Impaired Fecundity in the United States: 1982–1995

By Anjani Chandra and Elizabeth Hervey Stephen

Context: *The 1995 National Survey of Family Growth (NSFG) provides new nationally representative data to test the accuracy of the commonly held assumption that impaired fecundity has been rising in the United States over the past decade.*

Methods: *Using data from the 1982, 1988 and 1995 rounds of the NSFG, trends in both the proportions and numbers of women with impaired fecundity and of those who received infertility services were examined. Multiple logistic regressions were carried out to estimate the effects of demographic characteristics on the likelihood of currently having impaired fecundity and of ever having received medical help for infertility.*

Results: *The proportion of U.S. women aged 15–44 who reported some form of fecundity impairment rose from 8% in 1982 and 1988 to 10% in 1995, an increase in absolute numbers from 4.6 million to 6.2 million women. Although the proportion of fecundity-impaired women who had ever sought medical help did not change between 1988 and 1995 (44%), the absolute numbers of such women grew by nearly 30%, from 2.1 million to 2.7 million. Women who had ever sought help for fertility problems were older and had a higher income than those who had not, and were more likely to be married.*

Conclusion: *The dramatic increase in the numbers of U.S. women with impaired fecundity occurred because the large baby-boom cohort, many of whom delayed childbearing, had reached their later and less fecund reproductive years. This increase in both rates and numbers occurred across almost all age, parity, marital status, education, income, and race and ethnicity subgroups.*

Family Planning Perspectives, 1998, 30(1):34–42

The most substantial change in infertility in the United States during the 1970s and 1980s was not in age-specific infertility *rates*, but in the *numbers* of women who reported infertility problems and sought medical help to have a baby. Though nationally representative surveys through 1988 provide no evidence of such rising rates,[1] the popular press reported that rates of infertility themselves increased. Baby boomers' patterns of late marriage and delayed childbearing within marriage are chiefly responsible for this perception.

Not only are there more women in older age-groups, but more of them are attempting to have first and subsequent births at older, less fecund ages.[2] As these women have fewer years in which to achieve their childbearing goals, and because the numbers of infertility treatment options, diagnostic tools and specialists have risen dramatically, baby boomers have pursued infertility services in greater numbers.[3] Thus, even though age-specific rates of infertility were fairly stable through 1988, the general behavior of this large birth cohort created the inaccurate impression that infertility rates were rising.

New data on the prevalence of infertility and on the receipt of infertility services from the 1995 National Survey of Family Growth (NSFG) allow us to determine whether and how these phenomena have changed since they were last measured in 1988. Such trend analysis has implications for projecting future health care costs, particularly in an arena of changing insurance coverage and potential health care reform. It may also be relevant in assessing whether access to services is equal among infertile subgroups. For example, nationally representative data have indicated that infertile couples are not disproportionately white or of high socioeconomic status, but infertile couples who have sought out medical help have been consistently more likely to be white, college-educated and affluent.[4]

Describing the currently infertile population is a crucial first step toward projecting future demand for services. That demand hinges on at least two components: estimates of the number of individuals likely to have fertility problems, and estimates of the number of individuals likely to pursue medical help for infertility.[5] Clearly, many factors affect the validity of assumptions used to estimate future infertility rates and service utilization. Among these factors, which are subject to change over time, are the absolute numbers of women of reproductive age (particularly of women aged 35 and older, since these women are more likely than younger women to face fertility problems); the characteristics of women trying to conceive (especially their age and history of fertility-impairing disease); the rates of infertility; the number of infertility providers and their areas of specialization; the success rates, either real or perceived, of new infertility treatments; and financial and geographic access to services.

Even if overall infertility rates should remain the same, an examination of rates within key subgroups, as well as a close scrutiny of the risk factors for infertility and the likelihood of its diagnosis, would still be valuable in projecting future demand for services and health care costs. For example, if self-reported infertility increases significantly in a particular subgroup without the expected commensurate increase in the proportion seeking services, one might explore barriers to access. And should rates of pelvic inflammatory disease (PID) increase, we might predict a higher demand for services such as tubal surgery or in vitro fertilization.

