

Measuring the Extent of Abortion Underreporting In the 1995 National Survey of Family Growth

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Context: Induced abortions are often severely underreported in national surveys, hampering the estimation and analysis of unintended pregnancies. To improve the level of abortion reporting, the 1995 National Survey of Family Growth (NSFG) incorporated new interview and self-report procedures, as well as a monetary incentive to respondents.

Methods: The weighted numbers of abortions reported in the main interview of the 1995 NSFG (Cycle 5), in the self-report and in the two procedures combined are compared with abortion estimates from The Alan Guttmacher Institute. The Cycle 5 estimates are also compared with estimates from previous cycles of the NSFG.

Results: The self-report produces better reporting than the main interview, but combining data from the two procedures yields the highest count of abortions. For the period 1991–1994, the level of reporting is 45% in the main interview, 52% in the self-report and 59% when the two methods are combined. The level of abortion reporting in the combined data ranges from 40% for women with an income less than the federal poverty level to more than 75% among women who were older than 35, those who were married at the time of their abortion and those with an income above 200% of the poverty level. The completeness of abortion reporting in the main interview of Cycle 5, though indicating a remarkable improvement over reporting in Cycle 4, is comparable to the levels in Cycles 2 and 3.

Conclusions: The usefulness of the NSFG remains extremely limited for analyses involving unintended pregnancy and abortion.

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Over the past three decades, unintended pregnancy has become an issue of personal and social concern in the United States.¹ Unintended pregnancy has been used as an indicator both of contraceptive failure and of the need for contraceptive services. It has also been recognized as the prime cause of induced abortion and as a contributor to inadequate prenatal care.² Unfortunately, studies of unintended pregnancy have been hampered by the difficulty of obtaining accurate information on unintended pregnancies that end in abortions, which have been shown to be severely underreported in a variety of surveys.³

One such survey is the National Survey of Family Growth (NSFG), which has been conducted periodically since 1973. The survey is designed to collect nationally representative statistics on family and fertility processes and has served as the key source of information on the reproductive behaviors of women in the United States. However, the NSFG's usefulness for analyses of pregnancy intention and contraceptive effectiveness has been limited by underreporting of pregnancies ending in induced abortions.

Comparison of NSFG data with infor-

mation from other sources has shown that fewer than half of the abortions that actually occurred in the United States among women aged 15–44 were reported in NSFG Cycles 2–4. The proportion of abortions reported varies substantially by women's characteristics, such as age, race and marital status.⁴ These levels of underreporting render the NSFG data from these cycles inadequate for estimation or analysis of abortion or of unintended pregnancy as either a dependent or an independent variable. For example, contraceptive failure rates and discontinuation rates calculated from NSFG data alone are underestimates because of underreporting of abortions.⁵

In the 1995 NSFG (Cycle 5), several new survey procedures were introduced to improve the overall response rate and the general quality of reporting in the survey. As was the case in previous cycles of the NSFG, the main survey instrument was a personal interview in which respondents were asked to report all pregnancies in their lifetime, including those that ended in induced abortion. In Cycle 5, however, the main interview was conducted through a process called a computer-assisted personal interview (CAPI), in which

the interviewer entered the respondent's answers into a laptop computer. The survey questions, skip patterns and consistency checks were programmed into the laptop, so that the interview could proceed smoothly and so that inconsistencies or missing data could be flagged and corrected during the interview. Respondents were paid \$20 as an incentive for completing the survey.

At the end of the interview, an innovative self-report approach—audio computer-assisted self-interviewing (ACASI)—was used specifically to improve reporting on sensitive topics such as abortion. This procedure allows respondents to listen to questions over audiotape (or read them from the screen) and to respond privately by entering answers directly into the laptop. This part of the survey asks about all abortions a respondent may have had, including any that had been reported during the main interview.⁶ By ensuring the respondent's privacy, the self-report procedure aims at eliciting more complete reporting of abortions.

