

Intention Status of U.S. Births in 1988: Differences by Mothers' Socioeconomic And Demographic Characteristics

By Kathryn Kost and Jacqueline Darroch Forrest

The National Maternal and Infant Health Survey provides new data on the prevalence of unintended childbearing in the United States: Thirty-six percent of births in 1988 were mistimed and 7% were unwanted, while 57% were intended. Although the level of unintended childbearing is high in almost all socioeconomic subgroups of women, the proportion of births that were mistimed or unwanted was 50% or more among age-groups 15–17 (78%), 18–19 (68%) and 20–24 (50%), and among never-married women (73%), formerly married women (62%), black women (66%), women living below the federal poverty level (64%) or at 100–149% of the poverty level (52%), women with less than 12 years of education (58%) and women who already had two children (53%) or three or more children (60%). Multivariate analyses indicate that births to unmarried women—whether formerly married or never-married—are less likely than those to married women to be wanted and more likely to be mistimed. Poverty status has no independent effect on the odds that a birth is unwanted or on the odds that a birth to an unmarried woman is mistimed. Among currently married women, those who are poorer are more likely than women above 150% of the poverty level to have a mistimed birth. Black women are more likely than either Hispanic or white women to report a birth as unwanted and are more likely than white women to say a wanted birth was mistimed.

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Between 1979–1982 and 1984–1988, the proportion of U.S. births resulting from unintended conceptions rose from 37% to 40%.¹ Unwanted, rather than mistimed, births accounted for most of this increase.²

Several recent research studies have found that women whose pregnancies were unintended are more likely than those whose pregnancies were planned to have poor birth outcomes such as premature delivery and low birth weight,³ factors associated with elevated health risks for the infant. Some socioeconomic subgroups of women who tend to have poor pregnancy outcomes—such as those who are unmarried, young, and poor or low-income—have disproportionately higher levels of unintended childbearing.⁴ This situation raises the question of whether it is the socioeconomic disadvantages faced by the mother or her childbearing intentions prior to the pregnancy that put her infant at an increased risk of poor health outcomes.

Kathryn Kost is senior research associate and Jacqueline Darroch Forrest is senior vice president and vice president for research at The Alan Guttmacher Institute. The authors gratefully acknowledge the assistance of Sally Nickles and the comments of Susheela Singh. The research on which this article is based was supported by a Shannon Award from the National Institute of Child Health and Human Development (R01-HD29769-01A1).

Most of what is known about the intention status of births in the United States is based on analyses of the National Survey of Family Growth (NSFG), a periodic survey of all women of reproductive age (15–44).⁵ The most recent NSFG was conducted in early 1988 and includes a complete birth history for each woman up to the time of interview. More recently, the National Center for Health Statistics (NCHS) conducted the National Maternal and Infant Health Survey (NMIHS), in which a sample of U.S. women aged 15–49 who had had a live birth or a late fetal death in 1988 were surveyed. The NMIHS is therefore a nationally representative sample of births, in contrast to the NSFG, which is a nationally representative sample of women. Like the NSFG, the NMIHS collected information on the intention status of births.

Although the NSFG has been an invaluable source of data for the analysis of intention status, the NMIHS provides a very different and possibly improved source of information on the intention status of births in the United States. The differences between the two surveys are numerous, so it is impossible to accurately assess which survey provides more accurate estimates of the intention status of births. The NMIHS, however, does have some advantages over the NSFG. First, be-

cause the 1988 NSFG was fielded early in that year, most of the births for which the NSFG has information occurred in prior calendar years. In contrast, the NMIHS, which was fielded between June 1989 and June 1991, can provide more recent information because it includes all 1988 births.

Another advantage of the NMIHS data is that for most of the variables of interest for an analysis of unintended births—the mother's socioeconomic and demographic characteristics—the information was either recorded on the birth certificate at the time of the birth—such as education—or comes from a question on the NMIHS questionnaire that refers to the time at which the mother was pregnant or just before—such as income. The NSFG obtained information on the mother's education and income only at the time of the survey, which was in some cases a number of years after the birth.

In this article, we first compare estimates of unintended childbearing in the United States derived from the NMIHS and NSFG data and describe some of the differences between the two surveys that could account for the discrepancies between those estimates. We then use the NMIHS data to investigate the intention status of births among mothers in differing socioeconomic and demographic subgroups and, in a multivariate analysis, to identify characteristics of the mothers that are associated with a greater likelihood of having an unintended birth.

