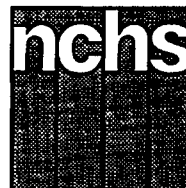


Advance Data



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Contraceptive Use in the United States: 1982–90

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Highlights

In the period from 1988 to 1990, the proportion of women 15–44 years of age in the United States whose partners were using the condom for their current method of birth control increased (from 9 to 11 percent), continuing the trend observed between 1982 and 1988. The proportion that used the pill declined slightly from 1988 to 1990 (from 19 to 17 percent). These trends occurred disproportionately among young women, the never-married, and black women. For example, among never-married contraceptors, the proportion using the condom increased from 20 to 30 percent and the proportion using the pill declined from 59 to 51 percent.

Among women 15–19 years of age, 32 percent were using contraception in both 1988 and 1990. However, among sexually experienced teens, current contraceptive use declined slightly, from 61 to 58 percent. Also, the proportion of sexually experienced teens who were sexually active in the past month without using contraception increased dramatically (from 8 to 22 percent), while the proportion that was *not* sexually active in the past month declined dramatically (from 23 to 10 percent). Among U.S. women 15–44 years of age, in general, there was an apparent increase in such risk-taking from 1988 to 1990: the noncontraceptors

as a proportion of women at risk of an unintended pregnancy increased from 7 to 12 percent, a trend that occurred mainly among relatively young women, never-married women, and white women.

Data

The findings in this report are based on the 1982 and 1988 National Survey of Family Growth (NSFG) and the 1990 NSFG Telephone Reinterview.

The NSFG is conducted by the National Center for Health Statistics. The interview obtains information on a number of topics related to childbearing, family planning, and related aspects of maternal and child health for women 15–44 years of age. For the 1990 NSFG Telephone Reinterview, 5,686 women in the noninstitutional population of the United States were interviewed by telephone between July 23 and November 5, 1990. Of these, 5,359 were previously interviewed in 1988. The remaining 327 women were interviewed for the first time in 1990 because they had turned 15 since March 15, 1988. The design of the 1990 survey and estimates of sampling variability are discussed in the Technical notes and in the report by Goksel, Judkins, and Mosher (1). The methodology for the NSFG Cycles III (1982) and IV (1988), which used cross sectional samples is

described in detail in separate reports (2,3).

Trends in contraceptive status and in method choice for U.S. women are important because methods vary in effectiveness. It is useful to know the proportion of women who attempt to prevent pregnancy with both reliable and less reliable methods. For example, the average annual failure rate for the pill is 8 percent, for the condom, 15 percent, and for periodic abstinence, 26 percent (4). In the NSFG, if a woman is using more than one method, she is classified as using the one that is most effective for preventing pregnancy. The priority order for classification is: female sterilization, male sterilization, pill, IUD, diaphragm, condom, foam, periodic abstinence, withdrawal, douche, and other.

In this report, three different denominators are used to calculate percents:

1. *Percent of all women 15–44 years of age*—Estimates of current contraceptive status are based on denominators that include all women 15–44 years of age, including those who have never had sexual intercourse and those who have never used a contraceptive method. It is useful to compare these percentages with similar percentages from other sources.



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2. *Percent of women at risk of unintended pregnancy*—This group includes women 15–44 years of age who are using contraception, as well as women who are *not* using contraception who have had intercourse recently and are not pregnant, post partum, seeking pregnancy, or sterile for noncontraceptive reasons. It is helpful to track the percentage of “at risk” women who are not using a method, since the confounding effects of changes or differences in other percentages are removed (for example, proportions of women who are pregnant or post partum, seeking pregnancy, sexually inexperienced, sexually inactive, or noncontraceptively sterile).
3. *Percent of contraceptors*—The denominator includes only women who are currently using a contraceptive method. This type of percentage is useful for analyzing trends in method choice, without the confounding effects of different percentages of women pregnant or postpartum, seeking pregnancy, sexually inexperienced, sexually inactive, or noncontraceptively sterile. The percentages of contracepting women using each type of method vary dramatically by demographic characteristics such as age, parity, and marital status, as women’s priorities change over the life course. For example, young women are much more likely to use the pill than older women.

The reported use of contraceptives does not imply that the methods were used correctly or consistently. Women who reported using a method of contraception were coded as using, regardless of how consistently they used it.

Data in this report are shown by race and Hispanic origin in some of the tables. Differences between white women and black and Hispanic women are often due to lower income and educational levels of minority women, their limited access to health care and health insurance, the neighborhoods in which they live, and other factors. The

causes of these differences merit further investigation in future research.

For ease of writing, the phrase “women used condoms” is sometimes used in the following text, although it is clear that their male partners were using the condoms.

Findings

In 1990, 59 percent of U.S. women 15–44 years of age were using contraception. The increase in the percent using contraception that occurred from 1982 to 1988 (from 56 to 60 percent of women) did not continue through 1990. The estimated number of U.S. women currently using contraception in the United States also stayed about the same from 1988 to 1990, 34.9 million and 34.5 million, respectively (table 1) (5). The number or percent of women “using contraception” is obtained by adding the “contraceptively sterile” and the “nonsurgical contraceptors” in table 1.

Use of the condom continued to increase between 1988 and 1990 (from 9 to 11 percent), while overall use of male and female sterilization did not change significantly and use of the pill declined (from 19 to 17 percent) (table 1). In 1990, the leading methods of contraception among U.S. women remained female sterilization (18 percent), the pill (17 percent), and the condom (11 percent) (table 1). Information on the use of three new methods—NORPLANT, the vaginal pouch (female condom), and Depo-Provera—is not available, since the survey was conducted before they were introduced in the United States.

About 41 percent of women were *not* currently using contraception in 1990. Nonusers include women who were pregnant or who had been pregnant less than 2 months before the interview (pregnant or postpartum, 5 percent), those seeking pregnancy (4 percent), those who were sterile for noncontraceptive reasons (7 percent), and those who were not using contraception for other reasons (other nonusers, 24 percent). The category “other nonusers” includes:

- women who have never had sexual intercourse (9 percent)

- sexually experienced women who had *not* had intercourse in the 1 month prior to the interview (7 percent)
- women who had had sexual intercourse in the 1 month prior to the interview while not using a method (8 percent).

During the period from 1988 to 1990, the proportion of women 15–44 years of age who had never had sexual intercourse continued to decline (from 12 to 9 percent). The proportion that were nonusers of contraception while sexually active in the month before the interview increased from 5 to 8 percent, mainly due to increases among young women, the never-married, and white women (tables 1–3).

Among current users of contraception, there was a small increase in condom use between 1988 and 1990 (from 15 to 18 percent), continuing the increase from 1982 to 1988 (table 4). The increase during 1988–90 was steepest for black women (from 10 to 19 percent). Small increases among contracepting white and Hispanic women were not statistically significant at the 0.05 confidence level. Moreover, the increase in condom use occurred mainly among women 15–24 years of age (for example, from 33 to 44 percent among contraceptors 15–19 years of age), and it occurred mostly among women who had never been married (from 20 to 30 percent of never-married contraceptors) (table 4). Thus, continuing a 1982–88 trend (5), between 1988 and 1990 the use of the condom for protection against unintended pregnancy increased most among groups most at risk of contracting sexually transmitted diseases, that is, among young women, black women, and never-married women (6).

