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Live Births Resulting From Unintended Pregnancies: Is There Variation Among States?

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Context: States need data on live births resulting from unintended pregnancies in order to assess the need for family planning services; however, many states do not collect such data. Some states may use extrapolated rates from other states.

Methods: Pregnancy Risk Assessment Monitoring System (PRAMS) data were assessed to explore the feasibility of extrapolating data on the percentage of live births resulting from unintended pregnancies from states that collect these data to states that do not. Data on women who had live births between 1993 and 1995 were examined for eight states: Alabama, Florida, Georgia, Michigan, New York (excluding New York City), Oklahoma, South Carolina and West Virginia. Logistic regression was used to determine state variation in the odds of delivering a live birth resulting from an unintended pregnancy after adjustment for maternal race, marital status, age, education, previous live birth and participation in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC).

Results: The percentage of live births resulting from unintended pregnancy ranged from 33% in New York to 49% in Alabama, Georgia and South Carolina. Compared with women in Alabama, women in Oklahoma were more likely to deliver a live birth resulting from an unintended pregnancy (odds ratio of 1.2, confidence interval of 1.11.3) and women in New York State were less likely (odds ratio of 0.7, confidence interval of 0.60.8) to have such a birth. However, unmarried white women in New York had lower odds of having a live birth resulting from an unintended pregnancy and married black women in Michigan had higher odds of having a live birth resulting from unintended pregnancy than their counterparts in Alabama. Although the percentages varied, in all eight states women who were black, were unmarried, were younger than 20 years of age, had less than 12 years of education or had more than one child had higher percentages of live births resulting from unintended pregnancy than women with other demographic characteristics.

Conclusions: Data on which women have the greatest risk of delivering a live birth resulting from an unintended pregnancy may be extrapolated from one state to another, but the rate of such births may overestimate or underestimate the problem from one state to another.

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Because unintended pregnancies are associated with adverse outcomes that affect the infant and the family,[1] all states provide family planning services to reduce the rate of unintended pregnancy. Although data on the unintended pregnancy rate, which can be

derived from the number of induced abortions and from the number of live births resulting from unintended pregnancies,[2] would be helpful as a measure of the number of women in need of program interventions, such data are not available in many states.

Most states track the number of induced abortions, but not the number of live births resulting from unintended pregnancies. Sixteen states produce annual state-specific estimates of the percentage of live births resulting from unintended pregnancies, using data from a state-based surveillance system, the Pregnancy Risk Assessment Monitoring System (PRAMS).[3] A few additional states have chosen to collect their own data and have conducted point-in-time, population-based reproductive health surveys.[4]

For the past 25 years, the Division of Reproductive Health at the Centers for Disease Control and Prevention (CDC) has received requests from states and local areas for data on unintended pregnancy, especially on unintended live births. One solution to the lack of data for some states is to extrapolate data from one state to another. The explicit assumption of any extrapolation technique, however, is that estimates of live births resulting from unintended pregnancies are consistent across states, after adjustment for differences by demographic characteristic. In this article, we assess the validity of that assumption.

METHODS

In 1987, CDC initiated PRAMS to establish state-specific, population-based surveillance of selected maternal behaviors that occur before and during pregnancy. In each of the 16 states that uses PRAMS, a stratified, systematic sample of 100200 new mothers is selected from birth certificates each month. Sampled mothers are mailed a 14-page questionnaire 26 months after they give birth, and up to two additional questionnaires are mailed to women who do not respond. Telephone interviews are attempted when nonresponse persists.

After all PRAMS questionnaires for a given calendar year are received, the data are weighted to adjust for nonresponse. (Women who fail to respond are more likely than those who respond to be young, unmarried, less-educated and black or of another nonwhite race.) Weights are calculated to adjust for differences in nonresponse; the data also are weighted to adjust for the survey design and for birth certificates that are not included in the sampling frame. After weighting, PRAMS data are considered representative of each state's population of women who have had live births.