Data and Methods

The NSFG data have been described elsewhere, and several studies of intention status based on those data have already been published.⁶ The NMIHS survey questionnaire was mailed to a nationally representative sample, drawn from vital records, of women aged 15–49 who had given birth or had a late fetal or infant death in 1988.⁷ The present analysis is restricted to live births (n=9,953). Data from the vital records themselves are also included in the data file.

Information supplied by the woman was then used to contact her prenatal care providers, the hospital where she delivered, hospitals where she stayed overnight either during pregnancy or up to six months after delivery, and hospitals where the infant

stayed for up to six months after delivery. Collection of provider and hospital data was completed in June 1991, but the data were not available for this analysis. However, the data we used—the information from the mothers’ questionnaire and vital records—are more complete and cover the mother’s socioeconomic and demographic characteristics in greater detail than either the provider or hospital questionnaires.

The overall response rate was 68% for the mothers’ questionnaire portion of the NMIHS and 72% for women who had had a live birth.⁸ Response rates differed by the mother’s age, race, marital status and educational attainment, but these specific values are not yet available from the NCHS.⁹

The NMIHS survey oversampled black women and women who had infants with low birth weight to increase the reliability of statistics for these groups. The data set based on the mothers’ questionnaire contains the appropriate population weights so that statistical analyses can take oversampling and nonresponse into account and estimates will be applicable to the universe of U.S. births in 1988.

The racial and ethnic composition of the weighted NMIHS sample is similar to the national distribution of births; the national distribution of live births in 1988 is 66% non-Hispanic white (67% in the weighted NMIHS data set), 17% non-Hispanic black (16% in the NMIHS), 12% Hispanic (13% in the NMIHS), 1% Eskimo, Aleut or Native American and 4% Asian or Pacific Islander (4% for the two groups combined in the NMIHS).¹⁰ The distribution of the births by gender in the NMIHS (52% male and 48% female) is also similar to the national distribution (51% male and 49% female).¹¹

Most missing values were imputed by NCHS staff prior to release of the NMIHS public use data set, so there are very few missing values in the variables we used for this study. Fewer than 3% of unweighted cases had been imputed for any variable used in our analysis, with the exception of the income variable used to calculate poverty status during pregnancy. In nearly 18% of unweighted cases (14% of weighted cases), the mother’s total household income was imputed. Women who had had an intended birth in 1988 were less likely to have missing income data (12%) than were those who had had either a mistimed or an unwanted birth (16% and 17%, respectively); there was no statistically significant difference between women who had a mistimed

birth and women who had an unwanted birth in the proportion of imputed cases. To test whether these differing proportions of imputed values for household income affected the results, we compared findings from two analyses—one that included imputed cases and one that excluded them. The results were almost identical. We therefore included imputed cases in all analyses.

The NCHS did not impute values for variables that were created from the vital records. About 1% of birth certificates lacked information on one or more of these variables. However, the proportion of cases with missing values did not differ across intention status groups.

For the logistic regressions, we reweighted the cases so that the total number of observations in the analysis equaled the total number of unweighted observations. The new weight for each observation was calculated as the weight originally assigned to that observation (to represent the national distribution) divided by the ratio of the total number of weighted observations to the total number of unweighted observations (i.e., the mean weight of all observations).

Using reweighted observations enables researchers to base tests of statistical significance on the number of sampled observations even though the estimates reflect the weighted distribution of births. However, although the number of reweighted observations is the same as the unweighted number, the tests of statistical significance can be affected by the change in the distribution of births caused by reweighting. For this reason, many investigators choose to conduct multivariate analyses on unweighted data only. However, we investigated the multivariate relationships using the reweighted cases because one of the variables included in the analysis, race, was strongly related to intention status, and black infants were oversampled in the NMIHS. Thus, it was important to weight the data to reflect the true distribution of births.

Unintended Childbearing

As shown below, both the NMIHS and the NSFG indicate that over half of all live births were intended, but estimates of the levels of intended, mistimed and unwanted births differ between the two surveys.

Intention status	NMIHS 1988	NSFG 1984–1988 ¹²
Intended	56.8	60.1
Mistimed	36.2	27.7
Unwanted	7.0	12.2
Total	100.0	100.0

*In addition, the NSFG asked women to report the intention status of all pregnancies, while the NMIHS asked women to report the intention status of only one pregnancy.