The monetary incentive and the audio computer-assisted self-interview were introduced in the 1995 NSFG in response to survey research suggesting that both methods help improve reporting of sensitive experiences. Results from the Cycle 5 pretest reveal that the monetary incentive positively affected the level of abortion reporting and that, compared with the main interview, the self-report procedure generated more complete reporting of abortions.⁷

In this analysis, we employ the methodology used in previous analyses of abortion reporting in the NSFG⁸ to assess whether, with the new survey design,

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abortion providers conducted by The Alan Guttmacher Institute (AGI).

To evaluate the impact of the new self-report method on abortion reporting, we compare the level of abortions reported under each of the two NSFG survey procedures (the main interview and the self-report). We also combine the two sources of abortion information to derive the best abortion estimates available from Cycle 5 and to calculate the corresponding level of reporting.

To construct a comparable time trend of abortion reporting in the NSFG, we compare and contrast estimates from Cycle 5 with estimates from the previous cycles of the survey, both for overall reporting and for reporting in subgroups of women. We explore how the range of reporting varies across subgroups of women and whether the new self-reporting method affected abortion reporting for some subgroups of women more than for others.

Data and Methods

The 1995 NSFG covers a total of 10,847 civilian noninstitutionalized women who were aged 15–44 as of April 1, 1995, from households that participated in the 1993 National Health Interview Survey. The 1995 NSFG, which had a response rate of 79%,⁹ oversampled Hispanic women and non-Hispanic black women. Adjusted sampling weights provided by the National Center for Health Statistics were used to convert survey results into national estimates that were then compared with estimates based on external data.¹⁰

In the pregnancy history included in the main interview of the NSFG, respondents were asked to report the outcome of each of their pregnancies (induced abortion being one possible outcome), the date a pregnancy ended and their age and marital status at the time of the pregnancy outcome. Other information collected in the main interview included the respondent's education and work experience, her history of marriages and cohabitations and her contraceptive use history, along with many other demographic and socioeconomic characteristics.

The self-report section of the survey covered several sensitive topics, including abortions, number of sexual partners, and history of sexually transmitted diseases (STDs). Respondents were first

asked whether they had ever had any abortions, the total number of abortions they had had, the date of each abortion reported and, for all abortions obtained after January 1, 1991, what contraceptive method, if any, was being used at the time the pregnancy occurred.¹¹

Consistency of Abortion Data

In part because the CAPI program performs range and consistency checks, the frequency of missing data related to abortions reported in the main interview was very low. During consistency checking, we found only 14 dates for abortions reported in the main interview that required minor adjustment. Small proportions of abortions revealed in the self-report had been reported as ectopic pregnancies or miscarriages in the main interview. These misclassified abortions accounted for 3–7% of the 274 ectopic pregnancies reported in the main interview and 2–5% of the 2,708 miscarriages, depending on whether the date of an abortion revealed in the self-report was the same as or within three months of the date of an ectopic pregnancy or miscarriage reported in the main interview.

Compared with the information from the main interview, self-reported abortion data appear to be somewhat less consistent and somewhat more likely to lack valid dates. In this part of the survey, women were entering their responses directly, which increased the possibility of keying errors that were not automatically checked for consistency within the self-report or against the main interview. Among the 10,847 respondents, 136 (1.3%) did not give definitive answers or refused to answer the question "Have you ever had an abortion?" Among the 2,228 women who answered "yes," 20 provided no specific number and another 32 specified a number (a total of 95 abortions) but did not give a valid date for any of the reported abortions. In addition, 43 respondents did not provide valid dates for some of the abortions they reported (a total of 82 abortions).

We considered the 177 abortions without valid dates (5% of the 3,421 abortions reported in the self-report) as unusable and therefore omitted them from the subsequent analysis. In addition, 44 women reported 62 abortions but did not provide information on the month the abortion occurred. For these cases (2% of the total), we imputed the month of abortion.*

Another potential inconsistency in the self-reported abortion data involves 191 abortions (6%) for which the reported date

of abortion was exactly 12 months from the date of an abortion reported in the main interview. A case-by-case examination suggests that the one-year gap in reported dates for 118 of these abortions could have resulted from a keying error during the self-report. For these cases, the date of the abortion entered during the self-report was replaced with the date of the corresponding abortion reported in the main interview.[†] The other 73 abortions were considered different events than the abortions that were reported in the main interview.