In addition, among users of contraception, condom use increased only within the lowest socioeconomic group during 1988–90. Among contracepting women living below 150 percent of the poverty level, the proportion using the condom increased from 10 percent in 1988 to 15 percent in 1990 (table 5). Condom use also increased mainly among less educated women and among childless women (table 5). Overall, however, the choice

Table 1. Number of women 15–44 years of age and percent distribution by current contraceptive status and method, according to race and origin: United States, 1982, 1988, and 1990

[Statistics are based on samples of the female population of the United States. See Technical notes for estimates of sampling variability and definitions of terms]

Contraceptive status and method	All races and origins ¹			Hispanic			Non-Hispanic white			Non-Hispanic black		
	1990 ²	1988	1982	1990	1988	1982	1990	1988	1982	1990	1988	1982
	Number in thousands											
All women	58,381	57,900	54,099	5,500	5,557	4,393	42,968	42,575	41,279	7,510	7,408	6,825
	Percent distribution											
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Sterile	32.1	29.6	27.1	27.5	23.2	20.5	32.9	31.3	28.4	34.0	29.4	23.9
Surgically sterile	30.2	28.3	25.6	23.9	21.7	18.4	31.2	29.9	26.9	31.4	27.6	22.3
Contraceptively sterile	25.0	23.6	19.0	20.7	18.2	14.0	25.8	25.1	20.0	24.9	21.9	16.3
Female	17.5	16.6	12.9	17.3	16.0	11.7	16.5	16.1	12.6	24.1	21.4	15.5
Male	7.5	7.0	6.1	3.4	2.2	*2.3	9.3	9.0	7.4	*0.8	*0.5	*0.8
Noncontraceptively sterile	5.2	4.7	6.6	3.2	3.5	*4.4	5.4	4.8	6.9	6.5	5.7	6.0
Female	5.2	4.7	6.3	3.2	3.5	*4.4	5.4	4.8	6.5	6.4	5.7	6.0
Male	0.0	0.0	*0.3	0.0	0.0	0.0	0.0	0.0	*0.4	*0.1	0.0	0.0
Nonsurgically sterile	1.9	1.3	1.5	3.6	*1.5	*2.1	1.7	1.4	1.5	2.6	1.8	1.6
Pregnant or post partum	5.4	4.8	5.0	7.7	5.7	7.3	5.2	4.6	4.6	5.5	5.2	5.6
Seeking pregnancy	4.0	3.8	4.2	5.1	4.6	6.4	3.7	3.5	3.8	4.7	3.9	5.5
Other nonuser	24.2	25.1	26.9	28.3	34.3	29.2	23.6	22.7	25.9	22.1	26.7	29.8
Never had intercourse	9.4	11.5	13.6	16.4	15.0	14.7	8.7	10.6	13.8	7.0	9.7	10.4
No intercourse in last 1 month ³	7.0	9.1	8.3	5.1	12.5	7.7	7.2	8.7	8.2	7.5	8.9	8.7
Had intercourse in last 1 month ³	7.8	4.5	5.0	6.8	6.8	6.8	7.7	3.4	3.9	7.6	8.1	10.7
Nonsurgical contraceptors	34.3	36.6	36.7	31.7	32.2	36.7	34.6	37.8	37.2	33.8	34.9	35.4
Pill	16.9	18.5	15.6	16.4	16.8	15.3	17.3	18.6	15.1	16.7	21.7	19.5
IUD	0.8	1.2	4.0	*1.0	2.5	9.7	0.8	1.0	3.3	*0.8	1.8	4.8
Diaphragm	1.7	3.5	4.5	*0.8	*1.2	*2.4	1.8	4.1	5.3	*1.0	1.1	1.7
Condom	10.5	8.8	6.7	8.9	6.9	*3.5	10.3	9.5	7.5	11.4	5.8	3.3
Periodic abstinence ⁴	1.6	1.4	2.1	*1.9	*1.2	*2.0	1.6	1.4	2.2	*0.7	1.2	1.6
Natural family planning	*0.2	0.4	*0.3	0.0	*0.3	0.0	*0.2	0.4	*0.4	0.0	*0.1	*0.1
Withdrawal	0.6	1.3	1.1	*0.4	2.3	*1.3	0.6	1.3	1.2	*0.4	0.8	*0.7
Other methods	2.3	1.9	2.7	*2.3	*1.3	*2.5	2.2	1.9	2.6	2.8	2.5	3.8

¹Includes other races not shown separately.²For 0.3 percent of the female population in 1990, contraceptive status was not ascertained and imputation was not performed. This group was proportionately distributed across all categories.³The 3-month classification could not be used in this analysis because the necessary questions were not asked in the 1990 survey.⁴Includes natural family planning and other types of periodic abstinence.

of the condom in 1990, as in 1988, was strongly associated with higher levels of education and income (table 5).

In 1990, female sterilization and the pill were the most frequently chosen methods among contracepting women. And they were about equally favored, with 30 percent using female sterilization and 29 percent using the pill (table 4). In 1990, approximately 10 million women were contraceptively sterilized—this number did not differ significantly from the estimate in 1988 (table 1). Female sterilization is most widely used among older women who have completed their childbearing. In 1990, over one-half of contraceptors 40–44 years of age were sterilized, while only 8 percent of the contraceptors 20–24 years of age were sterilized (table 4). The continued aging of the

baby boom generation (born 1946–64 and 26–44 years of age in 1990) will probably raise the prevalence of sterilization as a method choice among U.S. women in the coming decade. Women 35–44 years of age as a proportion of all U.S. women of reproductive age (15–44) rose from 26 percent in 1982 to 33 percent in 1990 (tables 1 and 2).

Age

The age pattern of method choice reflects other characteristics that vary by age, such as marital status and parity. For example, never-married women comprise a large portion of women 15–24 years of age, so use of reversible methods such as the condom and the pill is more common among women in

this age group than is the use of male or female sterilization. The prevalence of condom use for birth control increased significantly between 1988 and 1990 for women 15–24 years of age (from 10 to 14 percent) while pill use among this age group declined (from 30 to 24 percent). For women 25 years of age and over, there was little change in the proportions using the pill, the condom, or sterilization (table 2).

Among women 15–19 years of age, 32 percent were using contraception in both 1988 and 1990. The data suggest that there was a rise in the proportion of teenagers 15–17 years of age who were using contraception (from 20 to 24 percent) while there was a decline in use among teenagers 18–19 years of age (from 50 to 41 percent) (table 4). The proportion of women 15–19 years of

Table 2. Number of women 15–44 years of age and percent distribution by current contraceptive status and method, according to age: United States, 1982, 1988, and 1990

[Statistics are based on samples of the female population of the United States. See Technical notes for estimates of sampling variability and definitions of terms]

Contraceptive status and method	15–24 years			25–34 years			35–44 years		
	1990 ¹	1988	1982	1990	1988	1982	1990	1988	1982
	Number in thousands								
All women	17,637	18,592	20,150	21,728	21,726	19,644	19,016	17,582	14,305
	Percent distribution								
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Sterile	3.8	3.1	3.3	26.4	27.0	27.9	64.6	61.3	60.0
Surgically sterile	3.1	2.4	2.6	24.8	26.0	26.4	61.1	58.6	57.2
Contraceptively sterile	2.8	2.2	2.4	22.1	23.3	21.5	48.6	46.7	39.0
Female	2.3	1.6	1.3	16.2	16.6	14.8	32.9	32.5	26.8
Male	*0.5	*0.6	*1.1	5.9	6.7	6.7	15.7	14.2	12.2
Noncontraceptively sterile	*0.3	*0.2	*0.2	2.7	2.7	4.9	12.5	11.9	18.2
Female	*0.3	*0.2	*0.2	2.7	2.7	4.6	12.5	11.9	17.4
Male	0.0	0.0	0.0	0.0	0.0	*0.3	0.0	0.0	*0.8
Nonsurgically sterile	*0.7	0.7	*0.7	1.6	1.0	1.5	3.5	2.7	2.8
Pregnant or post partum	7.0	5.0	6.3	7.9	7.6	6.5	1.2	1.1	*1.0
Seeking pregnancy	1.8	2.7	3.5	7.6	5.8	6.2	2.0	2.4	2.5
Other nonuser ¹	46.4	45.7	48.6	17.1	16.6	14.3	12.0	13.5	13.8
Never had intercourse	26.4	30.0	32.5	2.8	3.6	2.7	1.3	1.6	2.0
No intercourse in last 1 month ²	7.7	11.4	10.6	7.1	8.2	7.1	6.4	7.7	6.7
Had intercourse in last 1 month ²	12.3	4.3	5.5	7.2	4.8	4.5	4.3	4.2	5.1
Nonsurgical contraceptors	41.2	43.5	38.4	41.3	43.0	45.2	20.1	21.7	22.5
Pill	23.9	29.7	23.5	22.0	21.6	17.1	4.7	3.0	2.3
IUD	*0.2	*0.1	1.4	*0.4	1.4	6.5	1.8	2.1	4.2
Diaphragm	*0.2	1.3	3.7	2.3	4.8	6.8	2.4	4.1	2.4
Condom	13.9	9.5	5.5	11.0	9.1	7.6	6.7	7.7	7.0
Periodic abstinence ³	1.0	*0.6	1.2	2.0	1.7	2.8	1.6	1.8	2.6
Natural family planning	*0.1	*0.2	*0.1	*0.4	*0.5	*0.6	*0.2	*0.4	*0.3
Withdrawal	*0.6	1.5	1.2	*0.6	1.9	1.2	*0.5	*0.6	*0.8
Other methods	1.4	0.8	1.9	3.0	2.5	3.2	2.4	2.4	3.2

¹For 0.9 percent of U.S. women 15–24 years of age in 1990, contraceptive status was not ascertained and imputation was not performed. This group was proportionately distributed across all categories.