We classified a birth as intended if the mother said that, at or before the time she became pregnant, she had wanted to have another child. We classified a birth as mistimed if the mother wanted another child but the birth occurred earlier than she preferred. A birth to a woman who, at the time she became pregnant, did not want to have another (or any) child was classified as unwanted.

According to the NMIHS, there were approximately 3.9 million live births in 1988, of which about 43% resulted from unintended conceptions—over 1.4 million were mistimed (36%) and more than 270,000 were unwanted (7%). The NSFG data provide a lower estimate of the proportion of births in 1984–1988 that were mistimed (28%) and a higher estimate of the proportion that were unwanted (12%). We tried to determine whether these differences were due to changes between 1984 and 1988 in the distribution of births by intention status, but the NSFG data are not sufficient for such a trend analysis because, as shown by William Mosher and his colleagues, they either underestimate or overestimate the actual annual number of births.¹³ The NSFG estimates for longer periods (e.g., five years) are closer to the number of births entered in vital statistics registries. (The NSFG estimates 1% more births than the number of actual births registered in the five-year period before interview.)¹⁴

The differing cohorts of births included in the above estimates are one of many differences between the NMIHS and the NSFG—including the design of the sample and the administration and wording of the questionnaire—that are likely to have contributed to discrepancies between these estimates. Although both the NMIHS and the NSFG are nationally representative samples, the NMIHS is a sample of all live births in 1988 to women aged 15–49 at the time of the birth, while the NSFG is a sample of all women aged 15–44 on March 15, 1988.

The two surveys also differ in the length of time over which they asked mothers to recall their prepregnancy intentions. Most of the mothers reporting in the NMIHS responded within two years of delivery (91%) and all responded by 31 months after delivery. Fewer than 30% of the births reported in the NSFG occurred within two years of interview and some occurred as long as four and one-half years prior to the interview. The NSFG’s longer period of recall may have affected the accuracy of reporting.*

The two surveys also differ in the wording of the questions used to determine the intention status of the births. In addition, the NMIHS respondents were asked to recall their intentions during the time *before* they

became pregnant, while the NSFG respondents were asked to recall their intentions at the time they became pregnant. Finally, the NMIHS survey used a self-administered questionnaire, mailed to the mothers, while the NSFG questionnaire was administered face-to-face by a trained interviewer.

No obvious single difference accounts for the discrepancies between the NMIHS and the NSFG in estimates of the distribution of births by intention status. Moreover, it is not clear how the sum of the differences between the two surveys affected the estimates. It would be prudent to conclude that the estimates of the intention status of births from the two surveys are not strictly comparable. However, when compared with the estimated level of unintended pregnancy for the three-year period preceding the 1982 NSFG (36.5%), the estimated level of unintended pregnancy from the NMIHS supports the conclusion, first documented in the 1988 NSFG, that the level of unintended childbearing in the United States has been rising.¹⁵

Pregnancies and Births

Differing levels of unintended childbearing across socioeconomic subgroups can be a reflection of these groups' differing levels of unintended pregnancy and differing proportions of unintended pregnancies that are terminated by induced abortion. The relationship between socioeconomic characteristics and the intention status of births would therefore be affected by both of these underlying factors, although their impact cannot be addressed in an analysis of births alone. However, comparisons of the characteristics of all pregnant women can shed some light on underlying differences in unintended pregnancy and abortion.

Table 1 shows national estimates of the total numbers of pregnancies, abortions and births in 1988. The table also shows the percentage distributions of pregnancies, abortions and births by the woman's age at pregnancy outcome, poverty status during pregnancy, and race and ethnicity. The numerical distribution of abortions by each of these characteristics was obtained from an Alan Guttmacher Institute (AGI) survey of abortion providers, from an AGI survey of

Table 1. Number of pregnancies, by pregnancy intention and outcome, and of births; and percentage distribution of pregnancies and births, by demographic characteristics of the woman, the United States, 1988

Characteristic	Pregnancies					All births
	All	Unintended			Intended	
		All	Abortions	Births		
N (in 000s)	5,500.3	3,284.4	1,590.8	1,693.6	2,215.9	3,909.5
Age						
<18	6.5	9.7	10.8	8.6	1.8	4.8
18-19	9.7	13.4	14.7	12.1	4.3	7.7
20-24	28.9	32.1	32.7	31.5	24.1	27.3
25-29	28.8	23.5	21.8	25.0	36.8	31.7
30-34	18.2	14.3	12.4	16.1	23.9	20.6
35-39	6.6	5.8	6.0	5.7	7.8	6.9
≥40	1.2	1.2	1.5	0.9	1.1	1.0
% of poverty level						
<100	25.4	32.2	28.9	35.4	15.3	24.0
100-149	11.1	12.8	13.3	12.3	8.6	10.2
≥150	63.5	55.0	57.8	52.3	76.1	65.8
Race/ethnicity						
Hispanic	12.8	13.4	12.5	14.2	11.9	12.9
Black	18.4	24.5	24.9	24.1	9.4	15.8
White	68.9	62.2	62.6	61.7	78.7	71.4
Total	100.0	100.0	100.0	100.0	100.0	100.0

