcohol was consumed) and marijuana use before sex were related to condom use.

The first multivariate model showed no association between any drinking and condom use. In this model, the likelihood of use was higher in sexual events with new romantic, known casual and relatively unknown casual partners than in those with established romantic partners (odds ratios, 2.0–4.3); it was reduced if the woman had used a reliable contraceptive method (0.2) and was lower if she was black than if she was white (coefficient, –1.3). Furthermore, the stronger a woman's belief that drinking leads to risky sexual behavior, the lower the likelihood of condom use (–1.6). Results were quite similar in the model that included heavy episodic drinking.

By contrast, the likelihood of condom use declined as the number of drinks consumed rose (odds ratio, 0.5). Sex with casual partners was linked to increased odds of use in this model (3.7–3.8), as was being Asian (coefficient, 1.7). And as in the previous models, the strength of expectations that drinking leads to unsafe sex was inversely related to the likelihood of condom use (–1.4).

In the final multivariate model, marijuana use at the time of intercourse was associated with a reduced likelihood of condom use with established partners (odds ratio, 0.2), but with an elevated likelihood of use with new romantic and known casual partners (7.3 and 9.2, respectively). Use of reliable contraceptives was inversely associated with condom use in this model (0.2), as was being black (coefficient, –1.3).

The researchers caution that their findings are limited by the study's use of data from women at only one university and by the lack of information on other potentially important variables—for example, partners' substance use and condom availability. Yet they also contend that their study improved on earlier research by using a large sample and collecting detailed information about multiple sexual events. Further work, they suggest, should seek to identify additional event-level

correlates of condom use and should focus on "high-risk subsamples or on particular types of relationships [among college students]."—*D. Hollander*

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Little Evidence of Link Between Abortion And Mental Illness

Abortion was not independently associated with the subsequent risk of most types of mental illness reported by participants in a survey conducted among a nationally representative sample of adults in the continental United States.[1] Both before and after pregnancy, women who reported a first abortion had a higher prevalence of each of six disorders than those who reported a first birth and no abortion. However, in analyses adjusting for prepregnancy mental health disorders and a variety of measures known to differ between women who have abortions and others, only the likelihood of substance use disorders after pregnancy was elevated in the abortion group.

The National Comorbidity Survey–Replication was conducted in 2001–2003 among English-speaking men and women aged 18 and older. To assess connections between abortion and later mental health problems, researchers used data on 936 women aged 18–42, of whom 259 had had an abortion and 677 had given birth but never had an abortion. They calculated the proportions of women reporting six types of mental health disorders (anxiety, impulse-control, mood, substance use and eating disorders, and suicidal behavior) and potential confounders, and used chi-square tests and proportional hazard models to compare the two groups.

On average, women in both groups were about 31 years old at the time of the survey and had been about 21 when they first gave birth or had an abortion; 52–60% were white, and most of the remainder were black or Hispanic. Women who had had an abortion were less likely than others to be married or cohabiting at interview (52% vs. 69%), and were more likely to have had a miscarriage (12% vs. 6%). They also were more likely to report at least two of a list of such adverse experiences as parental loss, parental criminal behavior, childhood neglect, threats to personal safety and intimate partner violence (49% vs. 39%). One-quarter of each group were categorized as having had a low socioeconomic status during childhood.

Sixty-two percent of women reporting an abortion said they had had at least one type of mental illness before pregnancy; the proportion among other women was 42%, and the difference was statistically significant. Four types of conditions—all except impulse-control and eating disorders—had been more common among women in the abortion group than among those in the birth group. For example, 39% and 27%, respectively, reported diagnoses of anxiety disorders; 21% and 9% had thought about, planned or attempted suicide.

Similarly, after pregnancy, 69% of women in the abortion group, but a significantly lower 47% in the birth group, had at least one mental health disorder. The postpregnancy prevalence of each disorder was higher among women who had had an abortion than among others. In an unadjusted model, the hazard of most conditions was nearly doubled for those in the abortion group (hazard ratios, 1.5–1.6); for eating and substance abuse disorders, the difference between groups was larger (2.5 and 3.1, respectively). However, when the researchers adjusted for prepregnancy mental health problems, alone or with the remaining variables, only the hazard of substance use disorders remained significantly elevated in the abortion group (2.3).