Such an investigation of the infertile population will also help determine the size and characteristics of subgroups most likely to be affected by the availability of new treatments, since the prognosis for their success varies considerably by the woman's characteristics. Moreover, the data might be used to test the impact of new epidemiologic hypotheses of infertility (such as the role of environmental estrogens in male-factor infertility) or of the potential adverse consequences of infer-

Anjani Chandra is a demographer in the Reproductive Statistics Branch, Division of Vital Statistics, National Center for Health Statistics, Hyattsville, MD. Elizabeth Hervey Stephen is an associate professor of demography, Georgetown University, Washington, DC. An earlier version of this article was presented at the annual meeting of the Population Association of America, Mar. 29, 1997, in Washington, DC. The series of surveys on which this article is based, the National Survey of Family Growth, was jointly planned and funded primarily by the National Center for Health Statistics, the National Institute for Child Health and Human Development and the Office of Population Affairs, with additional support from the Administration for Children and Families.

tility treatments on patients and on infants born through these techniques (for example, the risks of ovarian cancer associated with ovulation drugs).

With this larger picture in mind, we address in this article two preliminary, but essential, questions. First, how have the numbers and characteristics of infertile women and the rates of infertility changed in the 1980s and 1990s—and, in particular, since they were last measured in 1988? And second, how have the numbers and characteristics of women who seek infertility services, and the rates at which they do so, changed over this span? For example, are any subgroups of infertile women disproportionately responsible for the large increase in the numbers of women who pursued medical help for infertility?

The NSFG defines two distinct measures of fertility problems—"infertility" and "impaired fecundity." The infertility measure applies to only married or cohabiting women who are not surgically sterile and is defined as being unable to conceive after 12 or more consecutive months of unprotected intercourse. Meanwhile, the impaired fecundity measure applies to women of any marital or cohabitation status who are not surgically sterile, and is defined as having problems with conceiving or with carrying a pregnancy to term, as well as being unable to conceive after three years of unprotected intercourse. While it may appear that infertility is a subset of impaired fecundity, this is not the case. Infertility is based on a shorter duration of time without pregnancy than that used to determine impaired fecundity, as we describe below. In fact, the NSFG data from 1982–1995 indicate different trends in these two separate measures of fertility problems.* In this article, we focus exclusively on the measure of impaired fecundity, because it allows us to examine a wider spectrum of fertility problems among more women than does the measure of infertility, and thus it provides a more complete picture of the potential demand for related medical services.

Data and Methods

The Surveys

We use data from the 1982, 1988 and 1995 rounds of the NSFG to examine trends in the prevalence of impaired fecundity and the receipt of related medical help. Based on a multistage probability sample of households, the NSFG is a periodic survey of U.S. women aged 15–44 that yields nationally representative data on fertility and reproductive health. Black women were oversampled in all three survey years, and Hispanic women were oversampled in 1995. In-person, in-home interviews were conducted with 7,969 women in 1982, with 8,450 women in 1988 and with 10,847 women in 1995.

The descriptive results are weighted counts and percentages, using a post-stratified weight adjusted for nonresponse and sample design, of women aged 15–44 with impaired fecundity and of those who ever sought medical help for that condition. Standard errors for the 1995 data were estimated using SUDAAN; for 1982 and 1988, they were calculated by other means.† We determined whether differences in percentages were statistically significant by examining overlap among the 90% and 95% confidence intervals, corresponding to 10% and 5% alphas or "error" levels.‡

To assess the role of key covariates over time, we performed weighted multiple logistic regressions using data from each round to estimate two principal outcomes: the likelihood of impaired fecundity at the time of the interview among sexually experienced, nonsurgically sterile women aged 15–44; and among women with impaired fecundity, the likelihood that they had ever sought infertility services (defined as medical help to achieve pregnancy or to prevent miscarriage).§

In these logistic regression analyses, we assessed the odds of being classified with impaired fecundity and the odds of having ever sought medical help, based on women's characteristics at the time of the interview. Therefore, we can make no statements about causality. Rather, these models control for potentially confounding variables, such as age and parity, and portray any changes over time in the net (or adjusted) associations between the outcome variables and their key correlates measured at the time of the interview. (It is particularly difficult, if not impossible, to pinpoint the onset of impaired fecundity, even in cases related to specific diseases; thus it may be fruitless to try to determine a woman's characteristics before she acquired or recognized a fertility problem.)