We selected data from states with an overall response rate of at least 70%, with available data from 19931995 and with a response rate of 90% or more for the question on pregnancy intendedness. Eight states met those criteria: Alabama (75% response rate), Florida (79%), Georgia (72%), Michigan (80%), New York State* (73%), Oklahoma (76%), South Carolina (71%) and West Virginia (80%).

On the PRAMS questionnaire, women are asked one question about the intendedness of their pregnancy at the time of conception. (The question reads, "Thinking back to just before you were pregnant, how did you feel about becoming pregnant?") We coded pregnancies as "intended" for women who stated that they wanted to be pregnant then or sooner. We coded pregnancies as "unintended" for women who wanted to be pregnant later or did not want to be pregnant then or at any time in the future.

We assessed several demographic variables as potential confounders. (Previous studies have found associations between live births resulting from unintended pregnancies and the race, marital status, age, education, parity and income of the mother.[5]) Data on maternal race, marital status at the time of delivery, age at the time of delivery and education were taken from the birth certificate. Data on previous live births (parity) and whether a woman had participated in the Special Supplemental Nutrition Program for Women, Infants and Children (WIC) (a proxy for income) were taken from the PRAMS questionnaire.

We excluded from the entire sample women with missing observations on pregnancy intendedness (7.9%); women with missing observations for the other variables were excluded from specific analyses. The proportions for which data were missing ranged from less than 0.1% for mother's age and marital status to 1.7% for parity. The state sample sizes ranged from 3,461 to 6,611 women.

Among the eight states, we compared the percentage of live births resulting from unintended pregnancies by the maternal demographic characteristics. Then, using logistic regression, we assessed whether state differences in the odds of having a live birth resulting from an unintended pregnancy remained after adjustment for the demographic characteristics. We selected Alabama as the reference state because it had the highest percentage of live births resulting from unintended pregnancies (49%).

We tested interactions with race and marital status separately because these two variables are strongly associated with rates of unintended pregnancy resulting in a live birth.[6] Testing for these interactions allowed us to explore whether the level of live births resulting from unintended pregnancies varied among states by these demographic characteristics. For example, we tested whether the level of live births resulting from unintended pregnancies for black women was consistent across states, after adjusting for age, martial status, education, parity and WIC status. We used SUDAAN software to estimate percentages, standard errors, odds ratios and 95% confidence intervals.[7]

To determine the absolute differences between states in the adjusted percentage of live births resulting from unintended pregnancies, we computed the adjusted risk from logistic regression coefficients by using the conditional adjustment method.[8] In performing these computations, we set all predictor variables except the exposure to their mean values.

RESULTS

In each of the eight states included in our study, most women who delivered a live birth during 1993-1995 were white (61-96%), married (63-79%), and aged 20 years or older (82-93%) (Table 1). The majority of women had 12 or more years of education (77-87%) and had had a previous live birth (53-60%). The percentage of women who were WIC recipients ranged from 30% in New York State to 55% in South Carolina.

Table 1. Percentage distribution of women who delivered a live birth during 19931995 (and standard errors), by characteristic, according to state, Pregnancy Risk Assessment Monitoring System

Characteristic	Alabama	Florida	Georgia	Michigan	New York*	Oklahoma	South Carolina	West Virginia