²The 3-month classification could not be used in this analysis because the necessary questions were not asked in the 1990 survey.

³Includes natural family planning and other types of periodic abstinence.

age who had ever had sexual intercourse rose from 53 to 55 percent, although this change was not statistically significant. Among sexually experienced teens, current contraceptive use declined slightly (from 61 to 58 percent). Meanwhile, the proportion of sexually experienced teens who were sexually active in the past month without using contraception increased dramatically (from 8 to 22 percent) while the proportion that was *not* sexually active in the past month declined dramatically (from 23 to 10 percent). These data are consistent with vital statistics: birth rates have taken an upward turn for young unmarried women in the United States since 1987 (7).

Race

The proportion of U.S. women currently using the condom as their

most reliable birth control method increased between 1988 and 1990 (from 9 to 11 percent). Increased use by black women was mostly responsible for this overall rise. Condom use among black women increased from 6 to 11 percent during 1988–90. Small increases among white women and Hispanic women were not statistically significant (table 1).

The data suggest that a larger proportion of black women were using female sterilization in 1990 than in 1988 (24 versus 21 percent). The percent using female contraceptive sterilization remained significantly higher among black women than among white women in 1990 (24 versus 17 percent). However, the overall prevalence of contraceptive sterilization—including both male and female sterilization—among black and white couples was very similar, given the more widespread

use among white couples of vasectomy as a method of birth control. In 1990, 9 percent of white women reported that their partners were currently using vasectomy while only 1 percent of black women reported this (table 1).

The relative size of the group that was not using contraception but had had intercourse in the past month increased significantly among white women (from 3 percent in 1988 to 8 percent in 1990) but among black women and Hispanic women it remained constant (about 8 and 7 percent, respectively) (table 1).

Marital status

Changes in contraceptive status during 1988–90 were concentrated mainly among never-married women. The proportion of never-married women who had never had sexual intercourse decreased from 32 percent in 1988 to

Table 3. Number of women 15–44 years of age and percent distribution by current contraceptive status and method, according to marital status: United States, 1982, 1988, and 1990

[Statistics are based on samples of the female population of the United States. See Technical notes for estimates of sampling variability and definitions of terms]

Contraceptive status and method	Never married			Currently married			Widowed, divorced, or separated		
	1990 ¹	1988	1982	1990	1988	1982	1990	1988	1982
	Number in thousands								
All women.	20,788	21,058	19,164	30,561	29,147	28,231	7,033	7,695	6,704
	Percent distribution								
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Sterile	7.1	5.3	3.2	46.0	44.0	40.8	45.2	42.6	38.1
Surgically sterile	5.7	4.3	2.6	43.9	42.4	38.8	42.3	41.0	36.2
Contraceptively sterile	4.6	3.4	1.9	37.3	36.3	29.5	31.4	31.3	21.7
Female	4.1	2.7	1.3	23.7	23.4	18.7	29.8	29.2	21.8
Male	*0.5	0.7	*0.6	13.6	12.9	10.8	*1.6	2.1	*1.9
Noncontraceptively sterile	1.1	0.9	*0.7	6.6	6.1	9.3	10.9	9.7	12.5
Female	1.1	0.9	*0.7	6.6	6.1	8.7	10.9	9.7	12.5
Male	0.0	0.0	0.0	0.0	0.0	*0.6	0.0	0.0	0.0
Nonsurgically sterile	1.4	1.0	*0.6	2.1	1.6	2.0	2.9	1.6	*1.9
Pregnant or post partum	3.4	2.4	2.5	7.3	7.1	7.2	3.1	2.5	*2.6
Seeking pregnancy	1.1	1.3	1.2	6.6	6.0	6.7	*1.5	2.0	*2.1
Other nonuser ¹	50.0	52.5	59.7	6.6	4.8	5.0	24.4	26.6	25.6
Never had intercourse	26.4	31.5	38.4	0.0	0.0	0.0	0.0	0.0	0.0
No intercourse in last 1 month ²	12.5	16.0	15.7	0.6	0.8	*0.8	18.9	21.7	19.1
Had intercourse in last 1 month ²	11.1	5.0	5.6	6.0	4.0	4.2	5.5	4.9	6.5
Nonsurgical contraceptors	38.5	38.5	33.3	33.3	38.0	40.0	25.8	26.3	31.8
Pill	21.7	24.7	18.7	14.5	15.1	13.4	12.8	14.5	15.8
IUD	*0.4	0.6	1.9	1.0	1.5	4.8	*1.4	2.1	6.4
Diaphragm	*0.3	2.1	4.7	2.9	4.6	4.5	*0.5	3.0	*3.7
Condom	13.0	8.2	4.1	9.9	10.6	9.8	5.6	3.4	*0.8
Periodic abstinence ³	0.8	0.6	*0.9	2.4	2.0	3.2	*0.4	*1.1	*1.3
Natural family planning	0.0	*0.1	*0.1	*0.4	0.6	*0.6	0.0	*0.2	*0.1
Withdrawal	0.7	1.1	1.2	0.5	1.7	*1.2	*0.1	*0.4	*0.3
Other methods	1.6	1.2	1.8	2.1	2.5	3.1	5.0	1.8	*3.5

¹For 0.7 percent of the never-married women in 1990, contraceptive status was not ascertained and imputation was not performed. This group was proportionately distributed across all categories.²The 3-month classification could not be used in this analysis because the necessary questions were not asked in the 1990 survey.³Includes natural family planning and other types of periodic abstinence.

26 percent in 1990. At the same time, the proportion of never-married women who were not using contraception but were having intercourse increased from 5 percent in 1988 to 11 percent in 1990 (table 3). (See section, Women at risk of unintended pregnancy.) This noncontracepting "at risk" group also increased slightly among the currently married (from 4 to 6 percent).

Meanwhile, pill use among never-married women declined from 25 to 22 percent while condom use increased from 8 to 13 percent. Condom use among the never-married tripled from 1982 to 1990 (from 4 to 13 percent).

Women at risk of unintended pregnancy

In assessing trends in contraceptive

use, the subpopulation "women at risk of unintended pregnancy" is often analyzed. This group includes women who are using contraception as well as women who are *not* using contraception who have had intercourse recently and are not pregnant, post partum, seeking pregnancy, or sterile for noncontraceptive reasons. In table 1, the "at risk" population includes nonsurgical contraceptors, the contraceptively sterile, and other nonusers who had had intercourse in the last 1 month. Thus, in 1990, 67 percent of women ages 15–44 were at risk of unintended pregnancy. Taking this "at risk" group as 100 percent, 12 percent were not using contraception (that is, other nonusers who had had intercourse in last 1 month) (table 1). The nonusers in the "at risk" group are considered to be most in need of family planning

services and have been targeted for programmatic purposes.

In previous analyses of contraceptive trends, other nonusers who were sexually experienced have been classified according to whether they had had sexual intercourse in the previous 3 months rather than in the previous 1 month (5,8,9). However, the 3-month classification could not be used in this analysis because the necessary questions were not asked in the 1990 survey. Since information on the incidence of sexual intercourse in the month prior to interview is available from all three surveys (1982, 1988, and 1990), the 1-month criterion is used in this report for comparative purposes.