Definitions of Outcomes

The first step in defining fecundity status is to classify surgically sterile women on the basis of their reasons for having the procedure. Women are classified as either noncontraceptively surgically sterile (if the only reason for the operation was "medical problems with the female organs") or contraceptively surgically sterile (if they reported any other reason or combination—including medical ones—for the operation).

Each woman who is not surgically sterile may then potentially be classified into one of three subgroups of impaired fecundity, and if not, she is considered "fecund."

- *Nonsurgically sterile*—if the woman reported that it was impossible for her to conceive or deliver a baby, or for her husband or cohabiting partner to father a baby.
- *Subfecund*—if she reported that it was physically difficult for her to conceive or deliver a baby (again) or for her husband or cohabiting partner to father a baby, or that a doctor told her never to become pregnant (again) because it would pose a danger to her, to her fetus or to both.
- *Long interval without a conception*—if she and her husband or cohabiting partner have not conceived in the 36 months before the interview, despite being continu-

*For example, the prevalence of the shorter-duration "infertility" fell from 8.5% of women of reproductive age to 7.1% between 1982 and 1995, while that of the more broadly defined "impaired fecundity" increased from 8.4% to 10.2% between 1988 and 1995. (See: Abma JC et al., 1997, reference 2.)

†It was not possible to use SUDAAN to estimate variances for the 1982 and 1988 rounds based on the public-use data files; therefore, we estimated standard errors based on the following formula: $[(p \times q) / n] \times E$, where p represents the percentage; q represents 100 – the percentage, n is the sample size on which the percentage is based, and E is the design effect of the survey. (The latter indicates the factor by which variances for a given estimate are elevated—or sometimes diminished—because simple random sampling was not used.) For 1982, the design effect was 3.01; for 1988, it was 1.55. These design effects denote, for example, that because the 1982 NSFG relied upon a multistage probability sample, variances are on average three times higher than if simple random sampling had been used.

‡The alpha level, also known as Type I error, indicates the maximum acceptable likelihood that we would accept the null hypothesis when the null is false (that is, we would infer that there was no difference when indeed there was). Confidence intervals can be considered to be the range of acceptable null hypotheses for the statistic in question. When we construct (100 – alpha)% confidence levels and examine overlap between the intervals around two statistics, differences between the two groups are statistically discernible at an alpha level of error—e.g., 95% confidence intervals have a 5% alpha level. While the typical cutoff point for "statistical significance" is 5%, this is a somewhat arbitrary choice, and often it makes sense to use higher levels of alpha or Type I error, since less striking differences (e.g., at 10% or 15% levels) can still have important policy and programmatic implications. Finally, alpha levels and p-values are not equivalent; a p-value gives the probability that the result could have occurred by chance, given that the null hypothesis is true.

§As with the descriptive analysis, the SUDAAN package was used for the logistic regression for the 1995 data only. For the two earlier rounds, we weighted each observation by its sample weight multiplied by the reciprocal of the mean weight for the total sample. This approach accounts for the complex sample design while retaining the appropriate scale, so that significance levels are not inflated through the use of weighted numbers; the "weighted total" yielded by these scaled weights is approximately equal to the unweighted number of cases on which the logistic regression is based.

