VITAL AND HEALTH STATISTICS

Fecundity, Infertility, and Reproductive Health in the United States, 1982

Statistics, based on data collected in 1982, are presented on fecundity status and infertility status, and related factors including spontaneous pregnancy loss, treatment for pelvic inflammatory disease, cesarean section, and smoking and drinking during pregnancy. The statistics are shown for women 15–44 years of age, according to race, age, marital status, and selected socioeconomic characteristics.

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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 (30-percent or more relative standard error)

Fecundity, Infertility, and Reproductive Health in the United States, 1982

by William D. Mosher, Ph.D., and William F. Pratt, Ph.D.,
Division of Vital Statistics

Introduction

The National Survey of Family Growth, a periodic survey conducted by the National Center for Health Statistics, is designed to provide information on fertility, family planning, and aspects of maternal and child health that are closely related to childbearing. One of these factors is fecundity—the physical ability to have children. Fecundity is measured in two ways: fecundity impairments, or conditions that make it difficult or impossible to have children; and infertility, the inability to conceive after a year or more of unprotected intercourse. This report contains a wide range of information on fecundity, infertility, and related topics, including the following:

- Fecundity impairments and infertility among married couples from national surveys conducted in 1965, 1976, and 1982.
- New data on fecundity impairments among unmarried as well as married women for 1982.
- Characteristics of sterilized women and their husbands.
- Pelvic inflammatory disease.
- Spontaneous pregnancy loss.
- Cesarean section.
- Smoking and drinking during pregnancy.

Taken together, this wide range of information probably makes this the most comprehensive set of national estimates on fecundity, infertility, and related topics available for the United States.

Two classification schemes are used here to measure reproductive impairments: fecundity status, which is a demographic concept and makes more complete use of the data available in the survey; and infertility status, which is a medical concept, and permits comparable measurement of trends between 1965 and 1982.

Interest in fecundity impairments and infertility has been growing in recent years, as indicated by a large number of popular and scientific reports on the subject. Many of the popular articles on infertility have focused on improved techniques of medical treatment.[1–4] Others have attempted to assess the causes of fecundity impairments and their impact on birth rates.[5–7] Closely related issues include the rise in delayed childbearing since the early 1970's.[8] We will not focus directly on these issues in this report, but they have guided our choice of variables and tables, and the data in this report should shed light on many of them. The effects of fecundity impairments and infertility are of considerable interest for a number of reasons:[9]

- Birth rates have been below replacement in the United States since the early 1970's.
- Infertility has increased among young women since 1965.[10,11]
- New technologies for treating infertility problems have been widely publicized.
- More physicians are practicing in the field of infertility.[9]
- There are fewer adoptable babies because of more effective contraception, sterilization, and abortion.

As a result, men and women are making an increasing number of visits to doctors each year for fecundity and infertility problems.[12,13]

Data on fecundity and infertility may be useful to evaluate birth expectations and birth rate projections, to explain trends and differences in childlessness, to assess the demand for adoption, and to estimate the number of couples in need of medical treatment for fecundity impairments or infertility.

Summary of principal findings

The following summary is limited to a discussion of the findings of the present report. Citations of related literature may be found in the detailed discussions of the findings.

"Fecundity status" is a characteristic of a woman (or couple if she is married) at the date the woman was interviewed. As in past cycles of the survey, a married couple is classified as sterile if either partner is sterile, and as subfecund if either partner is subfecund. Sterility may stem from a hysterectomy, tubal ligation, vasectomy, or other operation, or from an inability to conceive, whether of known or unknown origin. In this report, for convenience in writing, we sometimes refer to "women," but it is important to emphasize that we mean *"women or their current husbands if they are married."* Unless classified by parity, each category of fecundity status or infertility includes women (or couples) with *any number of children*. Fecundity status is a demographic concept which makes use of all of the data on fecundity in the 1982 National Survey of Family Growth (NSFG). Of women aged 15–44 in 1982, 18 percent (9.5 million) were contraceptively sterile—that is, they or their husbands had been sterilized because they had all the children they wanted. Another 8 percent (4.2 million) were surgically sterile for other (noncontraceptive) reasons. About 8 percent (4.5 million) had impaired fecundity—that is, it was difficult or dangerous for them to conceive or carry a baby to term. The remaining 66 percent were apparently fecund, or able to have a future baby.

Not all women with impaired fecundity were childless: Of the 4.5 million women with impaired fecundity, 1.9 million were childless; the other 2.6 million had one or more children. Most but not all women with fecundity impairments wanted children in the future: about 1.6 million childless women and 1.2 million women with children had fecundity impairments and wanted to have children in the future (figure 1). Another 4.2 million women were surgically sterile for noncontraceptive reasons; of those, 2.4 million would have liked to have more children.

The literature on age and fecundity suggests that fecundity impairments increase with age. When the surgically sterile are excluded from the calculations, the percent with impaired fecundity increases markedly with age, especially after age 35 (figure 2), particularly among childless women.

The NSFG is also the only reliable national source of data on infertility among married couples. A couple is infertile if neither spouse is surgically sterile and if they have had at least 12 months of unprotected intercourse without a pregnancy. Infertility is a medical concept, used for diagnosis: if a couple is infertile, it means that they should be treated;

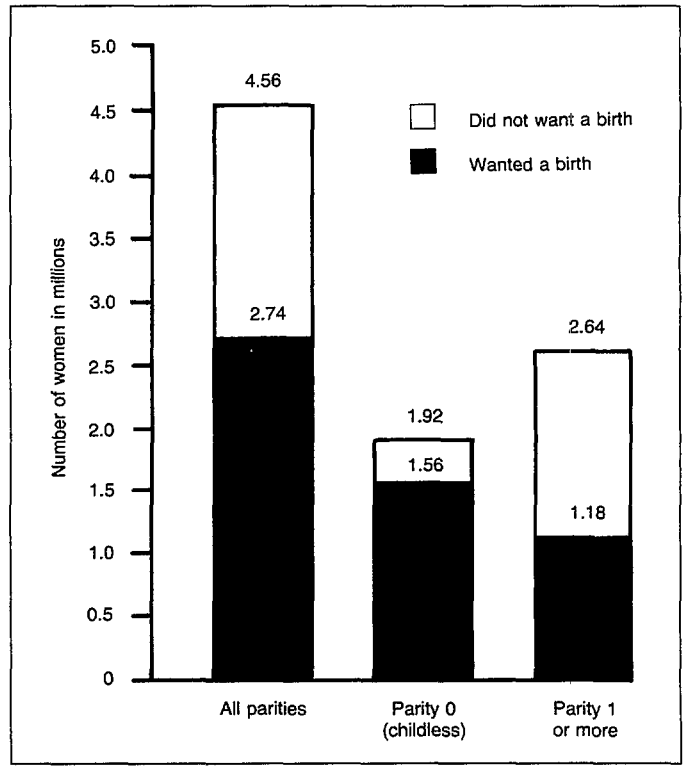

Figure 1. Number of women who had impaired fecundity, by parity and whether or not they wanted a future birth: United States, 1982

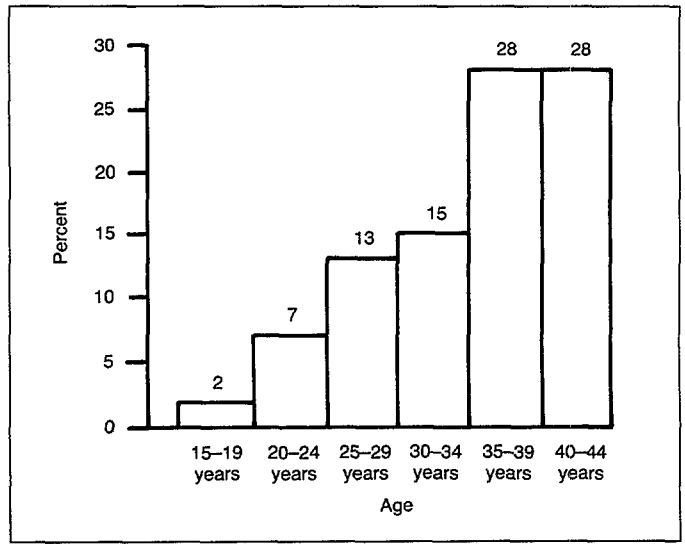

Figure 2. Percent of women (excluding the surgically sterile) who had impaired fecundity, by age: United States, 1982

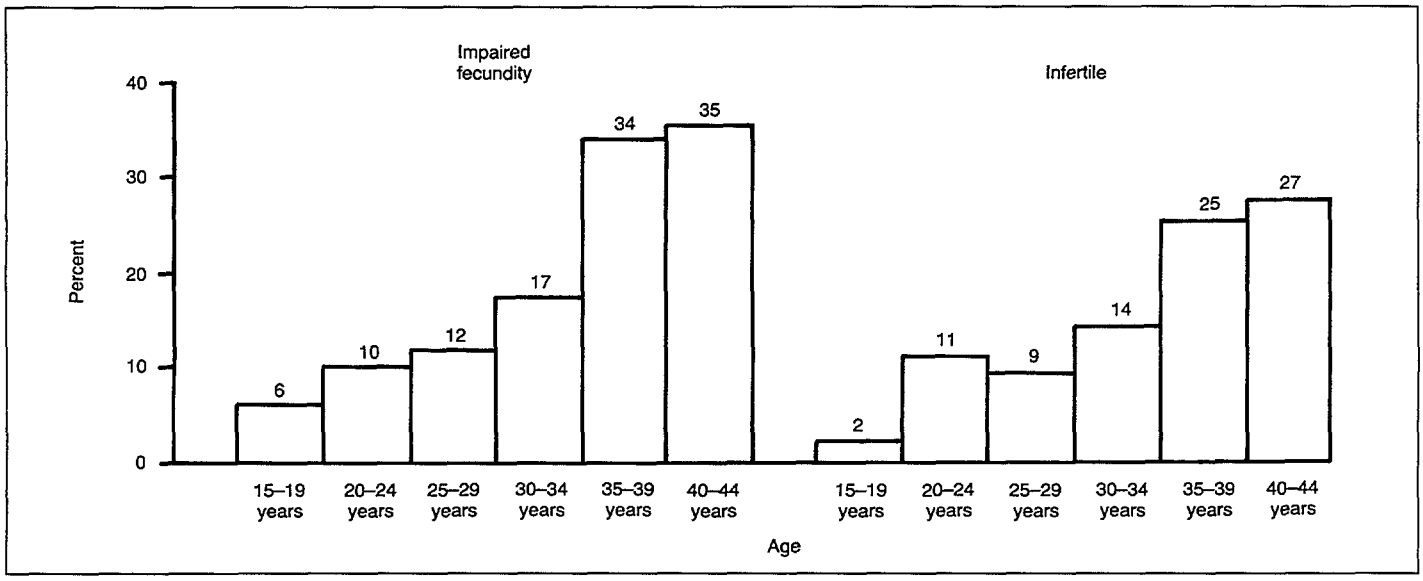

Figure 3. Percent of currently married women 15–44 years of age (excluding the surgically sterile) who had impaired fecundity, and percent infertile, by age: United States, 1982

it does *not* necessarily mean that they are sterile. After surgically sterile couples are excluded, about 1 in 7 couples was infertile in 1965, 1976, and 1982. Thus, *overall*, infertility was *not* increasing significantly. Among couples aged 20–24, however, the percent infertile increased from 4 percent in 1965 to 11 percent in 1982. Infertility increased nonsignificantly among childless couples and those 35–39 years of age, and decreased nonsignificantly among couples with 1 or more children. When the surgically sterile are excluded, infertility also increases with age, especially after age 35 (figure 3). Among black couples, infertility was about 1½ times as high as among white couples in 1965, 1976, and 1982 (figure 4). In contrast, the race difference in impaired fecundity among married couples was very small in 1982 because 1-year and 2-year infertility was higher among black wives, but 3-year infertility (or long intervals) was only slightly more common among black wives.

Surgical sterilization for contraceptive reasons is the leading method of birth control in the United States; other sterilization operations are done for noncontraceptive (or health) reasons. About 1 in 4 women 15–44 years of age (or their current husbands) had had at least one sterilization operation: 14 percent had tubal ligations, 5 percent hysterectomies, and 6 percent vasectomies. By age 40–44, 61 percent (or their current husbands) had been surgically sterilized (figure 5). Among married couples, 39 percent had been sterilized, including 20 percent with tubal ligations, 7 percent with hysterectomies, and 11 percent with vasectomies. Only 2 percent of black married couples, compared with 12 percent of white married couples, had had a vasectomy by 1982. The average age of women at tubal ligation was about 30, and about 32 at hysterectomy. Black women were about 2 years younger at tubal ligation than white women. Women had had an average of 2.6 children when they were surgically sterilized. About 10 percent of hysterectomies occurred to childless women. Black women had had more children (3.3) on average than white women (2.5), when sterilized.

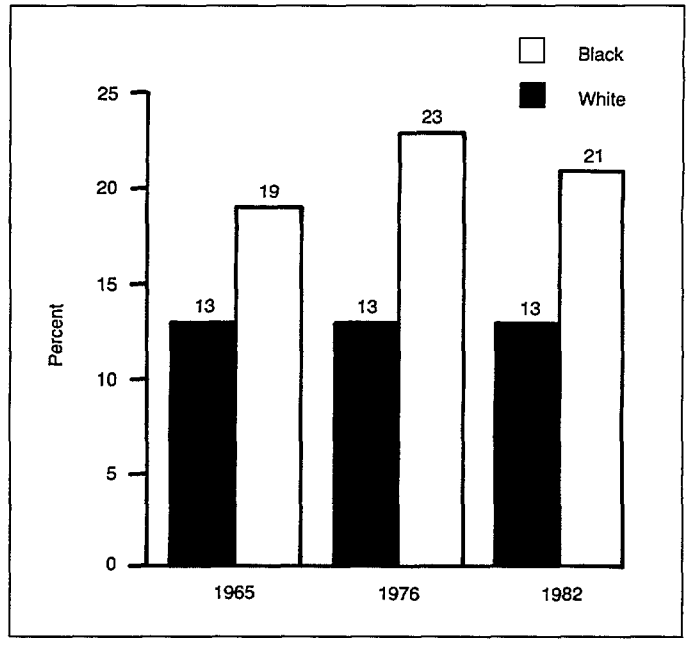

Figure 4. Percent of currently married couples (excluding the surgically sterile) who were infertile, by race: United States, 1965, 1976, and 1982

Approximately 1 in 7 women aged 15–44 had ever been treated for pelvic inflammatory disease, or PID: 1 in 25 in a hospital and 1 in 10 only in non-hospital settings. The percent who had been treated increased until age 30–34, and then leveled off (figure 6). Black women were about twice as likely to have been treated for PID as white women (23 versus 13 percent).

Pregnancy loss is a common occurrence in the United States; 1 in 6 women had had at least one pregnancy loss; by age 40–44, the figure was 1 in 4. About 16 percent of pregnancies (excluding induced abortions) ended in miscarriage or stillbirth; the fetal loss rate was higher for older mothers (35–44) and for those who had had PID.

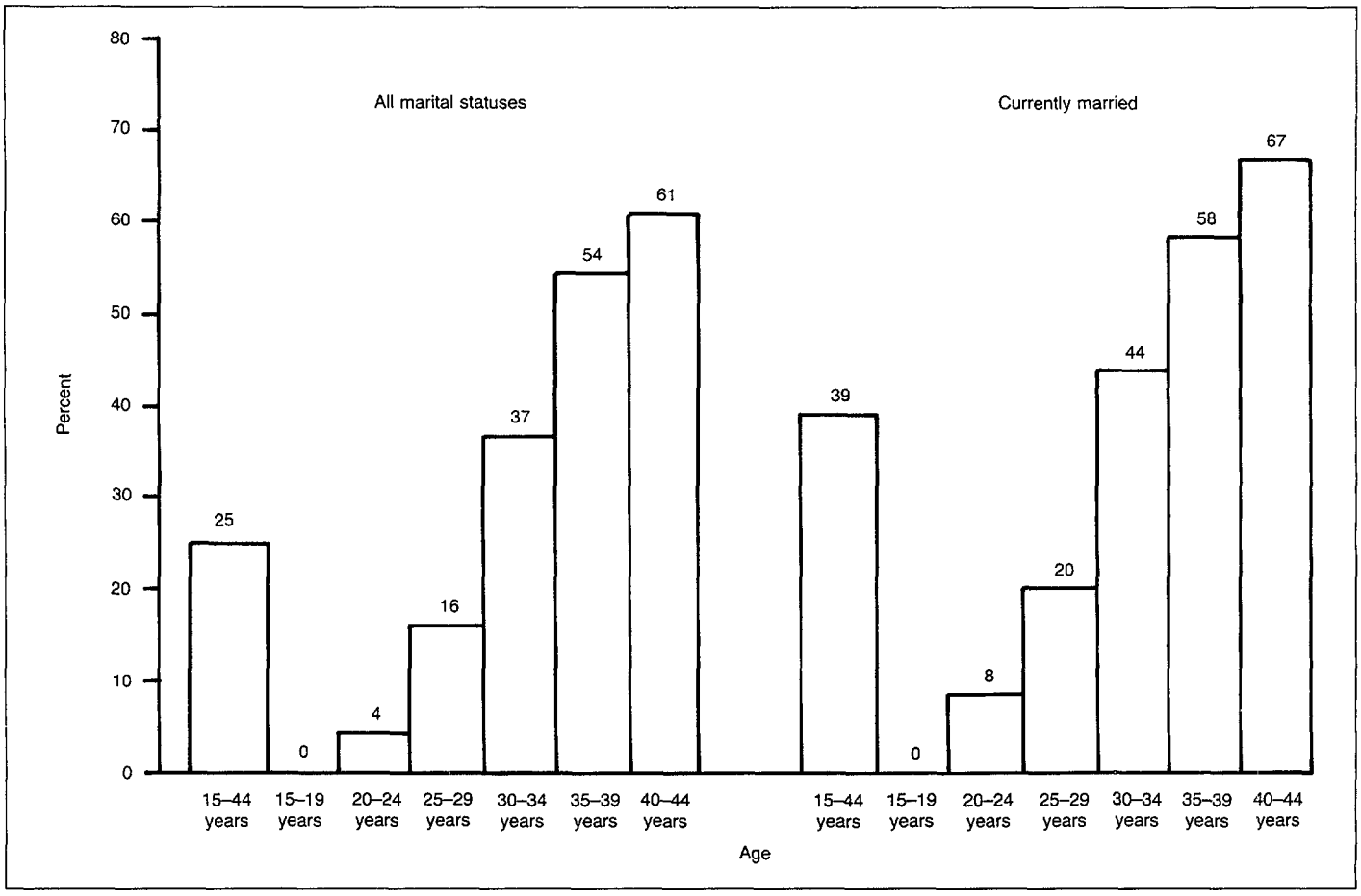

Figure 5. Percent of women 15–44 years of age (or their current husbands) who were surgically sterile, by age and marital status: United States, 1982

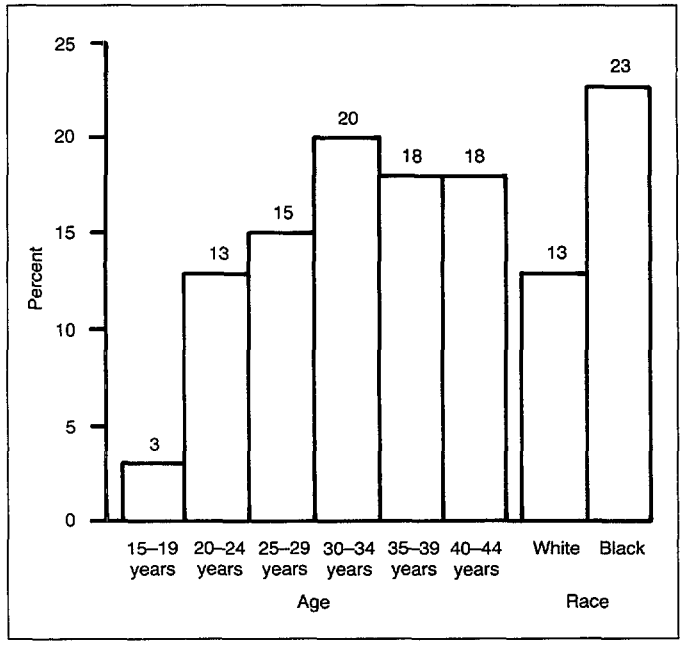

Figure 6. Percent of women 15–44 years of age who had ever been treated for pelvic inflammatory disease, by age and race: United States, 1982

About 7 percent of women had had at least one delivery by cesarean section. Delivery by cesarean section was more common among older mothers: Only 6 percent of births to teenage mothers had been delivered by cesarean section, compared with 20 percent of births to mothers 35–44 years of age (figure 7).

