

Shifts in Intended and Unintended Pregnancies in the United States, 2001–2008

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The incidence of unintended pregnancy is a key indicator of a population's reproductive health, and preventing unplanned pregnancies is a priority for most sexually active men and women. In an effort to improve the nation's health, the US Department of Health and Human Services includes the goal of reducing the incidence of unintended pregnancy in its Healthy People 2020 initiative,¹ toward which it is important to monitor progress. The most recent estimates of the unintended pregnancy rate for the US population as a whole and for many population subgroups were published for 2006.² Since then, new data have been released that allowed the calculation of rates for 2008.

There are several reasons why newer estimates are valuable. Since the last analysis, more precise population estimates have become available, and the United States experienced an economic recession beginning in 2007 that has affected women's reported pregnancy intentions, with many women indicating that because of the economy, they would like to delay pregnancy.³ Moreover, the recession has affected many providers' ability to offer family planning services and women's ability to access basic health care.⁴

Some changes in behaviors that affect unintended pregnancy have been noted in recent years. For example, use of highly effective long-acting contraceptive methods increased from 2002 to 2009.⁵ By contrast, population shifts, that is, changes in the relative sizes of demographic subgroups, can have an impact on the unintended pregnancy rate even if rates or behaviors within subgroups are unchanged. For example, because rates are high among cohabiting women, the growing number and proportion of cohabiting couples⁶ could have led to an increase in the national unintended pregnancy rate since it was last estimated.

In this article, we focus on the overall rate and disparities among several key subgroups for 2008 and shifts in intended and

Objectives. We monitored trends in pregnancy by intendedness and outcomes of unintended pregnancies nationally and for key subgroups between 2001 and 2008.

Methods. Data on pregnancy intentions from the National Survey of Family Growth (NSFG) and a nationally representative survey of abortion patients were combined with counts of births (from the National Center for Health Statistics), counts of abortions (from a census of abortion providers), estimates of miscarriages (from the NSFG), and population denominators from the US Census Bureau to obtain pregnancy rates by intendedness.

Results. In 2008, 51% of pregnancies in the United States were unintended, and the unintended pregnancy rate was 54 per 1000 women ages 15 to 44 years. Between 2001 and 2008, intended pregnancies decreased and unintended pregnancies increased, a shift previously unobserved. Large disparities in unintended pregnancy by relationship status, income, and education increased; the percentage of unintended pregnancies ending in abortion decreased; and the rate of unintended pregnancies ending in birth increased, reaching 27 per 1000 women.

Conclusions. Reducing unintended pregnancy likely requires addressing fundamental socioeconomic inequities, as well as increasing contraceptive use and the uptake of highly effective methods. (*Am J Public Health.* 2014;104:S43–S48. doi:10.2105/AJPH.2013.301416)

unintended pregnancy between 2001 and 2008. We did not include 2006 rates because it was difficult to assess real changes within a short (2-year) time frame.

METHODS

Pregnancy intention is based on women's self-reported desire to become pregnant right before conception occurred. We defined an unintended pregnancy as one that was either mistimed or unwanted. If a woman did not want to become pregnant at the time the pregnancy occurred, but did want to become pregnant at some point in the future, the pregnancy was considered mistimed. If a woman did not want to become pregnant then or at any time in the future, the pregnancy was considered unwanted. An intended pregnancy was one that was desired at the time it occurred or sooner. When calculating unintended pregnancy rates, we counted pregnancies about which women felt indifferent along with intended pregnancies; therefore, the

unintended pregnancy rate only included pregnancies that were unambiguously unintended.

Our methodology built on our previously published estimates of unintended pregnancy.² Changes to the methodology are noted at various points in the following. The proportions of births, miscarriages, and abortions that were unintended were calculated from the National Center for Health Statistics' (NCHS) 2006–2010 National Survey of Family Growth (NSFG; for births and miscarriages that occurred between 2006 and 2010, with 2008 as the central or reference year; n = 3019) and the Guttmacher Institute's 2008 Abortion Patient Survey (for abortions that occurred in 2008; n = 9493) by each sociodemographic characteristic in this analysis.⁷ Data were analyzed using Stata version 12.1 (StataCorp LP, College Station, TX).