	(N=4,933)	(N=6,611)	(N=5,248)	(N=4,754)	(N=3,641)	(N=4,878)	(N=5,725)	(N=4,795)
Maternal race								
Black	32.5 (1.0)	22.6 (1.0)	34.7 (0.6)	19.7 (0.5)	9.6 (0.7)	8.6 (0.5)	38.0 (0.6)	3.5 (0.5)
Other	0.9 (0.1)	2.4 (0.4)	1.7 (0.4)	2.1 (0.2)	2.6 (0.3)	10.8 (0.5)	1.2 (0.1)	0.4 (0.1)
White	66.6 (1.1)	75.0 (1.2)	63.6 (0.4)	78.2 (0.5)	87.8 (0.5)	80.6 (0.2)	60.8 (0.7)	96.1 (0.5)
Marital status								
Unmarried	33.3 (0.5)	34.0 (0.8)	35.4 (0.7)	21.0 (2.0)	27.9 (3.9)	28.0 (0.7)	36.9 (0.8)	28.4 (1.3)
Married	66.7 (0.5)	66.0 (0.8)	64.6 (0.7)	79.0 (2.0)	72.1 (3.9)	72.0 (0.7)	63.1 (0.8)	71.6 (1.3)
Maternal age (in yrs.)								
1519	17.9 (0.8)	13.4 (0.5)	15.6 (0.4)	10.9 (1.0)	7.2 (1.1)	16.0 (1.3)	16.5 (0.4)	17.4 (0.3)
2024	31.5 (0.9)	25.2 (0.4)	28.0 (0.8)	23.9 (1.0)	19.0 (1.9)	31.1 (1.7)	28.9 (0.9)	33.4 (0.7)
2534	42.9 (0.7)	50.6 (0.3)	48.2 (0.6)	55.9 (0.9)	61.0 (1.1)	45.2 (0.5)	46.2 (0.6)	43.4 (1.0)
3544	7.7 (0.6)	10.8 (0.8)	8.2 (0.2)	9.2 (0.3)	12.7 (0.3)	7.7 (0.2)	8.4 (0.3)	5.9 (0.4)
Maternal education (in yrs.)								
<12	23.3 (0.9)	22.7 (1.3)	22.1 (1.0)	17.2 (0.9)	13.1 (0.7)	21.7 (0.6)	21.6 (0.9)	22.0 (0.7)
12	33.9 (1.3)	37.5 (0.7)	36.5 (0.8)	35.8 (0.3)	33.0 (0.4)	37.6 (1.1)	39.2 (0.5)	44.1 (0.7)
1315	25.8 (0.5)	21.6 (1.2)	20.2 (0.8)	25.2 (0.9)	24.4 (1.1)	22.6 (1.4)	19.6 (0.5)	20.4 (0.8)
>=16	17.0 (1.0)	18.2 (0.6)	21.2 (0.6)	21.7 (0.4)	29.5 (0.8)	18.0 (1.1)	19.6 (0.3)	13.6 (0.6)
Previous live birth								
Yes	54.1 (0.8)	57.4 (0.8)	54.6 (1.2)	57.6 (0.9)	59.5 (0.7)	56.3 (1.5)	54.9 (1.0)	52.7 (1.1)
No	45.9 (0.8)	42.6 (0.8)	45.4 (1.2)	42.4 (0.9)	40.5 (0.7)	43.6 (1.5)	45.1 (1.0)	47.3 (1.0)
WIC recipient								
Yes	54.7 (0.4)	43.0 (1.2)	48.3 (0.9)	33.8 (1.0)	29.5 (0.8)	48.0 (1.4)	55.4 (0.2)	54.1 (1.0)
No	45.3 (0.4)	57.0 (1.2)	51.7 (0.9)	66.2 (1.0)	70.5 (0.8)	52.0 (1.4)	44.6 (0.2)	45.9 (1.0)
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

*Excludes New York City. *Note:* Totals may not equal 100.0% because of rounding. WIC=Special Supplemental Nutrition Program for Women, Infants and Children.

The percentage of live births resulting from unintended pregnancies ranged from 33% in New York to 49% in Alabama, Georgia and South Carolina (Table 2). The percentage for New York was significantly lower than that for all other states, the percentage for Michigan (42%) was significantly lower than those for Alabama, Georgia and South Carolina and the percentage for West Virginia (43%) was significantly lower than those for Alabama, Florida, Georgia, Oklahoma and South Carolina.