Studies have shown that smoking and drinking during pregnancy can have adverse effects on fertility and pregnancy outcome. It is therefore interesting to note that 60 percent smoked, drank, or both during their most recent pregnancy: Looking at mothers of pregnancies excluding induced abortion, it was found that 15 percent smoked only, 29 percent drank only, and 16 percent did both. Drinking during pregnancy was less common among black women than white women. Hispanic women were less likely than others to both smoke and drink during pregnancy (figure 8).

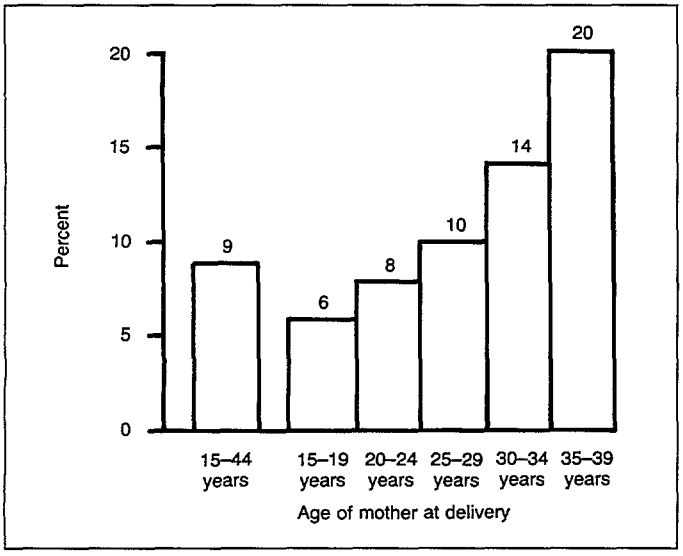

Figure 7. Percent of births to women 15–44 years of age that were delivered by cesarean section, by age of mother at delivery: United States, 1982

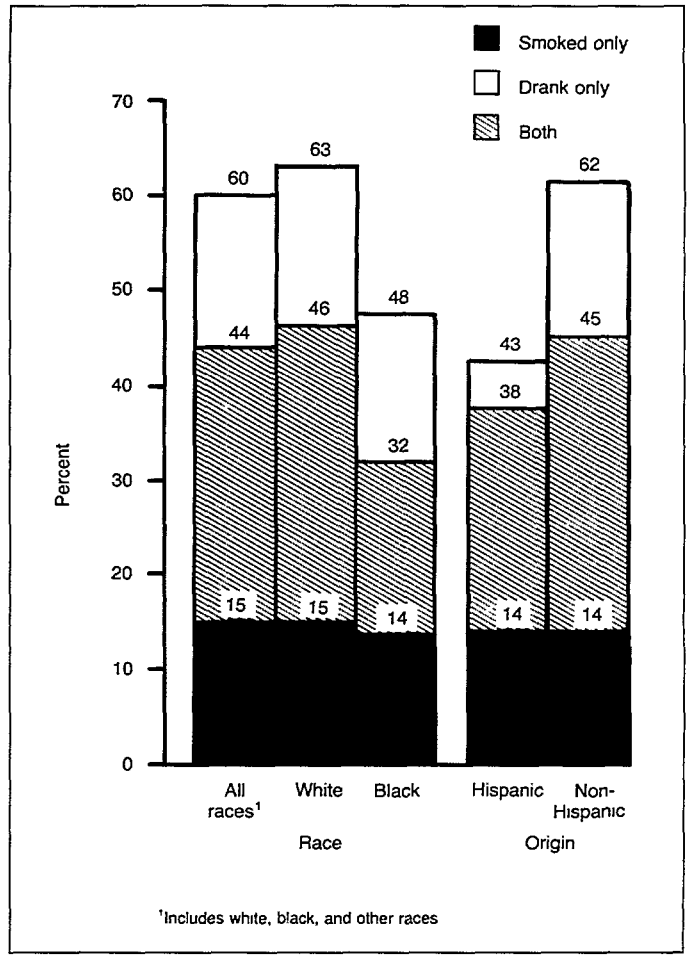

Figure 8. Percent of women ever pregnant 15–44 years of age who smoked or drank alcoholic beverages, or both, during their most recent pregnancy, by race and origin: United States, 1982

Source and limitations of the data

Cycle III of the National Survey of Family Growth (NSFG) was based on personal interviews with a multistage area probability sample of 7,969 women 15–44 years of age in the noninstitutional population of the conterminous United States. For the first time, women were eligible for interview regardless of their marital status.

Between August of 1982 and February of 1983, 4,577 white, 3,201 black, and 191 women of other races were interviewed. Black women and women 15–19 years of age were sampled at higher rates than others, to increase the reliability of statistics for these groups. The interview was conducted in person and focused on the respondents' marital and pregnancy histories, their use of contraception, whether each pregnancy was planned at the time of conception, their use of family planning and infertility services, their physical ability to bear children, and a wide range of social and economic characteristics. Interviews were conducted by trained female interviewers and lasted an average of 1 hour.

Characteristics such as age, race, Hispanic origin, parity, education, geographic region, labor force status, and religion are reported for the women interviewed. For convenience in writing, in this report expressions such as "black couples" refer to couples with black wives and "couples 30–44 years of age" refers to couples with wives 30–44 years of age, regardless of the race or age of the husbands in those couples.

The statistics are estimates for the national population from which the sample was drawn. Because the estimates are based on a sample, they are subject to sampling variability. Also, nonsampling errors may have been introduced during data collection, processing, and analysis, although quality control measures were used at each stage to minimize error. Further discussion of the survey design, definition of terms, and sampling variability can be found both in the appendixes and in a detailed report on the design of the survey.[14]

The term "similar" means that any observed difference between two estimates being compared is not statistically significant; terms such as "greater," "less," "larger," and "smaller" indicate that the observed differences are statistically significant at the 5-percent level using a 2-tailed t-test with 39 degrees of freedom. Statements about differences that are qualified in some way (for example, "the data suggest" or "some evidence") indicate that the difference is significant at the 10-percent level but not at the 5-percent level.

The following sections include a description of how women (or couples, if married) were classified by fecundity status, comparisons with other data, a detailed discussion of findings on fecundity status, infertility, the characteristics of surgically sterilized women (or their husbands), pregnancy loss, and other selected topics. Appendixes I–IV contain technical notes, definitions of terms, an assessment of the quality of the data on infertility, and the 1982 survey questions on reproductive impairments.

Classification by fecundity status

Fecundity status was measured by a series of questions. All women (or couples, if the woman was currently married) were classified into one of six categories of fecundity status: contraceptively sterile, surgically sterile for noncontraceptive reasons, nonsurgically sterile, subfecund, long interval, or fecund. In some tables and charts of this report the nonsurgically sterile, the subfecund, and those with a "long interval" since marriage or last pregnancy have been grouped into the overall category of "impaired fecundity."

The data were obtained by asking respondents whether it was possible or impossible, and difficult or not difficult, for them to have a baby or another baby. If the respondent said it was impossible or difficult, she was asked why. With a few exceptions (explained below), respondents who said that it was impossible for them to conceive a baby or another baby were classified as *sterile*, and those who said it was difficult or dangerous were classified as *subfecund*. The first question on fecundity impairments was the following:

> It is *physically* impossible for some couples to have children. As far as you know, is it *possible* or *impossible* for you (and your husband) to conceive a(nother) baby, that is, to get pregnant (again)?

The phrase "and your husband" was read if the woman was currently married at the date of interview.

Respondents who replied that it was impossible for them (or their husbands) to have a baby or another baby were asked:

> Have you (or your husband) had an operation, or more than one operation, that makes it impossible for you to conceive a baby?

If her response was affirmative, she was then asked:

> Was *one* reason for the operation because you had all the children you wanted?

Contraceptively sterile

This category consisted of women or their current husbands who had sterilizing operations at least partly because they had all the children they wanted. In 1982, about 18 percent of all women aged 15–44 (9.5 million) were classified as contraceptively sterile (table 1 and figure 1). For this report, these women (or couples) are not considered to have impaired fecundity because they have ended their fecundity voluntarily—that is, as a method of family limitation. However, they must be classified separately because their status is in most cases irreversible, and although some of them may later wish the decision were reversed, most will not be able to have more children.

Surgically sterile, noncontraceptive

This category consists of women or their current husbands who had a surgical sterilization (such as a hysterectomy), but *not* because they had had all the children they wanted. About 4.2 million women, or 8 percent, were classified as surgically sterile for noncontraceptive reasons in 1982.

Nonsurgically sterile

This category is composed of women or their current husbands who said it was impossible for them to have a baby or another baby for some reason other than a surgical sterilization such as accident or illness. About 0.9 million women (2 percent) were nonsurgically sterile in 1982.

Subfecund

For women (or couples) in this category, it is difficult but it may be possible to conceive or carry a pregnancy to term. Most women classified as subfecund responded affirmatively to the following question:

> Some people are able to have a(nother) baby, but they 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?

A few women were classified as subfecund because a physician told them never to become pregnant again, and they said they would have a sterilization operation or abortion for health reasons if they ever became pregnant again. An estimated 3.0 million women, or 6 percent, were classified as subfecund in 1982 (table 1).

Long interval

Couples who were not surgically sterile, who did not report any difficulty conceiving, and who, during the 3 years of continuous marriage before the interview, did not use contraception and did not have a pregnancy, were classified as having a long interval. Most of these couples were probably sterile, but a few might conceive in the future.[15] In 1982, about 0.6 million couples (1 percent) were classified as having

a long interval (table 1). Although it is logically possible that a few married women may be classified as having long intervals because of underreporting of either contraceptive use or pregnancies, appendix III shows that underreporting of pregnancies did not occur among married white women and was small among other married women.

Impaired fecundity

For some purposes, it is useful to combine women classified as nonsurgically sterile, subfecund, or long interval; this combination is referred to as "impaired fecundity." In 1982 about 4.5 million women had impaired fecundity.

Fecund

In tables 1–6 of this report "fecund" means that there was no evidence at the time of the interview that the woman (or couple, if married) had a problem in conceiving or delivering a baby. The women interviewed reported no impairments and stated that it was possible for them to have a baby, that they had no difficulty conceiving or carrying to term, and that they had used contraception or been pregnant some time in the 3 years of continuous marriage preceding the interview. About 35.9 million women, or 66 percent, were classified as fecund in 1982 (table 1).

Comparisons with other data

The data on fecundity status and infertility in the 1976 National Survey of Family Growth were reported previously in Series 23 of Vital and Health Statistics and in a related article.[16,17] Both of those analyses, however, were limited to currently married couples. The data for currently married women in the present report are comparable to the data in those analyses, and many comparisons of these data are included in this report.

Studies conducted in 1955 and 1960 included information on fecundity impairments.[18,19] Although they were important, path-breaking analyses, the statistics they contained cannot be considered comparable to the statistics in this report. (The measurement of trends is discussed later, in the section on infertility.) Comparisons of those data with the present report are difficult because (1) different questions on fecundity were asked and different classification schemes were used; and (2) the samples in the earlier studies were more limited in scope than in the National Survey of Family Growth (NSFG).

Other factors that may affect these comparisons include changes in the timing of first use of contraception, changes in the age and marital status composition of the female population 15–44 years of age, and the dramatic increase in the use of contraceptive sterilization in the 1960's and 1970's. The increase in sterilization prevents couples from discovering impairments, especially at age 30 and over. It is important to note that the term "subfecund" in the earlier studies included all couples not classified as fecund. That meaning of "subfecund" included all impaired fecundity plus all surgical sterility, both contraceptive and noncontraceptive. As explained earlier, the term "subfecund" is used in a much more limited sense in this report.

McFalls has published three very useful secondary analyses of the extensive literature on reproductive impairments, which he calls "subfecundity."[6,7,20] In McFalls' usage, "subfecundity" is usually equivalent to the sum of the categories "impaired fecundity" and "noncontraceptive surgical sterility" in this report.

Another source of related data is the Hospital Discharge Survey of the National Center for Health Statistics, which samples records of patients discharged from non-Federal short-stay hospitals and classifies the sampled records by diagnosis, including "inflammatory disease of female pelvic organs," "complications of pregnancy," sterilization, normal (vaginal) delivery and cesarean section, and other conditions.[21–25] These data differ from those in the NSFG because not all such conditions require hospitalization, and not all affect fecundity. Also, the data in the NSFG are not medical diagnoses; they are self-reported. Finally the Hospital Discharge Survey data are incidence estimates (the number of cases occurring in a particular year), while the NSFG data in this report are prevalence estimates (the number of cases in the population as of 1982, regardless of when they first occurred).

For several decades, the National Vital Statistics system has included reports of registered fetal deaths.[26] Although reporting requirements for fetal deaths have varied over time and still differ among the States, most statistics in the most recent reports are shown for fetal deaths of 20 weeks or over gestation. The registered data show about 30,000 fetal deaths of 20 weeks or over gestation per year.[26] This is much too small a number to estimate reliably from the NSFG. In contrast, NSFG data refer to all spontaneous losses of recognized pregnancies. Because the rate of pregnancy loss is highest at the earliest gestations and decreases as gestation increases,[27] most pregnancy losses in the NSFG are for gestations shorter than 20 weeks. These are called miscarriages by most NSFG respondents. In general, the registered fetal death data refer to late fetal deaths, which are called stillbirths by most NSFG respondents. Therefore, the NSFG data allow complete estimates of fetal loss to recognized pregnancies, while the registered data on fetal deaths include those at 20 weeks or over gestation, which are too rare to measure reliably from the NSFG.

An extension of the data on registered fetal deaths is found in the 1980 National Fetal Mortality Survey (NFMS), which was based on a sample of about 6,300 reports of fetal deaths of 28 weeks or over gestation or 1,000 grams or more in weight; about 19,000 fetal deaths meeting these criteria occurred in 1980.[28] The NFMS allows detailed study of the correlates of fetal deaths after 20 weeks gestation; these are too rare to study in the NSFG.

Findings

Fecundity status

The 1982 NSFG makes it possible for the first time to classify all women of childbearing age regardless of marital status, by fecundity status at the date of interview (tables 1–6). The parity groups represent childless women (parity 0) and those with 1 or more children (parity 1 or more), an important distinction for medical practitioners and others.

In 1982, 18 percent of all women 15–44 years of age were contraceptively sterile, including 1 percent of never married women, 28 percent of currently married women (or their husbands), and 20 percent of formerly married women (table 1). As might be expected, in each marital status category, the percent contraceptively sterilized was much higher for women with children (parity 1 or more) than for childless women (parity 0).

About 8 percent (or 4.2 million) were surgically sterile for noncontraceptive reasons, including 1 percent of never married women, 11 percent of currently married women (or their current husbands), and 14 percent of formerly married women. The percent sterilized for noncontraceptive reasons was also higher for women with children than for childless women.

In 1982, 6 percent of women (or 3.0 million) were classified as subfecund, including 3 percent of never married, 7 percent of currently married, and 9 percent of formerly married women (table 1).

Couples who were continuously married (either formally or informally), who did not use contraception, and who did not become pregnant for 36 months or more immediately before the interview were classified as having a "long interval." Although these women *reported* no known physical problems, they were well beyond any normal period for conception, indicating some impairment to childbearing and possibly sterility. As of 1982, 1 percent of all women (0.6 million) had a long interval.

The category "impaired fecundity" includes women who were classified as nonsurgically sterile, subfecund, or having a "long interval" since their last pregnancy. About 4.5 million women, or 8 percent, had impaired fecundity. Of these, about 1.9 million were childless and 2.6 million had 1 or more children (figure 1, calculated from table 1).

"Fecund" is a residual category—that is, it includes women (or couples) who were not surgically sterile and did not have impaired fecundity. In table 1, 94 percent of never married women were classified as fecund, compared with about 50 percent of currently married couples and 55 percent of formerly married women. There are two main reasons for this large difference between never married and ever married women: never married women are younger on average than ever married women; and most never married women have never been pregnant or tried to become pregnant. As a result, never married women are much less likely to be surgically sterile than ever married women, and have had less chance to develop or discover any fecundity problems.

Differences between the age groups in table 2 reflect differences between age groups in marital status, in the number of children they have had, and in other factors. The percent contraceptively sterile increased sharply with age, from 4 percent at ages 20–24 to 39 percent at ages 40–44. The proportion noncontraceptively sterile also rose with age, especially after age 30. The percent with impaired fecundity ranged from 2 percent at ages 15–19 to 13 percent at ages 35–39. The percent fecund declined from 98 among teenagers to 28 among women 40–44 years of age, because both surgical sterility and impaired fecundity were more common at the older ages.

The literature on age and fecundity[8,29,30] would lead us to expect the percent with impaired fecundity to increase with age, but there were two nonsignificant decreases in the percents between adjacent 5-year age groups in table 2. However, this was an artifact of the very large increases with age in surgical sterilization: the percent with impaired fecundity increased in each age group (although not always significantly) when the surgically sterile were removed from the denominator (table A and figure 2). When the percents were based on all women, the range by age was from 2 to 13 percent; when they were based on women who are not surgically sterile, the range by age was from 2 to 28 percent (table A and figure 2).

Table 2 also contains data by marital status and age. Among never married women, those 20–44 were more likely to have impaired fecundity than teenagers (6 percent versus 2 percent), and less likely to be fecund (90 versus 98 percent). Among widowed, divorced, and separated women, the percent with impaired fecundity was nonsignificantly *lower* at ages 30–44 than at age 15–29 (10 versus 14 percent), but this was an artifact of the larger percent surgically sterile at ages 30–44. When impaired fecundity was computed as a percent of women who were not surgically sterile, the proportion was 16 percent at ages 15–29 and 17 at ages 30–44.

Table A. Percent of women 15–44 years of age with impaired fecundity, by marital status and age, for all women and those who were not surgically sterile: United States, 1982

[Statistics are based on a sample of the household population of the conterminous United States. See appendixes for discussion of the sample design, estimates of sampling variability, and definitions of terms]

Age	All marital statuses[1]		Currently married	
	All women[2]	Not surgically sterile[3]	All women[2]	Not surgically sterile[3]
	Percent			
15–44 years	8.4	11.3	10.8	17.7
15–19 years	*2.1	*2.1	6.1	*6.1
20–24 years	6.4	6.7	9.2	*10.0
25–29 years	10.6	12.5	10.0	12.5
30–34 years	9.3	14.8	9.4	16.7
35–39 years	13.0	27.9	14.3	34.1
40–44 years	11.0	28.2	11.6	34.8

[1]Includes currently married, never married, and formerly married.
[2]Number of women with impaired fecundity divided by number of women with impaired fecundity plus number of fecund women plus surgically sterile women. See text or appendix II for definitions.
[3]Number of women with impaired fecundity divided by number of women with impaired fecundity plus number of fecund women. See text or appendix II for definitions.

