

Infants' Birth Weight May Be Jeopardized When Women Become Unemployed or Underemployed While Pregnant

Certain adverse changes in a woman's employment during pregnancy are related to reduced infant birth weight, according to a study conducted among a nationally representative sample of U.S. women.¹ Compared with women who remained employed at a financially adequate level during their pregnancy, those who became unemployed, involuntarily switched to part-time work or transitioned to work paying poverty wages bore lighter infants, had elevated odds of giving birth to a low-birth-weight infant or both. These associations appeared to be mediated in part by infant gestational age.

Using data from the National Longitudinal Survey of Youth, researchers studied 1,165 women who had a singleton first birth between 1981 and 1994, were interviewed both just before and during that pregnancy, and had been adequately employed (neither receiving poverty wages nor working part-time involuntarily) at the first interview. The women's social, demographic and health characteristics were ascertained during the interviews, and their infants' weight was recorded at birth. The researchers assessed associations between adverse changes in employment during pregnancy and infant birth weight, testing the influence of three factors potentially mediating these associations—prenatal care, infant gestational age and maternal weight gain during pregnancy.

At the prepregnancy interview, the women were about 25 years old and had had 13 years of education, on average. One-third were black or Hispanic. Fifty-eight percent were married, and 86% were living above the poverty level. The women averaged about 39 hours of work per week; 40% were employed as clerical workers, 30% as professional workers and 19% as manual laborers; 11% did not report their occupation. Most (87%) said they liked their job "very much" or "fairly well."

During pregnancy, the majority of women did not smoke (78%) or drink alcohol (61%), and 85% began receiving prenatal care in the first trimester; their average weight gain was about 15 kg. Although 73% of the women remained adequately employed while pregnant,

4% became unemployed and 7% became inadequately employed—either switching to work paying poverty wages (6%) or switching to part-time work involuntarily (1%). The remaining 16% of the women left the workforce.

The mean gestational age of the infants was nearly 39 weeks. At birth, infants weighed 3,325 g, on average; 7% had a low birth weight (less than 2,500 g).

In bivariate analyses, compared with women whose work status did not change during pregnancy, women who became unemployed and women who involuntarily switched to part-time work gave birth to infants who were significantly lighter (by 220 g and 434 g, respectively). In addition, women who became inadequately employed had increased odds of bearing a low-birth-weight infant (odds ratio, 2.1). This association was due mainly to sharply elevated odds among women who involuntarily switched to part-time work (6.4). The prevalence of early prenatal care was lower among women who became unemployed or inadequately employed during pregnancy than among those who remained adequately employed, and women who involuntarily transitioned to part-time employment gave birth at a significantly shorter gestation than their counterparts whose employment status was stable.

A first multivariate analysis assessed associations between employment changes and infant birth weight as a continuous variable, taking into account other factors possibly influencing birth weight (maternal age, race and prepregnancy weight; alcohol use and smoking during pregnancy; and infant sex). In this analysis, compared with women who remained adequately employed during pregnancy, women who became unemployed or involuntarily switched to part-time work gave birth to infants who were significantly lighter, weighing 185 g and 418 g less, respectively.

When the trimester of initiation of prenatal care was added to the analysis, the preceding associations were essentially unchanged. When infant gestational age was further added, the association of birth weight with unemployment persisted, whereas that with involuntary part-

time work did not; in addition, compared with women whose employment status did not change, those who switched to work paying poverty wages gave birth to infants who were significantly lighter (109 g less), as did those who left the labor force (85 g less). Finally, when maternal weight gain during pregnancy was added to the analysis, only two employment changes remained significantly associated with birth weight: Compared with women who remained adequately employed, those who became unemployed gave birth to infants weighing 155 g less, and those departing the workforce gave birth to infants weighing 98 g less.

A second multivariate analysis assessed associations between maternal employment changes and low birth weight in infants, taking into account two other factors possibly influencing birth weight (maternal race and prepregnancy weight). In this analysis, compared with their counterparts who remained adequately employed during pregnancy, women who became part-time workers without wanting to do so had sharply elevated odds of giving birth to an infant with low birth weight (odds ratio, 7.4).