Completeness of Reporting

In this analysis, we measure the completeness of abortion reporting in the 1995 NSFG in the following three ways: by comparing the number of abortions reported in the main interview with external estimates of the number of abortions that actually occurred in the United States; by comparing the number of abortions reported in the self-report with the external estimates; and by comparing the combined number of abortions in the main interview and the self-report with the external estimates.

For the overall level of reporting, we look at each of the 19 years between 1976 and 1994, a period for which both reliable external estimates and abortion estimates for the NSFG sample are available. When studying abortion reporting according to characteristics of women, we focus on the four-year period (1991–1994) immediately preceding the survey. The characteristics we examine include age, marital status, race,[‡] Hispanic ethnicity, religion, region of residence, educational attainment and household poverty status. Age and marital status refer to characteristics at the time of the abortion, while all other characteristics are measured at the time

*If the year of the self-reported abortion could be matched with the year of an induced abortion, miscarriage or ectopic pregnancy reported in the main interview, the date of the event reported in the main interview was assigned to the self-reported abortion; otherwise, the self-reported abortion was assumed to have occurred in the middle of the year in which it was reported to have taken place.

†In most of the 118 cases, the total number of abortions revealed in the self-report was equal to or less than the total number of abortions reported in the main interview, yet the date of the index abortion in the self-report did not match the date of any pregnancy outcome reported in the main interview. Because many of these abortions occurred before 1991, our decision to recode the dates for these 118 cases did not significantly affect the estimated number of abortions reported for the time period 1991–1994.

‡A third of the 100 women in the racial group "other" categorized themselves as Hispanic. For this analysis, we recoded these women as white.

of interview.* Previous studies have shown that both the incidence and the reporting of abortion vary considerably across these characteristics.¹²

Abortion Estimates from Cycle 5

We used the information obtained in the main interview and the self-report to evaluate abortion reporting in the two methods of data collection. The combined number of abortions was constructed by adding the information reported in the main interview to that given in the self-report (with dates adjusted for inconsistencies). To pool abortions reported in the two sources, we used the following approach: If the date of an abortion mentioned in the self-report fell within three months of the date of an abortion reported in the main interview, we considered the two abortions as the same event and counted them as one abortion in the combined data. In these cases, we used the date of abortion reported in the main interview. If the difference in the dates of the two reported abortions was greater than three months, we counted both events in the combined number of abortions.† The combined data yield the highest count of abortions reported in the NSFG. By comparing the abortion information reported in the main interview with the combined data, we can assess the impact of adding the self-report option to the survey.

A total of 1,880 respondents provided usable information during the main interview on at least one abortion in their lifetime, while 2,177 respondents reported usable information in the self-report section. Combining the usable data reported in the main interview with that given in the self-report provided a study sample of 2,261 women who had had at least one abortion prior to the survey.

Overall, 61% of these women reported the same abortions in the interview and the self-report, 4% reported at least one abortion in the main interview but none in the self-report and 17% reported one or more abortions in the self-report but none in the

main interview. Thirteen percent reported the same number of abortions in the main interview and the self-report, but the two sets of abortions did not match perfectly, so the combined total was greater than the number in either the main interview or the self-report; the remaining 5% reported abortions in both procedures but omitted some abortions reported in one procedure from their reporting in the other. Of a total of 3,843 abortions reported, 58% were reported in both parts of Cycle 5, while 15% were reported only in the main interview and 27% were acknowledged only in the self-report.

External Estimates

To estimate the total number of abortions in the United States for each year between 1976 and 1994, we used the data from AGI's periodic survey of abortion providers;¹³ for years in which the survey was not conducted, we derived estimates through interpolation or projection. The national abortion totals derived from AGI's provider surveys are subject to error caused by the omission of providers unknown to the surveyors, by nonresponse and by responses based on estimates rather than records. Evidence from a 1992 sample survey of 600 obstetrician-gynecologists and 215 hospitals indicates that the actual number of abortions may have been 3% higher than in the AGI survey.¹⁴ Therefore, undercounting of abortions in the provider surveys appears more likely than overcounting.