These proportions were applied to the numbers of births, miscarriages, and abortions reported or estimated for the entire population in 2008 to determine the number

of unintended pregnancies by each pregnancy outcome. The number of births in the United States in 2008 came from the NCHS,^{8,9} and the number of abortions, including both surgical and medication abortions, came from a periodic census of abortion providers conducted by the Guttmacher Institute.¹⁰ Because there is no recognized best estimate of the number of miscarriages for each year, we followed a procedure established by researchers at the NCHS¹¹: we calculated the ratio of miscarriages to births reported in the NSFG and multiplied that ratio by the actual number of US births. Multiple rounds of the NSFG were used to maximize the stability of miscarriage estimates over time. Specifically, we used miscarriages that occurred in the 7 years preceding the last 3 NSFG rounds for adults and the last 4 rounds for adolescents (1988, 1995, 2002, and 2006–2010); previous analyses used data from 2 and 3 NSFG rounds, respectively, which conformed to NCHS procedures utilized at that time. To ensure sufficient sample size, we also used 4 rounds of the NSFG to calculate miscarriages for income by race/ethnicity groups.

The total number of unintended pregnancies was obtained by summing unintended pregnancies ending in birth, miscarriage, and abortion. This total was then divided by the population of women of reproductive age (15–44 years) to determine an overall unintended pregnancy rate. This process was repeated for several population subgroups, first distributing pregnancies by subgroup and then using the subgroup population denominator to calculate the rate for each group. Distributions of pregnancies by intention for each subgroup were calculated using the NSFG. Counts of births and miscarriages were distributed using data from the US Census Bureau and the NSFG. Abortions were distributed based on the Centers for Disease Control and Prevention's annual abortion surveillance report and the Guttmacher Institute's nationally representative Abortion Patient Survey conducted in 2008.^{7,12}

As in previous analyses, when calculating the percentage of unintended pregnancies that ended in abortion, we excluded miscarriages from the denominator to represent pregnancies with outcomes decided by the woman. Overall adolescent pregnancy rates varied

slightly from other published reports¹³ because of differences in the way miscarriages were calculated. Rates by educational attainment were limited to the population of women 20 years and older, which excluded most women who had not yet completed schooling, yet still included young women who had historically high unintended pregnancy rates.

Population counts by age and race/ethnicity came from the final intercensal estimates from the 2010 US census.¹⁴ The 2001 rates in this report were updated using the new population estimates and should therefore replace previously published figures. Most other subgroup population distributions came from the US Census Bureau and the Annual Social and Economic Supplements of the Current Population Survey (CPS). For characteristics not tracked by those sources (e.g., religious affiliation), we used NSFG distributions.

In previous reports, our estimates were based on the proportion of cohabiting women reported in the NSFG. In this report, we strengthened our methodology by incorporating the newly available (as of 2007) individual-level measure of cohabitation included in the CPS. Although both surveys were broadly nationally representative, the substantially larger sample size in the CPS should have produced a more accurate proportion of cohabitators in the US population. To produce 2001 rates, we calculated the ratio of the number of cohabitators to the number of unmarried women in the NSFG in 2008, and applied that ratio to the 2008 CPS proportion of unmarried women to obtain a comparable proportion for 2001.

For all women of reproductive age in the United States and for several demographic characteristics (age, relationship status, income as a percentage of poverty, educational attainment, race/ethnicity, and religious affiliation) by subgroup, we present information on the proportion of pregnancies that were unintended and pregnancy rates by intention status in Table 1 and outcomes of unintended pregnancy in Table 2. For each characteristic, we discuss the basic patterns of unintended pregnancy in 2008 and substantive shifts in pregnancy intention between the 2001 and 2008 (when possible). Lastly, we present

unintended pregnancy rates for 2008 for women by both income and race/ethnicity in Figure 1.

