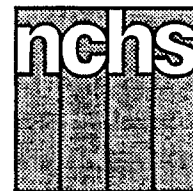


# Advance Data



From Vital and Health Statistics of the National Center for Health Statistics

## Fecundity and Infertility in the United States, 1965–88

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### Introduction

In 1988, about 4.9 million women 15–44 years of age had an impaired ability to have children. These women comprised 8.4 percent, or about 1 in 12, of the 57.9 million women 15–44 years of age. Of the 4.9 million, about 2.2 million had no births; the other 2.7 million had one birth or more before their fecundity impairment. The percent of women with impaired fecundity in 1982 was the same—8.4 percent, or 1 in 12. However, the number of childless women 25–44 years of age with impaired fecundity has increased because of delayed childbearing and the entry of the Baby Boom cohorts into the age range 25–44 years.

Physicians providing infertility services define infertility as the inability to conceive after 12 months or more of intercourse without contraception. Using this definition, infertility can be measured for married couples since 1965. About 2.3 million married couples with wives ages 15–44 years were infertile in 1988—7.9 percent, or slightly less than 1 in 12. These figures were not significantly different from the findings in 1982; however, there

appears to have been an increase in the number of women who used infertility services in the 12 months before the survey.

In some popular descriptions of infertility, it has been suggested that there are 9 or 10 million infertile couples, that 1 in 6 couples is infertile, that infertility is increasing rapidly, or that there is an “epidemic” of infertility in the United States. (See, for example, (1–4).) The findings of this report indicate that these perceptions are inaccurate, but the increased use of infertility services, the increased number of childless older women with impaired fecundity, and other factors (cited later) may help to account for the perception that infertility is increasing or that it is more common than it actually is.

These are some of the highlights of this report, which presents the first national estimates of trends in the fecundity status of all women of reproductive age in the United States, regardless of marital status, and trends in the use of infertility services. This report also updates earlier publications describing trends in fecundity and infertility among married couples (5–7). The data for

1976, 1982, and 1988 are from Cycles II, III, and IV of the National Survey of Family Growth (NSFG), conducted by the National Center for Health Statistics. The data for 1965 are from the National Fertility Study, conducted by Princeton University.

The 1988 NSFG was based on personal interviews with a national sample of 8,450 women 15–44 years of age in the civilian noninstitutionalized population of the United States. From January through August 1988, interviews were conducted with 8,450 women—2,771 black, 5,354 white, and 325 of other races. The interview focused on the respondent's fecundity (or physical ability to have children); past and current use of contraception; dates and outcomes of pregnancies, if any; marriages; use of family planning and infertility services; and a wide range of social, economic, and demographic characteristics.

### The concept of fecundity status

The respondent's physical ability to have children was measured by her answers to a series of questions, not by a medical examination. The purpose of this series of questions



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was to classify women or couples into three major groups: surgically sterile (unable to have a baby because of surgery); having impaired fecundity (sterile for reasons other than surgery, or difficult or dangerous to have a baby); and fecund (no known physical problem). The questions included the following:

- Have you (or your husband . . .) had an operation . . . that would prevent you from conceiving a(nother) baby . . . ?
- Some women find it *physically* impossible to have (more) children. As far as you know, is it physically *possible* or *impossible* for you . . . to conceive a(nother) baby, that is, to get pregnant (again)?
- What about your husband . . . ? Is it physically possible or impossible for him to father a(nother) child?
- Some people are able to have a baby, but have difficulty getting pregnant or holding onto the baby. As far as you know, is there any problem or difficulty for you (and your husband . . .) to conceive or deliver a(nother) baby?
- Does your husband have any difficulty fathering a child?

In these questions, the words “as far as you know” are important. Many women who have never tried to become pregnant do not know whether they have a fecundity impairment. Some women who reported that they did not know of any physical problems nonetheless had long periods of time in which they did not conceive although they did not use any contraception. A few women may be classified as having fecundity problems because of underreporting of either contraceptive use or pregnancies, but there is no evidence that this underreporting has a significant effect on any of the estimates presented here. (See (6,7).) Finally, although some women with fecundity problems subsequently may have a child, their reduced capacity for childbearing may have an impact on the Nation’s birth

rate and on the estimates of couples needing medical services to improve their chances of childbearing.