Notes: Miscarriages excluded. Distributions may not add to 100% because of rounding. Sources: Births—estimated from the 1988 NMIHS, reference 10 and special tabulations provided by NCHS staff. The NMIHS includes only births to women aged 15-49, while the NCHS statistics include births to those younger than 15. Births to women younger than 15 were added to the estimated numbers of unintended and intended births by distributing their births (10,588; from the NCHS) according to the intention-status distribution of births to 15-17-year-olds (from NMIHS), adjusted to the marital status and race and ethnicity distributions of births to women younger than 15 (from NCHS). Then, because the weighted NMIHS numbers of births by mother's age and race and ethnicity did not replicate exactly the number of births reported by the NCHS, we adjusted the number of births in each age or race and ethnicity category to the number of births reported by the NCHS by distributing the difference between the number estimated from NMIHS data and the number reported by the NCHS according to the intention-status distribution of NMIHS births in that category. The NCHS does not report births by income or poverty status, so we have reported only the weighted numbers from the NMIHS with the correction for births to women younger than 15 as described above. Abortions—S.K. Henshaw, 1992, Table 1 (see reference 16), and special tabulations from the AGI 1987 Survey of Women Having Abortions, adjusted for the total number of abortions in 1988.

abortion patients and from data from the U.S. Centers for Disease Control and Prevention.¹⁶ The total number of births was obtained from NMIHS data tabulations and NCHS data on all births in 1988.¹⁷ The estimated number of unintended pregnancies is the sum of unintended births and abortions, and the total number of pregnancies is the sum of all births and abortions. Miscarriages are excluded from the total number of pregnancies because there are very few data on their incidence and because we have no basis for assuming that the incidence varies by intention status.

Women who had a birth did not differ significantly in age, race, ethnicity or poverty status from all women who became pregnant. Table 1 reveals very little difference in the distributions of all pregnancies and of all births by the mother's characteristics (columns 1 and 6), except

that women who had a birth tended to be slightly older than all women who became pregnant: Sixty percent of births were to women aged 25 or older, compared with 55% of all pregnancies.*

The data indicate, however, that women who had not planned to become pregnant were very different from those who had intended to do so (Table 1, columns 2 and 5). First, women who had intended to become pregnant tended to be older than those who had not—70% were aged 25 years or older, compared with 45% of women who had become pregnant unintentionally. In addition, women who had an unintended pregnancy were twice as likely to live in poverty as were women who had an intended birth.† And of all intended births that occurred in 1988, only 9% were to black women, a group that contributed 25% of unintended pregnancies in that year.‡

*Further analyses of the distributions of births and pregnancies by mother's age and race and ethnicity have shown that for both Hispanics and blacks, there is almost no difference in the age distribution between all women who became pregnant and women who gave birth (not shown). However, among white women and the few women of other races included in this category, those who gave birth were slightly older than all those who became pregnant.

†The poverty status variable was constructed using data from the NMIHS on household composition and total household income, and data on federal poverty levels for

a given family size calculated as the average of published poverty levels for 1987 and 1988 (see: U.S. Bureau of the Census, "Poverty in the United States, 1987," *Current Population Reports*, Series P-60, No. 163, 1989; and —, "Poverty in the United States, 1988 and 1989," *Current Population Reports*, Series P-60, No. 171, 1991). The average of federal poverty levels for 1987 and 1988 are used because at least half of pregnancies in the NMIHS would have begun in 1987, although precisely which pregnancies occurred in each year could not be determined because the infant's birth date is omitted from the NMIHS public use data tape. The poverty status variable is the ratio of the respon-

dent's total household income in the 12 months before the birth to the amount of income estimated by the federal government as the threshold of poverty, varying by the total number of related individuals in the household. Averaged over the two-year period 1987-1988, the federal poverty level was \$5,900 for a single person, \$7,551 for a family of two and \$11,852 for a family of four.