When infant gestational age was added to the analysis, the preceding association was no longer significant, but odds were significantly elevated among women who transitioned to work paying poverty wages (odds ratio, 3.3). When maternal weight gain during pregnancy was added to the analysis, switching to poorly paying work remained significantly associated with an increased likelihood of having an infant with low birth weight (3.2).

Commenting on the findings, the investigators speculate that stressors associated with financially inadequate employment, such as decreased social interaction, reduced income and psychological distress, may have adverse physiologic effects during pregnancy that lead to reduced intrauterine growth or preterm birth; these conditions, in turn, may explain the observed associations. The study, they caution, focused on a relatively advantaged group of women, who initially were adequately employed and experienced a change in employ-

ment; therefore, the findings may not apply to women who experience ongoing occupational problems. Noting the implications for infant health, the investigators conclude, "Public health efforts to reduce the incidence of low birth weight might usefully target women experiencing such underemployment events for special preventive interventions."—S. London

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For Pregnant Women, Silence on Domestic Violence Speaks Loudly

Pregnant women reporting abuse are at increased risk for certain adverse pregnancy outcomes: When compared with women who report no abuse, those reporting verbal abuse are more likely to deliver an infant of low birth weight, and those reporting physical abuse bear infants with a higher neonatal death rate, according to an observational study conducted from December 2000 to March 2002.¹ But pregnant women who do not wish to discuss domestic violence may be at greater risk for pregnancy complications and adverse infant outcomes than those who consent to such discussions.

Because there are few data to support the common belief that abuse during pregnancy increases the likelihood of complications, researchers at the University of Texas Southwestern Medical Center in Dallas sought to examine the associations between domestic violence and adverse pregnancy outcomes. Women presenting at the labor and delivery unit were asked if they would answer some questions "about physical or emotional trauma." Each woman who agreed was asked, in a face-to-face interview, the four questions that make up the HITS survey, a validated questionnaire for assessing domestic violence: whether a partner or family member had physically hurt her, insulted her or talked down to her, threatened her with harm, or screamed or cursed at her during this pregnancy. Women answering yes to any of the questions were offered the phone number of a 24-hour domestic violence intervention center. The results of the survey were matched to delivery data using the facility's database containing information on all obstetric and neonatal outcomes. The

Wilcoxon rank-sum test, Student t test and chi-square were used for the statistical analyses.

Women were eligible for participation if they were carrying a single fetus of greater than 24 weeks' gestation, but were excluded if they required immediate care or were about to deliver, among other factors. In all, 16,041 women were asked to be interviewed about abuse they had experienced during their pregnancy. The vast majority of women (93%) denied any abuse; 1% reported physical abuse, 5% reported verbal abuse and 1% declined to be interviewed. Most of the participants were Hispanic (64–85%) and young (mean ages of 23.4–24.9 years), and had received prenatal care (96–97%); only 90% of those who declined to be interviewed had received prenatal care. Across all groups, 29–39% had never given birth before.

There were striking differences in regard to adverse pregnancy outcomes among the four study groups. Infants born to women who reported verbal abuse only had a significantly increased incidence of low birth weight, compared with those born to women in the no-abuse group (8% vs. 5%). Infants born to women in the physical-abuse group were at greater risk for death than were those born to women who had not been abused (2% vs. 0.2%); however, infants born to women in the physical-abuse group did not show an increased incidence of low birth weight.

The women who declined to be interviewed had higher rates of placental abruption and premature births (32 or fewer weeks' gestation)

when compared with the no-abuse group (2% vs. 0.2% and 5% vs. 1%, respectively). Infants born to women in the declined-interview group required admission to the neonatal intensive care unit at a higher rate than all other groups—7% versus 2%. These infants also had an increased rate of low birth weight (13%, compared with 5% in the no-abuse group). Infants born to women who declined to be interviewed weighed less than those born to women who reported no abuse (mean weight, 3,192 g vs. 3,366 g).