Table 2. Among women who delivered a birth during 19931995, percentage of live births resulting from unintended pregnancy (and standard errors), by selected characteristics, according to state

Characteristic	Alabama	Florida	Georgia	Michigan	New York*	Oklahoma	South Carolina	West Virginia
Total	**49.1 (1.0)**	**46.0 (0.5)**	**49.0 (1.8)**	**41.9 (1.7)**	**32.6 (1.4)**	**47.1 (1.0)**	**48.7 (0.9)**	**42.5 (1.1)**
Maternal race								
Black	70.6 (2.0)	69.0 (0.5)	68.6 (1.1)	71.3 (1.0)	61.8 (0.9)	70.5 (4.4)	66.8 (1.5)	62.9 (3.5)
Other	†	36.0 (5.6)	39.2 (5.2)	45.9 (5.1)	19.4 (1.7)	55.0 (1.7)	29.1 (11.0)	†
White	38.8 (1.5)	39.3 (0.4)	38.5 (2.4)	34.4 (2.0)	29.8 (1.5)	43.6 (1.1)	37.7 (0.6)	41.8 (1.2)
Marital status								
Unmarried	75.0	68.5	74.8	76.8	52.2	71.9 (3.4)	75.7	68.1

	(1.3)	(0.8)	(0.6)	(1.3)	(6.0)		(0.5)	(1.9)
Married	36.1 (1.3)	34.4 (0.8)	34.8 (2.5)	32.6 (1.6)	25.1 (2.0)	37.5 (1.3)	32.8 (1.1)	32.4 (0.5)
Maternal age (in yrs.)								
1519	74.4 (2.7)	71.0 (2.2)	74.6 (0.9)	78.1 (3.6)	68.7 (2.4)	71.5 (2.9)	76.7 (0.5)	65.1 (3.0)
2024	55.2 (2.9)	54.8 (0.7)	59.5 (3.0)	54.3 (2.2)	48.1 (1.2)	54.2 (1.9)	59.7 (2.1)	47.8 (3.1)
2534	35.6 (1.1)	36.5 (1.4)	36.3 (2.2)	31.5 (0.8)	25.0 (2.6)	35.7 (1.9)	34.4 (1.0)	31.1 (1.2)
3544	35.8 (1.8)	37.8 (3.2)	36.3 (1.2)	27.9 (3.2)	25.2 (3.0)	35.7 (1.2)	32.9 (4.3)	30.2 (3.0)
Maternal education (in yrs.)								
<12	65.1 (2.0)	60.7 (1.2)	65.1 (2.4)	64.7 (2.7)	52.0 (1.7)	60.8 (2.2)	66.8 (2.6)	55.6 (1.2)
12	50.5 (0.9)	49.6 (1.1)	52.6 (1.2)	44.6 (1.6)	36.9 (0.9)	46.7 (0.9)	51.0 (1.9)	43.4 (1.5)
1315	46.7 (3.3)	40.3 (2.2)	48.1 (2.1)	40.8 (1.8)	32.2 (1.6)	48.0 (0.4)	47.0 (0.8)	38.4 (2.5)
>=16	26.9 (3.6)	27.2 (1.9)	26.6 (2.8)	19.9 (2.9)	19.0 (1.5)	29.8 (3.9)	25.2 (0.8)	25.3 (2.8)
Previous live birth								
Yes	63.0 (1.1)	57.6 (0.9)	64.2 (1.4)	62.8 (2.0)	50.1 (3.2)	57.2 (2.1)	62.2 (1.5)	52.3 (1.1)
No	31.8 (1.7)	37.4 (1.4)	34.7 (3.0)	30.9 (1.7)	25.3 (1.2)	37.6 (3.3)	31.5 (0.5)	31.1 (1.2)
WIC recipient								
Yes	50.7 (1.9)	49.2 (0.6)	50.1 (2.5)	42.5 (2.3)	33.7 (1.8)	47.6 (0.6)	48.0 (2.8)	43.7 (1.4)
No	46.7 (1.4)	42.4 (0.7)	47.6 (1.1)	41.1 (1.3)	30.9 (2.0)	46.8 (1.0)	49.2 (2.1)	41.3 (2.0)

*Excludes New York City. †<25 observations in the numerator.