The category “surgically sterile” is divided into two parts: “contraceptively sterile” and “noncontraceptively sterile.” The category “noncontraceptively sterile” includes women who had surgery to correct medical problems with their reproductive organs, such as hysterectomies for fibroid tumors or endometriosis. The category “contraceptively sterile” includes women with all other sterilizing operations, including most tubal operations (and vasectomies performed on their husbands, if they are married), that were performed to prevent pregnancy. The motives for preventing pregnancy may have been to control family size, to reduce the health risks of pregnancy or other contraceptive methods, or a combination of these (8).

This classification of sterilization operations differs from that used in reports based on the 1976 and 1982 surveys. Therefore, the 1982 data for the categories “contraceptively sterile” and “surgically sterile for noncontraceptive reasons” presented here differ from 1982 data presented in previous reports, but they are intended to be as comparable as possible with the 1988 data. In 1988, 23 percent of all women 15–44 years of age (or their husbands, if they were married) were contraceptively sterile, including 3 percent of childless women and 39 percent of women with one birth or more (table 1). Another 5 percent of women had been surgically sterilized for noncontraceptive reasons, including about 2 percent of childless women and 7 percent of women with one birth or more (table 1).

Women with “impaired fecundity” include (a) those who said that it was impossible to have a baby for some reason other than a sterilization operation—such as accident, illness, or unexplained inability to conceive; (b) those who said that it was physically difficult for them to conceive or deliver a baby, or that a doctor had told them never to

become pregnant again because a pregnancy would pose a danger to the woman, the baby, or both; and (c) women or couples who were continuously married, did not use contraception, and did not become pregnant for 36 months or more. Each of these subcategories suggests that the woman or couple has a reduced, or “impaired,” capacity for childbearing. Such conditions may be treatable, however, and do not imply that the woman or couple is necessarily sterile.

About 4.9 million women had impaired fecundity in 1988; this was 8.4 percent, as in 1982, or about 1 in 12 women. About 2.2 million childless women had impaired fecundity in 1988, along with about 2.7 million women with one birth or more. In 1982, these figures were 1.9 million and 2.6 million, respectively.

“Fecund” is a residual category consisting of women who were not surgically sterile and did not have impaired fecundity, and whose husbands were not surgically sterile and did not have impaired fecundity. As shown in table 1, about 64 percent, or nearly two out of three, women were classified as fecund, including 87 percent of childless women and only 46 percent of those with one birth or more. There are two main reasons for this large difference between childless women and those with one birth or more: Childless women are younger on average than women with one birth or more, and many childless women have never tried to become pregnant. As a result, childless women are much less likely to be surgically sterilized than women with children and have had fewer chances to discover or develop any fecundity problems.

The percent with impaired fecundity did not change significantly from 1982 to 1988 in any of the 12 categories shown in table 1. The percent contraceptively sterilized did increase significantly overall (from 19 to 23 percent) and among women with children (from 31 to 39 percent). The percent sterilized for noncontraceptive reasons showed

**Table 1. Number of women 15-44 years of age and percent distribution by fecundity status, according to parity and age: United States, 1982 and 1988**

[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]