Table B. Percent of women 15–44 years of age who were not surgically sterile who had impaired fecundity, by parity, marital status, and age: United States, 1982

[Statistics are based on a sample of the household population of the conterminous United States. See appendixes for discussion of the sample design, estimates of sampling variability, and definitions of terms]

Marital status and age	All parities	Parity 0	Parity 1 or more
	Percent[2]		
All marital statuses[1]			
15–44 years	11.3	8.6	14.5
15–24 years	4.4	4.1	5.8
25–34 years	13.4	15.5	12.3
35–44 years	28.0	33.4	26.5
Currently married			
15–44 years	17.7	24.1	15.4
15–24 years	9.5	11.1	*8.2
25–34 years	14.2	23.4	11.5
35–44 years	34.4	71.7	28.2

[1]Includes currently married, never married, and formerly married.
[2]Number of women with impaired fecundity, divided by number of women with impaired fecundity plus number of fecund women. See text or appendix II for definitions.

Among currently married couples, 39 percent—nearly 2 in 5—were surgically sterile in 1982, and the percent surgically sterile reached 67 percent at ages 40–44. As a result, the percents of married couples with impaired fecundity did not rise steadily with age (table 2). However, when surgically sterile couples were excluded from the denominator (table A and figure 3), the percent with impaired fecundity rose in each age group (although the differences were not all significant). Among both all women (figure 2) and married women (figure 3), the percent with impaired fecundity approximately doubled after age 35.[6,8,29]

Impaired fecundity and the desire for children

Fecundity impairments in themselves are important for demographic and public health reasons. For other uses, however, it may be important to define a population that may need medical treatment to help them have children, or more children—including couples who have difficulty conceiving, those who have a high risk of miscarriage, and those for whom pregnancy may be dangerous to the woman's life or health. One way to define the population that may need medical treatment to help them have children is illustrated in table 3: the percent with impaired fecundity who would like to have a baby at some time in the future.

About 2.7 million women, or 60 percent of those with impaired fecundity, wanted to have a baby (or another baby). Of these, 1.6 million were childless and the other 1.2 million had one or more children (figure 1). The proportion of those with impaired fecundity who wanted to have a future baby decreased with age, from 80 percent of those aged 15–24 to 33 percent of those 35–44. This proportion also decreased with parity, from 81 percent of childless couples with impaired fecundity to 28 percent of those with three or more children. The percent of women with impaired fecundity who wanted a baby did not differ significantly by race or Hispanic origin.

About 1.8 million currently married women had impaired fecundity and wanted children in 1982, including about 0.9 million childless couples and 0.9 million couples with 1 or more children. The comparable figures for 1976 were similar: 2.0 million women had impaired fecundity and wanted children, including 0.8 million childless women and 1.2 million with children. As for all women, the percent of wives who wanted more children decreased as age and parity increased, and did not differ significantly by race or Hispanic origin.

Women who were surgically sterile for noncontraceptive reasons (table 3) were asked:

> Even though it is unlikely or impossible for you to have a(nother) baby, would you *like* to have a(nother) baby?

About 56 percent of these women, or 2.4 million, would have liked to have a baby; only 0.2 million of these were childless, and 2.2 million had one or more children.

Because age and parity are correlated it is useful to examine the relationship between age and fecundity status separately for childless women and for those with children (table 4). The percent surgically sterile increased markedly with age—from 2 percent at ages 15–24 to 57 percent at ages 35–44. As a result, far fewer women at the older ages were at risk of infertility than at the younger ages because they attribute their sterility to the operation. Thus the increase of impaired fecundity with age was greatly diminished. To adjust for this, table B shows the results of table 4 with the "surgically sterile" removed. In each of the six groups, the percent with impaired fecundity increases with age. In each case, the percent at least doubles between the age groups 25–34 and 35–44. For example, among all women, 14 percent of those 25–34 and 28 percent of those 35–44 had impaired fecundity. Among currently married childless women 35–44 years of age, 72 percent had impaired fecundity.

Comparable data on fecundity status were collected from currently married couples in 1976 and 1982, and these data permit a look at trends and differentials in those years among married couples who are not surgically sterile (table C). As

Table C. Percent of currently married women (excluding the surgically sterile) who had impaired fecundity, by parity and age: United States, 1976 and 1982

[Statistics are based on a sample of the household population of the conterminous United States. See appendixes for discussion of the sample design, estimates of sampling variability, and definitions of terms]

Age	All parities		Parity 0		Parity 1 or more	
	1982	1976	1982	1976	1982	1976
	Percent[1]					
15–44 years	17.7	21.8	24.1	22.7	15.4	21.5
15–24 years	9.5	11.2	11.1	11.1	*8.2	11.9
25–34 years	14.2	20.9	23.4	29.1	11.5	18.7
35–44 years	34.4	36.0	71.7	75.7	28.2	32.4

[1]Number of women with impaired fecundity divided by number of women with impaired fecundity plus number of fecund women. See text or appendix II for definitions.

for all women, the percent with impaired fecundity increased with age, and approximately doubled from 25–34 to 35–44 years of age (table C). The increase with age was particularly sharp among childless couples; the percent with impaired fecundity at ages 35–44 exceeded 70 percent in both 1976 and 1982 (table C). The overall percent with impaired fecundity declined from 22 percent in 1976 to 18 percent in 1982; this 18 percent decline compares with a 31 percent decline (16 to 11 percent) when the surgically sterile are included. There were significant declines overall, at ages 25–34, and among women with children between 1976 and 1982. However, at ages 15–24 and 35–44 and among childless couples, there were no significant changes in the percent with impaired fecundity.

One might hypothesize, however, that couples who already had, or who would later discover fecundity impairments may become sterilized for *noncontraceptive* reasons. If that is true, it is useful to examine the trends in another way. If we exclude contraceptively sterile couples entirely, and divide the number of couples who are impaired plus noncontraceptively sterile by the number of impaired plus noncontraceptively sterile plus fecund, we obtain the following percents who had fecundity impairments:

Couples	Percent with fecundity impairments	
	1976	1982
All	31.1	30.2
Childless	25.9	28.3
Parity 1 or more	32.6	30.9
White	30.5	29.9
Black	36.0	33.6

This simple adjustment virtually wipes out the apparent decrease in fecundity impairments: 31 percent of couples (excluding the contraceptively sterile) had fecundity impairments in 1976, and 30 percent in 1982 (not a significant difference). Among childless couples, an insignificant increase (from 26 to 28 percent) is found, and among couples with children (parity 1 or more), an insignificant decrease (from 33 to 31 percent). In addition, the changes for white and black couples were not significant either. Thus, the percent classified as fecund declined between 1976 and 1982, but this decline was a result of the dramatic increase in contraceptive sterilization. The underlying proportions fecund and with impaired fecundity have not changed significantly.

By 1982, contraceptive sterilization was the leading method of contraception among married couples.[31] Contraceptive sterilization was also occurring at earlier ages and lower parities, and this also reduced the percent of wives who reported fecundity impairments because women who might have developed or discovered impairments at later ages were among those who were sterilized at earlier ages. It is possible that women who had completed their families and had fecundity impairments were turning increasingly to sterilization. This hypothesis cannot be tested directly because we do not know if surgically sterile women had fecundity impairments before their operation. Data to test this hypothesis would be valuable in the next cycle of the survey.

In the 1976 NSFG, black couples were consistently more likely to have impaired fecundity than white couples, primarily because black couples were more likely to be classified as having a long interval: in 1976, 23 percent of black and 15 percent of white couples had impaired fecundity.[16] In 1982, 13 percent of black and 11 percent of white couples had impaired fecundity (table 5). When the percent with impaired fecundity was computed with the surgically sterile removed from the denominator, as in table D, the proportions were 29 percent among black and 21 percent among white couples in 1976, and 20 percent among black and 18 percent among white couples in 1982. According to these two meas-

Table D. Percent of currently married women (excluding the surgically sterile) who had impaired fecundity, by race and age: United States, 1976 and 1982

[Statistics are based on a sample of the household population of the conterminous United States. See appendixes for discussion of the sample design, estimates of sampling variability, and definitions of terms]

Age	Race			
	White		Black	
	1982	1976	1982	1976
	Percent[1]			
15–44 years	17.6	21.0	19.9	28.7
15–19 years	*5.8	8.6	*0.0	*14.4
20–24 years	9.0	10.4	*11.2	22.9
25–29 years	12.4	17.7	*12.9	15.8
30–34 years	16.8	24.8	*17.6	30.0
35–39 years	34.9	33.1	31.7	40.9
40–44 years	34.3	37.1	47.0	53.8
15–24 years	*9.3	10.1	*9.9	21.1
25–34 years	14.2	20.5	15.0	22.2
35–44 years	34.7	35.0	38.1	47.4

[1]Number of women with impaired fecundity divided by number of women with impaired fecundity plus number of fecund women. See text or appendix II for definitions.

ures, the difference by race in impaired fecundity among married couples narrowed substantially between 1976 and 1982. However, the race differential can also be measured, as above, by excluding the contraceptively sterile and dividing the number of impaired plus noncontraceptively sterile by the number of impaired plus noncontraceptively sterile plus fecund. This procedure reveals the following results for currently married couples:

Couples	1976	1982
All	31.1	30.2
White	30.5	29.9
Black	36.0	33.6

Using this measure, black wives were more likely to have impaired fecundity than white wives in both 1976 and 1982; the difference was significant in 1976 but not in 1982. The difference by race narrowed from 5.5 percentage points in 1976 to 3.7 in 1982.

The difference in surgical sterilization by race has also narrowed: in 1976, 29 percent of white and 22 percent of black couples were surgically sterile; in 1982 these proportions were 39 and 36 percent respectively (table 5). In both years, the differential in surgical sterility was about the same size as the differential in impaired fecundity. These two facts may be causally related, but the nature of the connection is not clear. And in both years, the percent of currently married couples who were fecund was about the same for both races.

In 1982, none of the differences by race (table 5 and table D) in impaired fecundity was statistically significant at the 5 percent level. How did these changes occur? Declines in the percent with impaired fecundity apparently occurred at ages 25–34 among white couples, and at 25–44 among black couples, although these declines were not all statistically significant. The data in table D can also be looked at in cohort terms. For example, if a woman was 22 years of age in 1976 (20–24), she would be 28 (25–29) in 1982. Looking at changes within cohorts, few were statistically significant, and most were small, but the data suggest that there was a decline among black couples who were 20–24 in 1976 and 25–29 in 1982.

The primary cause of the race differential in impaired fecundity in 1976 and in 1982 was the long interval category: black wives were substantially more likely to have 3-year "long intervals" in 1976, but not in 1982. That may be related to the increase in surgical sterilization in the period 1976–82, which was especially rapid among black wives.[10] The data on age at tubal ligation in a later section of this report also support this interpretation. It is possible that black wives with long intervals may have had surgical sterilizations at a greater rate than white wives. This is a subject that merits further investigation.

Among women of all marital status groups in 1982, few of the differences by race were statistically significant; overall and at ages 35–44, white women were more likely to be contraceptively sterile than black women were. Black women 35–44 years of age were more likely to be surgically sterile for noncontraceptive reasons and more likely to have impaired fecundity than white women aged 35–44.

In previous NSFG reports, parity and race were found

Table E. Percent of women (excluding the surgically sterile) who had impaired fecundity, by race, marital status, and parity: United States, 1982

[Statistics are based on a sample of the household population of the conterminous United States. See appendixes for discussion of the sample design, estimates of sampling variability, and definitions of terms]

Marital status and parity	All races[1]	White	Black
All marital statuses[2]		Percent[3]	
All parities	11.3	11.4	11.0
Parity 0	8.6	8.7	7.8
Parity 1 or more	14.5	14.9	13.5
Currently married			
All parities	17.7	17.6	19.9
Parity 0	24.1	23.5	31.0
Parity 1 or more	15.4	15.4	17.7

[1]Includes white, black, and other races.
[2]Includes currently married, never married, and formerly married.
[3]Number of women with impaired fecundity divided by number of women with impaired fecundity plus number of fecund women. See text or appendix II for definitions.

to be strongly associated with fecundity status.[11,16] With respect to parity, there was no significant difference between childless women and those with children in the proportion with impaired fecundity (8 versus 9 percent for all races, white, and black, in table 6), but when the surgically sterile were excluded, those with one or more children were more likely to have impaired fecundity (15 versus 9 percent, table E). Among currently married women, however, the childless were *more* likely to have impaired fecundity (24 versus 15 percent, table E). This pattern apparently was the result of different selection effects: among all women, the childless were more likely to be younger and never married, and among married women, the childless were more likely to have remained childless because they had fecundity impairments.

Infertility

The fecundity status measures we have used thus far were derived from a series of questions which was not asked in surveys conducted before 1976. Therefore if we wish to show the trends in fecundity over the past 2 decades, we need a measure that does not depend on that series of questions. Infertility status (tables 7 and 8) is a measure that allows us to look at trends for all married women aged 15–44 since 1965.[a] Infertility is a medical concept, used for diagnosis: couples are considered to need infertility screening and treatment if they are not surgically sterile and have not been able to conceive after a year or more of unprotected intercourse. Infertility is considered a screening device, used to isolate a high-risk group who may need treatment; it is not considered proof of sterility.[32–35]

Infertility and impaired fecundity are related concepts, but they differ in at least two principal ways: First, infertility measures only *difficulty in conceiving*, while impaired fecundity includes difficulty in conceiving and difficulty or danger in carrying a pregnancy to term. Therefore the percent of married couples with impaired fecundity (10.8 in table 4)

[a]Comparable data on fecundity status cannot be obtained from the 1965 or 1970 surveys because the necessary questions were not asked. See references 16 and 17.

was greater than the percent infertile (8.5 percent in table 7). Second, while the purpose of the impaired fecundity measure is demographic—to measure the proportion of couples for whom future childbearing is unlikely—the purpose of the infertility measure is diagnostic, as explained above.

Although there is substantial overlap between the categories "infertile" and "impaired fecundity" (table F), some small groups are in one and not the other. Couples with impaired fecundity who are not infertile include those who are currently using contraception to avoid pregnancy because a pregnancy or birth would be dangerous to their health; and those who were married or remarried, were pregnant, or have used contraception within the last 12 months. Couples who are infertile but do not report impaired fecundity have been infertile an average (median) of 19 months, and they reported that it was possible for them to have a baby as far as they knew, or that they were not sure. In short, these couples have not yet concluded that they have a fecundity impairment, but they have longer than normal waiting times to conception.

It is logically possible that wives may be erroneously classified as infertile if they underreport pregnancies. However, that was not a problem among white wives; it was a potential problem, but probably not a major one, among black wives (see appendix III; see also reference 11).

Table F. Percent of currently married women 15–44 years of age who had impaired fecundity, were infertile, both, or either, by parity and race: United States, 1982

[Statistics are based on a sample of the household population of the conterminous United States. See appendixes for discussion of the sample design, estimates of sampling variability, and definitions of terms]

Parity and race	Impaired fecundity	Infertile	Both	Either
	Percent			
Total[1]	10.8	8.5	6.7	12.6
Parity				
Parity 0	21.7	19.6	16.5	24.8
Parity 1 or more	8.4	6.0	4.5	10.0
Race				
White	10.8	8.1	6.6	12.3
Black	12.7	13.1	9.4	16.4

[1]Includes white, black, and other races.

The trend in infertility was strongly affected by trends in sterilization, as was the trend in fecundity status.[11,16,17] The percent surgically sterile more than doubled between 1965 and 1982, from 16 percent to 39 percent (table G). In fact, the proportion surgically sterile at least doubled in all age categories except 15–19 and in all parity categories except parity 0. For example, at ages 40–44 years, 27 percent of

Table G. Percent distribution of currently married women 15–44 years of age by infertility status, according to age, parity, and race: United States, 1965, 1976, and 1982

[Statistics are based on a sample of the household population of the conterminous United States. See appendixes for discussion of the sample design, estimates of sampling variability, and definitions of terms]

Age, parity, and race	Total	Infertility status: Surgically sterile 1982	Surgically sterile 1976	Surgically sterile 1965	Infertile 1982	Infertile 1976	Infertile 1965	Fecund[1] 1982	Fecund[1] 1976	Fecund[1] 1965
	Percent distribution									
Total[2]	100.0	38.9	28.2	15.8	8.5	10.3	11.2	52.6	61.6	73.0
Age										
15–19 years	100.0	*0.3	*1.0	*0.6	*2.1	*2.1	*0.6	97.7	96.9	98.9
20–24 years	100.0	*8.2	4.5	3.1	9.7	6.4	*3.5	82.1	89.2	93.4
25–29 years	100.0	19.6	16.6	9.5	7.0	9.0	6.5	73.4	74.4	84.0
30–34 years	100.0	43.6	36.2	17.0	7.7	10.3	11.6	48.7	53.5	71.3
35–39 years	100.0	58.1	45.3	22.8	10.3	12.5	14.2	31.6	42.2	63.0
40–44 years	100.0	66.7	49.0	26.8	9.0	15.9	20.2	24.3	35.2	52.9
Parity										
Parity 0	100.0	9.9	5.6	7.3	19.6	18.1	14.5	70.5	76.3	78.2
Parity 1	100.0	17.7	8.8	7.5	10.8	12.4	17.2	71.7	78.8	75.3
Parity 2	100.0	46.9	32.3	14.2	5.0	6.0	9.3	48.1	61.7	76.6
Parity 3 or more	100.0	63.3	49.8	21.5	3.8	7.9	9.4	32.9	42.3	69.0
Race and age										
White										
15–44 years	100 0	38.9	29.0	15.9	8.1	9.4	10.5	53.0	61.6	73.6
15–29 years	100.0	13.7	10.7	5.5	7.4	6.7	4.4	78.8	82.6	90.1
30–44 years	100.0	55.5	44.1	22.3	8.6	11.6	14.3	35.9	44.3	63.3
Black										
15–44 years	100.0	36.3	21.6	14.2	13.1	18.1	16.3	50.6	60.3	69.5
15–29 years	100.0	19.7	9.2	6.6	10.9	12.1	4.5	69.4	78.7	88.9
30–44 years	100.0	47.5	32.1	20.6	14.6	23.2	26.1	37.9	44.7	53.3

[1]"Fecund" has a different meaning in this table than in tables 1–6. See appendix II
[2]Includes white, black, and other races.

couples were surgically sterile in 1965; by 1982 the proportion had more than doubled, to 67 percent. Because of these large increases in surgical sterility, far fewer couples were exposed to the risk of being classified as infertile in 1982 than in earlier years, especially at the older ages and higher parities.

The overall proportion infertile was 9 percent in 1982, down significantly since 1965, when it was 11 percent, and from 10 percent in 1976. Between 1976 and 1982 there were nonsignificant decreases in the percents infertile at the ages 25–39, and a significant decrease at ages 40–44.

The decline in infertility among older women and overall was the result of the large increase in surgical sterilizations. It is possible that more women who knew they were infertile had surgical sterilizations, or that the increasing use of contraceptive sterilizations reduced the proportions of women who would otherwise subsequently find themselves infertile at age 30 and older.

From 1965 to 1982 the proportion infertile at ages 20–24 increased significantly, however, from 4 percent in 1965 to 10 percent in 1982 (table G). Among childless wives of all ages (parity 0 in table G) the increase in the proportion infertile from 15 percent in 1965 to 20 percent in 1982 was not statistically significant. Among wives with 1 or more children, however, the percent infertile decreased significantly at each parity from 1965 to 1982, probably because of the increases in surgical sterility.