We computed the number of abortions obtained in past years by women aged 15–44 as of April 1, 1995 (corresponding to the age of the NSFG sample), by estimating the distribution of abortions by single year of age for each year. These calculations were based on the annual distributions of abortions by age from the Centers for Disease Control and Prevention's (CDC) abortion surveillance reports¹⁵ and on tabulations of microdata tapes compiled by National Center for Health Statistics.‡

We estimated the numbers of abortions

for subgroups of women for the period 1991–1994 in two ways. For age, marital status (married vs. unmarried), race and Hispanic ethnicity, we used the percentage distributions of abortions from CDC surveillance reports for each year,¹⁶ as adjusted by AGI.[§] For religion, educational attainment, poverty status and status of unmarried women (never-married vs. formerly married), we assumed the percentage distributions were the same as in AGI's 1994–1995 survey of abortion patients;¹⁷ for region of occurrence, we used abortion estimates from AGI's 1992 abortion provider survey.¹⁸

Results

Overall Reporting in Cycle 5

The completeness with which Cycle 5 respondents reported their abortions is presented, by method of reporting, in Figure 1, which shows the percentage of abortions reported in each year between 1976 and 1994 among women aged 15–44 in 1995. As expected, women generally reported their abortion experiences more completely in the self-report than in the main interview.

Although the self-report produced an improvement, estimates based on self-reported information alone do not provide the fullest count of abortions reported by women in the NSFG, because some women who revealed their abortion experiences in the main interview reported fewer or none of their abortion experiences in the self-report. As a result, abortion estimates based on the main interview and the self-report combined represent a more complete count of abortions than either reporting method alone.

As Figure 1 shows, in spite of the new procedures incorporated into Cycle 5 of the NSFG, abortions were still underreported in the survey. When we compared the total number of abortions over the years between 1976 and 1994 reported by women aged 15–44 in 1995 with the number of abortions estimated as having actually occurred during that period, the average an-

*Both age and marital status at the time of abortion were available in the data from the main interview. For abortions revealed only in the self-report (where age and marital status were not collected directly), we calculated age at the time of abortion from the reported date of abortion and the birth date of the respondent. For marital status, we used the marital status reported in the main interview (when a self-reported abortion matched a pregnancy outcome reported in the main interview) or a month-by-month marital status calendar constructed from the main interview data. When examining reporting differentials by educational attainment, we chose to focus on women who were aged 25 or older at the time of their abortion, assuming that most of these women had completed their schooling by then.

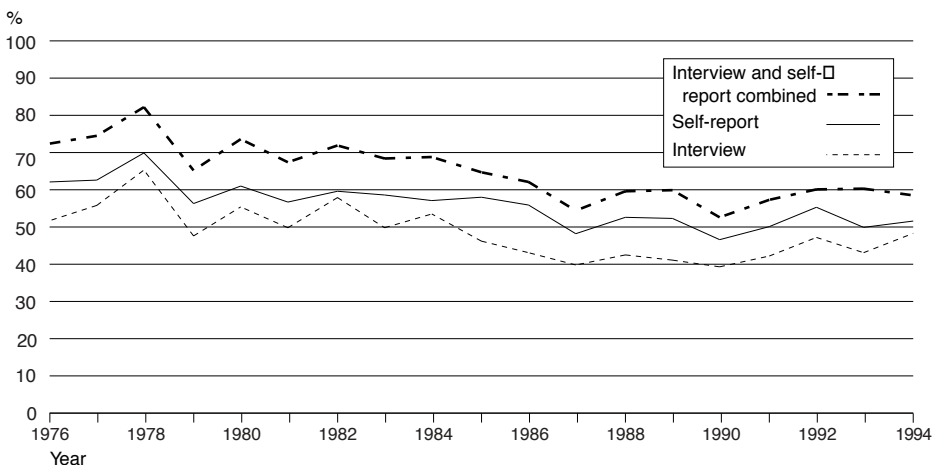
†This counting scheme takes into account the possibility that respondents might have made minor errors in reporting the date of an abortion under the two reporting methods. It does not, however, account for the possibility that, within the three-month period, a woman could have obtained more than one abortion (reported in two separate sources). We speculate that the resulting bias, if any, would be small because the number of women who obtain more than one abortion within such a short period of time is negligible; we also assume that this bias is likely to be offset by the possibility that an event reported more than three months apart in the two procedures could be counted as two events in the combined data. In effect, among all pairs of abortions matched under this counting scheme, nearly 80% had the same