It should also be noted that the question on incidence of sexual intercourse in the past month is asked differently in 1990 than it was in 1982

Table 4. Number of women 15–44 years of age, percent using any method of contraception, and percent distribution of contraceptors by method, according to age, race and origin, and marital status: United States, 1988 and 1990

[Statistics are based on a sample of the female population of the United States. See Technical notes for estimates of sampling variability and definitions of terms]

Age, race, and marital status	Number of women in thousands	Number of women using a method	Percent using any method	All methods	Female sterilization	Male sterilization	Pill	IUD	Diaphragm	Condom	Periodic abstinence ¹	Other
1990:²												
All women	58,381	34,516	59.3	100.0	29.5	12.6	28.5	1.4	2.8	17.7	2.7	4.8
Age												
15–19	8,483	2,623	31.5	100.0	0.0	0.0	52.0	0.0	0.0	44.0	*1.0	*3.0
15–17	4,944	1,165	24.3	100.0	0.0	0.0	41.1	0.0	0.0	51.9	*2.2	*4.7
18–19	3,539	1,458	41.2	100.0	0.0	0.0	60.7	0.0	0.0	37.6	0.0	*1.7
20–24	9,154	5,065	55.3	100.0	8.0	*1.8	55.4	*0.8	*0.6	25.3	2.8	5.3
25–29	10,637	6,385	60.0	100.0	17.4	5.0	47.3	*0.4	2.3	19.0	2.7	5.9
30–34	11,091	7,344	66.2	100.0	32.7	13.0	23.9	*0.9	4.7	15.9	3.5	5.4
35–39	10,111	7,138	70.6	100.0	44.2	19.8	10.6	3.3	3.3	10.3	3.4	5.2
40–44	8,905	5,962	66.9	100.0	52.0	26.5	*2.2	*1.8	3.8	9.2	*1.6	2.9
Race and origin												
Hispanic	5,500	2,856	52.2	100.0	33.1	6.4	31.4	*1.9	1.5	17.1	3.7	5.1
White non-Hispanic	42,968	25,928	60.5	100.0	27.3	15.5	28.5	1.3	3.0	17.0	2.7	4.7
Black non-Hispanic	7,510	4,412	58.7	100.0	41.0	*1.3	28.5	*1.4	*1.6	19.4	*1.2	5.6
Marital status												
Currently married	30,561	21,608	70.7	100.0	33.5	19.2	20.6	1.4	4.1	14.0	3.5	3.8
Divorced, separated, widowed	7,033	4,026	57.3	100.0	52.1	*2.8	22.4	*2.5	*0.9	9.7	*0.6	9.0
Never married	20,788	8,882	43.0	100.0	9.6	*1.1	50.5	*0.8	*0.6	30.1	1.8	5.5
1988:												
All women	57,900	34,912	60.3	100.0	27.5	11.7	30.7	2.0	5.7	14.6	2.3	5.4
Age												
15–19	9,179	2,950	32.1	100.0	*1.5	*0.2	58.8	0.0	*1.0	32.8	*0.8	4.8
15–17	5,404	1,076	19.9	100.0	0.0	0.0	53.3	0.0	*0.7	40.4	*0.9	*4.7
18–19	3,775	1,874	49.6	100.0	*2.4	*0.4	61.9	0.0	*1.2	28.4	*0.8	*4.9
20–24	9,413	5,550	59.0	100.0	4.6	*1.8	68.2	*0.3	3.7	14.5	*1.7	5.2
25–29	10,796	6,967	64.5	100.0	17.0	6.0	44.5	*1.3	5.5	15.6	2.4	7.6
30–34	10,930	7,437	68.0	100.0	32.5	14.0	21.5	2.9	8.9	12.0	2.7	5.5
35–39	9,583	6,726	70.2	100.0	44.9	19.7	5.2	*2.7	7.7	11.8	3.0	5.1
40–44	7,999	5,282	66.0	100.0	51.1	22.2	3.2	3.7	3.9	10.5	*2.2	3.2
Race and origin												
Hispanic	5,557	2,799	50.4	100.0	31.7	4.3	33.4	5.0	*2.4	13.6	*2.5	7.1
White non-Hispanic	42,575	26,799	62.9	100.0	25.6	14.3	29.5	1.5	6.6	15.2	2.3	5.0
Black non-Hispanic	7,408	4,208	56.8	100.0	37.8	*0.9	38.1	3.2	2.0	10.1	2.1	5.9
Marital status												
Currently married	29,147	21,657	74.3	100.0	31.4	17.3	20.4	2.0	6.2	14.3	2.8	5.6
Divorced, separated, widowed	7,695	4,429	57.6	100.0	50.7	3.6	25.3	3.6	5.3	5.9	*1.9	3.8
Never married	21,058	8,826	41.9	100.0	6.4	1.8	59.0	*1.3	4.9	19.6	*1.3	5.7

¹Includes natural family planning and other types of periodic abstinence.

²Percentages for 1990 were calculated excluding cases for whom contraceptive status was not ascertained. Overall, contraceptive status was not ascertained for only 0.3 percent of U.S. women in 1990.

and 1988. In 1990 respondents were asked the following direct question:

In the last month, how frequently, on average, did you have intercourse? Would you say...

- Five or more times a week . . . 1
- Two to four times a week . . . 2

- About once a week 3
- Less than once a week 4
- Or not at all? 5

Noncontracepting respondents who answered 1–4 were coded as nonusers who had had intercourse in the past month. In contrast, for previous cycles

of the NSFG, the following question on periods of nonintercourse was used to create the category:

For never-pregnant respondents in 1988:

Many women have times when they are not having intercourse at all,

Table 5. Number of women 15–44 years of age, percent using any method of contraception, and percent distribution of contraceptors by method, according to years of school completed, poverty status, and future birth intentions: United States, 1988 and 1990

[Statistics are based on a sample of the female population of the United States. See Technical notes for estimates of sampling variability and definitions of terms]

Age, race, and marital status	Number of women in thousands	Number of women using a method	Percent using any method	All methods	Female sterilization		Male sterilization		Pill	IUD	Diaphragm	Condom	Periodic abstinence ¹	Other
1990:²														
All women	58,381	34,516	59.3	100.0	29.5	12.6	28.5	1.4	2.8	17.7	2.7	4.8		
Income (percent of poverty level) ³														
0–149	8,350	4,959	59.4	100.0	47.2	6.2	24.8	*1.1	*0.6	14.9	*1.7	3.6		
150–299	13,191	8,734	66.2	100.0	38.5	11.8	26.6	2.5	1.9	12.9	2.3	3.5		
300 and over	26,369	16,872	64.0	100.0	25.1	16.4	27.3	1.0	4.2	16.8	3.5	5.7		
Education (years) ³														
0–11	5,525	3,351	60.6	100.0	58.0	6.8	18.4	*1.7	*0.2	11.7	*1.1	*2.2		
12	17,507	11,598	66.2	100.0	38.4	15.7	26.8	*1.1	1.7	11.0	2.0	3.3		
13 and over	26,831	16,930	63.1	100.0	22.3	13.7	28.0	1.7	4.6	19.3	3.7	6.7		
Children ever born														
0	24,205	10,451	43.4	100.0	3.3	4.7	53.0	*0.8	2.1	28.2	2.7	5.2		
1	10,927	6,066	55.6	100.0	13.0	9.6	34.9	*1.7	4.5	20.7	4.1	11.4		
2	13,385	9,910	74.0	100.0	42.3	17.6	16.9	1.7	3.7	12.3	2.6	3.0		
3 and over	9,864	8,089	82.0	100.0	60.0	19.2	6.1	*1.5	*1.5	8.3	*1.7	*1.6		
Fertility intentions														
More children	25,119	11,770	47.0	100.0	*0.7	*0.2	52.9	*0.6	3.0	30.8	3.9	7.9		
No more children	29,405	20,545	69.9	100.0	49.1	21.1	12.5	1.7	2.5	8.8	1.7	2.5		
1988:														
All women	57,900	34,912	60.3	100.0	27.5	11.7	30.7	2.0	5.7	14.6	2.3	5.4		
Income (percent of poverty level) ³														
0–149	10,115	6,091	60.2	100.0	42.8	5.2	31.3	3.3	2.3	10.2	*1.8	3.2		
150–299	12,134	8,137	67.1	100.0	34.5	13.1	26.6	2.4	5.0	11.4	1.7	5.3		
300 and over	26,472	17,734	67.0	100.0	23.5	15.1	27.8	1.7	8.0	14.5	3.0	6.3		
Education (years) ³														
0–11	7,103	4,276	60.2	100.0	51.9	6.9	22.5	3.8	*1.3	6.4	*1.6	5.6		
12	17,594	11,880	67.5	100.0	34.3	15.0	29.4	1.7	2.8	10.7	1.7	4.4		
13 and over	24,024	15,806	65.8	100.0	20.7	12.6	28.7	2.2	10.0	16.4	3.2	6.3		
Children ever born														
0	25,129	11,057	44.0	100.0	2.6	4.8	57.9	*0.9	6.6	20.2	1.8	5.4		
1	9,906	5,982	60.4	100.0	14.8	8.2	37.6	3.0	8.8	15.9	3.6	8.1		
2	13,237	10,275	77.6	100.0	40.5	16.5	15.1	2.2	5.3	12.0	2.7	5.7		
3 and over	9,628	7,598	78.9	100.0	56.4	17.8	7.0	2.6	2.7	9.0	1.6	3.0		
Fertility intentions														
More children	25,374	12,460	49.1	100.0	0.0	*0.1	58.7	1.0	7.6	22.4	2.9	7.4		
No more children	29,440	20,854	70.8	100.0	46.1	19.3	12.9	2.5	3.7	9.7	1.8	4.0		

¹Includes natural family planning and other types of periodic abstinence.