Noting that the women most unwilling to discuss the issue of domestic violence are at the highest risk for adverse pregnancy outcomes, the investigators speculate that these women are being abused and do not speak up for fear of retribution. They suggest that "future efforts to study and prevent domestic violence during pregnancy should consider that the women who remain silent when questioned about the subject may, in fact, be speaking the loudest." Although they provided women who declined to be interviewed with the same intervention offered to the women who reported abuse (the telephone number of a crisis center), the researchers suggest that subsequent studies focus on new interventions to help "those who do not (cannot) respond to questions about their circumstances."—L. Melhado

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In Certain Circumstances, Women in Prenatal Care Would Not Rule Out Having an Abortion in the Future

Seven in 10 women in a diverse sample of prenatal care patients said that they would consider terminating a subsequent pregnancy, but among this group, the proportions who would consider having an abortion for various reasons ranged widely.¹ For example, although three-quarters would think about undergoing the procedure if they knew that their infant would be affected by a chromosomal abnormality, only one-quarter would do so because of financial hardship. Half of women who would consider having an abortion would be open to it only during the first trimester.

The sample consisted of 1,082 women who were less than 20 weeks pregnant and were receiving care at one of several obstetric practices in the San Francisco Bay Area in 1997–1998.

During in-home interviews with specially trained researchers, they provided information about their demographic and socioeconomic characteristics; reproductive histories; and attitudes related to pregnancy, prenatal testing, the health care system and abortion. Researchers used multiple logistic regression to identify factors associated with women's abortion attitudes.

On average, participants were 32.7 years old; the majority were married or living with a partner (84%). Thirty-one percent were white, 27% Asian or Pacific Islander, 22% Hispanic, 18% black and 1% members of other races; nearly half were foreign-born. The sample was diverse with respect to educational attainment, household income and a subjective measure of socioeconomic status. Roughly half of the women

had given birth, and half had had an abortion. Thirty-eight percent had known someone with Down syndrome.

Virtually all of the women (97%) were happy about being pregnant. Three scaled measures indicated that participants generally placed a high value on pregnancy, had a low level of distrust for the health care system and were not fatalistic about pregnancy outcomes. Fifty-nine percent of the women believed that abortion should be available without restrictions, and 33% supported its availability in specific circumstances (mainly, when a pregnancy endangers a woman's life or health, or resulted from rape or incest); 8% opposed abortion availability under any condition. The majority of participants (72%) said that they would ever consider terminating a pregnancy.

Among women who would be open to considering an abortion, substantial majorities said they would do so if a pregnancy endangered their life or health (84%), if it resulted from rape or incest (84%), or if their infant would be affected by a chromosomal abnormality or would have a mental or physical disability (70–76%). By contrast, only 39% would consider having an abortion because they did not wish to have a child (or an additional child), 25% if they could not afford to raise a child and 20% if having a child would mean they had to leave school or lose their job. Fifty percent would consider terminating a pregnancy only during the first trimester, and 36% would consider it during the first two trimesters; the remaining 15% would consider it at any gestation.

In the multivariate analysis, women's willingness to consider having an abortion was significantly associated with a number of background characteristics and attitudes. The older women were and the greater their distrust for the health care system, the more likely they were to be open to the idea of pregnancy termination (odds ratios, 1.1 per year of age and 1.2 per level of distrust). The odds also were elevated for those who had already had an abortion (2.9). Members of minority groups, married women and women who had had two or more live births had reduced odds of saying they would consider having an abortion (0.4–0.5). The more fatalistic a woman was about her pregnancy, the less likely she was to be open to considering an abortion (0.6).

Similarly, increasing age and having had an abortion were associated with a significantly elevated likelihood that women thought abortion should be available without restrictions (odds ratios, 1.0 and 2.5). Asian women (but not

blacks or Hispanics) were less likely than whites to hold this view (0.4), and women who had had at least two live births had a lower likelihood than women who had never given birth of supporting the general availability of abortion (0.6). Increasing scores on the fatalism scale were associated with decreased odds of support (0.8).