In all eight states, the percentage of live births resulting from an unintended pregnancy was significantly higher for black women (62-71%) than for white women (30-44%), for unmarried women (52-77%) than for married women (25-38%), for women younger than 20 (65-78%) than for older women (25-60%) and for women with previous live births (50-64%) than for first-time mothers (25-38%) (Table 2). In addition, as education increases, the percentage of live births resulting from unintended pregnancies almost always decreases. WIC recipients usually reported a higher percentage of live births resulting from unintended pregnancies than did women not receiving WIC, but the difference was statistically significant only for Florida.

After we adjusted for the effects of maternal race, marital status, age, education, previous live birth and receipt of WIC services, we found that state of birth was significantly associated with unintended pregnancy (Table 3). When we used Alabama mothers as the reference group, Oklahoma women had significantly higher odds of delivering a live birth as a result of an unintended pregnancy (odds ratio, 1.2) and New York women had lower odds (odds ratio, 0.7). New York's adjusted percentage of live births resulting from unintended pregnancy (34.1%) was 7.3 percentage points lower than Alabama's (41.4%), and Oklahoma's (45.3%) was 3.9 percentage points higher than Alabama's (data not shown).

Table 3. Adjusted odds ratios (and 95% confidence

interval) from logistic regression predicting the likelihood of a live birth resulting from an unintended pregnancy	
Characteristic	Odds ratio
Maternal race	
Black	1.97 (1.782.17)
Other	1.14 (0.981.31)
White (ref)	1.00
Marital status	
Unmarried	2.42 (2.102.79)
Married (ref)	1.00
Maternal age (in yrs)	
1519	3.92 (3.294.67)
2024	1.91 (1.682.17)
2534	1.05 (0.911.22)
3544 (ref)	1.00
Maternal education (in yrs)	
<12	1.18 (1.011.39)
12	1.26 (1.121.42)
1315	1.45 (1.281.64)
>=16 (ref)	1.00
Previous live birth	
Yes	1.73 (1.601.86)
No (ref)	1.00
WIC recipient	
Yes	1.34 (1.211.48)
No (ref)	1.00
State	
Alabama (ref)	1.00
Florida	1.06 (0.971.18)
Georgia	1.05 (0.891.26)
Michigan	1.11 (0.901.23)
New York*	0.74 (0.630.85)
Oklahoma	1.18 (1.071.30)
South Carolina	0.95 (0.841.08)
West Virginia	0.95 (0.851.06)
*Excludes New York City. *Notes:* Characteristics are adjusted for all variables shown in the table. ref=reference group.	

The interaction terms for state and marital status and for state and race were statistically significant. We therefore ran separate models for married white women, unmarried white women, married black women and unmarried black women. (Because of the small number of women of other races, we excluded them from these models.)

No statistically significant state differences were found among married white women (Table 4). However, among unmarried women, whites who were residents of New York were much less likely to have delivered a live birth as a result of an unintended pregnancy than were unmarried white women in Alabama (odds ratio, 0.5). As a result, the adjusted percentage of live births resulting from unintended pregnancies for unmarried white New York women (50.7%) was 18.5 percentage points lower than the

adjusted percentage for comparable Alabama women (not shown).

Table 4. Adjusted odds ratios (and 95% confidence intervals) from logistic regressions predicting the likelihood of a live birth resulting from an unintended pregnancy, by race and marital status