²Percentages for 1990 were calculated excluding cases for whom contraceptive status was not ascertained. Overall, contraceptive status was not ascertained for only 0.3 percent of U.S. women in 1990.

³Data on education and income pertain only to women 20–44 years of age (see Definition of terms).

for example, because of separation, not dating anyone, illness, or other reasons. Starting with the most recent time since (January 1982/your first intercourse), please tell me the times, if any, when you were not having

intercourse at all for one month or more.

For ever-pregnant respondents: Since your (last pregnancy/ January 1982), were there any times when you were not having

intercourse at all for one month or more, for example, because of pregnancy, separation, not dating anyone, illness, or other reasons?

Yes 1
No 2

Starting with the most recent time, what months and years were those?

Responses were entered in the following type of chart:

From	To
/	/
Month Year	Month Year
/	/
Month Year	Month Year
/	/
Month Year	Month Year

When the month of interview was recorded as the ending month of a period of nonintercourse, then the woman was coded as not having had sex in the previous one month. Otherwise, she was coded as having had sex in the past month. Different question wordings can bias results, and this issue deserves further attention.

From 1988 to 1990 there was an increase in risk-taking among women at risk of unintended pregnancy: the proportion of "at risk" women who were not contracepting increased from 7 to 12 percent. A small decline from 1982 to 1988 (from 8 to 7 percent) was barely significant at the 0.10 confidence level.

The recent increase in risk-taking has not been uniform across marital status, age, and race-origin groupings. Risk-taking has increased most among the relatively young, the never-married, and white women. Among never-married women, the proportion of at-risk women not using contraception increased from 11 percent in 1988 to 20 percent in 1990. There was little change among the currently married or the formerly married (computed from table 3). Among women 15–24 years of age, the proportion of "at risk" women not contracepting more than doubled, from 9 to 22 percent (computed from table 2). While there was little change in risk-taking for black or Hispanic women during 1988–90, the proportion of "at risk" white women who were not using increased from 5 to 11 percent (computed from table 1). In 1990 the level of risk-taking was similar for black, white, and Hispanic women.

Contraceptors

Age, race, marital status—The percent of teenaged contraceptive users

who chose the condom rose from 33 to 44 percent between 1988 and 1990 (table 4). The increase amounted to 12 percentage points for teens 15–17 years of age and 10 percentage points for teens 18–19 years of age, increases that were significant only at the 0.10 (10 percent) confidence level. At the same time, pill use declined from 53 to 41 percent for teens 15–17 years of age (significant at the 0.10 level) while not changing significantly for those 18–19 years of age. Almost all contracepting teenagers (96 percent) were using the pill (52 percent) or the condom (44 percent) in 1990 (table 4). It is important to note, however, that oral contraceptives must be taken as directed in order to be effective and condoms must be used consistently and correctly. Teenagers often do not do so. An estimated 26 percent of teen users experience a contraceptive failure during the first 12 months of use (4). The estimates in this report do not measure consistency or correctness of use. Studies of the consistency of use in various demographic groups would be useful.

Among black contracepting women, female sterilization was the leading method by far in 1990 and the pill was second (41 and 29 percent, respectively) (table 4). Among white contracepting women, female sterilization and the pill were equally popular (27 and 29 percent, respectively). Use of the pill by black women declined sharply from 1988 to 1990, from 38 percent to 29 percent of contraceptors, as condom use increased from 10 to 19 percent of black women who were contracepting. The data for white contraceptors suggest a slight rise in condom use during the period, from 15 to 17 percent. Among Hispanic contraceptors, there were no significant changes in the proportions that were using the condom or the pill. However, the data do suggest that IUD use declined among Hispanic contraceptors (from 5 to 2 percent) (table 4), continuing the sharp decline from 1982 to 1988 (table 1).

A relatively high proportion of married women were using contraception in 1990 (71 percent). About one-third of married contraceptors were using female

sterilization, and most of the remainder were using the pill, male sterilization, or the condom (table 4). Only 43 percent of never-married women 15–44 years of age were contracepting in 1990—about one-half with the pill and another 30 percent with the condom. Among the never-married contraceptors, there was a clear trend toward more widespread use of the condom (from 20 to 30 percent) and a decline in pill use (from 59 to 51 percent) from 1988 to 1990 (table 4).

Education and income—Educational attainment is associated with women's choice of birth control methods. Among contraceptors, more educated women are more likely to use the pill, condom, or male sterilization, and far less likely to have had a tubal ligation (table 5). A variety of factors contribute to these differentials. More educated women are more likely to delay childbearing and are therefore less likely to have had all the children they want at an early age. They are therefore more likely to be using a reversible method such as the pill. Less educated women are more likely to have had all the children they wanted at relatively younger ages, and thus more likely to choose a more permanent method of birth control, such as female sterilization. Interestingly, a significant increase in condom use occurred only among the less educated (that is, those with less than a high school education) (table 5).

In addition, pill use declined significantly only among low-income contraceptors (those whose income was less than 150 percent of the official poverty level) while condom use only increased significantly within this same group, from 1988 to 1990 (table 5).

Parity and intent—Preferred methods of contraception vary by the parity of the woman and whether she intends to have a baby in the future. In 1990, 43 percent of childless women were contracepting, and this percentage rises with the number of children ever born. Of women who had had two children, 74 percent were contracepting. From 1988 to 1990, a decline in the use of contraception occurred for women with one and two children. The proportion of single-parity women who were contracepting declined from 60 percent in 1988 to 56 percent in

Table 6. Number of women 15–44 years of age who had first premarital intercourse at 15–19 years of age during 1980–82, 1983–88, and 1988–90, and percent distribution by contraceptive method used at first intercourse: United States¹

<i>Race and origin and timing of first intercourse</i>	<i>Number of women in thousands</i>	<i>Used any method</i>	<i>Pill</i>	<i>Condom</i>	<i>Withdrawal</i>	<i>Periodic abstinence²</i>	<i>Other</i>
All races and origins³							
1980–82.	3,740	52.9	14.1	28.0	7.5	*0.3	*3.0
1983–May 1988.	6,603	67.5	10.8	45.6	9.2	*0.5	*1.3
June 1988–November 1990.	3,428	71.2	10.5	55.0	*2.6	*2.4	*0.7
White non-Hispanic							
1980–82.	2,699	54.9	14.0	29.3	8.3	*0.3	*3.0
1983–May 1988.	4,829	71.6	9.8	49.3	10.2	*0.5	*1.7
June 1988–November 1990.	2,409	75.7	10.9	58.2	*3.6	*2.4	*0.5
Black non-Hispanic							
1980–82.	593	57.2	21.1	29.7	*4.4	*0.3	*1.7
1983–May 1988.	1,023	60.3	20.1	36.0	*3.3	*0.9	0.0
June 1988–November 1990.	506	63.8	*12.9	47.8	*0.6	0.0	*2.5
Hispanic							
1980–82.	281	31.8	*8.9	*16.8	*3.2	0.0	*2.9
1983–May 1988.	587	48.9	*4.3	34.6	*10.0	0.0	0.0
June 1988–November 1990.	332	67.3	*9.1	58.2	0.0	0.0	0.0

¹Data for 1980–82 and 1983–88 are from Cycle IV. Data for 1988–90 are from the 1990 Telephone Reinterview.

²Includes natural family planning and other types of periodic abstinence.

³All races and origins includes non-Hispanic women of other races.

1990; for two-parity women, the decline was from 78 to 74 percent. The use of contraception increased among women with three or more children, from 79 to 82 percent. The larger the woman's family, the greater the propensity for her to be using more permanent methods such as female or male sterilization for contraception and the less likely she is to be using the pill or the condom (table 5). Condom use increased significantly for both childless and single-parity women during 1988–90 (table 5).