Parity and age	All women		Total	Surgically sterile				Impaired fecundity		Fecund	
	1988	1982		Contraceptive		Noncontraceptive		1988	1982	1988	1982
				1988	1982	1988	1982				
	Number in thousands			Percent distribution							
<b>All parities</b>											
15-44 years	57,900	54,099	100.0	23.3	18.6	4.7	6.6	8.4	8.4	63.6	66.3
15-24 years	18,592	20,150	100.0	2.0	2.1	*0.2	*0.2	4.8	4.3	93.0	93.4
25-34 years	21,726	19,644	100.0	22.9	21.0	2.7	4.9	9.6	10.0	64.7	64.2
35-44 years	17,582	14,305	100.0	46.3	38.7	12.0	18.3	10.6	12.1	31.0	31.0
<b>Parity 0</b>											
15-44 years	25,129	22,941	100.0	2.8	1.7	1.5	1.4	8.8	8.4	86.9	88.5
15-24 years	14,978	15,547	100.0	*0.2	*0.1	0.0	0.0	4.1	4.1	95.7	95.8
25-34 years	7,252	5,628	100.0	3.1	*3.3	*1.6	*1.8	13.4	14.7	82.0	80.2
35-44 years	2,899	1,766	100.0	15.8	*10.3	9.2	12.7	21.4	25.7	53.6	51.3
<b>Parity 1 or more</b>											
15-44 years	32,771	31,158	100.0	39.0	31.2	7.1	10.5	8.1	8.5	45.8	49.9
15-24 years	3,614	4,603	100.0	9.8	9.0	*0.7	*0.6	7.7	5.2	81.8	85.2
25-34 years	14,474	14,016	100.0	32.8	28.1	3.3	6.1	7.8	8.1	56.1	57.8
35-44 years	14,683	12,539	100.0	52.3	42.7	12.5	19.0	8.5	10.1	26.7	28.1

NOTE: Because of rounding of estimates, figures may not add to totals.

a small but significant decrease, from 7 to 5 percent. The percent fecund decreased significantly overall, from 66 to 64 percent, and among women with children, from 50 to 46 percent. However, none of the other changes in the percent fecund shown in table 1 was statistically significant.

Looking at the data in table 1 by age and parity, it can be seen that in 1988 the percent with impaired fecundity increased with age among childless women, from 4 percent at ages 15-24 years to 21 percent at ages 35-44 years. This increase with age among childless women also occurred in 1982. However, among women with children in 1988, there was no significant rise in the percent with impaired fecundity as age increased.

The data in table 1 for childless women shed some light on the issue of delayed childbearing. The number of women who were 35-44 years of age and still childless was 1.766 million in 1982; this group increased to 2.899 million by 1988, an increase of over 1 million. Multiplying these numbers by the percent with impaired fecundity in 1982 and 1988, it can be seen that about 454,000 women ages 35-44 years were childless and had impaired fecundity in 1982, compared

with about 620,000 in 1988, an increase of 166,000, or more than one-third. As a fraction of the 57.9 million women of reproductive age, this is not a large increase. However, as a percent increase (166,000/454,000 is about a 37-percent increase), it is large.

A similar situation exists at ages 25-34 years: The number of childless women increased from 5.628 million to 7.252 million. Therefore, the number with impaired fecundity increased from about 827,000 to 972,000, even though the percent with impaired fecundity did not increase. These increases in the number of childless women with impaired fecundity at older ages may help to explain the popular perception that impaired fecundity is increasing rapidly (2-4), despite the lack of increase in the overall percent with impaired fecundity.

Note that the number of women 15-24 years of age decreased from 20.2 million in 1982 to about 18.6 million in 1988, but the number ages 25-34 years increased by about 2 million, and the number ages 35-44 years increased by more than 3 million. In sum, a look at table 1 shows several important facts about delayed childbearing and impaired

fecundity. First, the number of women ages 25-44 years who have had no births is increasing, partly because the Baby Boom generation (born 1946-64) is in that age range. Second, the percent with impaired fecundity dropped among childless women ages 25-34 and 35-44 years. Third, the increasing number of childless women in the age range 25-44 years has increased the number of childless women who have impaired fecundity, despite the decline in the percent who have impaired fecundity. Thus, two of the causes of the popular perception that infertility is increasing are the delay in childbearing and the aging of the Baby Boom generation—not any increase in the percents with impaired fecundity at given ages. This perception that infertility is increasing is also due in part to a number of social and medical changes, which will be discussed later in this report.

### Trends among married couples, 1976-88

Data on fecundity status for married couples with wives 15-44 years of age are available from the 1976 NSFG and have been published previously (5,9). However, the 1976

data on whether sterilization operations were for contraceptive or noncontraceptive reasons are not comparable to the data for 1982 and 1988, so they are shown as a combined "surgically sterile" category in table 2. This combined "surgically sterile" category is comparable over time. A married couple is classified as surgically sterile if either the husband or wife is surgically sterile as a result of a vasectomy, hysterectomy, tubal sterilization, or other sterilization operation, regardless of the reasons for the operation.