Characteristic	White		Black	
	Married	Unmarried	Married	Unmarried
Maternal age (in yrs)				
1519	3.70 (2.814.89)	3.61 (1.717.66)	4.69 (2.797.88)	6.04 (3.5510.28)
2024	1.98 (1.662.35)	0.79 (0.883.65)	1.73 (1.182.53)	2.19 (1.343.58)
2534	1.04 (0.891.23)	1.22 (0.562.67)	0.90 (0.681.20)	1.47 (0.912.35)
3544 (ref)	1.00	1.00	1.00	1.00
Maternal education (in yrs)				
<12	1.09 (0.911.30)	1.13 (0.661.93)	1.01 (0.751.37)	0.77 (0.381.58)
12	1.28 (1.141.44)	1.21 (0.791.84)	0.99 (0.701.40)	0.78 (0.441.37)
1315	1.41 (1.201.65)	1.87 (1.252.79)	1.00 (0.701.45)	1.08 (0.651.80)
>=16 (ref)	1.00	1.00	1.00	1.00
Previous live birth				
Yes	1.72 (1.581.88)	1.37 (1.151.64)	2.31 (1.962.72)	1.97 (1.662.35)
No (ref)	1.00	1.00	1.00	1.00
WIC recipient				
Yes	1.73 (1.521.97)	0.90 (0.641.26)	1.37 (1.131.66)	0.71 (0.570.88)
No (ref)	1.00	1.00	1.00	1.00
State				
Alabama (ref)	1.00	1.00	1.00	1.00
Florida	1.13 (0.971.33)	0.82 (0.681.00)	1.09 (0.731.62)	1.21 (0.841.74)
Georgia	1.04 (0.751.44)	1.13 (0.931.37)	1.14 (0.811.61)	1.19 (0.941.50)
Michigan	1.01 (0.791.29)	1.23 (0.941.60)	1.30 (1.001.69)	1.26 (0.931.71)
New York*	0.86 (0.651.14)	0.46 (0.290.72)	1.24 (0.752.06)	0.77 (0.571.05)
Oklahoma	1.19 (0.971.46)	1.00 (0.771.30)	1.13 (0.612.09)	1.34 (0.682.64)
South Carolina	0.97 (0.831.14)	1.20 (0.981.47)	0.73 (0.481.11)	1.26 (0.991.60)
West Virginia	0.87 (0.751.01)	0.98 (0.751.28)	†	1.30 (0.941.80)

*Excludes New York City. †West Virginia's sample of married black women (N=44) was too small for analysis. *Notes:* Characteristics are adjusted for all variables shown in the table. ref=reference group.

Married black women in Michigan were somewhat more likely to deliver a live birth resulting from an unintended pregnancy than were comparable women in Alabama (odds ratio, 1.3). In Michigan, then, the percentage of live births resulting from unintended pregnancies among married black women (49.4%) was 6.5 percentage points higher than the comparable proportion for Alabama (not shown). There were no significant state differences for unmarried black women.

DISCUSSION

Thus, after adjustment for confounding factors, the odds that a live birth would result from an unintended pregnancy were lower overall in New York and higher in Oklahoma, and the odds in New York were particularly reduced among unmarried white women. Michigan women who were black and were married had higher odds of having such a birth than comparable Alabama women.

Our study suggests that extrapolating the percentage of live births resulting from unintended pregnancies from one state to another may underestimate or overestimate the problem. It is unlikely that methodological differences are responsible for the variations in the percentages among states, because each state uses the same PRAMS surveillance methodology developed by CDC. Moreover, CDC weights each state's data for survey design, nonresponse and noncoverage in a comparable manner.

These state differences could reflect variation in a number of factors, including the availability or acceptability of family planning services, cultural beliefs and sexual practices and, most importantly, the likelihood of obtaining an induced abortion. Birthrates have been found to be higher in states where the costs of contraception are higher, while abortion rates have been found to be lower in states where access to abortion services is limited.[9]

We reviewed the 1994 state abortion ratios to evaluate whether differences in the percentage of live births resulting from unintended pregnancies were being driven by differences in the rates of women obtaining an abortion. New York's 1994 abortion ratio (307 abortions per 1,000 live births) was higher than Alabama's (244 per 1,000), which, in turn, was higher than Oklahoma's (149 per 1,000).[10] If we assume that the rate of unintended pregnancy is consistent among these three states, these abortion ratios suggest that the differences found among these three states' percentage of live births resulting from unintended pregnancies may be a result of state differences in women's likelihood of obtaining an abortion. However, we have no information on the validity of this assumption. Consistent with these abortion ratios, a study of the availability of abortion services found that New York has a higher number of abortion providers (6.8 per 100,000 women aged 1544) than Alabama (2.1 per 1,000) and Oklahoma (1.5 per 1,000).[11]

PRAMS is one of the most widely used data sources for state-based estimates of live births resulting from unintended pregnancies, and the availability of numerous variables in this data set allowed us to control for known confounders. This surveillance system has some limitations, however. For example, the data on pregnancy intention at the time of conception are based on the mother's recall up to six months postpartum, and may have been influenced by the mother's feelings toward her infant at that time.