reported date. An alternative approach that extended the "grace" period to six months yielded similar results, as the number of abortions reported as having occurred 4–6 months apart in the two procedures was small.

‡This estimation did not take into account the possible impact of mortality and migration on changes in abortion incidence. We speculate that the bias resulting from the omission of these two factors is small and that the two sources of error tend to offset each other.

§For a detailed description of the methods used to estimate the number of abortions according to women's characteristics, see: Henshaw SK and Van Vort J, *Abortion Factbook, 1992 Edition: Readings, Trends, and State and Local Data to 1988*, New York: AGI, 1992, p. 164.

Figure 1. Of abortions estimated as having occurred among U.S. women aged 15–44 in 1995, percentage reported in Cycle 5 of the NSFG, by reporting procedure and year of abortion



nual proportion of abortions reported is only 48% in the main interview, 55% in the self-report and 64% when the interview and the self-reported data are combined.

Figure 1 also indicates that the level of reporting of abortions obtained over the years tends to vary. Women were more likely to report abortions that occurred prior to the mid-1980s than to acknowledge those that occurred later, regardless of the method of reporting. Results not shown suggest that the reporting of respondents aged 35–44 in 1995 of their earlier experiences did not dif-

fer significantly from their reporting of more recent abortions, while younger women tended to report their earlier abortion experiences more completely than their recent abortions and to report the early abortions more completely than did the older respondents. (The estimates for the younger women prior to the mid-1980s, however, are based on a small number of events, rendering those proportions unstable.) For more recent abortions, older respondents appear to have reported their experiences more completely than younger respondents.

To assess changes in reporting of abortion in the NSFG over time, we compared the percentage of abortions reported in Cycle 5 with the percentages reported in Cycles 2–4, focusing on abortions that occurred in the 3–4 years immediately preceding each survey. (The data from Cycle 4 exclude the abortion information from a special self-administered questionnaire, which referred only to abortions that occurred in the 12 months prior to the survey.)

As Table 1 shows, the percentage of abortions reported in the main interview of Cycle 5 for the four-year period as a whole (45%) is comparable to the proportions reported in NSFG Cycles 2 (45%) and 3 (48%), but it is 29% higher than the proportion reported in Cycle 4 (35%). The decrease between Cycles 3 and 4 in the percentage of abortions reported might be attributable to the changes in the Cycle 4 survey questions related to pregnancy and induced abortion, which made it easier for a woman to underreport her abortion experiences,¹⁹ and to the politically charged atmosphere surrounding abortion at the time of the 1988 survey.

The increase in the proportion of abortions reported in the Cycle 5 main inter-

view over the proportion reported in Cycle 4 may be due in part to the newly introduced CAPI procedure. The monetary incentives offered to respondents in Cycle 5 could also have helped improve reporting of abortions, probably by creating a greater sense of obligation to provide honest answers.²⁰ The self-report procedure helped to boost the overall proportion of abortions reported in Cycle 5 to 59%, higher than the proportion in any past NSFG.

Reporting by Subgroups of Women

In Table 2 (page 132) we compare the level of abortion reporting attained through different survey methods in Cycle 5 across subgroups of women for the period 1991–1994. During this four-year period, an estimated six million abortions occurred in the United States. However, the total weighted number of abortions in 1991–1994 reported in the main interview by Cycle 5 respondents was only 2.7 million, 45% of the estimated total.