This was an aggregate-level analysis, and pregnancy rates were calculated by incorporating data from multiple datasets, which limited our ability to do statistical difference testing. One test we were able to perform was a comparison of the proportion of pregnancies (births, abortions, and miscarriages) that were unintended in 2001 and 2008 using only data from the NSFG. Although abortions were underreported in the NSFG, meaning that these proportions were lower than the ones reported in Table 1, it was likely that underreporting did not change substantially over time; therefore, although the percentages in the supplemental analysis were too low, the trend analyses should be valid. The supplemental analysis found an overall percentage increase from 42% to 46%, which was marginally significant at $P=.05$. This increase corresponded to an increase in the rate in the aggregate (i.e., main) analysis from 49 per 1000 women to 54, which was a 10% change; we therefore used 10% as our standard for a (substantively) significant difference, and we limit our discussion to differences of that size or greater.

RESULTS

Of the nearly 6.6 million pregnancies that occurred in 2008, 51% were unintended (Table 1). Although the overall pregnancy rate for the United States changed little between 2001 and 2008, women's reports indicated a small shift from intended to unintended pregnancies; the intended pregnancy rate fell slightly to 51 per 1000 women ages 15 to 44 years, and the unintended rate increased (by 10%, or 5 rate points) to 54 per 1000 women. The proportion of unintended pregnancies ending in abortion declined, from 47% to 40%, and the rate of unintended pregnancies ending in birth increased to 27 per 1000 women (Table 2).

Age

In 2008, the proportion of pregnancies that were unintended generally decreased as age increased, and women 18 to 24 years old had the highest rates of unintended pregnancy and unintended pregnancy ending in birth.

TABLE 1—Number of Total and Unintended Pregnancies, Percentage of Pregnancies That Were Unintended, and Pregnancy Rate by Intention for All US Women, by Demographic Characteristics: 2001 and 2008

Characteristic	No. of Pregnancies (Thousands), 2008		% of Pregnancies Unintended		Pregnancy Rate ^a					
	Total	Unintended	2001	2008	Total		Intended		Unintended	
					2001	2008	2001	2008	2001	2008
All women	6583	3367	48	51	103	106	54	51	49	54
Age group, ^b y										
15-19	750	612	83	82	80	69	14	13	66	57
15-17	249	227	89	91	46	39	5	4	41	35
18-19	501	385	79	77	131	114	27	26	103	88
20-24	1683	1075	59	64	173	163	72	59	102	104
25-29	1748	788	40	45	170	168	101	92	68	76
30-34	1360	479	33	35	132	141	89	92	44	50
≥ 35	1025	397	33	39	42	48	28	30	14	19
Relationship status										
Currently married	3243	1002	28	31	119	119	86	83	33	36
Never-married and not cohabiting	1339	1093	79	82	63	54	14	10	49	43
Formerly married and not cohabiting	341	233	60	68	73	67	30	22	43	46
Cohabiting	1661	1040	66	63	254	320	89	122	165	198
Income as a % of federal poverty level										
< 100	2077	1347	61	65	197	209	77	72	120	137
100-199	1768	981	55	55	145	152	66	67	79	85
≥ 200	2737	1039	37	38	74	67	46	41	28	26
Educational attainment ^c										
Not a HS graduate	986	532	49	54	148	188	75	86	73	101
HS graduate or GED	1534	796	47	52	113	116	60	56	53	60
Some college or associate's degree	1780	935	52	53	90	105	43	50	47	55
College graduate	1517	476	25	31	104	94	79	64	26	29
Race/ethnicity ^d										
White, non-Hispanic	3364	1426	40	42	86	89	52	51	34	38
Black, non-Hispanic	1172	815	67	69	137	132	45	40	92	92
Hispanic	1568	882	54	56	145	140	66	61	79	79
Religious affiliation										
Protestant	3071	1545		50		103		51		52
Mainstream Protestant	1457	775		53		106		49		57
Evangelical Protestant	1614	770		48		101		52		48
Catholic	1699	830		49		109		55		54
Other	549	240		44		94		53		42
None	1264	752		59		113		45		68

Note. GED = general educational development; HS = high school. Numbers may not sum to group totals because of rounding.

^aRates are per 1000 women aged 15-44 years.

^bFemales aged < 15 years were excluded because of insufficient data. The population denominator for women aged ≥ 35 years is women aged 35-44 years.

^cAmong women aged ≥ 20 years.