‡The three racial or ethnic groups considered in this article are Hispanics, non-Hispanic blacks, and non-Hispanic whites and others. For simplicity, however, we refer to these groups as Hispanics, blacks and whites.

Among women who had an unintended pregnancy, those who had an induced abortion and those who had an unintended birth differed in few ways (Table 1, columns 3 and 4). Women who had an induced abortion were somewhat younger than those who had an unintended birth (58% and 52%, respectively, were younger than 25) and were less likely to be poor (29% of women who had an abortion were below the poverty threshold, compared with 35% of those who had an unintended birth). There was virtually no difference in the racial or ethnic composition of the two groups.

Because many unintended pregnancies are terminated by induced abortion, women who have a live birth are not necessarily representative of all women who become pregnant. Nevertheless, the estimates shown in Table 1 indicate that in 1988, the differences among socioeconomic subgroups in the proportion of births that were unintended were primarily the result of differences in levels of unintended pregnancy rather than of differences in the proportion of unintended pregnancies that were terminated by induced abortion.

Therefore, our findings on the socioeconomic and demographic determinants of the intention status of births in this analysis may be applicable to pregnancies as well. However, we refrain from such a conclusion because only a few of the mother's characteristics were available for our comparisons of pregnancies and births.

The Mother's Characteristics Distribution Comparisons

Table 2 shows the percentage distribution of U.S. births by the intention status of the birth, according to the mother's background characteristics. In this and subsequent discussion of our results, we comment only on differences between groups that are statistically significant at the 5% level.

In 1988, about 58% of all births occurred to women aged 25 or older, and about two-thirds of these were intended. However, the proportion of births that were unwanted almost doubled with each successive five-year age-group after age 25. Most births to women younger than 20 occurred earlier than the woman would have liked—67% of those to women aged 15–17 and 62% of those to women aged 18–19. In

addition, a large proportion of births to 15–17-year-olds were unwanted (11%). Because the proportion of unwanted births in the next three older age-groups—18–19-year-olds, 20–24-year-olds and 25–29-year-olds—is much smaller (5–6%), the higher proportion of young teenagers who said they did not ever want to have children may mean that many of them had not yet formed childbearing aspirations, or that they were more likely to misunderstand the question (if, for example, they had not wanted to become pregnant with that particular partner).

As expected, births to married women were more likely to be intended than were births to formerly married or never-married women (66% vs. 38% and 27%). And because never-married women were, as a group, somewhat

younger than formerly married women, they were more likely to have a mistimed birth (62% vs. 52%). However, the two groups were equally likely to have an unwanted birth.

The distribution of births by intention status differed greatly according to race and ethnicity. Although only one-third of births to black women were intended, more than half of births to Hispanic women and almost two-thirds of births to white women were intended. Half of births to black women were mistimed and another 16% were unwanted. The differences in the intention status of births by racial or ethnic group present striking evidence of widely differing childbearing patterns for these three groups in the United States.

Table 2 shows that as income increased, the proportion of births that were intended increased and the proportion that were mistimed or unwanted decreased. Likewise, the more education the mother had, the less likely she was to have a mistimed or unwanted birth. The similar patterns of unintended childbearing among young women, unmarried women, black women, poor women and less educated women may result from the overlap of these variables, a possibility we will examine in the multivariate analysis.

As might be expected, among women who had a birth in 1988, those who already had children were more likely than those who had none not to have wanted the additional birth. Only about 4% of births to women who had no children or only one child were unwanted, compared with 25% of births to women who already had three or more children. However, the proportion of mistimed births did not vary significantly by the number of children the woman already had.

Finally, we examined the distribution of births by intention status according to the mother's residence—metropolitan county versus nonmetropolitan county—because women in more rural communities may have less access to family planning and abortion services.¹⁸ However, as Table 2 shows, there was almost no difference in the distribution of births by intention status between the two groups.