Table 1. Percentage distribution of U.S. women aged 15–44 (and standard errors), by fecundity status, according to marital status and year of survey, National Survey of Family Growth (NSFG)

Fecundity status	All women			Married women 15–44		
	1982 (N=7,969)	1988 (N=8,450)	1995 (N=10,847)	1982 (N=3,551)	1988 (N=4,031)	1995 (N=5,291)
Surgically sterile	**25.3 (0.8)**	**28.0 (0.6)**	**27.3 (0.5)**	**38.8 (1.4)**	**42.4 (1.0)**	**40.7 (0.7)**
For contraceptive reasons	17.5 (0.7)	23.3 (0.6)	24.2 (0.5)	27.8 (1.3)	36.2 (0.9)	36.7 (0.7)
For noncontraceptive reasons	7.8 (0.5)	4.7 (0.3)	3.1 (0.2)	11.0 (0.9)	6.2 (0.5)	4.1 (0.3)
Impaired fecundity	**8.4 (0.5)**	**8.4 (0.4)**	**10.2 (0.3)**	**10.8 (0.9)**	**10.7 (0.6)**	**12.9 (0.5)**
Nonsurgically sterile	1.7 (0.3)	1.4 (0.2)	1.7 (0.2)	2.0 (0.4)	1.6 (0.2)	2.0 (0.2)
Subfecund	5.6 (0.4)	5.7 (0.3)	7.7 (0.3)	6.7 (0.7)	6.8 (0.5)	9.4 (0.5)
Long interval without conception	1.1 (0.2)	1.3 (0.2)	0.9 (0.1)	2.1 (0.4)	2.3 (0.3)	1.6 (0.2)
Fecund	**66.3 (0.9)**	**63.6 (0.7)**	**62.5 (0.6)**	**50.3 (1.5)**	**46.9 (1.0)**	**46.4 (0.8)**
Total	100.0	100.0	100.0	100.0	100.0	100.0

ously married or cohabiting and having had unprotected intercourse in each consecutive month.

Women were classified hierarchically, giving priority to those who were nonsurgically sterile, followed by subfecund women and, finally, women who had a long interval without a conception. Women not classified as surgically sterile or fecundity-impaired (that is, women who gave no indication to the contrary) were categorized as fecund. Women classified as currently having impaired fecundity did not necessarily want to have a child at the time of the interview. Our analysis of the fecundity-impaired population is based on 665 women in 1982, on 704 women in 1988 and on 1,116 women in 1995.

In each of the NSFG surveys, all sexually experienced respondents, regardless of their marital, contraceptive or pregnancy status, were asked whether they (or their partner) had used medical services in their lifetime to achieve pregnancy or to prevent miscarriage. Women were asked two screening questions, worded somewhat differently in each cycle, about such services; there was even more variation by survey year in the wording of the follow-up questions on specific services received. (In 1982, for example, women were asked an open-ended question about services they or their partner had ever received; in 1988, women were asked to identify specific services from a single list; and in 1995, respondents were given two separate lists, one for medical help to achieve pregnancy and one for services to prevent miscarriage.)

While these differences in the wording of the questions somewhat limit their comparability over time, each consecutive NSFG improved the precision and completeness of reporting of infertility services, particularly in light of the increase in available diagnostic and treatment tools over the last two decades. For our analysis of women who ever received infertility services, we used comparable data to define a straightforward variable similarly constructed across all three cycles—the percentage who ever received medical help for infertility (either to achieve pregnancy or to prevent miscarriage).

Results

Impaired Fecundity

The prevalence of impaired fecundity among all women aged 15–44 rose significantly (at the 5% alpha level), from 8% in 1982 and 1988 to 10% in 1995 (Table 1); it also rose significantly among married women, going from 11% in 1982 and 1988 to 13% in 1995. This two-percentage-point rise may appear trivial, despite its statistical significance. Yet it represents an increase in prevalence of about 20%, and given the growth in the total U.S. female population aged 15–44 over this period, this change meant that 1.1 million more women had impaired fecundity in 1995 than expected based on 1988 rates.

Given the hierarchical order of the fecundity status classification scheme in the NSFG, the increase over time in the overall percentage with impaired fecundity appears to be related to lower proportions of women who were surgically sterile for noncontraceptive reasons.[6] This proportion fell from 8% in 1982 to 3% in 1995 among all women, and from 11% in 1982 to 4% in 1995 among married women.