^dExcludes women who self-identify as other non-Hispanic racial/ethnic groups.

Pregnancy trends between 2001 and 2008 were different by age subgroups. Among adolescents, the overall pregnancy rate declined, mostly because of a reduction in unintended pregnancies among women aged 18 to 19 years. Similarly, among adolescents, the decline in the unintended birth rate was also mostly attributable to older teens.

The shift from intended to unintended pregnancy between 2001 and 2008 was most prominent for women in their twenties. Women aged 20 to 24 years experienced a decline in the intended pregnancy rate and a relatively stable unintended rate. The overall pregnancy rate for women aged 25 to 29 years remained unchanged, but because the proportion of pregnancies that were unintended increased from 40% to 45%, their unintended rate rose. The overall pregnancy rates for women aged 30 years and older increased, mostly because of an increase in unintended pregnancy rates. Among all adult women aged 20 years and older, the proportion of unintended pregnancies ending in abortion declined, and there was a concomitant rise in the rate of unintended pregnancies ending in birth.

Relationship Status

In 2008, the proportion of pregnancies among married women that were unintended was less than half that of unmarried women. Cohabiting women had the highest unintended pregnancy and unintended birth rates in this analysis (at 198 and 101 per 1000 women, respectively), both more than 4 times the rate of noncohabiting or married women.

The shift from intended to unintended pregnancies was less apparent when we considered women's relationship status. Although intended and unintended pregnancy rates changed little among married women, never-married women's intended and unintended pregnancy rates both decreased, whereas formerly married women saw a decrease only in their intended pregnancy rate. Cohabiting women reported substantial increases in both intended and unintended pregnancy rates (from 89 intended pregnancies per 1000 women in 2001 to 122 in 2008, and 165 unintended pregnancies in 2001 to 198 in 2008), as well as a significant decrease in unintended pregnancies ending in abortion and an increase in the rate of

TABLE 2—Percentage of Unintended Pregnancies Ending in Abortion and Rate of Unintended Pregnancies Ending in Birth for All US Women, by Demographic Characteristics: 2001 and 2008

Characteristic	% of Unintended Pregnancies Ending in Abortion ^a		Unintended Pregnancies Ending in Birth, Rate ^b	
	2001	2008	2001	2008
All women	47	40	23	27
Age group, c y				
15-19	39	36	34	30
15-17	37	35	21	19
18-19	40	37	54	47
20-24	47	41	47	53
25-29	49	42	31	38
30-34	47	42	20	24
≥ 35	54	44	5	8
Relationship status				
Currently married	24	20	21	24
Never-married and not cohabiting	59	57	18	16
Formerly married and not cohabiting	66	67	12	12
Cohabiting	53	39	68	101
Income as a % of federal poverty level				
< 100	40	41	63	70
100-199	48	37	36	45
≥ 200	51	43	11	12
Educational attainment ^d				
Not a HS graduate	34	27	41	61
HS graduate or GED	43	40	26	31
Some college or associate's degree	59	48	17	24
College graduate	54	48	10	13
Race/ethnicity ^e				
White, non-Hispanic	42	36	17	20
Black, non-Hispanic	57	50	35	40
Hispanic	40	37	42	43
Religious affiliation				
Protestant		34		28
Mainstream Protestant		40		29
Evangelical Protestant		27		28
Catholic		44		26
Other		39		20
None		49		29

Note. GED = general educational development; HS = high school.

^aExcludes pregnancies ending in miscarriage.

^bRates are per 1000 women aged 15-44 years.

^cFemales aged < 15 years were excluded because of insufficient data. The population denominator for women aged ≥ 35 years is women aged 35-44 years.

^dAmong women aged ≥ 20 years.

^eExcludes women who self-identify as other non-Hispanic racial/ethnic groups.

unintended births (from 68 unintended pregnancies ending in birth per 1000 women in 2001 to 101 in 2008).

Income

As in past reports, there was a large disparity in rates by women's income level. The total pregnancy rate for poor women was more than 3 times that of women in the highest income category, and their unintended pregnancy rate was more than 5 times that of the same group. The unintended birth rate for poor women was also high.