The most important determinant of method choice is fertility intentions. Of women who did not intend to have any more births, 70 percent were using contraception in 1990; more than two-thirds of these were using either female or male sterilization. Of women intending more children, the picture is extremely different. Only 47 percent were contracepting at all, and among these, more than one-half were using the pill and almost a third were using the condom (table 5).

Use of contraception at first intercourse among teens

The use of contraception at first intercourse has increased significantly

since the early 1980's. Among women having their first intercourse premaritally at 15–19 years of age during 1988–90, 71 percent reported using a method. This compares with 53 percent of women who had their first intercourse premaritally at 15–19 years of age during 1980–82. This increase in the use of contraception at first intercourse is mainly attributable to rising condom use, from 28 to 55 percent. Concomitantly, the proportion of women who used the pill, withdrawal, and other barrier methods declined slightly (table 6).

A large increase in condom use at first intercourse occurred among black, white, and Hispanic women during the 1980's, but was most pronounced for Hispanic women. Among Hispanic women having their first premarital intercourse at 15–19 years of age during 1980–82, only 17 percent used a condom; among similar Hispanic women having their first intercourse in 1988–90, 58 percent reported condom use, more than a threefold increase. Among women having their first intercourse in 1988–90, white and Hispanic women reported higher levels of condom use at first intercourse (both 58 percent) than black women

(48 percent), but the difference between Hispanic and black women was not statistically significant. The difference between black and white women was only significant at the 0.10 level of confidence (table 6).

Some caution should be used in interpreting these data when they are collected at two different points in time. Cognitive survey research has shown that some respondents will incorrectly report a behavior in order to appear to have behaved in a socially acceptable manner. In the latter half of the 1980's, the benefit of using the condom as a preventive measure against the spread of the AIDS virus and other sexually transmitted diseases was widely publicized. Thus, perceived social desirability of using a condom for disease protection may have increased. A cohort approach to analyzing the 1982 and 1988 NSFG data sets provides some evidence that condom use at first intercourse may have been overreported in 1988. For black women whose first premarital intercourse occurred during the period 1980–82, the reported level of condom use was higher in the NSFG Cycle IV (1988) than in Cycle III (1982). A similar difference was found for black women whose first intercourse

occurred 1975–79 (10). In table 6 of the present report, the estimates for 1980–82 and 1983–88 are based on the data collected in 1988 (Cycle IV), while the estimates for 1988–90 are based on data collected in 1990 (telephone reinterview). It is possible that the amount of social desirability bias may have increased between 1988 and 1990, so comparisons of condom use among black women between the 1988 and 1990 survey should be interpreted with caution.

Consistency of use

Whether or not a method is effective in preventing pregnancy or sexually transmitted diseases depends on the consistency and correctness of use of the method, as well as the effectiveness of the method given perfect use. Information on the consistency of condom use for pregnancy prevention and disease prevention has been published in a previous *Advance Data* (11). In 1990, respondents who reported that they had used condoms to avoid getting sexually transmitted diseases in the last 3 months in which they were having intercourse, were asked:

Did you and your partner use condoms to avoid getting diseases such as genital herpes, gonorrhea, or AIDS every time you had intercourse, on most occasions, about half the time, or less than half of the time?

A similar question was also asked of respondents who reported using the condom or other coitus-dependent method for contraception in the past month:

Did you (and your partner) use [METHOD] every time you had intercourse, on most occasions, about half of the time, or less than half of the time?

It was found that over one-half of sexually active women 15–44 years of age who were using condoms for contraception in 1990 used inconsistently—that is, not every time they had intercourse. Among users of the condom for disease prevention, almost two-thirds used inconsistently. Thus, condom use was apparently more consistent when the purpose of use was

contraception. Considering current users of the condom for either contraception or disease prevention, an estimated 56 percent reported not using it every time they had intercourse. Race and marital status are more important predictors of condom use for disease prevention than condom use for contraception. Black women and unmarried women are much more likely to be using the condom for disease prevention than other women (11).

An examination of women in 1990 who used only the condom for birth control in the past month showed that 44 percent of condom users used them inconsistently. About 42 percent of women using a *single* coitus-dependent method (for example, condom, diaphragm, jelly-cream, foam, suppository) in the past month used them inconsistently (12).

Comparisons with other data

Some of the results on contraceptive use among U.S. women from the 1990 NSFG telephone reinterview differ substantially from published results of the Ortho Annual Birth Control Survey conducted by Ortho Pharmaceutical Corporation (13–16). There are methodological reasons for the differences, starting with sample selection. While the NSFG uses a nationally representative sample, the Ortho study does not. It uses a listing of households that agreed to respond to periodic surveys conducted by a marketing research firm. The Ortho study especially underrepresents women with incomes over \$50,000, minority women, and unmarried women (15).

Interviewing procedures and survey response rates vary markedly in the two surveys. The Ortho survey uses mailed questionnaires. In 1992, 63 percent of the sample responded, 79 percent of married women and 50 percent of unmarried women (about 7,000 women altogether) (15). In 1991, the response rate was similar at 62 percent (13). The NSFG has traditionally sent interviewers into the homes of respondents for in-person interviews. In the 1988 NSFG, in-home interviews were completed with 8,450 women, representing a response rate of 80 percent. For the 1990 NSFG

telephone reinterview, the 1988 respondents were reinterviewed by telephone and a sample of teens 15–17 years of age was interviewed for the first time by telephone. The response rate for the reinterview sample was 69 percent, while the response rate overall was 67 percent, reflecting the lower rate for teenagers 15–17 years of age.

The NSFG estimates reflect adjustments for nonresponse bias, while the Ortho survey estimates do not. Sample weights in the 1990 NSFG were adjusted for nonresponse, using information available on the characteristics of the nonrespondents—including mobility status, race, Hispanic origin, education, income, marital status, parity, and other socioeconomic characteristics (3). The weights were subsequently adjusted to U.S. population control figures provided by the U.S. Bureau of the Census. In the Ortho survey, responses were weighted to reflect the age, marital status, and geographic distributions of U.S. women according to Census Bureau estimates (15). Thus, the NSFG estimates should be representative of the U.S. female population while the Ortho survey estimates may not be adjusted for response bias by such important factors as parity, race, education, and income.

Finally, the percentage distributions from the two surveys are not directly comparable because of different approaches to coding current contraceptive status. The NSFG measure of “current contraceptive status,” which is used to track national trends in contraceptive use, is based on a priority scheme for coding methods according to “effectiveness.” In the NSFG, when a woman is using more than one method, only the most effective method is assigned to her. For instance, if the woman is using the pill and the condom, she would be coded as a pill user since the pill is more effective for preventing pregnancy than the condom (4). The priority scheme for all methods in the NSFG is as follows: female sterilization, male sterilization, pill, IUD, diaphragm, condom, foam, rhythm, withdrawal, douche, and other.

The Ortho study, on the other hand, presents tabulations of multiple method use. A respondent using the pill and the

condom is coded both as a condom user and a pill user, and the percentage distribution of contraceptors, by method, sums to over 100. In the 1992 Ortho study, current contraceptors were using 1.3 different methods on average (15). This difference in coding practice will particularly raise proportions of women using the condom and other coitus-dependent methods in the Ortho survey relative to levels in the NSFG, but should not much affect levels of use of the pill or sterilization since they were given priority coding in the NSFG.