The only subgroup of impaired fecundity that changed notably over time was that of subfecund women, which rose by at least two percentage points over the period. We hypothesize that these women for whom pregnancy would be difficult to achieve (for example, due to uterine fibroids or endometriosis, which can necessitate a hysterectomy or oophorectomy) might have been less likely to report in the 1995 survey that they had ever had a sterilizing operation for noncontraceptive reasons, and thus were more likely to be "at risk" of being classified as subfecund. In fact, national hospital discharge data indicate that hysterectomy rates fell over the period; this decline was probably due more to changes in medical and insurance reimbursement practices than to real declines in the incidence of conditions requiring the procedure.[7]

How has the prevalence of impaired fecundity changed since the 1980s? The total number of U.S. women with impaired fecundity grew by about 35% over the entire period, from 4.6 million in 1982 to 4.9 million in 1988 and to 6.2 million in 1995 (Table 2). While the age distribution of parous women with impaired fecundity (also known as secondary impaired fecundity) was similar in all survey years, a higher percentage of nulliparous women with impaired fecundity (also known as primary impaired fecundity) were in the oldest reproductive age-group in 1995 than in 1982; that is, 37% of women with impaired fecundity who had never given birth were aged 35–44 in 1995, compared with 24% in 1982. This finding is most likely a function of delayed marriage and childbearing patterns, as well as the baby-boom cohort being in the oldest reproductive ages in 1995.

Between 1982 and 1995, the percentage of women with impaired fecundity who had ever had PID fell from 23% to 14%. Although the percentage of women ever diagnosed with PID who had impaired fecundity increased from 14% in 1982 to 19% in 1995 (see right-hand panel of Table 2), overall declines in PID rates since the 1980s have meant that women with a history of PID represent a smaller fraction of all fecundity-impaired women in recent years.

The proportion of women with impaired fecundity who reported that they wanted to have a baby was higher in 1995 than in earlier years (71% vs. 60%). This finding may be related to the fact that more baby boomers would be at older ages in 1995 than in 1982, and thus a greater proportion would likely be considering parenthood and recognizing fertility problems. This change across surveys may also be due to changes in the measurement of desire for a first or another child. While these measures were not identical in each survey round, they were as comparable as possible, given the improvements in 1995 of computer-assisted interviewing and of the use of a five-point response scale instead of a yes-no response.

Among women with impaired fecundity, the distributions by marital status, income level and racial and ethnic background were similar across the three survey years. The fraction of fecundity-impaired

women with college degrees rose from 15% in 1982 to 23% in 1988 and 1995, but this finding may just reflect the overall increase in the proportion of U.S. women with a college education over the period.[8]

As discussed earlier, an increase in the number of women with impaired fecundity does not necessarily imply that the rate of impaired fecundity increased over time. For example, even if rates of impaired fecundity were the same in 1995 as in 1982, the number of women reporting impaired fecundity would have been markedly higher in 1995, simply because of the increase in the absolute number of women in their reproductive years, especially of women aged 35–44. In 1995, the number of U.S. women aged 15–44 (60.2 million) represented an increase of 11% from 1982, but between 1982 and 1995, the number of women aged 35–39 increased by 42% and the number of women aged 40–44 rose by 59%, while the number aged 15–29 decreased by 6–15%.[9]

When impaired fecundity rates derived from the 1988 NSFG were applied to the Census Bureau's "middle series" population forecast for 1995, it was projected that 5.1 million women age 15–44 would have reported impaired fecundity in 1995.* Given that the Census Bureau's projections of population size and age composition for 1995 closely match the 1995 NSFG data, the fact that the actual number of women with impaired fertility exceeds the projections by more than one million cannot be explained solely by the fact that baby-boom women had reached their later reproductive years in 1995 (i.e., that there were simply more† women trying to have babies at ages of lower fecundability). The increase is chiefly due to the fact that rates of impaired fecundity were about two percentage points higher (or 20% higher) in 1995 than in 1988, both among all women aged 15–44 and among key subgroups.

Table 2 shows that this increase occurred in almost all age, parity, marital status, education, income, and race and ethnicity subgroups. Although few of these increases were statistically significant (at an alpha level of 5%), the consistency across so many subgroups suggests potential social significance; since the rise over time was not concentrated in any one group (e.g., among nulliparous women or among older women), changes in the recognition or reporting of fertility problems may be responsible, including greater public awareness that the risk of fertility problems increases with age.