Among poor women, the shift from intended to unintended pregnancies between 2001 and 2008 was evident. Their unintended pregnancy rate increased, and the rate of unintended births increased. Among women who were low-income but not poor, the intended pregnancy rate hardly changed, and their unintended rate increased slightly. However, because the proportion of unintended pregnancies that ended in abortion declined, their unintended birth rate rose. Wealthier women's overall pregnancy rate fell somewhat, mostly because of a decrease in the intended pregnancy rate, and although the proportion of unintended pregnancies ending in abortion declined, their rate of unintended births did not change.

Educational Attainment

The proportion of pregnancies that were unintended was lower among women with a college degree compared with women with less than a college degree (measures are for women aged 20 years and older). Women who had not completed high school had the highest rates of unintended pregnancy and unintended birth and reported a lower proportion of unintended pregnancies ending in abortion, compared with women with a high school degree or more years of schooling.

From 2001 to 2008, both intended and unintended pregnancy rates increased for women without a high school degree and for women with only some college. High school graduates (with no further education) also experienced increased unintended pregnancy rates. Among college graduates, the intended pregnancy rate decreased and the unintended rate remained relatively stable. Unintended birth rates increased for all groups.

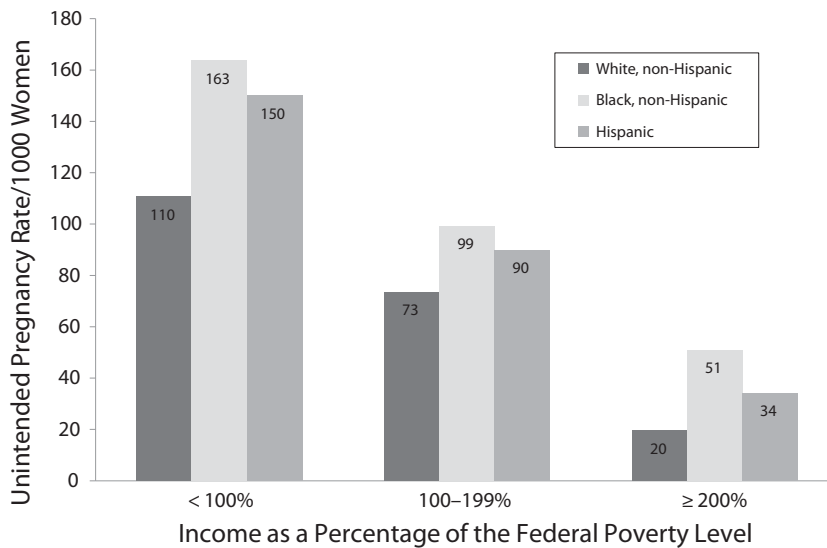


FIGURE 1—Unintended pregnancy rate by race/ethnicity and poverty status among US women: 2008.

Race/Ethnicity, Religious Affiliation, and Income

Rates of unintended pregnancy and unintended birth among minority women were more than twice the rates for White women. Black women had the highest unintended pregnancy rate, whereas Hispanic women had the highest rate of unintended births.

Overall pregnancy rates among White, Black, and Hispanic women changed little between 2001 and 2008, but unintended pregnancy rates among White women increased, and there was some evidence that the intended pregnancy rate among minority women decreased. The proportions of unintended pregnancies ending in abortion declined and unintended birth rates increased among non-Hispanic women but hardly changed among the Hispanic population.

Unintended pregnancy rates were highest among women with no religious affiliation; Catholic and Protestant women had similar rates of unintended pregnancies, but a greater proportion of unintended pregnancies ended in abortion among Catholics than among women with any other religious affiliation.

Figure 1 shows that unintended pregnancy rates varied by race/ethnicity, even when controlling for income, and that minority women had high unintended pregnancy rates across all income levels. In particular, Black

women had the highest rates, with poor Black women having an unintended pregnancy rate of 163 per 1000 women.