This analysis shows that in 1988, a high proportion of births to women in all socioeconomic and demographic subgroups were unintended, with the lowest proportion—27%—occurring among women who had graduated from college. It also reveals large differences in the distribution of births by intention status and background characteristics of the mother. We use multivariate techniques to investigate the extent

Table 2. Percentage distribution of births, by intention status, according to selected characteristics of mother at time of delivery, NMIHS, 1988

Characteristic	Weighted N	Intended	Mistimed	Unwanted	Total
All	3,898,922	56.8	36.2	7.0	100.0
Age					
15–17	181,300	22.1	67.1	10.9	100.0
18–19	296,828	31.9	61.9	6.2	100.0
20–24	1,067,696	50.1	44.8	5.1	100.0
25–29	1,137,613	65.8	29.3	4.9	100.0
30–34	801,800	66.0	25.7	8.3	100.0
≥35	313,685	63.9	19.2	16.9	100.0
Marital status					
Married	2,903,602	66.1	28.3	5.6	100.0
Formerly married	193,659	38.4	51.5	10.1	100.0
Never married	770,091	26.8	62.1	11.1	100.0
Race/ethnicity					
Hispanic	501,457	52.4	40.5	7.1	100.0
Black	614,272	33.9	50.0	16.1	100.0
White	2,783,193	62.6	32.4	4.9	100.0
% of poverty level					
0–99	932,290	36.3	52.7	10.9	100.0
100–149	397,044	47.7	42.9	9.4	100.0
≥150	2,569,588	65.6	29.2	5.2	100.0
Education					
<12 yrs.	743,724	42.2	46.1	11.7	100.0
12 yrs.	1,526,736	53.9	38.7	7.3	100.0
Some college	940,244	60.9	33.6	5.5	100.0
≥16 yrs.	688,218	73.2	23.8	3.0	100.0
No. of previous births					
0	1,636,764	61.6	34.9	3.5	100.0
1	1,290,904	59.8	36.2	4.0	100.0
2	609,835	46.8	40.5	12.6	100.0
≥3	352,315	40.2	35.4	24.5	100.0
County of residence					
Metropolitan	2,993,132	57.2	35.7	7.0	100.0
Nonmetropolitan	905,790	55.3	37.9	6.8	100.0

Notes: Rows may not add to 100% because of rounding.

to which the observed relationships result from confounding of the characteristics.

Multivariate Analysis

In our multivariate analysis, we examined how a woman's sociodemographic characteristics affected 1) the odds that she would have an unwanted birth rather than a wanted one, and 2) the odds that, if she had a wanted birth, she would have it when she intended to rather than earlier than she intended.

All of the variables shown in Table 2 were originally entered into the logistic regressions. However, the mother's residence did not have a significant effect in either analysis and was therefore excluded from the final models. In addition, several interaction terms that were tested in the analyses were not kept in the final models because they did not have a statistically significant effect, added little to the interpretation of the results or were based on too few observations.

•*Odds that a birth was unwanted.* Table 3 shows the estimated effects of each of the mother's background characteristics on the odds that her birth was unwanted as compared with the odds that it was wanted (whether mistimed or intended) after controlling for all other characteristics. Not surprisingly, the number of children the

woman already had strongly affected whether or not the birth was unwanted. Births to women who already had children were more likely to be unwanted, and the more children a woman had, the higher the odds were that the birth was unwanted: Births to women who already had two children were about four times as likely as first births to be unwanted and births to women with three or more children were seven times as likely to be unwanted. Even after we controlled for the number of children a woman had, births to women younger than 35 were less likely to have been unwanted than were those to women aged 35 or older. This is probably because the younger women had had less time to have all the children they wanted.

However, births to unmarried women were less likely than those to married women to have been wanted, regardless of the woman's age. There was no significant difference between never-married and formerly married women in the odds of having an unwanted birth. Black women were significantly more likely to have an unwanted birth than were Hispanic women or white women, even after controls were introduced for differences among the groups in age, marital status, poverty status, education and number of children.

After controlling for the mother's other background characteristics, we found no significant differences among the poverty status groups in the odds of having an unwanted birth. Similarly, there was no difference in the odds of having an unwanted birth between women who had 12 years of education and those who had less. However, births to women who had more than 12 years of education were less likely to have been unwanted than were births to women who had less education.

•*Odds that a wanted birth was mistimed.* In this analysis, we examined only wanted births to see whether women who wanted a birth but not at the time they had it differed from those who intended to become pregnant. Table 4 presents the estimated effects of the mother's background characteristics on the odds that a wanted birth was mistimed rather than intended.

The older the mother was, the less likely it was that the wanted birth she had was mistimed. Births to teenage mothers were more than seven times as likely to have been mistimed as were those to the oldest mothers—those aged 35 or older—who, not surprisingly, were the least likely to have had a mistimed birth.