In 1988, as in 1976 and 1982, the percent of couples surgically sterilized increased with age and was greater among couples with children (parity 1 or more) than among childless couples (parity 0). In 1988, one-half (50 percent) of all married couples with one child or more were surgically sterilized; among couples with one child or more in which the wife was 35–44 years of age, the proportion sterilized was about two-thirds (68 percent).

In 1988, about 1.1 million currently married couples were childless and had impaired fecundity—about 21 percent of the 5.5 million childless married couples in 1988 (table 2) but only about 3.9 percent of the 29.1 million

married couples with wives 15–44 years of age in 1988. This figure was about the same as in 1982: In that year about 1.1 million couples were childless and had impaired fecundity—about 22 percent of the childless couples but only about 3.9 percent of all married couples (table 2).

In 1988 as well as in 1976 and 1982, the percent of married couples with impaired fecundity was higher among childless women (21 percent for parity 0) than among women with one birth or more (8 percent for parity 1 or more). The percent with impaired fecundity also increased with age, especially among childless couples: In 1988, the percent of childless couples with impaired fecundity increased from 8 percent at ages 15–24 years to 36 percent at ages 35–44 years.

In 1982 and 1988, the proportion of all couples with impaired fecundity was about the same (11 percent in both years). There was no significant change in the percent of childless couples who had impaired fecundity (22 percent in 1982 and 21 percent in 1988). Similarly, there was no change from 1982 to 1988 in the percent of couples with children (parity 1 or more) who had impaired fecundity—8 percent in both years.

In fact, none of the changes in the percent with impaired fecundity from 1982 to 1988 in any of the 12 age-parity categories in table 2 was significant.

From 1976 to 1988, there were some significant decreases in the percent with impaired fecundity, especially among couples with children. In contrast, the percent of childless couples with impaired fecundity did not change significantly from 1976 to 1988 (21 percent in both years). However, the percent of childless couples with impaired fecundity did drop significantly at ages 25–34 years, from 27 percent in 1976 to 20 percent in 1988, and at ages 35–44 years, from 54 percent in 1976 to 36 percent in 1988.

One category in table 2 is noteworthy: Childless (parity 0) couples with wives ages 35–44 years. The number of women in that category increased from 565,000 in 1976 to 1,149,000 in 1988, a finding that supports the perception that delayed childbearing has increased among married couples. Note, however, that the percent of that group having impaired fecundity decreased sharply, from 54 percent in 1976 to 36 percent in 1988. Finally, multiply the number of childless women 35–44 years of age by the

**Table 2. Number of currently married women 15–44 years of age and percent distribution by fecundity status, according to parity and age: United States, 1976, 1982, and 1988**

[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]

Parity and age	All married women			Total	Surgically sterile			Impaired fecundity			Fecund		
	1988	1982	1976		1988	1982	1976	1988	1982	1976	1988	1982	1976
All parities	Number in thousands			Percent distribution									
15–44 years . . . . .	29,147	28,231	27,488	100.0	42.4	38.9	28.1	10.7	10.8	15.7	46.9	50.3	56.1
15–24 years . . . . .	3,337	4,741	6,020	100.0	6.0	*7.2	3.9	7.6	8.8	10.8	86.4	84.0	85.3
25–34 years . . . . .	13,646	12,924	12,179	100.0	31.1	31.6	25.9	10.9	9.7	15.5	58.0	58.6	58.6
35–44 years . . . . .	12,163	10,566	9,288	100.0	65.1	62.0	47.0	11.4	13.1	19.1	23.5	24.9	33.9
Parity 0	Number in thousands			Percent distribution									
15–44 years . . . . .	5,533	5,098	5,235	100.0	11.5	9.9	5.6	20.5	21.7	21.4	68.0	68.4	73.0
15–24 years . . . . .	1,404	1,989	2,738	100.0	0.0	*0.1	*0.2	8.4	*11.1	10.6	91.6	88.8	89.3
25–34 years . . . . .	2,979	2,256	1,931	100.0	8.0	*9.7	6.3	20.0	21.1	27.3	72.0	69.2	66.4
35–44 years . . . . .	1,149	853	565	100.0	34.5	*33.3	28.8	36.4	47.8	53.9	29.1	*18.9	17.2
Parity 1 or more	Number in thousands			Percent distribution									
15–44 years . . . . .	23,614	23,134	22,254	100.0	49.7	45.3	33.6	8.4	8.4	14.3	41.9	46.3	52.2
15–24 years . . . . .	1,932	2,752	3,282	100.0	10.3	*12.3	7.0	7.1	*7.2	11.1	82.6	80.6	82.0
25–34 years . . . . .	10,668	10,668	10,248	100.0	37.6	36.3	29.5	8.3	7.3	13.2	54.1	56.4	57.3
35–44 years . . . . .	11,014	9,713	8,723	100.0	68.3	64.5	48.2	8.8	10.0	16.8	22.9	25.5	34.9