Key differences in the results of the two surveys are:

1. *The proportion of women at risk of unintended pregnancy is lower in the NSFG*—The NSFG shows a smaller proportion of women at risk of unintended pregnancy (67 percent in the 1990 NSFG and 65 percent in the 1988 NSFG compared with 77 percent in the 1992 and 72 percent in the 1987, Ortho survey). The difference is due to smaller proportions of women in the Ortho study who have never had sexual intercourse, who are pregnant or seeking pregnancy, and who have intercourse so infrequently that they claim they do not need a method (the counterpart of the NSFG category “no sex in the past month” in table 1). These differences are largest for unmarried women for whom the response rate in the Ortho survey was just 50 percent (computed from tables 1 and 3) (15).
2. *The proportion of “at risk” women who were not using contraception was higher in the NSFG*—The Ortho survey produces a lower estimate of the proportion of “at risk” women who are not contracepting. The 1992 estimate in the Ortho survey is 6 percent (15). According to the 1990 NSFG, 12 percent of “at risk” women were noncontraceptors, when “at risk” noncontraceptors is defined as women who had intercourse in the past month while not contracepting, who were neither pregnant, nor postpartum, nor seeking pregnancy, nor sterile for noncontraceptive reasons (computed from table 1).
3. *Lower levels of condom use in the NSFG, especially among the unmarried*—About 25 percent of women at risk of unintended pregnancy were using the condom in the Ortho survey in 1992, either by itself or with another method (15). The percent of “at risk” women whose partners used the condom in the 1990 NSFG telephone reinterview was 16 (computed from table 1). This difference in condom use is most pronounced for unmarried women (computed from table 3). Some of the difference would be attributable to the different coding schemes for current method as described previously.
4. *Lower levels of oral contraceptive use in the NSFG*—In the Ortho survey, pill use increased from 1988 to 1990 (from 24 to 26 percent of women 15–44 years of age, amounting to an estimated 14.9 million pill users in 1990) (16). However, the NSFG finds lower levels of pill use and a flat or slightly downward trend in pill use during 1988–90, from 19 to 17 percent (or 9.9 million women in 1990) (table 1). Data on pill use among unmarried women from the two surveys are especially divergent. The 1990 NSFG estimates that 40 percent of never-married and 20 percent of formerly married women at risk were using the pill (computation based on table 3). In the Ortho survey in 1992, 52 percent of unmarried “at risk” women were pill users (15). The divergent coding schemes for current contraceptive method would have little impact on the estimates of pill use from the two surveys; in the NSFG, only the few pill users who were also using male or female sterilization would not be coded as pill users. Due almost entirely to the other methodological differences described previously, the NSFG shows much lower levels of pill use than the Ortho survey.
5. *The proportion of oral contraceptors also using the condom is lower in the NSFG*—Apparently, 29 percent of pill users in the 1992 Ortho survey said they were also using the condom (15). In the 1988 NSFG, only 3 percent of current pill users reported that they were also using the condom (data not shown in tables). Although condom use among pill users is likely to have increased between 1988 and 1992, the percentage is not likely to have increased tenfold.
6. *Higher rates of female sterilization in the NSFG*—The 1990 NSFG shows a greater prevalence of female sterilization among “at risk” women than does the 1992 Ortho survey (26 versus 19 percent); most of this difference is attributable to higher rates among the unmarried in the NSFG, especially the formerly married (computed from tables 1 and 3) (15).

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Technical notes

Survey design

The National Survey of Family Growth (NSFG) is a periodic survey conducted by the National Center for Health Statistics (NCHS) to collect data on fertility, infertility, contraception, and related aspects of maternal and infant health. Fieldwork for Cycle IV was conducted in 1988 and the NSFG telephone reinterview was conducted in 1990. The contractor for the 1988 and 1990 surveys was Westat, Inc., of Rockville, Maryland.

For the 1988 NSFG, personal (face-to-face) interviews were conducted between January and August of 1988 with a national sample of women who were 15–44 years of age as of March 15, 1988. Interviews were completed with 8,450 women in 1988, including 2,771 black women, 5,354 white women, and 325 women of other races. The sample for the 1988 NSFG was selected from households that had participated in another NCHS survey, the National Health Interview Survey (NHIS) between October 1985 and March 1987. Respondents were interviewed by trained female interviewers.

The interviews covered the woman's pregnancy history; her past and current use of contraception; her ability to bear children; her use of medical services for contraception, infertility, and prenatal care; marriage and cohabitation; and a wide range of social, economic, and demographic characteristics. More detailed information on the procedures used in selecting the sample, weighting the data to make national estimates, and estimating sampling errors may be found in two other publications (1,3).

For the 1990 NSFG telephone reinterview, 5,686 women were interviewed by telephone between July 23 and November 5, 1990. Interviews were conducted by telephone with 5,359 women who were previously interviewed in 1988 and with 327 first-time respondents who had become 15 to 17 years of age in the 2 years since the main study. The response rate for the initial interviews of the teens

15–17 years of age was 53 percent. The response rate for the 17–44-year-olds initially interviewed in 1988 was 69 percent of those originally interviewed in 1988. Overall, the response rate was 67.5 percent. The most common causes of nonresponse in 1990 were inability to locate or contact the respondent because she had moved and inability to contact her because she had no telephone or had an unpublished telephone number. The 1990 reinterviews lasted an average of 20 minutes.

The 1990 sample was divided equally into two "half-samples" which were administered some core questions in common, as well as selected modules of questions that were limited to one or the other half sample. This report is based on the results of the two half samples combined. The data have been weighted to be representative of the population of the United States. Weighted estimates of the percentage distribution of U.S. women by current contraceptive status, based on each half sample alone, were obtained as an indicator of the reliability of estimates of variables that are available from a single half sample. The separate estimates are similar. For example, based on Half Sample I alone, 17.3 percent of U.S. women were using female sterilization in 1990. According to data from Half Sample II, 17.5 percent of U.S. women were using this method.

In this report, women 15–19 years of age are excluded from tabulations by education because it generally takes until about age 19 to reach the "13 years or more" education category. They are also excluded from tabulations by income because it is generally difficult

Table 1. Estimates of the parameters A and B for estimating standard errors for percents of women, by race, for the Full Sample of the 1990 National Survey of Family Growth Telephone Reinterview

Race	Parameter ¹	
	A	B
All races	-0.0002244	13,100
White or other.	-0.0002592	13,100
Black	-0.0009177	7,200

¹A = Intercept and B = slope.

Table II. Standard errors for percents of women of all races: 1990 National Survey of Family Growth Telephone Reinterview—Full Sample

Base of percent	Estimated percent					
	5 or 95	19 or 90	20 or 80	30 or 70	40 or 60	50
500,000	*3.5	*4.9	*6.5	7.4	7.9	8.1
1,000,000	*2.5	*3.4	4.6	5.2	5.6	5.7
5,000,000	1.1	1.5	2.0	2.3	2.5	2.6
10,000,000	0.8	1.1	1.4	1.7	1.8	1.8
30,000,000	0.5	0.6	0.8	1.0	1.0	1.0
50,000,000	0.4	0.5	0.6	0.7	0.8	0.8

Table III. Standard errors for percents of black women: 1990 National Survey of Family Growth Telephone Reinterview—Full Sample

Base of percent	Estimated percent					
	5 or 95	19 or 90	20 or 80	30 or 70	40 or 60	50
100,000	*5.8	*8.0	*10.7	*12.3	*13.1	13.4
500,000	*2.6	*3.6	4.8	5.5	5.9	6.0
1,000,000	*1.8	2.5	3.4	3.9	4.2	4.2
5,000,000	0.8	1.1	1.5	1.7	1.9	1.9
7,500,000	0.7	0.9	1.2	1.4	1.5	1.5

for teenagers to accurately report the income of their parents and because income was not collected from the young women (15–17 years of age) in the 1990 Telephone Reinterview Teen Supplement.

Reliability of estimates

Because the statistics presented in this report are based on a sample, they may differ from the statistics that would result if all 58 million women represented by the survey had been interviewed. The standard error of an estimate (for example, a percent) is a measure of such differences. The standard error of an estimated number or percent is calculated by substituting the appropriate values of *A* and *B* from table I in the following equations:

$$SE(N) = \sqrt{(A + B/N) \cdot N}$$

and

$$SE(P) = \sqrt{(B \cdot P \cdot (100 - P)) / X}$$

where *N* = the number of women

P = the percent

X = the number of women in the denominator of the percent

The parameters shown in table I were used to generate table II, which shows estimates of standard errors for percents of women of all races, and

table III, which shows the standard errors for black women. The chances are about 68 in 100 (about 2 out of 3) that a sample estimate would fall within one standard error and about 95 in 100 that it would fall within two standard errors of a statistic computed from a complete count of the population represented by the NSFG.

Unless otherwise specified, differences between percents discussed in this report were found to be statistically significant at the 0.05 level using a two-tailed normal deviate test (z-test). This means that in repeated samples of the same type and size, a difference between the percents in the population as large as the one observed would occur in only 5 percent of the samples if there were, in fact, no difference. Statements using the phrase “the data suggest” indicate that the difference was significant at the 0.10 level (10 percent) but not the 0.05 level (5 percent). Lack of comment in the text about any two statistics does not mean that the difference was tested and found not to be significant.