The researchers "encourage caution in linking [their] data concerning the conditions for abortion acceptance with data on willingness to have only a first-trimester abortion," because the survey questions did not include scenarios specifying when a chromosomal abnormality is identified. Nevertheless, they emphasize that if women do not know of such an abnormality until the second trimester, as is often the case, many could be left "with a much more difficult decision about continuing the pregnancy than they would have faced earlier in gestation." The researchers conclude that their findings support "the continued development of progressively earlier methods of screening and testing."—D. Hollander

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Nonprescription Access Has Not Raised UK Women's Reliance on Emergency Pills

Making emergency hormonal contraception available over the counter is not associated with an increase in its use, according to surveys conducted in Great Britain before and after nonprescription sale of this drug was legalized.¹ The proportion of women in the general population using emergency contraception at least once in a year was the same (7–8%) when it required a prescription and when it no longer did. The proportions of women using regular methods of contraception were likewise unaffected. Roughly a year after the change in availability took effect, one-third of women using emergency contraception were obtaining it from pharmacies.

In January 2001, emergency contraception became available over the counter, at a cost of £20–25 (\$36–46), to British women aged 16 or older. After this time, women could still obtain the method by prescription at no cost from general practitioners, family planning clinics and hospitals. To assess contraceptive practices among women aged 16–49 before and after the

change in availability, researchers obtained data from the Omnibus Survey, an annual cross-sectional survey of a representative sample of British adults living in private households. Data were analyzed for the years 2000, 2001 and 2002.

Analyses were based on about 2,000 women interviewed in each year. The proportion of women using emergency contraception at least once in the preceding year did not differ across the consecutive survey years, remaining at 7–8%. In addition, there was no difference in the proportion using it twice or more a year—2% of women in each survey.

Among women using emergency contraception, the proportion obtaining it from general practitioners was 62% in 2000 and 49% in 2002; the proportion getting it from family planning clinics was 33% in 2000 and 18% two years later. Twenty percent of users in 2001 and 33% in 2002 obtained the method from pharmacies.

In bivariate analyses, age, marital status and education level were significantly associated with using emergency contraception. Specifically, the proportion of women using it was highest among 20–24-year-olds in 2000 and 2002 (17–20%) and among 16–19-year-olds in 2001 (22%). In each survey year, the proportion was higher among single women (12–16%) than among married women (2–3%), cohabiting women (8–9%) and women reporting another marital status (8–11%). And in 2001, it was higher among women with a secondary education or less (9%) than among women with more education (7%).

Bivariate analyses restricted to women using emergency contraception in 2001 or 2002 suggested that age and annual income were significantly associated with obtaining it over the counter. Specifically, the proportion obtaining the method in this way was higher among 30–34-year-old users (48%) than among users of other ages in 2001, and higher among those with annual incomes of at least £15,600 (44–56%) than among those with lower incomes in both survey years.

In multivariate analyses combining data for the three survey years, women younger than 30 had significantly higher odds than older women of having used emergency contraception in the preceding year (odds ratios, 2.2–2.9). And women who were single, were cohabiting or reported some other marital status were more likely to have used this contraception than were their married counterparts (2.1–3.7). Income, education and survey year were not associated with use.

By contrast, of the factors studied, only income was significantly associated with obtaining emergency contraception over the counter in 2001 or 2002. Compared with women with annual incomes of less than £6,240, those with incomes of £15,600 or higher had sharply elevated odds of having obtained the method in this way (odds ratio, 5.4).

Across the three survey years, the proportion of women who used no contraceptive remained essentially the same (21–23%). Likewise, there were no significant changes in the proportions using oral contraceptives, IUDs, injectables or implants (32–34%); sterilization (24–25%); barrier methods (20–21%); withdrawal or rhythm (4–5%); or some other method (1%). Among women using condoms, the proportion using them at every act of intercourse was significantly lower in 2001 (52%) than in 2000 (59%) and 2002 (60%). But in a combined analysis of women using condoms every time or usually, the proportion was statistically indistinguishable across years (73–75%).

The investigators assert that the findings do

not support contentions that making emergency contraception available without a prescription leads to its “abuse” or to higher levels of unprotected sex. But they also note that the lack of change in use of this method suggests that its over-the-counter availability has had little effect on unwanted pregnancies. Although many women seem to prefer obtaining the method over the counter instead of from physicians—thereby reducing use of health care resources—the cost is apparently a barrier, the investigators contend. Overall, they conclude that their study “supports the case for lifting the ban on over the counter sales of [emergency contraception] in the United States and other countries.”—S. London

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cents reported a current or recent romantic relationship that had begun since the first interview. Thirty-seven percent of these relationships were classified as serious ones involving sex, 21% as serious ones not involving sex, 18% as group-oriented ones, 17% as physically oriented ones and 7% as ones with a low level of involvement.