Abortion reporting in the main interview varied substantially across subgroups of women, ranging from 31% to 63% of the actual number of abortions.* For example, at least 50% of actual abortions were reported during the main interview by women who were younger than 20 or older than 35 at the time of abortion, those who were married at the time of their abortion, those with incomes at or above 200% of the poverty level, women with no reported religion, and those aged 25 or older who had not graduated from high school. In contrast, 40% or fewer of actual abortions were reported in the main interview by women who were aged 25–29 or never-married at the time of their abortion, women with incomes below 200% of the poverty level, Catholic women and black women.

When the abortions reported during the main interview and those acknowledged during the self-report were combined, 59% of estimated actual abortions were reported in Cycle 5.[†] That proportion varied substantially across subgroups, rang-

Table 1. Estimated percentage of abortions reported by women aged 15–44 in five cycles of the NSFG, by year

NSFG cycle and year	% reported
Cycle 2 (1976)*	45
1973	25
1974	45
1975	60
Cycle 3 (1982)	48
1979	42
1980	53
1981	53
1982	42
Cycle 4 (1988)	35
1984	33
1985	36
1986	31
1987	40
Cycle 5 (1995): interview only	45
1991	42
1992	47
1993	43
1994	48
Cycle 5 (1995): interview and self-report combined	59
1991	57
1992	60
1993	60
1994	58

*Married women only. Source: For estimates for NSFG Cycles 2–4, see reference 3.

*Although the level of reporting for the racial group "other" was high (74%), it is based on too few cases to provide reliable results.

†The total weighted number of abortions estimated based on the combined reporting for the four-year period 1991–1994 is 3.5 million, slightly more than the 3.3 million in the NSFG Cycle 5 user guide (National Center for Health Statistics [NCHS]), *Public Use Data File Documentation, NSFG Cycle 5: 1995, Users' Guide*, Hyattsville, MD: NCHS, 1995, p. 18). The latter estimate is based on the number of abortions reported by respondents in either the main interview or the self-report (whichever was larger), whereas our estimate was based on the number of abortions reported in one or both sources (which could be larger than either source alone).

Table 2. Estimated number of U.S. abortions in 1991–1994, percentage reported in NSFG Cycle 5, by reporting procedure, and ratio of abortions reported in combined sources to abortions reported in the main interview, all by women’s characteristics

Characteristics	No.*	% reported in NSFG		Ratio of combined sources to interview
		Interview	Interview and self-report combined	
Total	5,976,900	45	59	1.31
Age†				
<20	1,221,900	51	66	1.30
20–24	2,052,000	41	50	1.24
25–29	1,336,900	38	54	1.43
30–34	840,700	48	66	1.35
≥35	525,400	62	78	1.26
Marital status‡				
Never-married	3,925,900	40	52	1.29
Married	1,007,400	63	85	1.34
Formerly married	1,043,600	46	60	1.30
Education‡				
<12	342,000	61	82	1.35
12	809,000	42	59	1.40
≥12	1,552,100	45	60	1.34
Income (as % of poverty level)				
<100%	1,708,300	31	40	1.29
100–199%	1,373,300	38	50	1.30
≥200%	2,895,300	57	75	1.32
Religion				
None	1,416,500	50	58	1.17
Protestant	2,235,400	49	67	1.36
Catholic	1,870,800	38	54	1.42
Other	454,200	40	43	1.07
Race				
White	3,672,500	48	64	1.32
Black	2,023,600	36	47	1.33
Other	280,800	74	82	1.11
Hispanic ethnicity				
No	5,072,900	45	58	1.31
Yes	904,000	48	63	1.30
Region				
West	1,721,400	49	60	1.24
Northeast	1,477,000	48	60	1.27
Midwest	1,023,600	42	61	1.45
South	1,754,900	41	55	1.34

*Obtained by women aged 15–44 on April 1, 1995. †At time of abortion. ‡Among women aged 25 or older at the time of abortion.

ing from 40% among women with incomes lower than the poverty level to more than 80% among women who were married at the time of their abortion, women aged 25 and older who had less than a high school education and women of “other” racial groups.