NOTE: Because of rounding of estimates, figures may not add to totals. \*

percent with impaired fecundity to obtain the number with impaired fecundity: 305,000 in 1976, 408,000 in 1982, and 418,000 in 1988. As a percent of the 57.9 million women ages 15-44 years, or even as a percent of all 29.1 million married couples, this increase of 0.1 million is not a large increase. However, as a percent of childless women ages 35-44 years with impaired fecundity in 1976 (0.3 million), it is a large increase, and it is this increase that people involved in infertility services perceive.

**Infertility among married couples**

Many physicians define infertility as an inability to conceive after 12 months or more of intercourse without use of contraception. This concept is used as a screening device to decide when couples should begin to receive treatment, not to determine sterility (5-7). This measure has been criticized on the grounds that some couples may take longer than 12 months to conceive but nevertheless will conceive without medical treatment (10). However, it is used here for two reasons. First, data on this measure are widely used and frequently requested. Second, because data are available (for married couples only) since 1965, this concept can be used to measure trends over this 23-year period—a much longer time trend than for the impaired fecundity measure.

Infertility differs from impaired fecundity in two ways: First, infertility is a measure of difficulty in conceiving only; impaired fecundity is a measure of both difficulty in

conceiving and difficulty (or danger) in carrying to term. Therefore, the percents of married couples who are infertile are usually lower than the percent with impaired fecundity.

Second, infertility was measured in these national surveys only for married couples, because the concept assumes continuous exposure to intercourse and no underreporting of pregnancies, which can be assumed only of currently married women (7). Impaired fecundity could be determined for both married couples and for unmarried women (11,12).

Table 3 contains data on married couples with wives 15-44 years of age by whether they had no births (parity 0) or one birth or more in 1965, 1982, and 1988. (Data on infertility in 1976 have been published previously (13).) From 1965 to 1982, the percent surgically sterile more than doubled, from 16 to 42 percent. Among couples with children, it nearly tripled, from 17 to 50 percent. But among childless couples, the increase was only about 4 percentage points—from 7.3 to 11.5 percent.

The overall percent infertile decreased from 11.2 percent in 1965 to 8.5 percent in 1982 and 7.9 percent in 1988. The percent infertile did not change significantly from 1982 to 1988, either overall or among childless couples and those with one birth or more (table 3). However, the trends since 1965 were different for childless couples (primary infertility) than for couples with one birth or more (secondary infertility). Multiplying the percents infertile by the population (table 3) to obtain the numbers infertile produces the results shown in table 4.

**Table 4. Number of currently married women 15-44 years of age who were infertile, by parity: United States, 1965, 1982, and 1988**

Parity	1988	1982	1965
Number of women in millions			
All parities . . . . .	2.3	2.4	3.0
Parity 0 . . . . .	1.0	1.0	0.5
Parity 1 or more . . . . .	1.3	1.4	2.5

SOURCE: Calculated from table 3.