The occurrence and types of romantic relationships varied by race or ethnicity and sex. Overall, similar proportions of white and black adolescent men had not had any such relationship (63% and 66%, respectively), but the proportions were significantly higher among the remaining racial and ethnic groups (70–72%). Nine percent of white men had had a serious relationship not involving sex, compared with 4–5% of blacks and those in the “other” group. The proportion reporting a group-oriented relationship was higher among whites than among those of Mexican descent (7% vs. 4%).

Among women, a smaller proportion of whites than of any other group had not had any romantic relationship (58% vs. 66–67%). White women reported serious relationships involving sex more frequently than did any other group (18% vs. 10%), and they reported group-oriented relationships and serious relationships without sex more commonly than did blacks (8–9% vs. 5–6%). By contrast, reports of physically oriented relationships and ones with low involvement were more common among black women (9% and 3%, respectively) than among whites (6% and 2%).

In a regression model that did not include romantic relationships, ratings of the perceived likelihood of being married by age 25 at the second interview were significantly lower for blacks than for whites among both men (coefficient, -0.21) and women (-0.30); no other significant differences emerged by race or ethnicity. In addition, among men, ratings were negatively associated with living with a single parent and with age; they were positively associated with religiosity. Among women, ratings fell as body mass index increased and were reduced for those living in a stepfamily. For both sexes, the higher the expectation of marrying at the first interview, the higher the expectation at the second interview.

The racial and ethnic associations were essentially unchanged when current or recent romantic relationships were added to the analysis, as were nearly all of the other associations. In this model, compared with ratings of the likelihood of marrying by age 25 among young men

Differences in Early Romantic Relationships Do Not Account for Racial Gap in Youths’ Marital Expectations

Racial differences in early experiences with intimacy and commitment do not explain why white adolescents have a higher expectation than blacks of marrying in young adulthood.¹ In a study based on a nationally representative sample of adolescents, larger proportions of white men and white women than of their black counterparts had had a serious relationship. However, in analyses that took these patterns into account, white adolescents of both sexes still rated their chances of marrying by age 25 higher than did their black peers.

The analyses used data from the National Longitudinal Study of Adolescent Health (Add Health), for which a sample of adolescents in grades 7–11 were interviewed in their homes in 1995 and again in 1996. At both interviews, adolescents were questioned about social and demographic factors. Marital expectations were assessed by asking adolescents to rate their chances of being married by age 25 on a scale ranging from 1 (almost no chance) to 5 (almost certain). Romantic relationships were assessed by asking adolescents to describe their “special romantic relationships”—ones with unrelated individuals whom adolescents said they had held hands with, kissed and told they liked

or loved. The most recent heterosexual relationship initiated between interviews was used in analyses; these relationships were grouped into five types, reflecting such characteristics as levels of physical and emotional involvement. Ratings for marital expectations and distributions of relationship types were compared via t tests; associations of relationships with marital expectations were tested with ordinary least squares regression analysis.

The 12,973 adolescents studied were 17 years old, on average. Fifty-four percent were white, 21% were black, 9% were of Mexican origin and 17% belonged to other racial or ethnic groups. About half each were men and women.

In each racial or ethnic group, the majority of adolescents of both sexes (64–84%) rated their chances of being married by age 25 as even or better at the second interview. However, expectations of marrying by that age were significantly higher among white men than among their black counterparts (mean score, 3.2 vs. 2.8), and among white women (3.4) than among blacks (2.9) or women of “other” races or ethnicities (3.3).

At the second interview, 39% of the adoles-

who had not had any such relationship, ratings were significantly higher among their counterparts who had had a serious relationship with sex (coefficient, 0.23), a serious relationship without sex (0.17) or a relationship with a low level of involvement (0.22). Similarly, compared with ratings among young women who had not had any romantic relationship, ratings were higher among their counterparts who had had a serious relationship with sex (0.23) or a serious relationship without sex (0.11).