Statistical differences between NSFG 1988 and 1990 percentage estimates were tested assuming that the estimates were not correlated, although a positive correlation likely occurs as the

1990 NSFG sample was a followup of the 1988 sample. In this situation the statistical test is conservative.

The relative standard error (or coefficient of variation) of a statistic is the ratio of the standard error to the statistic and usually is expressed as a percent of the estimate. In this report, percents and other statistics with relative standard errors of 30 percent or larger are indicated with an asterisk (*). These estimates may be viewed as unreliable by themselves, but they may be combined with other estimates to make comparisons of greater precision.

Statistics in this report may also be subject to nonsampling error, that is, errors or omissions in responding to the interview, in recording answers, and in processing data. The data have been adjusted for nonresponse and adjusted to independent control totals obtained from the U.S. Bureau of the Census. These adjustments reduce most types of nonsampling error. Other types of nonsampling error were eliminated by a series of quality control procedures.

Definition of terms

Current contraceptive status

Sterile—A currently married woman was classified as sterile under the current contraceptive status classification if she reported that it was impossible for her to have a baby, or her husband to father a child, for any reason, including sterilization operations or other causes. An unmarried woman was classified as sterile if she reported that it was impossible for her to have a baby or if her current method of contraception was male sterilization.

Nonsurgical—A woman or couple was classified as nonsurgically sterile if she reported that it was impossible for her to have a baby, or impossible for her husband to father a child, for any reason other than surgical sterilization. Nonsurgical reasons for sterility include menopause, sterility from accident, illness, congenital causes, or unexplained inability to conceive.

Surgical—A woman (or couple) was classified as surgically sterile if she or her husband were completely sterile due to an operation.

Surgical sterilizations were classified as contraceptive or noncontraceptive because, while most are obtained because of their effectiveness in preventing pregnancy, some are obtained for therapeutic reasons. This classification in successive cycles of the survey has been affected by changes in the wording of questions. In the 1973 (Cycle I) survey, a sterilization operation was classified as contraceptive if the respondent answered "yes" to the question "Was the operation done at least partly so that you would not have any more children?" However, since all sterilization operations are contraceptive in effect, though not by intention, this question was ambiguous; for example, this question classified many hysterectomies as "contraceptive." In 1976 the question was revised to reflect more clearly the motive of family limitation, asking: "Was one reason for the operation because you had all the children you wanted?" This question resulted in a lower proportion of hysterectomies reported as contraceptive, but it also resulted in lower proportions of other operations reported as contraceptive—because it excluded women who would have liked more children, but for whom pregnancy would be a health risk. This problem was investigated in the 1982 survey and rectified in the 1988 survey. The figures for 1982, 1988, and 1990 are highly comparable. In this report, noncontraceptive operations in 1982 and 1988 are those for which the respondent reported that the main or only reason for the operation was "medical problems with my female organs (such as infections, cancer, etc.)." All other operations were classified as contraceptive, in its literal sense, to prevent pregnancy, regardless of why she wanted to prevent pregnancy. Reasons for contraceptive operations in 1982, 1988, and 1990 included the following: she had all the children she wanted, or wanted none; her husband wanted no more; a pregnancy would have been dangerous to her health; she could not carry the pregnancy to term; she could not afford or take care of more children; or she did not like her previous method of birth control. The

data on the contraceptive intent of sterilization operations for 1973 may not be perfectly comparable to those in 1982, 1988, and 1990 because the later surveys contained these explicit answer categories for reasons for sterilizations while the 1973 question did not. It is not clear how women who had operations because pregnancy would be dangerous to their health would have answered the question in 1973.

It should be noted that the estimates of male contraceptive sterilization show the number of women relying on this method, and not necessarily the number of men who have been sterilized for contraceptive reasons.

Pregnant—A woman was classified as pregnant if she answered "yes" to the question, "Are you pregnant now?" or for those in doubt, "Well, do you think you are probably pregnant or not?" However, a woman who reported that the onset of her last menstrual period was within the last 30 days before the interview was automatically classified as not currently pregnant.

Seeking pregnancy—A woman was classified as seeking pregnancy if she reported that she was not using a method at the date of the interview because she wanted to become pregnant as soon as possible.

Post partum—A woman was classified as post partum if she reported that she was not currently using a method, was not trying to become pregnant, and her last pregnancy had terminated within 2 months before the date she was interviewed.

Other nonusers—Women (or couples) who reported that they were currently using no contraceptive method and could not be classified in any of the preceding categories of noncontraceptors were classified here. Included are women who had never had intercourse, women who had not had intercourse in the last 1 month, and women who had had intercourse in the last 1 month but were indifferent to the chances of pregnancy. Nonusers who had had intercourse only once were classified according to the timing of that intercourse: if it occurred within that past month, they were coded as having intercourse in the past month; if not,

they were coded as having no intercourse in the past month.

Never had intercourse—A woman was classified as never having had intercourse if she was not currently using a method and she had never had sexual intercourse at any time up to the date of interview, or if she had had sexual intercourse but not since her menstrual periods began.

No intercourse in the last month—A woman was classified as not having had intercourse in the last month if she was not currently using a method and reported not having sexual intercourse at all in the last 1 month preceding the interview.

Intercourse in the last month—A woman (or couple) was classified as having intercourse in the last month if she was not currently using a method and was having sexual intercourse currently or in the month preceding the interview.

Contraceptors—A woman (or couple) who reported using a method at the date of interview was classified according to the specific method used. When more than one method was currently being used, they were coded using the following priority order: female sterilization, male sterilization, pill, IUD, diaphragm, condom, foam, periodic abstinence, withdrawal, and other. Methods used by extremely small proportions of the population, such as jelly, cream, suppositories, or abstinence, not in combination with any other methods, were grouped into the category "other."

Demographic terms

Age—Age is classified by the age of the respondent in completed years as of August 15, 1990, for the 1990 survey and as of March 15, 1988, for the 1988 survey. These dates are the approximate midpoints of reviewing, respectively. In the 1982 survey, age is classified by the age of the respondent at her last birthday before the date of interview.

Education—This refers to the number of years of regular schooling the woman had completed as of the date of interview in 1990. In this report, the following categories are used: 0–11 years, meaning that the woman did not

complete high school; 12 years, meaning that she obtained a high school diploma or a GED, but did not complete a full year of college; and 13 years or more, meaning that she completed at least 1 year of college. In table 5, women under the age of 20 are excluded from tabulations by education because it generally takes until at least age 19 to reach the "13 years or more" category.

Hispanic origin—Each woman was asked, "Which of the (following) groups best describe your national origin or ancestry?" Using a list of 15 groups, a woman was classified as being of Hispanic origin if she reported that her only or principal national origin was Puerto Rican, Cuban, Mexican American, Central or South American, or other Spanish. Origin is therefore classified independently of race, and Hispanic women may be of any race.

Marital status—In this report, women were classified according to their legal marital status—married, widowed, divorced, separated, or never legally married. Cohabiting women who are not legally married are classified accordingly as widowed, divorced, separated, or never married, whichever is the legal status. In all NSFG surveys, women who were married but separated from their spouse were classified as separated if the reason for the separation was marital discord, and as currently married otherwise.

Poverty level income—This is the ratio of the total family income to the poverty level threshold for a family of specified size, as published by the U.S. Bureau of the Census. In the 1988 survey, 1987 poverty level thresholds were used (17). In the 1990 survey, 1989 Census Bureau weighted average thresholds for householders under age 65 were used. The 1989 thresholds used for 1990 data were \$6,451 for 1 person, \$8,343 for a family of 2, \$9,885 for a family of 3, \$12,674 for a family of 4, up to \$25,480 for a family of 9 or more (18). Thus, if a family of 4 had an income of \$25,000, their poverty level income would be \$25,000 divided by \$12,674, or 197 percent. In the 1990 NSFG, family income was not collected from the 327 women 15–17 years of age who were interviewed for the first time in 1990. In table 5 of this report, data

are not shown for those women who did not report the income or poverty level of their families.

Race—Race refers to the race of the woman interviewed. Each woman was asked, "Which of the (following) groups best describe your racial background?" The categories include black, white, Asian or Pacific Islander, and Alaskan Native or American Indian. Because of small sample sizes, the last two categories are often combined and called "other."

Symbols

- - -	Data not available
. . .	Category not applicable
-	Quantity zero
0.0	Quantity more than zero but less than 0.05
Z	Quantity more than zero but less than 500 where numbers are rounded to thousands
*	Figure does not meet standard of reliability or precision
#	Figure suppressed to comply with confidentiality requirements

Cooperating agencies

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