In addition, PRAMS does not collect information on pregnancies that end in induced or spontaneous abortion; therefore, we were unable to assess whether state-by-state variations in the percentage of live births resulting from unintended pregnancies would be similar for the percentage of unintended pregnancies overall. Our proxy for income (participation in WIC) was crude, but we were unable to use the more direct measure of household income because such data are not collected in a comparable format across states.

Finally, it is possible that there was a nonresponse bias in each state's data because nonrespondents (2029% of the state samples) were similar in demographic characteristics to women who were at the highest risk of having an unintended pregnancy resulting in a live birth: women younger than 25, unmarried women, black women and less-educated women. Such nonresponse bias would underestimate the percentage of live births resulting from unintended pregnancies. The weighting of the

PRAMS data for nonresponse most likely diminishes the impact of this potential bias.

PRAMS data on the percentage of live births resulting from unintended pregnancies (33-49%) are higher than those reported in the 1995 National Survey of Family Growth (31%).[12] This difference may reflect differences in survey methodology, such as the questions on pregnancy intendedness, the recall period and the survey mode.

The NSFG asks a series of questions on pregnancy intention, while PRAMS asks only one. This difference probably did not substantially affect the survey estimates, however: A study in which women were randomly asked NSFG questions and a question similar to that asked in the PRAMS found similar estimates of unintended pregnancy.[13] The NSFG survey has a longer recall period (up to five years after delivery) than the PRAMS survey (2-6 months after delivery); the longer recall period could result in fewer reports of unintended pregnancy if, over time, women with unintended pregnancies are less likely to recall them as such.

The NSFG survey mode is in-person interviews, whereas PRAMS consists primarily of self-administered mailed questionnaires. Although many women may find the self-administered questionnaire a less threatening forum for reporting an unintended pregnancy, we are unaware of any studies that have explored this issue specifically for questions on pregnancy intention. Studies on other topics have found mixed results. Women reported higher drinking rates in telephone interviews than in face-to-face interviews,[14] but another study found no such differences in questions concerning smoking.[15] A methodological study using the NSFG questionnaire found that self-administration significantly increased the reported number of socially undesirable behaviors (such as number of sexual partners and sexually transmitted diseases) compared to administration by an interviewer.[16] Thus, if women perceive unintendedness as a socially undesirable or unacceptable aspect of their pregnancy, they may be less likely to report it during an in-person interview (such as NSFG) than on a self-administered questionnaire (such as PRAMS).

However, consistent with the findings of the 1995 NSFG, the PRAMS and NSFG results identified the same groups of women as having the highest percentages of unintended live births.[17] For example, the NSFG data for live births in 1994 reported that 66% of births to women aged 15-19 were unintended, compared with 39% of births to women aged 20-24. PRAMS data show state ranges of 65% to 78% of unintended live births among women aged 15-19, compared with state ranges of 48-60% among 20-24-year-olds. In addition, live births were more likely to be unintended among black women than among white women and among unmarried women than among married women in both data sets.

In all eight states included in our study, the same race, marital status, age, education and parity subgroups had higher percentages of live births resulting from unintended pregnancies than women with other demographic characteristics. This finding suggests that states without their own data may be able to assume that these same subpopulations are at greater risk of having a live birth resulting from an unintended pregnancy, and that states with large proportions of women with these characteristics are likely to have high rates of live births resulting from unintended pregnancies. Yet, the variations between states that we found also suggest that caution must be used in extrapolating data from one state to another.

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*Throughout this article, "New York State" excludes New York City.