According to the investigator, the findings suggest that romantic relationship experiences—despite differing between blacks and whites, and despite influencing marital expectations—"likely play only a small role" in explaining the racial gap in marital expecta-

tions. She acknowledges that marital expectations may not correspond with actual behavior. In adulthood, the investigator notes, the marriage prospects of blacks may be constrained by socioeconomic factors, but a comparatively low expectation of marrying among blacks is already evident in adolescence. Thus, she concludes, "these findings suggest exploring the effect of an array of adolescent experiences on family formation because attitudinal differences do exist prior to the constraints of the adult marriage market."—S. London

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3.0) and a history of gonorrhea (11.2); only nine participants, however, had had gonorrhea. Women whose last menses occurred more than 17 days earlier also had an increased likelihood of candidiasis (2.3), although, as in the analysis of bacterial vaginosis, this factor was not included in the main regression model. The risk of candidiasis was reduced among participants who had a history of genital warts (0.3) or a new sexual partner in the past three months (0.5).

The researchers acknowledge that the study's use of clinic attendees, who may have an above-average risk of STDs, aided recruitment but may have reduced its ability to detect relevant associations. In addition, because the study was observational, unmeasured variables may have influenced the results. Nonetheless, they observe, the findings indicate associations between bacterial vaginosis and "specific high-risk sexual behaviors" that are associated with STDs, thus supporting "the concept that bacterial vaginosis may be sexually transmitted." (Although candidiasis was also associated with sexual practices, these behaviors were not of the high-risk variety.) Finally, the researchers point out that despite "considerable evidence" that bacterial vaginosis can be sexually transmitted between women and a substantial likelihood that it develops in similar ways in heterosexual partners, definitive proof that bacterial vaginosis is sexually transmitted will ultimately require identification of a specific causative factor.—P. Doskoch

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Evidence Supporting the Notion That Bacterial Vaginosis Can Be Transmitted Sexually Continues to Accumulate

Bacterial vaginosis is associated with several high-risk sexual behaviors, such as having a large number of partners, according to findings from a clinic-based Australian study.¹ Although the cause of bacterial vaginosis has not been identified, the findings support the hypothesis that the condition—which has been linked to spontaneous abortion, preterm delivery and increased vulnerability to HIV infection—may be sexually transmitted. In contrast, candidiasis, which has been associated with specific sexual practices, was not linked to high-risk sexual behaviors in this study.

The researchers studied women visiting Melbourne's primary sexual health clinic who had abnormal vaginal discharge or odor; they excluded women who were pregnant, menstruating, postmenopausal or infected with HIV, as well as those who had used lubricant or topical vaginal medication within the previous 72 hours. The researchers made "considerable effort" to offer all women with relevant symptoms the opportunity to take part in the study. Half of women in whom bacterial vaginosis was clinically diagnosed between July 2003 and August 2004 participated. All participants completed questionnaires regarding their symptoms, background characteristics and sexual behavior. They also underwent a speculum examination, during which samples of vaginal secretions were obtained for microscopy and laboratory testing.

Of the 342 women (mean age, 29) who took part in the study, 157 had bacterial vaginosis,

and 51 had candidiasis, including nine who had concurrent bacterial vaginosis. In analyses of factors associated with bacterial vaginosis, the researchers classified women as either having or not having vaginosis, regardless of whether the women also had vaginal candidiasis; similarly, in analyses of risk factors for candidiasis, a woman's vaginosis status had no bearing on her candidiasis classification.

The researchers conducted univariate analyses to assess potential associations between 30 behavioral and demographic factors and bacterial vaginosis. In a multivariate analysis incorporating all factors with significant associations at the univariate level, bacterial vaginosis was significantly associated with having a new sexual partner in the past year (odds ratio, 2.1), more than two male sexual partners in the last year (2.0), vaginal sex more than twice per week (2.3) and a history of trichomoniasis (4.0). Women with bacterial vaginosis also had an increased likelihood of smoking (2.1) and being Australian (1.9). Because about half of participants were using oral contraceptives, menstrual phase was not included in the main regression model; however, in a model that included days since last menses, women who used oral contraceptives had reduced odds of bacterial vaginosis (0.6).

In a multivariate analysis that compared women who were positive for *Candida* with those who were negative, the list of risk factors was entirely different. Candidiasis was significantly associated with douching (odds ratio,