The large increases in surgical sterility between 1965 and 1982 reduced the proportion of women who were classified as infertile. To adjust the proportions infertile for this trend, we excluded the surgically sterile and recomputed the percent of married couples who were infertile (table H). When surgically sterile couples were excluded, the percent infertile did not change significantly between 1965 (13 percent) and 1982 (14 percent) (table H). Among couples who were not surgically sterile, for those with wives aged 20–24 years, the percent infertile increased from 4 percent in 1965 to 11 percent in 1982. This was the only statistically significant change in any age or parity group in table H. This was, however, an important age group, because 1 of 3 births in the United States occurred to women 20–24 years of age in 1981, and that was more than in any other 5-year age group.[36] The increase among childless couples, from 16 to 22 percent, was not statistically significant. The increase among couples 35–39 years of age, from 18 percent in 1965 to 25 percent in 1982, was also not statistically significant.

Infertility increased with age in all three survey years, as expected.[8,17,29,30] The largest absolute increase in the percent infertile between adjacent age groups was from ages 35–39 to ages 40–44 in 1965 (from 18 to 28 percent) and in 1976 (23 to 31 percent), but from ages 30–34 to ages 35–39 in 1982 (from 14 to 25 percent). The increase in infertility with age was less pronounced and less regular than the increase in impaired fecundity with age, perhaps because impaired fecundity includes more types of fecundity problems than infertility does (figure 3).

In our earlier discussion of trends in fecundity status by race, we speculated that the rise in surgical sterilization among black wives might reduce the number classified as having a long interval. Infertility status should be less affected by the trend in sterilization, because it uses only a 1-year interval. This hypothesis is supported by the data by race in table H: the percent of black couples classified as infertile was about 1½ times as high as that of white couples in 1965, 1976, and 1982. In 1982, about 21 percent of black and 13 percent of white couples were infertile, excluding the surgically sterile. The percent infertile increased among white and black couples aged 15–29 from 1965 to 1976; the increase was from 5 to 8 percent among white and from 5 to 13 percent among young black couples. The causes of the higher percents infertile among young black couples in 1976 and 1982 are unknown, but it has been shown that higher proportions of black wives have had pelvic inflammatory disease or PID, a major cause of infertility.[37] Two risk factors in PID have been shown to be higher in young black than white women in the mid-1970's: use of the IUD, or intrauterine device, and gonorrhea.[38]

Table H. Percent of currently married women 15–44 years of age (excluding the surgically sterile) who were infertile, by age, parity, and race: United States, 1965, 1976, and 1982

[Statistics are based on a sample of the household population of the conterminous United States. See appendixes for discussion of the sample design, estimates of sampling variability, and definitions of terms]

Age, parity, and race	*1982*	*1976*	*1965*
		Percent[1]	
Total[2]	13.9	14.3	13.3
Age			
15–19 years	*2.1	*2.1	*0.6
20–24 years	10.6	6.7	*3.6
25–29 years	8.7	10.8	7.2
30–34 years	13.6	16.1	14.0
35–39 years	24.6	22.8	18.4
40–44 years	27.2	31.1	27.7
Parity			
Parity 0	21.8	19.2	15.6
Parity 1	13.1	13.6	18.6
Parity 2	9.3	8.9	10.8
Parity 3 or more	*10.3	15.8	12.0
Race and age			
White			
15–44 years	13.3	13.3	12.5
15–29 years	8.6	7.5	4.7
30–44 years	19.3	20.8	18.4
Black			
15–44 years	20.6	23.1	19.0
15–29 years	13.6	13.3	4.8
30–44 years	27.8	34.1	32.9

[1]Number of infertile women divided by number of infertile women plus fecund women
[2]Includes white, black, and other races.

Surgical sterilization

We have discussed the importance and high prevalence of surgical sterility as a factor in the study of impaired fecundity and infertility. But surgical sterilization, regardless of the intent at the time of the operation, does prevent future childbearing. So whether it is a method of family limitation,

a measure to reduce the health risk of future pregnancies, or a medically remedial procedure, it is important in this context to describe how common it is and when it occurs in various groups in the population.

The statistics on surgical sterilization in tables 9–11 refer to operations to women aged 15–44 and, if they are currently married, to their current husband. Therefore, in this section, when we use the term "women" we are referring to "women and their current husbands, if they are married." If both the husband and wife had had an operation, the female operation was used in tables 9–11. If the man or woman had two sterilizing operations, the earlier operation was used.

About one in four women (or their husbands) aged 15–44 had at least one sterilization operation. About 14 percent had tubal ligations, 5 percent hysterectomies, 6 percent vasectomies, and 0.3 percent other operations. The percent with a sterilization operation increased sharply with increasing age, from 4 percent at age 20–24 to 61 percent at age 40–44 (figure 5). At age 40–44, 28 percent of women had tubal ligations, 18 percent had hysterectomies, and 14 percent had husbands who had vasectomies. The percent with each type of operation increased with age in all 24 panels of table 9, except for tubal ligations and vasectomies among black couples.

Among currently married couples, vasectomies affected only 2 percent of black couples, compared with 12 percent of white couples. White couples were more likely to have had vasectomies than black couples, overall and in every age group except teenagers.

White women were more likely to be affected by a sterilization operation (26 versus 22 percent) than black women, but that was primarily a result of the difference in vasectomies, discussed earlier. The differences in tubal ligation and hysterectomy by race were small.

Both overall and for married women, the only significant difference by race was in tubal ligations at ages 25–29: black women 25–29 were more likely to have had a tubal ligation by this age than white women, suggesting that black women have those operations at a younger age than white women.

At what age do sterilization operations occur? Overall, the mean (average) age of the woman at sterilization was 30 years—slightly older (32 years) for hysterectomy and slightly younger (29 years) for vasectomy (table 10). The variation in mean ages at sterilization was not marked, but some patterns are clear.

Black women were about 2 years *younger* on average than white women at tubal ligation (28 versus 30 respectively) and a year *older* at hysterectomy than white women (32 versus 31 respectively). The average age at hysterectomy and tubal ligation was higher in the Northeast than in the other regions. The age of the woman at sterilization also tended to increase with her education, especially for vasectomy. Catholic women were older at hysterectomy than Protestant women. For tubal ligation and vasectomy, those with higher incomes were slightly older at sterilization than those with lower incomes. Finally, those who lived with both parents at age 14 had hysterectomies and tubal ligations at older ages than those who lived with one or neither parent.

To assess the effects of sterilization on family size and provide a clue to its motivation, it is helpful to know the number of children women had when they or their husbands had the operation. The mean number of children ever born at sterilization was 2.6 (table 11). The mean for hysterectomies was 2.6, for tubal ligations 2.8, and for vasectomy, 2.2. Hysterectomies and vasectomies were more likely than tubal ligations to occur to childless women (or their husbands): 10 percent of hysterectomies and 2 percent of tubal ligations were to women with no children, and 8 percent of vasectomies were performed on the husbands of childless women.

Black women had substantially more children on average when sterilized (3.3) than white women (2.5). This was true for each type of operation, but the difference was largest (0.8) for tubal ligation. About 30 percent of hysterectomies to black women were to those with four or more children, compared with 19 percent of hysterectomies to white women. White women were more likely than black women to have tubal ligations when they had one or two children, but less likely when they had four or more. There were no significant race differences in the parity distributions for vasectomies. All results were similar for currently married couples; sterilizations to currently married couples accounted for 80 percent of all sterilizations.

Pelvic inflammatory disease

Pelvic inflammatory disease, or PID, is thought by physicians to be a common cause of tubal blockage, infertility, chronic pain, and further PID infections. Its causes include gonorrhea, chlamydia, and other factors.[5,39–43]

Until the 1982 NSFG, the prevalence of pelvic inflammatory disease in the U.S. population was unknown. Women in the survey were asked:

> Have you *ever* been treated in a doctor's office, clinic, or emergency room for an infection in your fallopian tubes, womb, or ovaries, also called a pelvic infection, pelvic inflammatory disease, or PID?

About one in seven women, or 14 percent, had been treated for PID at least once in their lives; 4 percent in a hospital and 10 percent in nonhospital (ambulatory) settings (table 12). The percent ever treated for PID increased with age, from 3 percent at ages 15–19, to 20 percent at ages 30–34, and then leveled off (figure 6). The decline from 20 percent at ages 30–34 to 18 percent at ages 40–44 was not statistically significant. Similar patterns by age were found for ambulatory and hospital PID separately: an increase to a peak in the 30's followed by a nonsignificant decline to ages 40–44.

Differences in the percent treated for PID by income were not statistically significant. Women in the highest education group were less likely than women with high school educations to have ever been treated for PID. The data suggest that non-Hispanic women were more likely to have been treated for PID than Hispanic women (14 versus 10 percent) and about twice as likely to have been hospitalized as Hispanic women (4 percent compared with 2 percent).

The differences by marital status may also reflect differences in age and the number of sexual partners women had had.[37] Formerly married women (22 percent) were more likely to have been treated for PID than never married women (6 percent), or currently married women (17 percent).

Black women were nearly twice as likely as white women (23 versus 13 percent) to have been treated for PID (figure 6). The race difference was largest among formerly married women, as shown in another analysis.[37] The high percent of black women who had had PID was consistent with their higher percent infertile.[37,38] However, the effect of PID on infertility is a complex topic that is being investigated elsewhere.[43]

Spontaneous pregnancy loss

In 1981 about 750,000 spontaneous pregnancy losses occurred to women with recognized pregnancies in the United States.[44] They therefore had a substantial impact on the U.S. birthrate. Women in the survey were asked the outcome of each pregnancy, and those outcomes were classified as live birth, induced abortion, miscarriage, and stillbirth. Miscarriages and stillbirths are termed "pregnancy losses" in this report and in a previous analysis.[16] Pregnancy loss may be analyzed in terms of its impact on women, on pregnancies, or both.

The impact of pregnancy loss on women is substantial. About one of six women (17 percent), and one of four ever pregnant women (26 percent) had had one or more pregnancy losses by the time of the interview in 1982 (table 13). The percent with one or more losses increased sharply with age among all women, from 2 percent at ages 15–19 to 29 percent at 35–39. The increase with age among women who had ever been pregnant was not as marked—from 13 to 32 percent in the same age groups. Black women (20 percent) were more likely to have had a pregnancy loss than white women (16 percent), but that is at least partly because they were more likely to have been pregnant: the difference was smaller and not significant for women who had ever been pregnant (28 compared with 25 percent). Differences by Hispanic origin were not statistically significant.

The statistics for currently married women in table 13 are comparable to data previously published from the 1976 NSFG.[16] The findings are very similar to those in the 1976 survey (table J). In fact, *none* of the changes among currently married women in table J was statistically significant.

Pregnancy loss *rates*—the percent of pregnancies ending in a pregnancy loss—provide insights into the causes and correlates of pregnancy loss, and suggest its impact on fertility in various subgroups of the population. The reporting of spontaneous pregnancy losses in the Family Growth survey was comparable to that in other surveys of the same type: Leridon has reported the results of a number of surveys of women in the reproductive ages in various parts of the world.[27] The results from the NSFG were similar to those summarized by Leridon: About 16 percent of pregnancies (excluding induced abortions) ended in a pregnancy loss; and there was an increase in the pregnancy loss rate with the increasing age of the mother, especially after the age of 35 (table 14).

Table J. Percent of currently married women and currently married women ever pregnant 15–44 years of age who had ever had 1 or more pregnancy losses, by age and race: United States, 1976 and 1982

[Statistics are based on a sample of the household population of the conterminous United States. See appendixes for discussion of the sample design, estimates of sampling variability, and definitions of terms]

Age and race	All women		Women ever pregnant	
	1982	1976	1982	1976
	Percent			
Total[1]	23.4	21.8	26.6	25.9
Age				
15–19 years	*11.3	12.1	*13.8	23.0
20–24 years	14.4	11.5	20.4	18.1
25–29 years	19.9	15.0	23.5	18.4
30–34 years	23.4	25.0	25.4	27.0
35–39 years	31.2	29.4	33.5	30.7
40–44 years	28.0	33.0	29.3	34.6
Race				
White	22.8	21.6	26.2	25.9
Black	26.1	24.1	27.7	26.3

[1]Includes white, black, and other races.

Table K. Percent of pregnancies to currently married women 15–44 years of age that ended in a pregnancy loss, by age at pregnancy outcome: United States, 1976 and 1982

[Statistics are based on a sample of the household population of the conterminous United States. See appendixes for discussion of the sample design, estimates of sampling variability, and definitions of terms]

Age at pregnancy outcome	1982	1976
	Percent[1]	
15–44 years	15.5	14.1
15–24 years	14.2	12.7
25–34 years	16.5	14.3
35–44 years	30.8	17.4

[1]Excluding induced abortions

Pregnancy loss rates were calculated from the 1976 NSFG for currently married women. The loss rate for married women from the 1976 survey was 14.1 percent; in 1982 it was 15.5 percent, not a significant difference (table K). The increases at ages 15–24 and 25–34 were not statistically significant. The increase at ages 35–44 years, although based on a small number of sample cases, approaches statistical significance: In 1976, 17 percent of pregnancies to married women 35–44 years of age had ended in pregnancy loss, compared with 31 percent in 1982.

The pregnancy loss rate in 1982 for women aged 35–44 (31 percent, table 14) was significantly higher than for women aged 15–24 (15 percent). Similarly, the loss rate for third and later pregnancies (21 percent) was higher than for first pregnancies (12 percent). Differences by marital status and race were not significant.

The pregnancy loss rate for women who had been treated for PID (20 percent) was higher than for those who had never been treated (15 percent, table 14). This difference was significant at the 5-percent level for white women (21 versus 15 percent), and at the 10-percent level for currently married women (20 versus 15 percent). The other 9 differences in fetal loss rates by PID were not statistically significant,

but all suggested that fetal loss rates were higher for women with a history of PID.

Cesarean section

Textbooks of obstetrics and gynecology list a number of indications for cesarean section delivery, including late pregnancy bleeding (placenta previa or abruptio placentae), unproductive labor (cervical dystocia), cervical cancer, malpresentation (transverse, brow, face, or breech presentation), severe toxemia, diabetes mellitus, and previous cesarean delivery.[45,46] Cesarean delivery tends to reduce subsequent fertility by increasing the chances of sterilization and by making subsequent pregnancies more difficult.[22–25,47,48] These and other health implications of cesarean delivery have prompted studies of its prevalence; about 1 of 5 births in the United States in 1981 was delivered by cesarean section.[25]

About 7 percent of *women* 15–44 years of age in 1982 had had at least one cesarean section, and 3 percent had had 2 or more (table 15). About 9 percent of all the *births* to women 15–44 years of age in 1982 had been delivered by cesarean section (table 15). The proportion of births delivered by cesarean section increased with the age of the mother at delivery, from 6 percent among teenage mothers to 20 percent among mothers aged 35–44 (figure 7).

The proportion of women who had ever had at least one cesarean section rose with age at interview, from 1 percent at 15–19 years of age to 12 percent at 30–34 years of age, and then declined to 8 percent at 40–44 years of age. The probable reason for the decline at the older ages is that a much smaller proportion of births were delivered by cesarean section (about 5 percent) when these older women were having most of their births than in recent years, when the rate has exceeded 15 percent.[25]

The proportion of births delivered by cesarean section was identical by race. However, because black women have had more births than white women, the data suggest that black women were more likely to have had a cesarean delivery (9 percent) than white women (7 percent). Differences by education were not significant.

Women surgically sterile for noncontraceptive reasons (16 percent) and women with impaired fecundity (12 percent) were more likely than fecund women (5 percent) to have had at least one cesarean section. In contrast, the differences by infertility status were much smaller and not significant, because cesarean section increases the risk of carrying future pregnancies to term, but has no known effect on difficulty in conceiving.[47,48]

Smoking and alcohol during pregnancy

The Surgeon General has issued the following warning about smoking and drinking during pregnancy:[49]

> Smoking slows fetal growth, doubles the chance of low birth weight, and increases the risk of stillbirth. Recent studies suggest that smoking may be a significant factor in 20 to 40 percent of low weight infants born in the United States and Canada. Studies also indicate that infants of mothers consuming large amounts of alcohol may suffer from low birth weight, birth defects, and/or mental retardation.

It is therefore worthwhile to estimate the extent of smoking and drinking among pregnant women in the United States. Two recent reports based on data from the 1980 National Natality Survey (NNS) showed the percent of married mothers who had births in 1980 who smoked or drank during the pregnancy.[50,51]

The data in tables 16 and 17 refer to the most recent pregnancies of women who were 15–44 years of age in 1982, regardless of when the pregnancies occurred or of how they ended. Despite these differences in the marital status of mothers, the time periods included, and the coverage of pregnancy losses, the percents smoking and drinking during pregnancy were similar in the NSFG and NNS, and the differences by race, age, Hispanic origin, and education were also in the same direction in both surveys.[50] This increases confidence in the results of both sources of data.

Tables 16 and 17 differ in one respect: table 16 includes all recent pregnancies, while table 17 excludes induced abortions and includes only live births, miscarriages, and stillbirths. The findings are very similar, so only table 17 is discussed here.

About 40 percent of women abstained from both smoking and drinking during their last pregnancies (table 17). About 15 percent smoked only, 29 percent drank only, and 16 percent both smoked and drank. The proportion abstaining from both was much lower for white women (37 percent) than for black women (53 percent). This difference reflects the fact that black women were much less likely to drink during pregnancy than white women were (figure 8). For example, 17 percent of black women and 31 percent of white women used alcohol (but did not smoke) during their most recent pregnancies.

Hispanic women were also much more likely to be abstainers (55 percent) than non-Hispanic women were (38 percent), but for a different reason: Hispanic women were only one-third as likely to both smoke and drink during pregnancy as non-Hispanic women were (5 versus 17 percent, figure 8).

Differences by education in the percent who neither smoked nor drank were small and not significant. However, this occurred because "smoking only" was much more common in the lowest education group (26 percent) than in the highest (7 percent), while "drinking only" was much more common in the highest (41 versus 13 percent). A similar pattern, although less pronounced, was found by poverty level. Differences by marital status and pregnancy order were not consistent or strong.