Table 2 also presents the ratio of the number of abortions reported in the combined sources to the number reported in the main interview, a measure that indicates the extent to which the inclusion of the self-reported data increased the level of report-

ing. Overall, the level of reporting for abortions that occurred during 1991–1994 was 31% higher when the two data sources were combined than when only the main interview data were considered. The improvement in reporting was evident in every subgroup, although the impact of the self-report was more pronounced in some subgroups than in others.

In some subgroups of women, the addition of the self-report improved the level of reporting by at least 33%. For women who were married at the time of their abortion and women aged 25 or older who had not finished high school (groups whose levels of reporting were already above average in the main interview), the addition of the self-report raised the proportion of abortions they reported to 82–85%. For other subgroups with substantial increases but lower than average levels of reporting in the main interview, such as women aged 20–29 at the time of abortion, Catholic women, women living in the South and black women, the addition of the self-reported data did not raise their reporting to the average level.

In contrast, several subgroups showed only modest increases in reporting levels (7–27%) with the addition of the self-reported data. For some of these subgroups, such as women aged 35 or older at the time of their abortion, women with no religious affiliation and women of “other” races, the addition of the self-reported data had little effect on their reporting levels, which were already higher than average. In contrast, for women with a religious identification other than Protestant or Catholic (who reported only 40% of their estimated abortions in the main interview), the level of reporting remained below average (43%) after the addition of the self-reported data.

In Table 3, we compare levels of abortion reporting in Cycle 5 of the NSFG with those in Cycles 3 and 4, by race and by age and marital status at the time of abortion, the only characteristics for which estimates are available from the earlier cycles. The percentage of all abortions reported in the Cycle 5 main interview is greater than the percentage reported in the Cycle 3 interview for only three of the eight subgroups, but the Cycle 5 interview results are greater than those in Cycle 4 for seven of the eight subgroups.

When the combined data are used, the percentage of abortions reported in Cycle 5 is higher than that reported in the earlier cycles for all of the subgroups considered. In 1988, the proportion reported in interviews was 40% or lower for all subgroups, while in the combined 1995 data, each subgroup of women reported at least 50% of their abortions. The largest difference between 1988 and 1995 in overall reporting is for abortions among married women, with 37% reported in Cycle 4, 63% reported in the Cycle 5 main interview and 85% reported in the combined data. Even in the case of the most modest improvement, for women aged 25–29, the overall reporting increased by 35% between Cycles 4 and 5.

Discussion

Underreporting of induced abortions has rendered surveys such as the NSFG virtually unusable for description or analysis of unintended pregnancy and induced abortion, items of key social and policy interest in the United States. The self-report procedure and monetary incentives used in Cycle 5 of the NSFG were introduced to help improve the reporting of information—about abortions, STDs and sexual partners, for example—that people may be hesitant to reveal in a face-to-face interview. Our findings show that these innovations did increase reporting; even with this improvement, however, only about six in 10 abortions were reported in 1995, so the usefulness of the NSFG for analyses using abortion data remains extremely limited.*

While the computer-assisted interview procedure and monetary incentives to respondents appear to have improved reporting in the main interview substantially compared with the level in Cycle 4, the proportion of abortions reported was similar to that reported in Cycles 2 and 3. This finding suggests that, without the new procedures and respondent payments in the 1995 NSFG, reporting of abortion could have remained substantially less complete than in Cycles 2 and 3.

*The 1995 NSFG had a high nonresponse rate (21%). If the women who did not respond had, on average, higher rates of abortion, their nonresponse could have contributed to the low level of abortion reporting in the survey.

The self-report procedure did indeed elicit more complete reporting of abortion in the survey. Some women who did not reveal any abortions to the interviewer reported at least some of the abortions they had had in the computerized self-report, while other women who had already reported some abortions in the main interview reported more.