Thus, the number of couples with secondary infertility has declined since 1965, from 2.5 million in 1965 to 1.4 million in 1982 and 1.3 million in 1988. The number with primary infertility increased from 0.5 million in 1965 to 1.0 million in 1982 and remained at about 1.0 million in 1988. Overall, from 1982 to 1988, there was virtually no change in the number of couples who were infertile (2.4 million in 1982 and 2.3 million in 1988).

**Use of infertility services**

As shown in the first three tables of this report, the percents of all women with infertility and impaired fecundity are not increasing. The perception of increasing infertility has been discussed in detail elsewhere (10,12,14). Briefly, however, this perception is the result of the following changes (10,12,14):

- Delayed childbearing and the aging of the Baby Boom generation, which has increased the number of childless women 25-44 years of age (as discussed previously and shown in tables 1 and 2).

**Table 3. Number of currently married women 15-44 years of age and percent distribution by infertility status, according to parity: United States, 1965, 1982, and 1988**

[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]

Parity	All married women			Total	Surgically sterile			Infertile			Fecund		
	1988	1982	1965		1988	1982	1965	1988	1982	1965	1988	1982	1965
All parities	Number in thousands			Percent distribution									
All parities . . . . .	29,147	28,231	26,454	100.0	42.4	38.9	15.8	7.9	8.5	11.2	49.7	52.6	73.0
Parity 0 . . . . .	5,533	5,098	3,492	100.0	11.5	9.9	7.3	18.5	19.6	14.5	70.0	70.5	78.2
Parity 1 or more . . . . .	23,614	23,134	22,962	100.0	49.7	45.3	16.9	5.4	6.0	10.8	45.0	48.7	72.3

NOTE: Because of rounding of estimates, figures may not add to totals.

- The many new drugs and techniques for treating infertility, including the new reproductive technologies of in vitro fertilization, artificial insemination, and surrogate motherhood, and news coverage of those techniques.
- An increase in the number of physicians trained to treat infertility.
- An increase in the number of visits to physicians for infertility.

There are some data from the 1982 and 1988 surveys on use of medical services for infertility. In both surveys women were asked—

- Have you (or your husband) ever been to a doctor or clinic to talk about ways to help you become pregnant?
- (Not counting routine care or advice about a pregnancy), have you (or your husband) ever been to a doctor or clinic to talk about ways to help you prevent a miscarriage?

Women who answered "yes" to either of these questions were classified as having used infertility services. These women were asked the date (month and year) of their most recent visit for these medical services. From this date it was possible to determine the number of women who used services in the 12 months, 3 years, or 5 years before they were interviewed. These statistics are shown in table 5. Note that the number who used services in the 12 months before the survey increased from 1.08 million in 1982 to 1.35 million in 1988, an increase of about one-quarter of a million women. An increase of about the same magnitude is shown in the number who had one visit or more in

**Table 5. Number and percent of women who had 1 visit or more to a doctor or clinic for advice or treatment to help them become pregnant or carry a pregnancy to term, by when the most recent visit occurred: United States, 1982 and 1988**

Date of most recent infertility visit	1982	1988	Increase	1988	
				Number in thousands	Percent
In the last year . . . . .	1,346	1,082	264	2.3	2.0
In the last 3 years . . . . .	2,392	2,056	336	4.1	3.8
In the last 5 years . . . . .	3,123	2,867	256	5.4	5.3

NOTE: Because of rounding of estimates, figures may not add to totals.

the last 3 or 5 years. Note that only about 2 percent of women of reproductive age had one visit or more for infertility in the last 12 months. The percent of women who had one infertility visit or more in the last 12 months, 3 years, and 5 years appeared to increase from 1982 to 1988, but none of the increases was statistically significant.

It is also possible that the number of visits per woman (or couple) increased because more drugs and procedures can be offered for infertility than in past years. However, data were not collected on the number of visits each woman made for infertility. Data on the number of visits for infertility in the past year would be a worthwhile addition to future surveys.