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

[Statistics are based on a sample of the household population of the conterminous United States. See appendixes for discussion of the sample design, estimates of sampling variability, and definitions of terms]

Marital status and parity	Number of women in thousands	Fecundity status							
			Surgically sterile		Impaired fecundity				
		Total	Contraceptive	Noncontraceptive	All impaired	Nonsurgically sterile	Subfecund	Long interval	Fecund
		Percent distribution							
All marital statuses									
All parities	54,099	100.0	17.5	7.8	8.4	1.7	5.6	1.1	66.3
Parity 0	22,941	100.0	1 4	1.7	8.4	2.5	5.2	*0.7	88.5
Parity 1 or more	31,158	100.0	29.3	12.4	8.5	1.1	5.9	1.5	49.9
Never married									
All parities	19,164	100.0	1.3	*0.8	4.1	*1.0	3.0	*0.1	93.8
Parity 0	16,695	100.0	*0.3	*0.4	3.7	*1.0	2.6	*0.1	95.6
Parity 1 or more	2,469	100.0	*7.9	*3.8	*6.4	*0.8	*5.6	*0.0	81.8
Currently married									
All parities	28,231	100.0	27.8	11.0	10.8	2.0	6.7	2.1	50.3
Parity 0	5,098	100.0	4.6	5.3	21.7	7.2	11.8	*2.6	68.4
Parity 1 or more	23,134	100.0	33.0	12.3	8.4	*0.9	5.5	2.0	46.3
Formerly married									
All parities	6,704	100.0	20.0	14.5	10.8	*1.9	8.9	*0.0	54.8
Parity 0	1,148	100.0	*4.2	*4.2	*16.6	*2.1	*14.4	*0.0	75.0
Parity 1 or more	5,556	100.0	23.2	16.6	9.6	*1.8	7.8	*0.0	50.6

Table 2. Number of women 15–44 years of age and percent distribution by fecundity status, according to marital status and age: United States, 1982

[Statistics are based on a sample of the household population of the conterminous United States. See appendixes for discussion of the sample design, estimates of sampling variability, and definitions of terms]

Marital status and age	Number of women in thousands	Fecundity status							
			Surgically sterile		Impaired fecundity				
		Total	Contraceptive	Noncontraceptive	All impaired	Nonsurgically sterile	Subfecund	Long interval	Fecund
		Percent distribution							
All marital statuses									
15–44 years	54,099	100.0	17.5	7.8	8.4	1.7	5.6	1.1	66.3
15–19 years	9,521	100.0	0.0	*0.0	*2.1	*0.5	*1.6	0.0	97.9
20–24 years	10,629	100.0	3.7	*0.6	6.4	*0.9	5.3	*0.2	89.4
25–29 years	10,263	100.0	12.1	3.7	10.6	*1.5	8.0	*1.0	73.6
30–34 years	9,381	100.0	26.8	10.1	9.3	*1.7	6.6	*1.1	53.8
35–39 years	7,893	100.0	35.2	18.4	13.0	3.1	7.3	*2.5	33.5
40–44 years	6,412	100.0	39.4	21.8	11.0	*3.0	4.9	*3.1	27.9
Never married									
15–44 years	19,164	100.0	1.3	*0.8	4.1	*1.0	3.0	*0.1	93.8
15–19 years	8,839	100.0	0.0	*0.0	*1.8	*0.5	*1.3	0.0	98.2
20–44 years	10,325	100.0	2.3	*1.5	6.0	*1.4	4.4	*0.2	90.1
Currently married									
15–44 years	28,231	100.0	27.8	11.0	10.8	2.0	6.7	2.1	50.3
15–19 years	612	100.0	0.0	*0.3	*6.1	*0.3	*5.9	0.0	93.6
20–24 years	4,130	100.0	7.5	*0.6	9.2	*1.2	7.5	*0.5	82.6
25–29 years	6,442	100.0	15.4	4.2	10.0	*1.5	7.2	*1.4	70.4
30–34 years	6,482	100.0	32.3	11.3	9.4	*1.3	6.6	*1.5	47.0
35–39 years	5,783	100.0	39.5	18.6	14.3	*3.1	7.9	*3.4	27.6
40–44 years	4,783	100.0	45.5	21.2	11.6	*3.4	*4.0	*4.1	21.7
Formerly married									
15–44 years	6,704	100.0	20.0	14.5	10.8	*1.9	8.9	*0.0	54.8
15–29 years	2,095	100.0	*9.3	*3.4	*13.7	*2.2	*11.5	0.0	73.6
30–44 years	4,609	100.0	24.8	19.5	9.5	*1.7	*7.7	*0.1	46.2

Table 3. Number of women 15–44 years of age who had impaired fecundity or were surgically sterile for noncontraceptive reasons, and percent who wanted a baby or another baby, by marital status and selected characteristics: United States, 1982

[Statistics are based on a sample of the household population of the conterminous United States. See appendixes for discussion of the sample design, estimates of sampling variability, and definitions of terms]

Characteristic	Women with impaired fecundity	Surgically sterile, noncontraceptive women	Women who wanted a baby or another baby	
			All impaired fecundity	Surgically sterile, noncontraceptive
ALL MARITAL STATUSES[1]	Number in thousands		Percent	
All women[2]	4,560	4,241	60.1	56.3
Age				
15–24 years	875	*65	79.9	86.4
25–34 years	1,959	1,327	74.8	72.8
35–44 years	1,725	2,849	33.4	47.8
Parity				
Parity 0	1,917	382	81.2	63.0
Parity 1	1,115	557	57.9	76.1
Parity 2	865	1,445	40.9	53.5
Parity 3 or more	662	1,858	27.9	51.0
Race				
White	3,848	3,537	60.6	56.1
Black	599	509	53.5	55.3
Origin				
Hispanic	534	267	66.9	*46.2
Non-Hispanic	4,026	3,974	59.2	56.9
CURRENTLY MARRIED				
All women	3,055	3,116	59.1	54.4
Age				
15–24 years	*418	*28	84.9	99.9
25–34 years	1,257	999	76.5	68.9
35–44 years	1,380	2,089	35.5	46.8
Parity				
Parity 0	1,105	*272	82.8	64.5
Parity 1	748	*388	60.6	71.1
Parity 2	690	1,062	40.4	49.9
Parity 3 or more	512	1,393	*30.9	51.2
Race				
White	2,714	2,702	59.8	53.7
Black	270	279	49.5	57.6
Origin				
Hispanic	*361	*145	62.6	*29.8
Non-Hispanic	2,694	2,970	58.6	55.6

[1]Includes currently married, never married, and formerly married.
[2]Includes white, black, and other races.

Table 4. Number of women 15–44 years of age and percent distribution by fecundity status, according to marital status, parity, and age: United States, 1982

[Statistics are based on a sample of the household population of the conterminous United States See appendixes for discussion of the sample design, estimates of sampling variability, and definitions of terms]

Marital status, parity, and age	Number of women in thousands	Total	Fecundity status			
			Surgically sterile		Impaired fecundity	Fecund
			Contraceptive	Noncontra-ceptive		
ALL MARITAL STATUSES[1]						
All parities		Percent distribution				
15–44 years	54,099	100.0	17.5	7.8	8.4	66.3
15–24 years	20,150	100.0	1.9	*0.3	4.3	93.4
25–34 years	19,644	100.0	19.1	6.8	10.0	64.2
35–44 years	14,305	100.0	37.1	19.9	12.1	31.0
Parity 0						
15–44 years	22,941	100.0	1.4	1.7	8.4	88.5
15–24 years	15,547	100.0	*0.1	*0.0	4.1	95.8
25–34 years	5,628	100.0	*3.3	*1.8	14.7	80.2
35–44 years	1,766	100.0	*7.4	15.7	25.7	51.3
Parity 1 or more						
15–44 years	31,158	100.0	29.3	12.4	8.5	49.9
15–24 years	4,603	100.0	8.3	*1.3	5.2	85.2
25–34 years	14,016	100.0	25.4	8.7	8.1	57.8
35–44 years	12,539	100.0	41.3	20.5	10.1	28.1
CURRENTLY MARRIED						
All parities						
15–44 years	28,231	100.0	27.8	11.0	10.8	50.3
15–24 years	4,741	100.0	6.6	*0.6	8.8	84.0
25–34 years	12,924	100.0	23.9	7.7	9.7	58.6
35–44 years	10,566	100.0	42.2	19.8	13.1	24.9
Parity 0						
15–44 years	5,098	100.0	4.6	5.3	21.7	68.4
15–24 years	1,989	100.0	0.0	*0.1	11.1	88.8
25–34 years	2,256	100.0	*6.2	*3.5	21.1	69.2
35–44 years	853	100.0	*10.8	22.5	47.8	*18.9
Parity 1 or more						
15–44 years	23,134	100.0	33.0	12.3	8.4	46.3
15–24 years	2,752	100.0	11.3	*1.0	*7.2	80.6
25–34 years	10,668	100.0	27.7	8.6	7.3	56.4
35–44 years	9,713	100.0	45.0	19.5	10.0	25.5

[1]Includes currently married, never married, and formerly married.

Table 5. Number of women 15–44 years of age and percent distribution by fecundity status, according to marital status, race, and age: United States, 1982

[Statistics are based on a sample of the household population of the conterminous United States. See appendixes for discussion of the sample design, estimates of sampling variability, and definitions of terms]

Marital status, race, and age	Number of women in thousands	Fecundity status				
		Total	Surgically sterile		Impaired fecundity	Fecund
			Contraceptive	Noncontra-ceptive		
		Percent distribution				
ALL MARITAL STATUSES[1]						
All races[2]						
15–44 years	54,099	100.0	17.5	7.8	8.4	66.3
15–19 years	9,521	100.0	-	*0.0	*2.1	97.9
20–24 years	10,629	100.0	3.7	*0.6	6.4	89.4
25–29 years	10,263	100.0	12.1	3.7	10.6	73.6
30–34 years	9,381	100.0	26.8	10.1	9.3	53.8
35–39 years	7,893	100.0	35.2	18.4	13.0	33.5
40–44 years	6,412	100.0	39.4	21.8	11.0	27.9
White						
15–44 years	45,367	100.0	17.9	7.8	8.5	65.9
15–24 years	16,670	100.0	1.9	*0.3	4.4	93.4
25–34 years	16,485	100.0	18.7	7.0	10.0	64.3
35–44 years	12,212	100.0	38.4	19.2	12.0	30.4
Black						
15–44 years	6,985	100.0	14.8	7.3	8.6	69.3
15–24 years	2,888	100.0	*2.2	*0.8	3.7	93.3
25–34 years	2,479	100.0	20.8	5.2	10.0	63.9
35–44 years	1,618	100.0	28.2	22.0	15.0	34.8
CURRENTLY MARRIED						
All races[2]						
15–44 years	28,231	100.0	27.8	11.0	10.8	50.3
15–19 years	612	100.0	-	*0.3	*6.1	93.6
20–24 years	4,130	100.0	7.5	0.6	9.2	82.6
25–29 years	6,442	100.0	15.4	4.2	10.0	70.4
30–34 years	6,482	100.0	32.3	11.3	9.4	47.0
35–39 years	5,783	100.0	39.5	18.6	14.3	27.6
40–44 years	4,783	100.0	45.5	21.2	11.6	21.7
White						
15–44 years	25,195	100.0	28.2	10.7	10.8	50.4
15–24 years	4,323	100.0	6.7	*0.6	8.6	84.1
25–34 years	11,457	100.0	23.6	7.9	9.7	58.8
35–44 years	9,414	100.0	43.5	18.8	13.1	24.6
Black						
15–44 years	2,130	100.0	23.1	13.1	12.7	51.1
15–24 years	328	100.0	*6.7	*0.7	*9.2	83.4
25–34 years	1,025	100.0	25.2	6.6	10.2	58.0
35–44 years	778	100.0	27.2	26.9	17.4	28.5

[1]Includes currently married, never married, and formerly married.
[2]Includes white, black, and other races.

Table 6. Number of women 15–44 years of age and percent distribution by fecundity status, according to marital status, parity, and race: United States, 1982

[Statistics are based on a sample of the household population of the conterminous United States See appendixes for discussion of the sample design, estimates of sampling variability, and definitions of terms]

Marital status, race, and parity	Number of women in thousands	Total	Fecundity status			
			Surgically sterile		Impaired fecundity	Fecund
			Contraceptive	Noncontra-ceptive		
ALL MARITAL STATUSES[1]						
All races[2]		Percent distribution				
Parity 0	22,941	100.0	1.4	1.7	8.4	88.5
Parity 1 or more	31,158	100.0	29.3	12.4	8.5	49.9
White						
Parity 0	19,720	100.0	1.6	1.5	8.4	88.5
Parity 1 or more	25,647	100.0	30.4	12.6	8.5	48.5
Black						
Parity 0	2,447	100.0	*0.2	*2.6	7.6	89.6
Parity 1 or more	4,538	100.0	22.7	9.8	9.1	58.3
CURRENTLY MARRIED						
All races[2]						
Parity 0	5,098	100.0	4.6	5.3	21.7	68.4
Parity 1 or more	23,134	100.0	33.0	12.3	8.4	46.3
White						
Parity 0	4,678	100.0	*4.7	5.1	21.2	69.0
Parity 1 or more	20,517	100.0	33.5	12.0	8.4	46.1
Black						
Parity 0	252	100.0	*0.5	*9.5	27.9	62.0
Parity 1 or more	1,878	100.0	26.1	13.6	10.7	49.6

[1]Includes currently married, never married, and formerly married.
[2]Includes white, black, and other races.

Table 7. Number of currently married women 15–44 years of age and percent distribution by infertility status, according to race, age, and parity: United States, 1982

[Statistics are based on a sample of the household population of the conterminous United States. See appendixes for discussion of the sample design, estimates of sampling variability, and definitions of terms]

Race, age, and parity	Number of women in thousands	Total	Infertility status		
			Surgically sterile	Infertile	Fecund[1]
			Percent distribution		
All races[2]					
15–44 years	28,231	100.0	38.9	8.5	52.6
15–19 years	612	100.0	*0.3	*2.1	97.7
20–24 years	4,130	100.0	*8.2	9.7	82.1
25–29 years	6,442	100.0	19.6	7.0	73.4
30–34 years	6,482	100.0	43.6	7.7	48.7
35–39 years	5,783	100.0	58.1	10.3	31.6
40–44 years	4,783	100.0	66.7	9.0	24.3
White					
15–44 years	25,195	100.0	38.9	8.1	53.0
15–19 years	561	100.0	*0.3	*0.8	98.9
20–24 years	3,762	100.0	*8.3	*9.0	82.6
25–29 years	5,682	100.0	18.7	*7.0	74.4
30–34 years	5,775	100.0	44.2	*7.1	48.8
35–39 years	5,096	100.0	57.8	10.6	31.6
40–44 years	4,319	100.0	67.7	*8.4	23.9
Black					
15–44 years	2,130	100.0	36.2	13.1	50.7
15–19 years	35	100.0	-	-	100.0
20–24 years	292	100.0	*8.3	*13.3	78.3
25–29 years	531	100.0	27.2	*10.3	62.5
30–34 years	494	100.0	36.7	12.8	50.5
35–39 years	424	100.0	50.1	*13.7	36.1
40–44 years	354	100.0	58.8	18.0	23.2
Parity					
Parity 0	5,098	100.0	9.9	19.6	70.5
Parity 1	5,891	100.0	17.7	10.8	71.6
Parity 2	9,042	100.0	46.9	5.0	48.1
Parity 3 or more	8,201	100.0	63.3	*3.8	32.9

[1] "Fecund" has a different meaning in this table than in tables 1–6. See appendix II.
[2] Includes white, black, and other races.

Table 8. Number of currently married women 15–44 years of age and percent distribution by infertility status, according to parity and age: United States, 1982

[Statistics are based on a sample of the household population of the conterminous United States. See appendixes for discussion of the sample design, estimates of sampling variability, and definitions of terms]

Parity and age	Number of women in thousands	Total	Infertility status		
			Surgically sterile	Infertile	Fecund[1]
			Percent distribution		
All parities					
15–44 years	28,231	100.0	38.9	8.5	52.6
15–29 years	11,183	100.0	14.3	7.7	77.9
30–44 years	17,048	100.0	55.0	8.9	36.1
Parity 0–1					
15–44 years	10,989	100.0	14.1	14.9	71.1
15–29 years	7,067	100.0	*5.4	9.5	85.2
30–44 years	3,921	100.0	29.8	24.5	45.7
Parity 2					
15–44 years	9,042	100.0	46.9	5.0	48.1
15–29 years	2,819	100.0	26.4	*3.7	69.9
30–44 years	6,223	100.0	56.2	*5.5	38.3
Parity 3 or more					
15–44 years	8,201	100.0	63.3	*3.8	32.9
15–29 years	1,297	100.0	37.0	*7.0	56.1
30–44 years	6,904	100.0	68.2	*3.2	28.6

[1]"Fecund" has a different meaning in this table than in tables 1–6. See appendix II.

Table 9. Number of women 15–44 years of age and percent of women (or their current husbands) who have had a sterilizing operation, by type of operation, marital status, race, and age: United States, 1982

[Statistics are based on a sample of the household population of the conterminous United States. See appendixes for discussion of the sample design, estimates of sampling variability, and definitions of terms]

Marital status, race, and age	Number of women in thousands	Type of operation			
		All operations[1]	Tubal ligation	Hysterectomy	Vasectomy
		Percent			
ALL MARITAL STATUSES[2]					
All races[3]					
15–44 years	54,099	25.3	13.6	5.3	6.0
15–19 years	9,521	*0.0	*0.0	-	-
20–24 years	10,629	4.3	2.7	*0.1	*1.5
25–29 years	10,263	15.8	10.2	*1.7	3.7
30–34 years	9,381	36.8	21.6	5.1	9.5
35–39 years	7,893	53.6	27.6	13.3	11.9
40–44 years	6,412	61.2	28.3	18.3	13.8
White					
15–44 years	45,367	25.6	13.2	5.3	6.8
15–19 years	7,815	*0.0	-	-	-
20–24 years	8,855	4.1	*2.3	-	*1.8
25–29 years	8,569	14.7	8.6	*1.7	4.2
30–34 years	7,916	37.6	20.8	5.5	10.7
35–39 years	6,697	54.0	27.1	12.9	13.3
40–44 years	5,515	62.0	28.8	17.3	15.2
Black					
15–44 years	6,985	22.1	15.5	5.4	*0.7
15–19 years	1,416	*0.1	*0.1	-	-
20–24 years	1,472	5.8	5.2	*0.4	*0.1
25–29 years	1,335	21.0	18.5	*1.5	*0.9
30–34 years	1,144	31.9	26.9	*3.4	*0.7
35–39 years	884	45.5	28.5	13.1	*1.9
40–44 years	734	55.9	27.1	26.4	*1.3
CURRENTLY MARRIED					
All races[3]					
15–44 years	28,231	38.9	19.6	7.3	11.4
15–19 years	612	*0.3	-	-	-
20–24 years	4,130	8.2	*4.6	*0.0	*3.6
25–29 years	6,442	19.6	12.0	*1.9	5.5
30–34 years	6,482	43.6	23.5	5.6	13.8
35–39 years	5,783	58.1	27.5	13.5	16.3
40–44 years	4,783	66.7	30.4	16.8	18.5
White					
15–44 years	25,195	38.9	19.0	7.2	12.1
15–19 years	561	*0.3	-	-	-
20–24 years	3,762	8.3	*4.4	-	*3.9
25–29 years	5,682	18.7	10.6	*2.0	5.9
30–34 years	5,775	44.2	22.9	6.0	14.6
35–39 years	5,096	57.8	26.6	13.0	17.5
40–44 years	4,319	67.7	31.1	16.2	19.4
Black					
15–44 years	2,130	36.2	23.6	9.2	*2.2
15–19 years	*35	-	-	-	-
20–24 years	292	*8.3	*7.6	*0.4	*0.4
25–29 years	531	27.2	23.0	*2.1	*2.2
30–34 years	494	36.7	29.8	*3.8	*1.7
35–39 years	424	50.1	28.6	15.0	*4.0
40–44 years	354	58.8	25.7	28.8	*2.7

[1]Includes sterilizing operations of other or unknown types, not shown separately.
[2]Includes currently married, never married, and formerly married.
[3]Includes white, black, and other races.