DISCUSSION

Our results indicate that unintended pregnancy is a stubborn problem in the United States. Between 2001 and 2008, there was a slight shift from intended to unintended pregnancy. Some of this shift might be the result of the recession beginning in late 2007 and the subsequent decline in fertility desires. The shift might have offset slight increases in contraceptive use and the effectiveness of such use observed around the same time.⁵

The increase in unintended pregnancy also corresponded with an increase in unintended childbearing, which is associated with several negative maternal and child health outcomes.¹⁵ The decline in the percentage of unintended pregnancies ending in abortion began before 2001 and might be continuing because of a number of factors, such as decreased access to abortion, including but not limited to fewer providers¹⁰ and a growing number of state-level restrictions,¹⁶ increased stigmatization of abortion, and increased acceptance of carrying unintended pregnancies to term.

Shifts in underlying population demographics toward groups with a high unintended

pregnancy rate (such as cohabitators and Hispanic women) might have also contributed to the increase in unintended pregnancies. In addition, older women, not adolescents, appear to have been driving the trend, as did poor women and women without a college degree, including those who were likely still in school.

Although the nation as a whole and many disadvantaged population subgroups experienced higher rates of unintended pregnancy, there was a notable decline in the unintended pregnancy rate among teens, particularly among those aged 18 to 19 years. This echoed and continued a pattern of decline in teen pregnancy rates observed since the 1990s.¹³ Other work has offered evidence that the declining teen pregnancy rate was primarily because of increases in contraceptive use among adolescents, particularly among those ages 18 to 19 years, as well as small decreases in sexual activity.¹⁷

Persistently high levels of unintended pregnancy may be caused by a complex interplay of shifts in the timing of partnering and childbearing, changes in desire for pregnancy, and changes in contraceptive use-effectiveness. We know that there has been a long-term trend toward later marriage and childbearing. As these events have shifted to later ages, the period after childbearing—during which sterilization or other highly effective long-acting methods are typically used—has become shorter. At the same time, the period between first sexual intercourse and first birth has lengthened, and sterilization is almost never used during this period, although there have been notable increases in the use of long-acting methods among younger women.⁵ The methods most commonly used during this age interval remain the pill and condom, although more effective methods, such as intrauterine devices and implants, are appropriate and recommended for young women and women without children.¹⁸

Moreover, as indicated previously, the US economic situation likely indirectly lowered women's pregnancy intentions.³ This would have increased the unintended pregnancy rate even if there were no changes in partnering, sexual behavior, or contraceptive use. The shift from intended to unintended pregnancy was one of the most notable findings of our analysis. The combination of later childbearing and

lower fertility preferences, therefore, might have offset the shift toward the use of long-acting methods by women who did not have any children.

Finally, we draw attention once again to the dramatic and growing differentials in unintended pregnancy rates by relationship status, income, and education. We saw large increases in intended and unintended pregnancy among the least-educated women. Relatedly, the disparity by income level continued to increase; poor women, of course, might have been hardest hit by the recession. Cohabiting women and women with few years of education also experienced the sharpest increase in the rate of unintended pregnancies ending in birth. These changes were dramatic because they far exceeded the shifts observed in most other groups. Therefore, there is a clear need to monitor changes over the next few years to see if these disparities persist or worsen.

The differentials by subgroup suggest that solving the problem of unintended pregnancy will require more than just the efforts of public health professionals; addressing fundamental social inequities in income and education are also essential. At the same time, there are plenty of questions, both quantitative and qualitative, that should be explored in this area. How do desire for pregnancy, contraceptive use patterns, and use-effectiveness differ among single, cohabiting, and married women and between women of high and low socioeconomic statuses? What are the biggest obstacles to effective contraceptive use? Structurally, are there steps that can be taken to facilitate access to contraception among disadvantaged women beyond what is already in place? Can long-acting methods serve to narrow these differences and have an impact at the population level? What impact will there be from the provision of the health care reform act designating contraception as preventive care that is covered by insurance without copays or deductibles? Answering some of these questions may bring us closer to the goal of enabling all women and couples to become pregnant when they want and avoid pregnancy when it is not desired. ■

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Contributors

L. B. Finer directed the study and developed the study design. M. R. Zolna conducted the analysis. Both authors conceptualized ideas, interpreted findings, and drafted the article.

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Human Participant Protection

This study relied on secondary data containing no personal identifiers; therefore, no institutional review board approval was necessary.

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