To illustrate the implications of their findings, the researchers estimated predicted probabilities that women with various profiles would have each mental health disorder for the first time within five years after their first abortion or birth. These calculations show, for example, that a 20-year-old with no mental health problems before pregnancy would have a 5% probability of developing a mood disorder within five years of either an abortion or a birth. The probability would rise (to 10–11%) if a woman that age had had one type of mental illness before pregnancy, and would increase further (to 26–30%) if she had had three or more, but the differences between groups would not be statistically significant.

According to the researchers, by distinguishing between prepregnancy and postpregnancy mental health conditions, their study improves on earlier work using the same data set, which found associations between abortion and lifetime history of several mental health disorders. At the same time, they acknowledge that their study is limited by its reliance on self-reported data, and by the potential for inaccuracies in mental health diagnoses and for underreporting of abortions. Nevertheless, they conclude that the findings "show that policies that require women to be told that abortion increases their risk of anxiety, depression, and suicide lack an evidence base."—*D. Hollander*

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Differences Seen Between Women Who Have Early And Very Early Pregnancy

Women who have a very early pregnancy (before age 15) differ from those who have an early pregnancy (between ages 15 and 19) with respect to some key social, demographic and sexual characteristics, according to analyses of data from a nationally representative cross-sectional survey conducted during 2006–2010.[1] Women reporting a very early pregnancy, rather than an early one, were more likely to be Hispanic or black than white, to have had a first sexual partner who was at least six years their senior than one who was their age or younger, and to say that the pregnancy had been unintended than to say they had intended to conceive. On the other hand, they had reduced odds of having completed high school, been raised with a religion, been living with both biological parents at age 14 and used contraceptives the first time they had intercourse.

Investigators analyzed data from the National Survey of Family Growth, which included 7,835 female respondents who were aged 20–44 years at the time of interview and reported a first pregnancy before the age of 20. During in-person interviews, the survey respondents had answered questions pertaining to social and demographic characteristics, pregnancy history, contraceptive use, sexual behavior and relationships, and use of reproductive health services. The investigators used bivariate analyses (chi-square tests and t tests) to compare women who had had an

early pregnancy and those who had had a very early pregnancy, and performed multivariate logistic regression analyses to identify independent correlates of very early pregnancy.

Overall, 40% of the women reported having had an early first pregnancy, and 3% reported having had a very early first pregnancy. The median age at the time of the pregnancy was 18 years in the former group and 14 years in the latter group.

In bivariate analyses, a smaller proportion of women reporting very early first pregnancies than of those reporting early first pregnancies had attained a high school degree or certificate (58% vs. 70%); had lived with both biological parents at the age of 14 years (33%vs. 53%); and had used contraceptives during their first sexual intercourse (25% vs. 56%). Additionally, those reporting very early pregnancies were, on average, younger at both menarche (11.5 vs. 12.4 years) and sexual debut (12.8 vs. 15.6). On the other hand, a larger proportion of those who had had a very early pregnancy were black (32% vs. 19%) or Hispanic (24% vs. 22%); had been raised without any religion (17% vs. 9%); had a mother who had become pregnant before age 18 (36% vs. 26%); had had a first sexual partner who was at least six years their senior (36% vs. 17%); described their first partner as someone other than a steady boyfriend or a spouse (42% vs. 27%); and reported that their first pregnancy had been unintended (89% vs. 75%).

In multivariate analyses, the odds that a pregnancy had been very early, rather than early, were higher among Hispanic and black women than among whites (odds ratios, 1.8 and 2.2, respectively), and among those whose first sexual partner had been at least six years their senior than among those whose partner had been their age or younger (3.3). The odds also were elevated if the pregnancy had been unintended (2.6) and if it had not ended in a live birth (2.1–2.7). On the other hand, women had reduced odds of reporting that a pregnancy had occurred very early if they had been raised with some kind of religion (0.3–0.5), had at least a high school education (0.6), lived with both biological parents at the age of 14 years (0.5) and used contraceptives at sexual debut (0.3).

The study was limited by possible recall and misclassification biases, lack of data on some potential confounders at the time of first pregnancy and likely underreporting of pregnancies before age 20, according to the investigators. Fully understanding the risk factors for very early pregnancy, which is typically associated with a higher risk of poor outcomes and may have a greater adverse impact on lifetime "socioeconomic trajectories" than early pregnancy, requires adequately identifying its extent, they maintain; therefore, future research on teenage pregnancy should include the subset of teenage pregnancies that occur among females younger than 15. Understanding predictors of pregnancy both among those aged younger than 15 and among 15–19-year-olds "may help public health, social work, and medical personnel to better identify and target the youngest females to prevent these high-risk pregnancies," the investigators conclude.—*S. London*

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