Table 10. Number of women 15–44 years of age (or their current husbands) who were surgically sterilized, and mean age at sterilization, by type of operation and selected characteristics: United States, 1982

[Statistics are based on a sample of the household population of the conterminous United States See appendixes for discussion of the sample design, estimates of sampling variability, and definitions of terms]

Characteristic	Type of operation				Type of operation			
	All operations[1]	*Hysterectomy*	*Tubal ligation*	*Vasectomy*	*All operations*[1]	*Hysterectomy*	*Tubal ligation*	*Vasectomy*
	Number in thousands				Mean age			
All women[2]	13,684	2,880	7,351	3,258	30.0	31.5	29.8	29.2
Race								
White	11,636	2,399	5,989	3,093	30.1	31.4	30.1	29.1
Black	1,545	374	1,084	47	29.4	32.2	28.4	29.7
Origin								
Hispanic	798	172	534	92	30.2	30.9	29.9	30.7
Non-Hispanic	12,885	2,708	6,817	3,166	30.0	31.6	29.8	29.2
Region								
Northeast	2,289	375	1,402	439	31.6	33.9	31.3	30.4
Midwest	3,684	660	2,130	1,028	30.0	32.4	29.4	29.7
South	4,837	1,197	2,667	901	29.8	30.9	29.6	28.8
West	2,695	648	1,152	890	29.3	30.5	29.2	28.6
Education								
Less than 12 years	2,731	731	1,680	281	28.5	30.5	28.1	26.1
12 years	6,205	1,262	3,296	1,588	30.1	31.8	30.1	28.8
13 years or more	4,747	887	2,375	1,389	30.8	32.0	30.6	30.4
Religion								
Protestant	9,382	2,702	4,984	2,201	29.9	31.2	29.6	29.2
Catholic	3,362	663	1,814	860	30.5	32.8	30.3	29.5
Poverty level income								
149 percent or less	2,955	593	1,919	375	28.8	31.2	28.1	27.8
150 percent or more	10,729	2,287	5,432	2,883	30.4	31.6	30.4	29.4
300 percent or more	6,388	1,439	2,933	1,950	30.7	31.6	31.0	29.7
Living arrangements at age 14								
Living with both parents	10,326	2,128	5,413	2,657	30.4	32.1	30.3	29.3
Living with one or neither parent	3,358	752	1,939	601	28.9	29.9	28.4	28.9

[1]Includes tubal ligation, hysterectomy, vasectomy, and sterilizing operations of other or unknown types.
[2]Includes white, black, and other races; also includes Protestant, Catholic, other religions, and no religion.

Table 11. Number of surgically sterile women (or their current husbands), percent distribution by parity, and mean parity at sterilization, according to marital status, race, and type of operation: United States, 1982

[Statistics are based on a sample of the household population of the conterminous United States. See appendixes for discussion of the sample design, estimates of sampling variability, and definitions of terms]

Marital status, race, and type of operation	Number in thousands	Parity						Mean parity
		Total	0	1	2	3	4 or more	
ALL MARITAL STATUSES								
All races[1]		Percent distribution						
All operations[2]	13,684	100.0	5.2	9.6	38.0	28.7	18.5	2.58
Hysterectomy	2,880	100.0	10.2	9.6	33.2	25.9	21.1	2.55
Tubal ligation	7,351	100.0	*2.1	7.3	36.4	33.6	20.7	2.79
Vasectomy	3,258	100.0	7.8	14.0	46.7	20.6	10.9	2.15
White								
All operations[2]	11,636	100.0	5.2	10.3	39.3	28.6	16.6	2.50
Hysterectomy	2,399	100.0	9.4	*8.7	35.2	27.5	19.2	2.51
Tubal ligation	5,989	100.0	*2.3	8.2	37.8	33.5	18.1	2.68
Vasectomy	3,093	100.0	7.9	14.4	46.2	20.3	11.3	2.14
Black								
All operations[2]	1,545	100.0	4.4	4.9	27.6	28.1	35.0	3.27
Hysterectomy	374	100.0	*12.1	*11.1	23.8	23.0	30.0	2.90
Tubal ligation	1,084	100.0	*1.5	*2.8	27.3	30.9	37.5	3.44
Vasectomy	47	100.0	*2.8	*2.3	*59.7	*19.8	*15.3	2.57
CURRENTLY MARRIED								
All races[1]								
All operations[2]	10,978	100.0	4.6	9.5	38.6	30.1	17.2	2.54
Hysterectomy	2,072	100.0	*9.8	*9.2	32.3	28.7	20.0	2.53
Tubal ligation	5,525	100.0	*1.2	*6.4	36.6	36.4	19.3	2.77
Vasectomy	3,221	100.0	*7.2	14.2	46.8	20.8	*11.0	2.16
White								
All operations[2]	9,796	100.0	4.7	9.9	39.1	30.1	16.2	2.51
Hysterectomy	1,816	100.0	*9.8	*8.4	32.9	30.3	*18.6	2.49
Tubal ligation	4,789	100.0	*1.2	*7.0	37.3	36.4	18.0	2.74
Vasectomy	3,055	100.0	*7.2	14.6	46.3	20.5	*11.4	2.16
Black								
All operations[2]	771	100.0	*3.3	*4.5	30.7	27.6	33.9	3.10
Hysterectomy	196	100.0	*7.7	*11.6	*25.9	*22.8	31.9	2.99
Tubal ligation	504	100.0	*1.8	*1.8	29.5	31.2	35.8	3.18
Vasectomy	47	100.0	*2.8	*2.3	*59.7	*19.9	*15.3	2.57

[1]Includes white, black, and other races.
[2]Includes sterilizing operations of other or unknown types, not shown separately.

Table 12. Number of women 15–44 years of age and percent ever treated for pelvic inflammatory disease, by selected characteristics: United States, 1982

[Statistics are based on a sample of the household population of the conterminous United States. See appendixes for discussion of the sample design, estimates of sampling variability, and definitions of terms]

Characteristic	Number of women in thousands	Ever treated for pelvic inflammatory disease		
		Total	Ambulatory	Hospitalized
		Percent		
Age				
15–44 years[1]	54,099	14.0	9.9	4.1
15–19 years	9,521	2.8	*2.4	*0.5
20–24 years	10,629	12.5	8.9	3.6
25–29 years	10,263	14.7	10.8	3.8
30–34 years	9,381	20.0	12.7	7.2
35–39 years	7,893	18.2	13.7	4.5
40–44 years	6,412	17.9	12.2	5.7
Poverty level income				
149 percent or less	13,843	14.9	10.8	4.2
150 percent or more	40,256	13.6	9.6	4.1
300 percent or more	23,411	12.1	8.3	3.8
Education				
Less than 12 years	13,465	13.8	9.5	4.3
12 years	20,257	15.8	11.5	4.4
13 years or more	20,377	12.2	8.5	3.7
Origin				
Hispanic	4,393	9.9	8.1	*1.8
Non-Hispanic	49,706	14.3	10.0	4.3
Marital status				
Never married	19,164	6.4	4.5	1.9
Currently married	28,231	17.2	12.5	4.7
Formerly married	6,704	21.7	14.1	7.6
Race				
White	45,367	12.6	8.9	3.7
Black	6,985	23.2	16.7	6.5

[1]Includes white, black, and other races.

Table 13. Number of women 15–44 years of age and percent of women who ever had 1 or more pregnancy losses, by pregnancy history and selected characteristics: United States, 1982

[Statistics are based on a sample of the household population of the conterminous United States. See appendixes for discussion of the sample design, estimates of sampling variability, and definitions of terms]

Characteristic	All women		Women ever pregnant	
	Number of women in thousands	Percent with 1 or more pregnancy losses	Number of women in thousands	Percent with 1 or more pregnancy losses
ALL MARITAL STATUSES[1]				
Age				
15–44 years[2]	54,099	16.8	34,969	26.0
15–19 years	9,521	*2.1	1,576	*12.9
20–24 years	10,629	8.7	4,863	19.1
25–29 years	10,263	17.5	7,550	23.8
30–34 years	9,381	22.9	8,093	26.7
35–39 years	7,893	28.9	7,038	32.4
40–44 years	6,412	26.8	5,903	29.1
Race				
White	45,367	16.1	28,845	25.4
Black	6,985	19.9	5,019	27.7
Origin				
Hispanic	4,393	15.3	3,153	21.4
Non-Hispanic	49,706	16.9	31,817	26.4
CURRENTLY MARRIED				
Age				
15–44 years[2]	28,231	23.4	24,797	26.6
15–19 years	612	*11.3	498	*13.8
20–24 years	4,130	14.4	2,910	20.4
25–29 years	6,442	19.9	5,463	23.5
30–34 years	6,482	23.4	5,968	25.4
35–39 years	5,783	31.2	5,388	33.5
40–44 years	4,783	28.0	4,570	29.3
Race				
White	25,195	22.8	21,975	26.2
Black	2,130	26.1	2,005	27.7
Origin				
Hispanic	2,296	19.5	2,134	20.9
Non-Hispanic	25,935	23.8	22,663	27.2

[1]Includes currently married, never married, and formerly married.
[2]Includes white, black, and other races.

Table 14. Number of pregnancies and rate of pregnancy losses, by treatment for pelvic inflammatory disease and selected characteristics: United States, 1982

[Statistics are based on a sample of the household population of the conterminous United States. See appendixes for discussion of the sample design, estimates of sampling variability, and definitions of terms]

Characteristic	Treatment for pelvic inflammatory disease					
	Pregnancies[1]			Pregnancy losses per 100 pregnancies[2]		
	All pregnancies	Ever treated	Never treated	All losses	Ever treated	Never treated
	Number in thousands			Rate		
Total[3,4]	83,721	18,160	65,561	16.1	19.8	15.1
Age at pregnancy termination						
15–24 years	52,092	12,263	39,830	15.1	17.8	14.2
25–34 years	29,709	5,444	24,264	16.6	21.9	15.4
35–44 years	1,657	344	1,313	30.8	*40.2	28.3
Pregnancy order						
First pregnancy	31,059	5,892	25,167	12.3	14.8	11.8
Second pregnancy	24,380	5,005	19,375	14.9	18.9	13.8
Third or later pregnancy	28,282	7,263	21,020	21.4	24.6	20.3
Marital status						
Never married	5,275	1,039	4,237	17.7	*22.6	16.5
Currently married	62,670	12,690	49,981	15.6	19.5	14.6
Formerly married	15,775	4,432	11,344	17.6	20.1	16.6
Race						
White	68,235	13,213	55,022	16.2	20.7	15.1
Black	12,900	4,292	8,608	14.4	14.9	14.2

[1]Excludes induced abortions.
[2]Pregnancy losses, divided by pregnancy losses plus live births, multiplied by 100.
[3]Includes white, black, and other races.
[4]Includes pregnancies with mother's age at outcome not ascertained, and those currently pregnant, not shown separately by age at pregnancy outcome.

Table 15. Number of women 15–44 years of age and percent with 1 or more or 2 or more live births delivered by cesarean section, and number of births and percent delivered by cesarean section, by selected characteristics: United States, 1982

[Statistics are based on a sample of the household population of the conterminous United States. See appendixes for discussion of the sample design, estimates of sampling variability, and definitions of terms]

Characteristic	Women with cesarean sections			Live births delivered by cesarean section	
	Total	1 or more	2 or more		
	Number in thousands	Percent		Number in thousands	Percent
Total[1]	54,099	7.4	3.1	[2]69,944	8.9
Age[3]					
15–19 years	9,521	*1.1	*0.0	14,879	6.1
20–24 years	10,629	6.0	*1.5	29,212	8.0
25–29 years	10,263	9.7	4.6	18,548	10.3
30–34 years	9,381	11.9	5.4	6,119	13.7
35–39 years	7,893	8.8	4.0	1,146	19.9
40–44 years	6,412	7.5	3.8		
Race					
White	45,367	7.1	3.0	56,985	8.8
Black	6,985	9.1	3.5	10,945	8.8
Education					
Less than 12 years	13,465	7.5	3.1	18,333	8.6
12 years	20,257	7.4	3.2	29,405	8.1
13 years or more	20,377	7.4	3.1	22,207	10.3
Fecundity status					
Surgically sterile					
Contraceptive	9,442	10.1	6.9	...	...
Noncontraceptive	4,241	15.7	6.5	...	...
Impaired	4,560	11.8	*3.0	...	...
Fecund	35,855	5.2	1.8	...	...
Infertility status[4]					
Surgically sterile	10,978	11.8	6.9	...	...
Infertile	2,391	9.3	*2.5	...	...
Fecund	14,862	11.2	3.9	...	...
Poverty level income					
149 percent or less	13,843	8.7	4.0	...	...
150 percent or more	40,256	7.0	2.8	...	...
300 percent or more	23,411	6.7	2.4	...	...

[1]Includes white, black, and other races.
[2]Includes births for which mother's age at outcome was not ascertained, and those whose mothers were currently pregnant, not shown separately by age at pregnancy outcome
[3]For the first 3 columns, labeled "Women with cesarean sections," "age" refers to the woman's age *at the date of interview*; for the last 2 columns, "age" refers to the woman's age *at the time the pregnancy ended.*
[4]Currently married women only. See appendix II for definitions of fecundity status, infertility status, and other terms

Table 16. Number of women ever pregnant 15–44 years of age and percent distribution by whether or not they smoked or drank alcoholic beverages during their most recent pregnancy, according to selected characteristics: United States, 1982

[Statistics are based on a sample of the household population of the conterminous United States. See appendixes for discussion of the sample design, estimates of sampling variability, and definitions of terms]

Characteristic	Number of women in thousands[1]	Smoking and drinking during most recent pregnancy				
		Total	Neither smoked nor drank	Smoked or drank		
				Total	Smoked only	Drank alcoholic beverages only	Both smoked and drank
		Percent distribution				
Total[2,3]	34,970	100.0	39.5	60.5	14.8	28.7	17.1
Age at pregnancy outcome							
15–19 years	3,685	100.0	46.7	53.3	21.2	14.7	17.4
20–24 years	10,587	100.0	41.3	58.7	16.3	24.2	18.1
25–29 years	11,483	100.0	36.5	63.5	11.1	35.2	17.2
30–34 years	5,575	100.0	37.1	62.9	12.7	34.2	16.1
35–44 years	1,397	100.0	38.8	61.2	14.6	31.2	15.4
Race							
White	28,845	100.0	36.6	63.4	15.0	31.0	17.5
Black	5,020	100.0	52.3	47.7	14.2	17.4	16.2
Origin							
Hispanic	3,153	100.0	55.3	44.7	14.5	24.1	*6.1
Non-Hispanic	31,817	100.0	37.9	62.1	14.8	29.2	18.1
Education							
Less than 12 years	7,763	100.0	41.8	58.2	26.6	12.9	18.7
12 years	14,498	100.0	39.4	60.6	15.5	26.7	18.4
13 years or more	12,708	100.0	38.1	61.9	6.7	40.7	14.5
Poverty level income							
149 percent or less	9,384	100.0	44.0	56.0	21.3	17.8	16.9
150 percent or more	25,586	100.0	37.8	62.2	12.4	32.7	17.1
300 percent or more	14,521	100.0	35.4	64.6	11.6	35.6	17.4
Marital status							
Never married	4,047	100.0	41.0	59.0	20.4	16.3	22.2
Currently married	24,797	100.0	40.5	59.5	13.5	31.5	14.5
Formerly married	6,126	100.0	34.0	66.0	16.2	25.6	24.1
Pregnancy order							
First pregnancy	8,519	100.0	42.4	57.6	15.8	24.8	17.0
Second pregnancy	10,808	100.0	38.4	61.6	13.2	33.3	15.1
Third pregnancy	7,708	100.0	39.8	60.2	14.1	28.0	18.1
Fourth or later pregnancy	7,935	100.0	37.4	62.6	16.5	27.4	18.7

[1]Excludes women who have never been pregnant.
[2]Includes white, black, and other races.
[3]Includes pregnancies for which mother's age at outcome was not ascertained, and those currently pregnant, not shown separately by age at pregnancy outcome.

Table 17. Number of women ever pregnant 15–44 years of age whose most recent pregnancy ended in live birth or spontaneous pregnancy loss, and percent distribution by whether or not they smoked or drank alcoholic beverages during their most recent pregnancy, according to selected characteristics: United States, 1982

[Data exclude induced abortions. Statistics are based on a sample of the household population of the conterminous United States. See appendixes for discussion of the sample design, estimates of sampling variability, and definitions of terms]

Characteristic	Number of women in thousands[1]	Smoking and drinking during most recent pregnancy				
		Total	Neither smoked nor drank	Smoked or drank		
				Total	Smoked only	Drank alcoholic beverages only	Both smoked and drank
		Percent distribution				
Total[2,3]	31,599	100.0	40.2	59.8	14.9	29.0	15.9
Age at pregnancy outcome							
15–19 years	2,933	100.0	47.5	52.5	23.2	13.9	15.3
20–24 years	9,511	100.0	42.5	57.5	16.8	24.1	16.6
25–29 years	10,764	100.0	37.1	62.9	11.1	35.3	16.5
30–34 years	4,955	100.0	38.4	61.6	12.4	34.3	14.9
35–44 years	1,194	100.0	38.8	61.2	*13.4	32.8	*14.9
Race							
White	26,016	100.0	37.2	62.8	15.1	31.3	16.3
Black	4,561	100.0	53.3	46.7	14.3	17.2	15.3
Origin							
Hispanic	2,868	100.0	56.8	43.2	13.8	24.0	*5.3
Non-Hispanic	28,731	100.0	38.5	61.5	15.0	29.5	17.0
Education							
Less than 12 years	7,139	100.0	42.1	57.9	26.3	13.2	18.4
12 years	13,428	100.0	40.2	59.8	15.4	27.5	16.8
13 years or more	11,032	100.0	38.8	61.2	7.0	40.9	13.2
Poverty level							
149 percent or less	8,358	100.0	45.2	54.8	21.4	17.6	15.7
150 percent or more	23,241	100.0	38.3	61.7	12.6	33.1	16.0
300 percent or more	13,068	100.0	35.7	64.3	12.0	36.3	16.1
Marital status							
Never married	2,806	100.0	42.9	57.1	22.9	15.6	18.7
Currently married	23,721	100.0	40.9	59.1	13.7	31.4	14.0
Formerly married	5,072	100.0	35.3	64.7	16.1	25.1	23.6
Pregnancy order							
First pregnancy	7,170	100.0	43.5	56.5	17.3	24.7	14.5
Second pregnancy	10,237	100.0	38.5	61.5	13.3	33.5	14.7
Third pregnancy	7,085	100.0	41.0	59.0	13.4	28.7	16.8
Fourth or later pregnancy	7,108	100.0	38.3	61.7	16.4	27.1	18.3

[1]Excludes women who have never been pregnant.
[2]Includes white, black, and other races.
[3]Includes pregnancies with mother's age at outcome not ascertained, and those currently pregnant, not shown separately by age at pregnancy outcome.

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Appendix I
Technical notes

Background

This report is one of a series based on the National Survey of Family Growth (NSFG), conducted by the National Center for Health Statistics (NCHS). The NSFG was designed to provide data on fertility, family planning, and aspects of maternal and child health that are closely related to childbearing.

The NSFG is a periodic survey based on personal interviews with a nationwide sample of women. The NSFG has been conducted three times, in 1973, 1976, and 1982. The present report is based on Cycle III of the NSFG. A detailed report on Cycle III is contained in reference 14. A detailed description of the methods and procedures of Cycle II can be found in another report.[52] This appendix presents a summary of the more important technical aspects of the 1982 NSFG.

Fieldwork for Cycle III was carried out under a contract with NCHS by Westat, Inc., between August of 1982 and February of 1983. The sample represents women 15–44 years of age regardless of marital status, in the noninstitutionalized population of the conterminous United States. Women living in group quarters, such as college dormitories, were included in Cycle III. Interviews were conducted with 7,969 women; 3,201 were black, 4,577 were white, and 191 were of other races.

Interviews were conducted by trained female interviewers in respondents' homes and lasted an average of 1 hour. The interview focused on a woman's pregnancy history, her use of contraceptives in each pregnancy interval, her physical ability to bear children, her expectations of bearing children in the future, her use of family planning and infertility services, her marital history, labor force participation, and a wide range of social, economic, and demographic characteristics.