Married women were significantly less likely to have had a wanted birth that was mistimed than were never-married women,

Table 4. Coefficients (and standard errors) of logistic regression analysis showing odds that wanted birth was mistimed versus odds that it was intended, by characteristics of mother

Characteristic	Coef.	Odds ratio
Age		
15–19	1.979 (.136)	7.232*
20–24	1.120 (.112)	3.064*
25–29	.486 (.105)	1.627*
30–34	.272 (.109)	1.313*
Marital status		
Married	–1.187 (.079)	.305*
Formerly married	–.235 (.135)	.790
Race/ethnicity		
White	–.173 (.075)	.841*
Hispanic	–.082 (.094)	.921
% of poverty level		
100–149	–.099 (.123)	.905
≥150	.008 (.091)	1.008
Education		
12 yrs.	.322 (.073)	1.380*
Some college	.421 (.083)	1.523*
≥16 yrs.	.393 (.098)	1.481*
No. of previous births		
1	.641 (.059)	1.898*
2	1.098 (.077)	2.999*
≥3	1.159 (.102)	3.188*
Marital status x % of poverty level		
Married x 100–149	–.086 (.189)	.916
Formerly married x 100–149	.337 (.349)	1.401
Married x ≥150	–.682 (.145)	.506*
Formerly married x ≥150	.246 (.247)	1.279
Constant	.356 (.054)	na

*Significantly different from reference category at $p < .05$. Note: The reference category for the interaction term is never married x <100% of poverty.

Table 3. Coefficients (and standard errors) of logistic regression analysis showing odds that birth was unwanted versus odds that it was wanted (either mistimed or intended), by characteristics of mother

Characteristic	Coef.	Odds ratio
Age		
15–19	–.808 (.198)	.446*
20–24	–1.406 (.154)	.245*
25–29	–1.401 (.141)	.246*
30–34	–.852 (.135)	.427*
Marital status		
Married	–.478 (.126)	.620*
Formerly married	–.365 (.191)	.694
Race/ethnicity		
White	–.914 (.112)	.401*
Hispanic	–.934 (.148)	.393*
% of poverty level		
100–149	.111 (.139)	1.118
≥150	.053 (.115)	1.054
Education		
12 yrs.	–.126 (.110)	.881
Some college	–.325 (.139)	.722*
≥16 yrs.	–.995 (.186)	.370*
No. of previous births		
1	.269 (.134)	1.309*
2	1.438 (.135)	4.212*
≥3	1.973 (.147)	7.191*
Constant	–2.246 (.081)	na

*Significantly different from reference category at $p < .05$. Notes: In tables 3 and 4, reference categories are: age ≥35, never-married, black race, <100% of poverty, <12 years of education and no other births; na=not applicable.

but never-married women and formerly married women were equally likely to have had such a birth. This suggests that never-married women and formerly married women probably are equally likely to prefer to have a birth within a marriage.

Black mothers who had a wanted birth were somewhat more likely to have had the birth earlier than preferred than were white women. There was no difference, however, between black and Hispanic women in the odds that a wanted birth was mistimed.

Before we added the interaction term for poverty and marital status, there was no difference between women who were below the poverty threshold (<100%) and those who were just above it (100–149%) in their odds of having a mistimed birth, but women with higher incomes were about 25% less likely to have had a mistimed birth than were the poorest women (not shown). When we added the interaction term to the model, the odds ratios for unmarried and formerly married women in all three poverty status groups were not significantly different from zero.

However, the odds that a currently married woman's birth was mistimed were significantly lower than those for unmarried women at each poverty level, and they decreased as women's poverty status improved (.305, .254 and .156 for married women at <100%, 100–149% and ≥150% of poverty, respectively).

Women who had not finished high school were less likely to report that their birth had been mistimed than were women at higher educational levels. This is surprising, because we might expect that a woman's ability to control her fertility would rise with her level of education. These results could mean that less educated women do not consider the timing of their births to be as important or as controllable as do more educated women, who may be more likely to believe that their career plans could be disrupted by a birth.

Finally, Table 4 indicates that a wanted infant joining a family that already included children was more likely than a first child to have arrived earlier than the mother preferred; in addition, the more children the woman already had, the more likely it was that the new infant was mistimed.

Summary and Conclusions

Like the NSFG, the NMIHS revealed a high prevalence of unintended childbearing in the United States in almost all socioeconomic subgroups. Women aged 35 or older were the most likely to have had an unwanted birth and the least likely to report a wanted birth as having been mistimed. This finding is not surprising, because the older a woman is, the more time she has had to complete her childbearing; if she hasn't yet had all the children she wants, she may want to have another as soon as possible because the end of her childbearing years may seem near and because the medical risks involved in pregnancy and childbirth rise with age.