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## Technical notes

The National Survey of Family Growth (NSFG) is a periodic survey conducted by the National Center for Health Statistics (NCHS) to collect data on factors affecting childbearing, contraception, infertility, and related aspects of maternal and infant health. The survey is jointly planned and funded by NCHS, the National Institute of Child Health and Human Development, and the Office of Population Affairs, all of the U.S. Department of Health and Human Services. Fieldwork was conducted under contract by Westat, Inc., in 1982 and 1988.

For the 1988 survey (Cycle IV), personal interviews were conducted with a national sample of women who were 15-44 years of age on March 15, 1988. In 1982, the population covered was women 15-44 years of age living in the civilian noninstitutionalized population of the conterminous United States. In 1988, Alaska and Hawaii were included, so the population covered was the civilian noninstitutionalized population of the entire United States. Interviews were completed with 7,969 women in 1982 and 8,450 women in 1988. Further details on the sample design and procedures of the 1982 survey have been published (6).

Interviews for Cycle IV of the survey were conducted from January through August 1988 for households that had been interviewed in the National Health Interview Survey from October 1985 through March 1987. The National Health Interview Survey is also conducted by NCHS. As in previous cycles of the NSFG, black women were oversampled. Interviews were conducted in person in the respondent women's homes by trained female interviewers and lasted an average of about 70 minutes. The interview focused on the woman's pregnancy history; past and current use of contraception; ability to bear children (fecundity and infertility); use of medical services for family planning, infertility, and prenatal care; marital history; occupation and labor force participation; and a wide

range of social, economic, and demographic characteristics.

### 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 57.9 million women represented by the NSFG had been interviewed. The standard error of an estimate is a measure of such differences. The standard error of an estimated number or percent is calculated by using the appropriate values of A and B from table I in the equations,

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

and

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

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 preliminary estimates of standard errors for percents of total or white women. A similar table for

**Table I. Preliminary estimates of parameters A and B for estimating standard errors for women, by race**

Race	Parameter	
	A	B
Total or white. . . . .	-0.00018	10,738
Black. . . . .	-0.000626	5,181

**Table II. Preliminary estimates of standard errors for estimated percents of total women: 1988 National Survey of Family Growth**

Base of percent	Estimated percent						
	2 or 98	5 or 95	10 or 90	20 or 80	30 or 70	40 or 60	50
	Standard error in percentage points						
100,000. . . . .	4.6	7.1	9.8	13.1	15.0	16.1	16.4
500,000. . . . .	2.1	3.2	4.4	5.9	6.7	7.2	7.3
1,000,000. . . . .	1.5	2.3	3.1	4.1	4.7	5.1	5.2
5,000,000. . . . .	0.6	1.0	1.4	1.9	2.1	2.3	2.3
10,000,000. . . . .	0.5	0.7	1.0	1.3	1.5	1.6	1.6
30,000,000. . . . .	0.3	0.4	0.6	0.8	0.9	0.9	0.9
50,000,000. . . . .	0.2	0.3	0.4	0.6	0.7	0.7	0.7
58,000,000. . . . .	0.2	0.3	0.4	0.5	0.6	0.7	0.7

the Cycle III (1982) survey has been published (6).

The chances are about 68 in 100 (about 2 in 3) that a sample estimate would fall within one standard error of a statistic based on a complete count of the population represented by the NSFG. The chances are about 95 in 100 that a sample estimate would fall within two standard errors of the same measure obtained if all people in the population were interviewed. Differences between percents discussed in this report were found to be statistically significant at the 5-percent level using a two-tailed normal deviate test. This means that in repeated samples of the same type and size, a difference as large as the one observed would occur in only 5 percent of samples if there were, in fact, no difference between the percents in the population.

In the text, terms such as "greater," "less," "increase," or "decrease" indicate that the observed differences were statistically significant at the 0.05 level using a two-tailed normal deviate test. Statements using the phrase "the data suggest" indicate that the difference was significant at the 0.10 (10-percent) level but not the 0.05 (5-percent) level. Lack of comment in the text about any two statistics does not mean that the difference was tested and found not to be significant.

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, statistics with a relative standard error of 30 percent or more

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 also may be subject to nonsampling error, that is, errors or omissions in responding to the interview, recording answers, and processing data. The data have been adjusted for nonresponse by means of adjustments to the sample weights assigned to each case. Other types of nonsampling error were minimized by a series of quality control measures described in reports on Cycle III (such as (6)).