Statistical design

The NSFG is based on a multistage area probability sample. Black households and households with resident teenage women were sampled at higher rates than other households so that reliable estimates of statistics could be presented separately for black and teenage women. In addition, the sample was designed to provide tabulations for each of the four major geographic regions of the United States.

The first stage of the sample design consisted of drawing a sample of primary sampling units (PSU's). A PSU consisted of a county, a small group of contiguous counties, or a standard metropolitan statistical area as defined by the U.S. Bureau of the Census in 1970. The second and third stages of sampling were used to select several segments (clusters of 15 to about 60 dwelling units) within each PSU. A systematic sample of dwelling units was then selected from each segment. Each sample dwelling unit was visited by an interviewer who listed all household members. The interviewer then consulted a computer-generated sampling table to determine which woman, if any, should be interviewed.

The statistics in this report are estimates for the national population and were computed by multiplying each sample case by the number of women she represented in the population. The multipliers, or final weights, ranged from under 500 to over 50,000 and averaged about 7,000. They were derived by using three basic steps:

- *Inflation by the reciprocal of the probability of selection*—The probability of selection is the product of the probabilities of selection of the PSU, segment, household, and sample person within the household.
- *Nonresponse adjustment*—The weighted estimates were ratio adjusted for nonresponse by a multiplication of two factors. The first factor adjusted for nonresponse to the screener by imputing the characteristics of women in responding households to women in nonresponding households in the same PSU and stratum. The second factor adjusted for nonresponse to the interview by imputing the characteristics of responding women to nonresponding women in the same age-race-marital status category and PSU. Response to the screener was 95.1 percent; the response to the interview was 83.5 percent, yielding a combined response rate of approximately 79.4 percent.
- *Poststratification by marital status, age, and race*—The estimates were ratio adjusted within each of 24 age-race-marital status categories to independent estimates of the population of women 15–44 years of age. The independent estimates were derived from the U.S. Bureau of the Census Current Population Surveys.

The effect of the ratio-estimating process was to make the sample more closely representative of the noninstitutionalized population of women 15–44 years of age in the conterminous United States. The final poststratification reduced the sample variance of the estimates for most statistics.

All figures were individually rounded; aggregate figures (numbers) were rounded to the nearest thousand. Aggregate

NOTE: A list of references follows the text.

numbers and percents may not sum to the total because of the rounding.

Measurement process

Field operations for Cycle III were carried out by Westat, Inc., under contract with NCHS; these operations included pretesting the interview schedule, selecting the sample, interviewing respondents, and performing specified quality control checks. Interviewers, all of whom were female, were trained for 1 week prior to field work. The first five interview schedules done by each interviewer were reviewed; after a high level of quality was achieved by an interviewer, this review was reduced to a sample of questionnaires, unless an unacceptable level of error was found. A 10-percent sample of respondents was recontacted by telephone to verify that the interview had taken place and that certain key items were accurately recorded.

A portion of the interview schedule applicable to this report is reproduced in appendix IV. Two forms of the questionnaire were used, one for women 15–24 years of age and one for women 25–44 years of age. The questionnaire for women 15–24 included a few additional items that referred to early experiences that women over 25 could not be expected to remember accurately.

Data reduction

The responses of each woman to the interview questions were translated into predetermined numerical codes, and these code numbers were recorded on computer tapes. The first few questionnaires coded by each coder were checked completely; after an acceptable level of quality was reached, verification of coding was performed on a systematic sample of each coder's questionnaires. The data were edited by computer to identify inconsistencies between responses, as well as code numbers that were not allowed in the coding scheme; these errors were corrected.

Missing data on all variables used in this report were imputed in order to provide consistent national estimates. (To speed release of the public use computer tape, however, not all variables on the computer tape were imputed.) If the level of missing data is relatively high (more than 5 percent), this fact is noted in the "Concepts and definitions." Only two items are so affected: poverty level income and age (or date) of first intercourse.

Reliability of estimates

Because the statistics presented in this report are based on a sample, they may differ somewhat from the figures that would have been obtained if a complete census had been taken using the same questionnaires, instructions, interviewing personnel, and field procedures. This chance difference between sample results and a complete count is referred to as sampling error.

Sampling error is measured by a statistic called the standard error of estimate. The chances are about 68 in 100 that an estimate from the sample will differ from a complete count by less than the standard error. The chances are about 95 in 100 that the difference between the sample estimate and a complete count will be less than twice the standard error. The relative standard error of an estimate is obtained by dividing the standard error of the estimate by the estimate itself, and is expressed as a percent of the estimate. Numbers and percents that have a relative standard error that is more than 30 percent are considered unreliable. These figures are marked with an asterisk to caution the user, but may be combined to make other types of comparisons of greater reliability.

Estimation of standard errors

Because of the complex multistage design of the NSFG sample, conventional formulas for calculating sampling errors are inapplicable. Standard errors were, therefore, estimated empirically by using a technique known as balanced half-sample replication. This technique produces highly reliable, unbiased estimates of sampling errors. Its application to the NSFG has been described elsewhere.[14,52]

Because it would be prohibitively expensive to estimate, and cumbersome to publish a standard error for each percent or other statistic by this technique, standard errors were computed for selected statistics and population subgroups that were chosen to represent a wide variety of demographic characteristics and a wide variation in the size of the estimates themselves. Curves were then fitted to the relative standard error estimates (ratio of the standard error to the estimate itself) for numbers of women according to the model

$$\mathrm{RSE}(N') = (A + B/N')^{1/2}$$

where N' is the number of women and A and B are the parameters whose estimates determine the shape of the curve. Separate curves were fitted for women of all races combined, for black women, and for women of races other than black, because different sampling rates were used for black and other women. Separate curves were fitted for teenagers, for the same reason. The estimates of A and B are shown in table I.

To calculate the estimated standard error or relative standard error of an aggregate or percent, the appropriate estimates of A and B are used in the equations:

$$\mathrm{RSE}_{N'} = (A + B/N')^{1/2}$$

$$\mathrm{SE}_{N'} = (A + B/N')^{1/2}(N')$$

$$\mathrm{RSE}_{p'} = (B/P' \cdot (100 - P')/X')^{1/2}$$

$$\mathrm{SE}_{p'} = (B \cdot P' \cdot (100 - P')/X')^{1/2}$$

where N' = number of women

P' = percent

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

NOTE: A list of references follows the text.

SE = standard error

RSE = relative standard error

Tables II and III show some illustrative standard errors of aggregates and percents of women of all races from Cycle III of the NSFG.

Table I. Estimates of parameters *A* and *B* for relative standard error curves, by age, marital status, and race

Age, marital status, and race	*Parameter* A	*Parameter* B
Women 15–44 years of age by marital status and race		
All races and white:		
All marital statuses	−0.0003935957	21,306.413351
Ever married	−0.001097329	39,809.167683
Never married	−0.0009351043	17,608.883330
Black:		
All marital statuses, ever married, and never married	−0.0009086323	6,346.048380
Women 15–19 years of age		
All races and white	−0.001456493	13,862.104404
Black	−0.003322363	4,727.056926

Table II. Approximate relative standard errors and standard errors for estimated number of women of all races combined: 1982 National Survey of Family Growth

Size of estimate	*Relative standard error*	*Standard error*
50,000	65.2	33,000
100,000	46.1	46,000
500,000	20.5	102,000
1,000,000	14.5	144,000
3,000,000	8.2	245,000
5,000,000	6.2	310,000
7,000,000	5.1	359,000
10,000,000	4.2	416,000
30,000,000	1.8	532,000

Testing differences

The standard error of a difference between two comparative statistics, such as the proportion surgically sterile among white couples compared with black couples, is approximately the square root of the sum of the squares of the standard errors of the statistics considered separately, or calculated by the formula

if

$$d = P'_1 - P'_2$$

then

$$S_d = \sqrt{(P'_1)^2 \cdot (\mathrm{RSE}_{p'_1})^2 + (P'_2)^2 \cdot (\mathrm{RSE}_{p'_2})^2}$$

where P'_1 is the estimated percent for one group and P'_2 is the estimated percent for the other group, and $\mathrm{RSE}_{p'_1}$ and $\mathrm{RSE}_{p'_2}$ are the relative standard errors of P'_1 and P'_2, respectively. This formula will represent the actual standard error quite accurately for the difference between separate and uncorrelated characteristics although it is only a rough approximation in most other cases.

A difference among comparable proportions or other statistics from two or more subgroups is statistically significant when a difference of that size or larger would be expected by chance in less than 5 percent of repeated samples of the same size and type, if no true difference existed in the populations sampled. Such a difference would be statistically significant at the 0.05 level. By this criterion, if the observed difference or a larger one could be expected by chance in more than 5 percent of repeated samples, then one cannot be sufficiently confident to conclude that a real difference exists between the populations. When an observed difference is large enough to be statistically significant, the true difference in the population is estimated to lie between the observed difference plus or minus 2 standard errors of that difference in 95 of 100 samples.

Although the 5-percent criterion is conventionally applied, it is in a sense arbitrary; depending on the purpose of the particular comparison, a different level of significance may be more useful. For greater confidence one would test for significance at the 0.01 (1-percent) level, but if one can accept

Table III. Approximate standard errors for estimated percents expressed in percentage points, for women of all races: 1982 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*
100,000	6.4	10.1	13.8	18.5	21.2	22.6	23.1
500,000	2.9	4.5	6.2	8.2	9.4	10.1	10.3
1,000,000	2.0	3.2	4.4	5.8	6.7	7.1	7.3
5,000,000	0.9	1.4	2.0	2.6	3.0	3.2	3.3
10,000,000	0.6	1.0	1.4	1.8	2.1	2.3	2.3
30,000,000	0.4	0.6	0.8	1.1	1.2	1.3	1.3
50,000,000	0.3	0.4	0.6	0.8	0.9	1.0	1.0

Example of use of table III: If 30 percent of women in a specific category were using the pill, and the base of that percent was 10,000,000, then the 30-percent column and the 10,000,000 row indicate that 1 standard error is 2.1 percentage points and 2 standard errors are twice that, or 4.2 percentage points. Therefore, the chances are 95 in 100 that the true percent in the population was between 25.8 and 34.2 (30.0 percent plus or minus 4.2 percent). This is called a 95-percent confidence interval. In addition, the relative standard error of that 30-percent estimate is 2.1 percent divided by 30 percent, or 7.0 percent.

a 10-percent chance of concluding a difference exists when there actually is none in the population, a test of significance at the 10-percent level would be appropriate.

The term "similar" means that any observed difference between two estimates being compared is not statistically significant, but terms such as "greater," "less," "larger," and "smaller" indicate that the observed differences are statistically significant at the 0.05 level, by using a two-tailed t-test with 39 degrees of freedom. Statements about differences that are qualified in some way (for example, by the phrases "the data suggest" or "some evidence") indicate that the difference is significant at the 0.10 level but not the 0.05 level.

When a substantial difference observed is found not to be statistically significant, one should not conclude that no difference exists, but simply that such a difference cannot be established with 95-percent confidence from this sample. This is especially important in Cycle III because the number of ever-married women in the sample is 4,651 in Cycle III, compared with 7,970 in Cycle II—a reduction of 42 percent. This means that the standard errors in Cycle III are larger than in Cycle II, so it is harder to establish significant differences in Cycle III than in Cycle II. 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 number of replicates in the balanced half-sample replication design minus one (39 in Cycle III) can reasonably be used as an estimate of the number of degrees of freedom, although the exact value of the degrees of freedom is unknown. Therefore, in this report, differences between sample statistics are compared by using a two-tailed t-test with 39 degrees of freedom.

Example: In 1982, 68.8 percent of 25,195,000 currently married white women were using some method of contraception, compared with 61.0 percent of the 2,130,000 currently married black women. To test this racial difference at the .05 level of significance, compute

$$t = \frac{68.8 - 61.0}{\sqrt{(68.8)^2 \cdot \mathrm{RSE}^2_{(68.8)} + (61.0)^2 \cdot \mathrm{RSE}^2_{(61.0)}}}$$

Relative standard errors are computed using the appropriate values for B from table I:

$$\mathrm{RSE}_{(68.8)} = \sqrt{\frac{(39809.1677) \cdot (100 - 68.8)}{(68.8) \cdot (25{,}195{,}000)}} = 0.027$$

and

$$\mathrm{RSE}_{(61.0)} = \sqrt{\frac{(6346.0484) \cdot (100 - 61.0)}{(61.0) \cdot (2{,}130{,}000)}} = 0.044.$$

Thus

$$t = \frac{68.8 - 61.0}{\sqrt{(68.8)^2 \cdot (0.027)^2 + (61.0)^2 \cdot (0.044)^2}} = 2.39$$

The two-tailed .95 critical value ($1-\alpha$) for a t statistic with 39 degrees of freedom is 2.02. Therefore, the difference is significant at the 5 percent level.

Nonsampling error

Although sampling error affects the reliability of survey estimates, nonsampling error may introduce bias. The results of any survey are subject to at least four types of potential nonsampling error, including interview nonresponse; nonresponse to individual questions or items within the interview; inconsistency of responses to questions; and errors of recording, coding, and keying by survey personnel.

To minimize nonsampling error, stringent quality control procedures were introduced at every stage of the survey, including a check on completeness of the household listing; extensive training and practice of interviewers; field editing of questionnaires; short verification interviews with a subsample of respondents; verification of coding and editing; independent recode of a sample of questionnaires by NCHS; keypunch verification; and an extensive computer "cleaning" to check for inconsistent responses, missing data, and invalid codes. A detailed description of some of these procedures follows; others were previously discussed.

Interview nonresponse

Interview nonresponse occurs when no part of an interview is obtained. It can result from failures at any of three principal steps: (1) failing to list all households in sample segments, (2) failing to screen all listed households, and (3) failing to interview an eligible woman in each screened household. A discussion of these steps follows.

The completeness of listing cannot be tested directly because it requires an independent, accurate enumeration of the households that should have been listed. In the NSFG, listing completeness and accuracy were tested by the missed dwelling unit (DU) procedure at the time of screening: If the first structure in a segment was included in the sample, the whole segment was checked to see if any structures had been missed in the listing process; if the first structure was a multiple-DU structure, and if the first-listed unit in the building was included in the sample, the entire structure was checked for missed DU's.

Of the original sample of 34,641 DU's screened, 3,614 were found to be vacant or not DU's.[14] Of the 31,027 occupied DU's, 4.9 percent were not screened successfully. Screening was completed in 29,511 households; 9,964 of these contained eligible respondents who were selected for interview. Interviews were not completed with 16.5 percent of these cases because of refusals by respondents (8.3 percent) and by the parents of respondents under 18 years of age (1.5 percent),

NOTE: A list of references follows the text.

no contact after repeated calls (2.8 percent), or other problems (4.0 percent).

The nonresponse adjustment for interview nonresponse described earlier imputes the characteristics of responding women of the same age group, race, marital status, and geographic area to nonresponding women.

Item nonresponse

Item nonresponse may have occurred when a respondent refused to answer a question or did not know the answer to a question, when the question was erroneously not asked or the answer was not recorded by the interviewer, or when the answer could not be coded. Nonresponse to individual questions was very low in Cycle III, as it was in Cycle II. Some examples of item nonresponse among a total of 7,969 respondents are the religion of the respondent, 11 cases, and the respondent's occupation, 37 cases. The item with the most item nonresponse was family income, with 1,767 cases. Missing data were imputed for all data items in this report. For those few items where the proportion of cases imputed was high, this fact is noted in the appropriate section of the definitions.

As with all survey data, responses to the NSFG are subject to possible deliberate misreporting by the respondent. Such misreporting cannot be detected directly, but can be detected indirectly by the extensive computer "cleaning" and editing procedures used in the NSFG.

Appendix II
Concepts and definitions

Fecundity impairments

Fecundity impairments were measured in this report using two different classification schemes. Fecundity status, which is a demographic concept and makes full use of the data in the NSFG, was used in tables 1–6 and figures 1–3. Infertility status is a medical concept and allows comparable measurements of the trend in the prevalence of difficulty in conceiving in 1965, 1976, and 1982, and was used in tables 7, 8, G, and H, and in figures 3 and 4. This appendix contains definitions of fecundity, fecundity status, infertility status, and other variables used in this report.

Fecundity

Following standard demographic usage, fecundity refers to the ability (at the date of interview) of a woman or currently married couple to reproduce, that is, to have live-born children; while "fertility" refers to "actual birth performance" or number of live births. In this report any medical, physical, or behavioral condition that damages or diminishes a couple's fecundity—their ability to have children—is termed a fecundity impairment.

It is difficult to measure the fecundity of a population, and this is particularly true in household surveys that must rely on the reports of respondents. The principal difficulty in measuring fecundity is that some conditions have not been diagnosed or may be completely obscured by the use of contraception (including contraceptive sterilization) by couples who might otherwise have discovered an involuntary impairment. A woman or a couple is therefore classified as fecund in the absence of any data to indicate sterility or any other impairment.

Fecundity status

In reports from the National Survey of Family Growth, the classification of fecundity status is based on the answers women gave to a series of questions on whether, as far as they knew, it was possible or impossible, or difficult or not, to conceive a child or carry a pregnancy to live birth. In some cases, success in measuring fecundity depends on the amount of medical information respondents have about themselves, on their interest in having children in the future, and on the opportunities they have had to detect that a problem exists. However, most respondents were able to answer the relatively straightforward questions in the NSFG interview whether or not they or their spouses had had sterilizing operations, accidents, illnesses or diagnosed congenital problems; whether or not they had been trying to become pregnant and had not used contraception for a substantial period of time; and whether or not their physician had told them that thay had medical conditions that would make having a child, or another child, difficult or dangerous. In this report, currently married women have also provided information on their husbands' fecundity. For unmarried (never married or formerly married) women, fecundity status refers to the woman; for currently married women, fecundity status refers to the *couple*.

Fecundity status (tables 1–6) is classified in six categories: contraceptively sterile, surgically sterile for noncontraceptive reasons, nonsurgically sterile, long interval, subfecund, and fecund. For convenience and statistical reliability, the three categories of nonsurgically sterile, long interval, and subfecund have been combined under the heading of "impaired fecundity" in several tables.

Surgically sterile

A woman (or couple) was classified as surgically sterile if the woman reported that it was impossible for them to have a baby or another baby because she or her husband had had a sterilizing operation. A surgically sterile woman or couple was further classified by the woman's answer to the question "Was *one* reason for the operation because you had all the children you wanted?" An affirmative answer was classified as "contraceptively sterile," and a negative answer as "surgically sterile for noncontraceptive reasons."

Surgically sterile women or couples, who form the majority of those who are no longer fecund, are different from those who have "impaired fecundity" because their fecundity status is caused by surgery and because not all surgically sterile couples can be considered to have "impairments" in the usual sense of the term. In most cases the surgery is undertaken for family planning rather than for therapeutic reasons; and in other cases there is probably a mixture of these motives. Surgical sterilization in which family limitation is the controlling motive ("contraceptively sterile") cannot properly be considered an impairment in fecundity or reproduction from the point of view of the sterile person or couple, except possibly in the instances in which a person or a couple later regrets the operation and seeks a reversal. However, these contraceptively sterile couples still are not fecund, which is important from a demographic point of view.

Sterilizing operations in which therapeutic considerations

were the controlling cause may properly be considered reproductive impairments because of their underlying causes. Although the question on the intent of sterilization operations may not permit identification of all sterilizations that were in part therapeutic, it is possible to identify the broadest level of reproductive impairments in which the involuntary limitation of childbearing may be involved by combining the surgically sterile for noncontraceptive reasons with those who have "impaired fecundity."