Regardless of their age and other background characteristics, women who are not married—whether formerly married or never-married—at the time they give birth are less likely than married women to have wanted the birth and, if they did want it, more likely to report it as mistimed. These findings suggest that most women would prefer to have a birth within marriage. They also underscore the importance of including marital status in analyses of intention status, and suggest that it may be more important to distinguish between women who are currently married and those who are not than it is to distinguish between those who have ever been married and those who have not.

Even after accounting for other socioeconomic and demographic characteristics of the mothers, we found widely differing patterns of control over childbearing across racial and ethnic groups. Black women are more likely than either Hispanic women or white women to have an unwanted birth. Black women are also more likely than white women to mistime a wanted birth; however, black women and Hispanic women are equally likely to mistime a wanted birth.

Women who have at least some college-level education are less likely to have an unwanted birth, perhaps because they are more motivated to avoid pregnancy. Also, women who have had 12 years of education (and are presumably high school graduates) are more likely to report a birth as mistimed than women who have had less education, perhaps because they are more likely to have career objectives that they believe would be threatened by the demands of caring for a new baby.

The number of children the woman already has affects whether or not the birth is unwanted, and if it is wanted, whether or not it is mistimed. The likelihood of the birth being unwanted increases greatly with the number of children the mother already has, and mothers who already have several children are more likely to have a mistimed birth than are mothers of first births. However, women who have three or more children may differ in important ways from women who have fewer children, and these differences may affect a woman's ability to time a wanted birth. For example, their higher parity may reflect greater difficulty in practicing contraception effectively, which would make it more difficult for them to control their fertility. They may also vary in their family size and birth interval preferences.

Our bivariate analysis indicated a strong relationship between poverty and intention status: The poorer a woman is, the more likely she is to have an unintended birth. In our multivariate analysis, however, once controls for marital status and other characteristics of the mother were included, poverty status had no effect on the odds of having an unwanted birth. This finding suggests that the higher proportion of births reported as unwanted by poor women primarily reflects the fact that such women are more likely than higher income women to be not currently married, black¹⁹ or of higher parity,²⁰ characteristics strongly linked to the odds that a birth is unwanted.

In a similar multivariate analysis examining unwanted childbearing using

the 1973, 1982 and 1988 NSFG, Linda Williams found significant differences by the mother's age, poverty status, education, and race and ethnicity in the odds that a live birth was unwanted.²¹ However, because Williams compared findings from the 1988 NSFG with those from the 1973 NSFG, her study included only ever-married women. Our study is based on all mothers and, unlike Williams' analysis, includes two important explanatory variables—marital status and number of previous live births—that affect the estimated effects of the other explanatory variables. These differences between our study and Williams' probably explain why Williams found that poverty increased a woman's odds of having an unwanted birth, while we did not.²²

Our analyses of wanted births showed that women below 100% of poverty and those at 100–149% of poverty were more likely to report their birth as mistimed than were women with higher incomes. Once a term for the interaction between poverty status and marital status was included, however, the results indicated that the difference is essentially among currently married women. For unmarried women—both the never-married and the formerly married—the level of poverty has no effect on the likelihood that a wanted birth is mistimed. This suggests that regardless of poverty status, women who are not currently married but want to have children do not intend to do so while they are unmarried. Within each poverty status group, currently married women are less likely to report a wanted birth as mistimed than are either never-married or formerly married women. In addition, the likelihood that a wanted birth is mistimed decreases as poverty status improves, but only among married women. These findings indicate that marital status, as well as poverty status, is a crucial factor in determining the timing of a wanted birth.

Our findings present striking evidence of widely differing intentions and abilities to control childbearing among socioeconomic and demographic subgroups in the United States, particularly the marital status, age, poverty status, and racial and ethnic subgroups. Women who are young, unmarried, poor, black or less educated and those who already have children are most at risk of experiencing an unwanted or mistimed birth. The difficulties these women have in controlling childbearing are influenced by the level and specificity of their childbearing goals, by their practice of contraception—including its effectiveness—and by the like-

lihood that they will have an abortion if they become pregnant. High levels of unintended births indicate that such women and their partners need increased assistance in achieving their family size and birth timing goals. Among those who do become pregnant and continue to term, women whose pregnancies were not intended may need additional attention to help ensure their well-being during pregnancy and the birth of a healthy baby.

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