### The 1965 National Fertility Study

The figures on infertility status for 1965 were computed from the 1965 National Fertility Study. Some were published previously (5,7,9,13). Descriptions of the 1965 survey design and procedures have been published (9,13).

Unlike the NSFG, the 1965 National Fertility Study did not include procedures to obtain weighted numbers; therefore, approximate numbers of currently married women for 1965 were obtained from population estimates published by the U.S. Bureau of the Census. The weighted numbers shown in table 3 differ from those shown for 1982 and 1988 in the following ways: Alaska and Hawaii are included in 1965 and 1988, but not in 1982, and the age range in 1965 includes currently married women 14 years of age. The sources of the population estimates have been published (5).

### Definitions of terms

*Fecundity status*—Fecundity is the physical ability of a woman or couple to presently have children and refers to women or couples with any number of children (unless classified by parity). It is determined by responses to questions asked in the NSFG interview, not by a medical examination. Fecundity status, as

shown in tables 1 and 2 of this report, has three main categories: surgically sterilized, impaired fecundity, and fecund. Women were classified as surgically sterile if they (or their current husband or partner) had had a sterilizing operation (for example, a vasectomy, hysterectomy, or tubal ligation). Surgically sterile is divided (in table 1) into two subcategories: contraceptive and noncontraceptive. Impaired fecundity includes women who reported that (a) it was impossible for them to have a baby for any reason other than a sterilizing operation, (b) it was difficult to conceive or difficult or dangerous to carry a pregnancy to term, or (c) they had been continuously married or cohabiting, had not used contraception, and had not had a pregnancy for 3 years or more. In tables 1 and 2, "fecund" is a residual category and means that the woman (or couple) was not surgically sterile and did not have impaired fecundity. The percent of currently married couples with impaired fecundity is higher than the percent infertile because impaired fecundity includes difficulty or danger carrying to term as well as difficulty conceiving, whereas infertility includes only difficulty in conceiving. For a more detailed discussion of the concept of fecundity status, see the text of this report and a previously published report (6).

*Infertility status*—Infertility is a medical concept; it is used by physicians to identify couples who may need to be evaluated to see whether they need medical services to help them have a baby. It is computed for married couples only in the NSFG. When neither spouse is surgically sterilized, a couple is considered infertile if, during the previous 12 months or longer, they were continuously married, had not used contraception, and had not conceived. Infertility status, as shown in table 3, refers to the categories surgically sterile, infertile, and fecund, where fecund means "not surgically sterile and not infertile."

*Use of infertility services*—A woman was classified as having used

infertility services if she answered "yes" to either of the following two questions:

- Have you (or your husband) ever been to a doctor or clinic to talk about ways to help you become pregnant?
- (Not counting routine care or advice about a pregnancy), have you (or your husband) ever been to a doctor or clinic to talk about ways to help you prevent a miscarriage?

Women or couples who have had infertility services may not be currently infertile if the treatment or advice was successful.

*Age*—Age was classified by the age of the respondent in completed years as of March 15, 1988, the approximate midpoint of interviewing.

*Marital status*—Women were classified as currently married, widowed, divorced, separated, or never married. In Cycles III (1982) and IV (1988), to improve the comparability of NSFG data on marital status over time and with other sources of data, informally married, or cohabiting, women (who reported that they were not married but were living with their sexual partner) were classified by their legal marital status. In all NSFG surveys, a woman who was married but separated from her spouse was classified as separated if the reason for the separation was marital discord and as currently married otherwise.

*Parity*—Parity refers to the number of live births the woman has had. For example, a woman classified as "parity 0" has never had a live birth. "Parity 1 or more" means that she has had one live birth or more.

### Cooperating agencies

Cycle IV of the National Survey of Family Growth was supported in part by the National Institute of Child Health and Human Development, National Institutes of Health, and the Office of Population Affairs, Office of the Assistant Secretary of Health. These agencies also participated in the design of the questionnaire.



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**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
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