Nonsurgically sterile

Women or couples were classified as "nonsurgically sterile" if the woman reported that it was impossible for her or her husband to have a baby or another baby for some reason other than surgery—such as accident, illness, menopause, or a congenital problem. A few women who had experienced at least 3 years of trying to become pregnant and not using contraception reported their conclusion that it was impossible for them to become pregnant, but these women are included in the "long interval" category.

Long interval

Couples were classified "long interval" because, while they reported no specific cause, they had experienced at least 3 years of unprotected intercourse without becoming pregnant. The remainder were classified in this category simply because they reported no contraceptive use and no pregnancy in the 3 years of marriage preceding the survey. While some of these couples might conceive in the future, the general medical judgment is to consider 1 year of unprotected intercourse as evidence of a fecundity impairment.[32–35] Note that a *3-year* period of nonuse without pregnancy is used for the "long interval" category, suggesting probable (though not certain) sterility.[15] However, a *1-year* period of nonuse without pregnancy is used for the "infertile" category, suggesting the need for medical evaluation to see if a treatable condition exists.[32–35]

Subfecund

Women or couples were classified as "subfecund" if the woman reported that the couple had difficulty in conceiving or delivering a baby or another baby, or that a pregnancy in the future would be so dangerous to the woman, the baby, or both that she would have a sterilizing operation or abortion. Subfecund couples probably are not sterile, but their ability to reproduce is diminished or impaired. For some couples subfecundity may be the basis for subsequent sterilizing operations.

Fecund

A woman or couple was classified as "fecund" in tables 1–6 if the woman reported that (a) it was possible to have a baby or another baby; (b) there was no difficulty having a future baby; and (c) the couple had used contraception or the wife had been pregnant within the 3 years prior to the interview.

In this report "fecund" is a residual category in the sense that, if there was no information that indicated any kind of fecundity impairment, the woman or couple was classified as fecund. Respondents were classified as surgically sterile, nonsurgically sterile, subfecund, long interval, and fecund, in that order. For example, if the data necessary for the nonsurgically sterile category were missing, the case was next tested for the subfecund and then for the long interval categories. The chances of misclassification because of this procedure were virtually eliminated, however, since the classifications for all respondents were then checked for consistency with other information (for example, current contraceptive status); and all inconsistent cases were reconciled by using other information on the questionnaire.

Infertility status

Following current medical usage, a couple is considered to have a problem of infertility needing medical attention after 1 year of unsuccessful efforts to become pregnant.[32–35] Infertility status is used in tables 7 and 8 of this report because it was not possible to measure trends in fecundity status comparably since 1965. However, it was possible to measure infertility, as defined above, from the 1965, 1976, and 1982 surveys and to classify couples into one of three principal categories: surgically sterile, infertile, and fecund.[11,16,17]

Surgically sterile

A couple was classified as surgically sterile in the same manner as is defined under fecundity status. However, because the contraceptive intent of sterilizing operations was not determined in completely comparable ways in the 1965 and 1976 surveys,[16,17] these operations are not classified by contraceptive intent in these comparisons over time.

Infertile

Couples who were not surgically sterile were classified as infertile if they (a) had been continuously married, (b) had not used contraception, and (c) had not become pregnant, for a year or more immediately preceding the interview. In addition, a few wives who reported that it was physically impossible for them or their husband to have a baby were included here.

The "infertile" category provides medical practitioners with a specific measure of *difficulty conceiving* that is used for diagnosis and screening. The percent of currently married couples who are infertile is lower than the percent of married couples with impaired fecundity, because infertility includes *only* difficulty conceiving, while impaired fecundity includes difficulty conceiving and difficulty or danger carrying a pregnancy to term.

Fecund

The category "fecund" is composed of those not classified as sterile or infertile and is therefore a residual group, as is the same category in the fecundity status classification. The proportions fecund in the infertility status classification are slightly higher than the corresponding proportions classified

NOTE: A list of references follows the text.

by fecundity status. This difference between the two classifications appears to be due primarily to wives for whom it was difficult or dangerous to carry a pregnancy to term. Most such wives were classified as having impaired fecundity but would not be classified as "infertile" because they used contraception or had a pregnancy within the year before interview.

Wanted to have a baby

Some women or couples who are sterile or who have impaired fecundity have already borne as many children as they want. To assess the potential need for medical research and services for fecundity impairments, it is useful to know the numbers with impairments who would like to have a child in the future. Those who were surgically sterilized for noncontraceptive reasons, who were nonsurgically sterile, or who were subfecund and expected to have an operation or abortion for health reasons were asked, "Even though it is unlikely or impossible for you to have a(nother) baby, would you *like* to have a(nother) baby?" Most subfecund couples and most of those with long intervals were asked, "Do you and your husband intend to have a(nother) baby?" Women answering "yes" to either question were classified as wanting a baby or another baby. Such couples may be viewed as needing medical services for their fecundity impairments.

A few women who indicated that having a baby or another baby was beyond their control—that they did not know if they intended to have a baby, that it was "up to God," and so forth—were also classified as "wanting another baby." They were so classified because analysis suggested that they would like a baby. They did not have an *intent* because they did not know whether it was possible to have a baby or another baby.

Reported spontaneous pregnancy losses

These losses refer to the reported number of pregnancies that ended in a "miscarriage" or "stillbirth." Most were reported as miscarriages. Cases of multiple losses or live births plus a loss were treated as one loss. Therefore, this is a count of the number of pregnancies ending in one or more spontaneous pregnancy losses rather than the total number of spontaneous fetal losses. In almost all cases, however, the number of spontaneous fetal losses and the number of pregnancy losses is identical. In this report, "reported spontaneous pregnancy losses" excluded reported induced abortions.

Surgical sterilization

In tables 9–11, data on surgical sterilization are presented. Women who reported that it was impossible for them to have a baby because of a sterilization operation were asked:

> "What kind of operation did you or your husband have that makes it impossible to have a(nother) baby?"

The categories included "both tubes tied or removed" ("tubal ligation" in tables 9–11), hysterectomy, and vasectomy. Other types of sterilizing operations were obtained, recorded, and included in the total, but there were not enough of these other operations for separate analysis. About 100 respondents reported more than 1 operation. If one was to the female and the other to the male, the female operation was used in tables 9–11. If both were female or both male, the earlier operation was used.

The age of the respondent at sterilization (table 10) was determined by subtracting the date of the operation ("When did you/your husband) have (OPERATION)?") from her date of birth. The *woman's* age was used even if the operation was done on her husband.

Pelvic inflammatory disease

All women in the NSFG were asked:

> "Have you *ever* been treated in a doctor's office, clinic, or emergency room for an infection in your fallopian tubes, womb, or ovaries, also called a pelvic infection, pelvic inflammatory disease, or PID?"

Women who responded affirmatively were also asked:

> "How many different times have you been hospitalized for one day or longer for a pelvic infection?"

Women who answered "never" to the second question were classified as having received "ambulatory" treatment for PID; those who answered "once or more" were classified as having been "hospitalized" for PID. These data are discussed in tables 12 and 14, and in a more detailed article.[37]

Cesarean section delivery

For each pregnancy, women were asked,

> "Thinking about your (1st/2nd/etc.) pregnancy, in which of the ways shown on this card did the pregnancy end?"

The card contained the following alternatives:

A. Stillbirth
B. Miscarriage
C. Abortion
D. Birth by cesarean section
E. Birth by normal (vaginal) delivery

Respondents who chose response "D" were classified as having a cesarean section delivery. The data were used in table 15, which is based only on live births.

Smoking and alcohol during pregnancy

Women in the NSFG who had ever been pregnant were asked:

> "On the average during your (last) pregnancy, how many cigarettes per day did you smoke, if any?"

and:

> "During your last pregnancy, how often did you usually drink alcoholic beverages, that is, beer, wine, or liquor?"

One of the categories in the smoking question was "didn't smoke," and one of the categories in the drinking question was "never." The responses to these questions were used in tables 16 and 17.

NOTE: A list of references follows the text.

Demographic terms

Age (at interview)—Age is classified by the age of the responding woman at her last birthday before the interview.

Age at pregnancy termination—This is calculated as the difference in completed years between the date the respondent's pregnancy ended and the date of her birth. The sum of the categories for this variable does not add to the total number of pregnancies because women who were currently pregnant, or whose age at pregnancy outcome was not determined, were excluded from the figures by age at pregnancy termination in tables 14–17.

Race—Race refers to the race of the woman interviewed and is reported as black, white, or other. In Cycle III, race was classified according to the woman's report of which race best described her. In Cycles I and II, race was classified by the observation of the interviewer. Comparisons of Cycle III data indicate that results using either method of classification are very similar.

Marital status—Persons were classified by marital status as married, widowed, divorced, separated, or never married. In Cycles I and II, informally married women—women who volunteered that they were sharing living quarters with their sexual partner—were classified as currently married. These women constituted about 2 percent of currently married respondents in Cycle I and 3 percent in Cycle II. In Cycle III, such women were classified according to their legal marital status. Thus, statistics on currently married women for 1982 shown in this report are not strictly comparable to those for 1973 and 1976. However, reclassifying women in the 1973 and 1976 surveys according to the 1982 definition of marital status makes little difference in the distributions of currently married women by fecundity status for these years.

In all cycles, 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. "Formerly married" includes widowed, divorced, and separated women.

Hispanic origin—A respondent 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. In tables where data are presented for women by race, women of Hispanic origin are included in the statistics for white and black women if they were classified as such by race.

Education—Education was classified according to the highest grade or year of regular school or college that was completed. Determination of the highest year of regular school or college completed by the respondent was based on responses to a series of questions concerning (a) the last grade or year of school attended and (b) whether that grade was completed.

Poverty level income—The poverty index ratio was calculated by dividing the total family income by the weighted average threshold income of families with the head of household under 65 years of age. The ratio is based on the poverty levels shown in U.S. Bureau of the Census *Current Population Reports*, Series P–60, No. 140, "Money Income and Poverty Status of Families and Persons in the United States, 1982," table A–3. This definition accounts for the sex of the family head and the number of persons in the family. Total family income includes income from all sources for all members of the respondent's family. For a substantial number of respondents (22 percent), total family income was not ascertained. These missing values were imputed using a known value of another similar, randomly selected respondent. Because of these high levels of missing data, small differences by poverty level income should be interpreted with caution.

Living arrangements at age 14—Women were classified as living with both parents if they answered "yes" to the question, "When you were 14, were you living with both your own mother and your own father?" If they answered "no," they were classified as living with one or neither parent.

Region of residence—Data are classified by region of residence into the four major Census regions: Northeast, Midwest, South, and West. Sample size greatly restricts the possibility of meaningful analyses by social characteristics among smaller geographic divisions. The States included in these four major geographic regions are as follows:

Geographic region and division	*States included*
Northeast	
New England	Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut.
Middle Atlantic	New York, New Jersey, Pennsylvania.
Midwest	
East North Central	Ohio, Indiana, Illinois, Michigan, Wisconsin.
West North Central	Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas.
South	
South Atlantic	Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida.
East South Central	Kentucky, Tennessee, Alabama, Mississippi.
West South Central	Arkansas, Louisiana, Oklahoma, Texas.
West	
Mountain	Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada.
Pacific	Washington, Oregon, California.

Religion—Women were classified by religion in response to the question, "Are you Protestant, Roman Catholic, Jewish, or something else?" In addition to the three major religious groupings, two other categories—other and none—were used. Because the category of Protestant includes numerous individual denominations, these respondents were further asked to identify the denomination to which they belonged. Those who answered "other" to the original question and named a Protestant denomination were included as Protestant. Although specific denominational names were obtained and recorded, the numbers of cases for most denominations were too few to produce reliable estimates; therefore, they were combined in larger categories.

Appendix III
Accuracy and completeness of reporting

Ryder and Westoff[53] and, later, Ryder[54,55] suggested that deliberate underreporting of induced abortion may produce biased measures of fecundity and contraceptive efficacy. Here our concern is to answer the question "Are estimates of infertility and long intervals biased because of unreported induced abortions?"

The Centers for Disease Control and Henshaw and others[56] have compiled statistics on abortions in the United States in 1980 by marital status and race. In table IV these are compared with data from the National Survey of Family Growth. The table is not shown by age because the NSFG estimates in age groups have large sampling errors. The estimates from Henshaw and others are shown in the first and fourth lines of table IV ("estimated"). The percents of women who reported an abortion in 1981 in the survey are shown in the second and fifth lines of table IV ("reported"). The difference between the estimated and reported figures is the percent who concealed, or did not report, an abortion that they had in 1981, which is the same year in which they were being classified as infertile or with a long interval.

The data in table IV show that about 2.8 percent of all *unmarried* women—2.1 percent of unmarried white women, and 5.4 percent of unmarried black and other women—apparently concealed an abortion in 1981. However, measures of infertility and of long intervals are computed only for currently *married* women, and the data in table IV show that unreported abortions are much less a problem among married women. For white married women, abortion reporting was complete. About 1.9 percent of wives who were classified as "black" or "other" apparently did not report an abortion in 1981.

Table IV. Percent of women with an induced abortion in 1981, by race and marital status, as estimated, as reported, and the difference

Marital status	*All races*	*White*	*Black and other*
Married			
Estimated[1]	1.1	0.9	3.1
Reported[2]	0.9	0.9	1.2
Difference	0.2	0.0	1.9
Unmarried			
Estimated[1]	5.0	4.4	7.1
Reported[2]	2.2	2.3	1.7
Difference	2.8	2.1	5.4

[1]Source: reference 56. Abortion rates per 1,000 women converted to percents by dividing by 10 See also reference 11, table 7.
[2]Reported in the National Survey of Family Growth, Cycle III.

NOTE: A list of references follows the text.

Thus, unreported abortions have virtually no effect on the classification of all married women or of white married women as infertile or with long intervals. For black women and others, however, the maximum possible effect would be 2 percentage points. Is it likely that the effect would be this large? If a respondent conceals an induced abortion she may do so in one of three ways:

(1) Reporting an induced abortion as a spontaneous fetal loss.
(2) Not reporting the pregnancy, whereby the abortion is classified as an interval of successful use of contraception.
(3) Not reporting the pregnancy, whereby the abortion is classified as an interval of nonuse of contraception without pregnancy.

Respondents using (1) and (2) would be classified as fecund, as they should be. Only (3) would misclassify respondents as infertile when they were in fact fecund. How many would be concealed in each of these three ways is unknown.

Comparing the results in Cycle III with those in Cycle II, overall, about 67 percent of abortions to married women in 1975 were reported by women in the 1976 survey. About 82 percent of abortions to married women in 1981 were reported by women in the 1982 survey (table IV). Thus, abortion reporting among *married* women has, apparently, improved. (Unmarried women apparently reported only about 44 percent of their 1981 abortions in the 1982 survey, as shown in table IV).

Appendix IV
Items on the 1982 National Survey of Family Growth questionnaire related to fecundity, infertility, and reproductive health

	FIRST PREGNANCY	SECOND PREGNANCY
B-19. Thinking about your (1st/2nd/etc.) pregnancy, in which of the ways shown on this card did the pregnancy end? (CIRCLE CODE HERE AND ON B&P RECORD.)		
HAND CARD 7		
A. Stillbirth	1 (B-22)	1 (B-22)
B. Miscarriage	2 (B-22)	2 (B-22)
C. Abortion	3 (B-22)	3 (B-22)
D. Birth by Cesarean section	4 (B-20)	4 (B-20)
E. Birth by normal (vaginal) delivery	5 (B-20)	5 (B-20)
IF MULTIPLE OUTCOME, CIRCLE FIRST OUTCOME ABOVE AND ENTER LETTER FOR OTHER OUTCOME(S) ON LINE		

SECTION D

We are also talking with women about children they would like to have or expect to have in the future. (IF "R" HAS ALREADY MENTIONED STERILITY OR MENOPAUSE, ETC., SAY: I think we have already talked about some of these questions, but I'd better go through them with you to be sure I record the answers correctly.)

BOX 35. IF R IS CURRENTLY PREGNANT, SKIP TO D-15, PAGE 49.

BEGIN CARD 16

D-1. Some (couples/women) find it physically impossible to have (more) children. As far as you know, is it possible or impossible for you (and your husband) to conceive a(nother) baby, that is, to get pregnant (again)?

Possible 1 (D-15)
Impossible 2 (D-2) 18
Don't know, not sure 8 (D-15)

D-2. Have you (or your husband) had an operation, or more than one operation, that makes it impossible for you to conceive a(nother) baby (together)?

Yes 1 (D-3)
No 2 (D-12) 19

D-3. What kind of operation, or operations, did you (or your husband) have that makes it impossible to have a(nother) baby? (CIRCLE CODE(S) ON TOP OF TABLE ON NEXT PAGE. IF CODE 5 CIRCLED, GO TO BOX 36 BELOW.) 20

ASK D-4 THROUGH D-8 IN SEQUENCE FOR EACH OPERATION.	BOTH OVARIES REMOVED 1	BOTH TUBES TIED OR REMOVED 2	HYSTERECTOMY (REMOVAL OF UTERUS) 3	VASECTOMY (CUTTING MALE SPERM DUCTS) 4	OTHER OPERATION OR TYPE UNKNOWN 5 (BOX 36)
D-4. When did (you/your husband) have (OPERATION)?	MO / YR	MO / YR	MO / YR	MO / YR	MO / YR
D-7. Was one reason for having (OPERATION) because you (had all the children you wanted/did not want to have any children)?					
Yes	1	1	1	1	1
No	2	2	2	2	2

D-12. What is the reason that it is physically impossible for you (and your husband) to have a(nother) baby? (RECORD VERBATIM, THEN CODE ALL THAT APPLY.)

_____

_____

_____

_____

_____

_____

"R" has reached menopause 01
Impossible for "R" due to accident or illness 02
"R" sterile for other reasons 03
"R" not yet fertile, periods have not started 04
Impossible for husband due to accident or illness 05
Husband sterile for other reasons 06
Couple (or respondent) unable to conceive, do not know reason 07

62-63

64-65

D-13. When did it become impossible for you (and your husband) to have a(nother) baby? (IF DON'T KNOW, PROBE: When did you first know it was physically impossible . . . ?)

_____ / _____
MONTH (SEASON) YEAR

66-69

D-14. If it were possible for you to have a(nother) baby, would you yourself like to have one?

Yes 1
No . . . . . 2 } (D-37)

70

D-15. Some people are able to have a(nother) 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 (after this pregnancy)?

Yes 1 (D-16)
No 2 (D-17)
Don't know 8 (D-17)

71

D-16. What is the reason it would be difficult for you to have a(nother) baby? (RECORD VERBATIM ON LINES AT LEFT AND THEN CIRCLE APPROPRIATE CODE.)

_____

_____

_____

_____

_____

R has physical difficulty getting pregnant 1
Difficult for husband to father child. . . . 2
Dangerous for "R" to become pregnant again. 3
Dangerous for the baby 4
Difficult to carry pregnancy full 9 months 5
Other. 6

72

D-17. At any time has a medical doctor advised you <u>never</u> to become pregnant (again)?

Yes. 1 (D-18)
No . . . . . 2 (BOX 42)

73

E-24. To get a complete picture of childbearing and women's health in this country, we also need to know about the treatment women have received for health problems that could affect their childbearing. Have you <u>ever</u> been treated in a doctor's office, clinic, or emergency room for an infection in your fallopian tubes, womb, or ovaries, also called a pelvic infection, pelvic inflammatory disease or PID? (IF DON'T KNOW, PROBE: a female <u>infection</u> causing abdominal pain or lower stomach cramps.)

Yes. 1 (E-25)
No 2 (E-26)

E-25. How many different times have you been hospitalized one day or longer for a pelvic infection? Would you say . . .

Never, ... 1
Once,. 2
2-3 times, ... 3
Or, more than 3 times? 4

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