We found, however, that the proportion of abortions reported in the self-report was far from complete (slightly greater than 50%). Apparently, not all respondents were sure that the information they provided would be kept confidential; in addition, privacy may not be the only factor that influences a woman's decision or ability to report her abortions. Moreover, despite instructions to reveal all abortions in the self-report, some women failed to report abortions previously acknowledged in the main interview, while others did not provide complete information on the date of their abortions. Therefore, combining the two sources provided the most accurate (although still woefully deficient) estimate of the actual number of abortions.

Even with the addition of the self-reported data, the completeness of abortion reporting varied widely across subgroups of women. Most of the variations we found were expected: For example, the level of reporting (including the self-reported data) rose from 52% among unmarried women to 85% among married women, and from 40% among women with an income below the federal poverty level to 75% among those with an income of at least 200% of the poverty level.

On the other hand, our findings related to educational attainment and ethnicity were unexpected. A previous study

found that a higher level of education is associated with better reporting of abortion, a relationship that has been attributed to both a greater support for legal abortion and a greater commitment to accurate reporting.²¹ We found, however, that the level of abortion reporting among 1995 NSFG respondents with some college education was considerably lower than that among respondents who had not finished high school (82% vs. 60%).

This conflict may reflect inconsistencies between the NSFG data and the external estimates, which are based on AGI's 1994 abortion patient survey. In that survey, the proportion of women who had attended college is higher than the proportion in the 1992 National Center for Health Statistics microdata tape, which provides information about the education of 109,000 abortion patients aged 25 or older. If the AGI survey did overestimate the number of abortion patients who had attended college, the level of reporting for this group in Cycle 5 of the NSFG was underestimated and might indeed be better than that of less-educated women.

Our estimated level of reporting for Hispanic women is slightly higher than the level for non-Hispanic women. This result conflicts with previous findings that Hispanics have a greater propensity to underreport their abortion experiences because they are less likely to approve of abortion in general.²² This inconsistency may reflect underrepresentation of Hispanics in the external estimates, which were derived from CDC data that are lacking information on California, a state with a large Hispanic population. Twenty percent of abortion patients were Hispanic in AGI's 1994 survey, compared with 16% estimated from 1994 CDC data. If we adjust our estimates to reflect the higher figure, the proportion of actual abortions reported by Hispanic women in Cycle 5 would decrease from 63% to 51%, a level of reporting lower than the 58% reported by non-Hispanic women.

These findings indicate that we still have a very tenuous grasp on the measurement of induced abortion and of unintended pregnancy through surveys, the main tools available for collecting such information. Cycle 5 of the NSFG represents a step toward complete reporting, although it is sobering that the somewhat costly innovations of paying respondents and using a computer-assisted interview returned abortion reporting in the main interview only to the levels of the 1976 and 1982 surveys. Although the self-report procedure in Cycle 5 yielded better over-

all reporting than the standard interview in the NSFG, it did not eliminate the problem of abortion underreporting. This finding also provides a warning regarding the completeness of reporting on other sensitive issues, such as STDs and sexual partners, in the self-report procedure.

More work is needed to develop tools that will elicit more accurate reporting, both by assuring privacy and confidentiality and by improving respondents' ability to remember events and to answer the questions asked. The findings also suggest that a number of methodological approaches may be needed to address the reporting deficiencies in various subgroups of women. Clearly, differentials in abortion reporting by characteristics of women should be taken into account when analyzing levels of unintended pregnancy and its predictors and consequences.

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Table 3. Percentage of abortions reported in the NSFG, by women's characteristics at the time of abortion, according to survey cycle

Characteristics	Cycle 3 (1982)	Cycle 4 (1988)	Cycle 5 (1995)	
			Interview only	Combined data
Age				
<20	42	38	51	66
20-24	44	28	41	50
25-29	52	40	38	54
≥30	61	36	54	70
Race				
White	54	38	48	64
Nonwhite	33	27	40	52
Marital status				
Married	53	37	63	85
Not married	46	34	41	54

Note: Includes only abortions occurring in the four years preceding each survey. Source: 1982 and 1988—reference 3.

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