The decline from 1982 to 1995 in the proportion surgically sterile for noncontraceptive reasons, coupled with the substantial increase in the absolute numbers of women at risk of having and recognizing a fertility problem, could generate the observed increases in both the rates and numbers of women with impaired fecundity. Another factor might be the disproportionate increase (alpha level of 10%) in impaired fecundity among women who had ever had PID, which we mentioned earlier. While this finding might seem at odds with recent declines in overall self-

Table 2. Percentage distribution of fecundity-impaired women (and standard errors) and percentage (and standard errors) of all women with impaired fecundity, by characteristic, according to year of survey

Characteristic	% distribution of fecundity-impaired women			% of all women with impaired fecundity		
	1982 (N=665)	1988 (N=704)	1995 (N=1,116)	1982 (N=7,969)	1988 (N=8,450)	1995 (N=10,847)
Age						
15–24	19.2 (2.6)	18.5 (1.8)	17.8 (1.2)	4.3 (0.6)	4.8 (0.5)	6.1 (0.4)
25–34	43.0 (3.3)	43.1 (2.3)	37.7 (1.6)	10.0 (1.0)	9.6 (0.6)	11.2 (0.6)
35–44	37.8 (3.3)	38.4 (2.3)	44.4 (1.6)	12.1 (1.4)	10.6 (0.6)	12.8 (0.6)
Parity						
0	42.0 (3.3)	45.5 (2.3)	45.3 (1.8)	8.4 (0.8)	8.8 (0.6)	11.1 (0.6)
≥1	58.0 (3.3)	54.5 (2.3)	54.7 (1.8)	8.5 (0.7)	8.1 (0.5)	9.6 (0.4)
Parity and age						
Nulliparous women						
15–24	33.2 (3.2)	28.0 (2.1)	27.6 (2.0)	4.1 (0.7)	4.1 (0.6)	5.5 (0.5)
25–34	43.2 (3.3)	43.9 (2.3)	35.7 (2.5)	14.7 (2.5)	13.4 (1.4)	13.9 (1.2)
35–44	23.7 (2.9)	28.1 (2.1)	36.7 (2.2)	25.7 (5.1)	21.4 (2.7)	25.7 (1.8)
Parous women						
15–24	9.1 (1.9)	10.5 (1.4)	9.7 (1.4)	5.2 (1.3)	7.7 (1.3)	8.4 (1.3)
25–34	42.8 (3.3)	42.5 (2.3)	39.5 (2.0)	8.1 (1.0)	7.8 (0.7)	9.8 (0.6)
35–44	48.1 (3.4)	47.0 (2.3)	50.8 (2.1)	10.1 (1.3)	8.5 (0.7)	9.8 (0.6)
Marital status						
Married	67.0 (3.2)	64.5 (2.2)	62.4 (1.6)	10.8 (0.9)	10.7 (0.6)	12.9 (0.5)
Unmarried	33.0 (3.2)	35.5 (2.2)	37.6 (1.6)	5.8 (0.6)	6.0 (0.4)	7.6 (0.4)
Ever adopted a child						
Yes	7.6 (1.8)	4.8 (1.0)	3.1 (0.6)	45.6 (8.9)	37.9 (6.5)	37.8 (5.6)
No	92.4 (1.8)	95.2 (1.0)	96.9 (0.6)	7.9 (0.5)	8.1 (0.4)	10.0 (0.3)
Ever had PID						
Yes	22.7 (2.8)	17.9 (1.8)	14.1 (1.1)	13.7 (1.6)	13.9 (1.3)	19.0 (1.5)
No	77.3 (2.8)	82.1 (1.8)	85.9 (1.1)	7.6 (0.9)	7.7 (0.4)	9.5 (0.3)
Wants a baby						
Yes	60.1 (3.3)	59.8 (2.3)	70.6 (1.5)	8.2 (0.7)	8.6 (0.5)	13.5 (0.5)
No	39.9 (3.3)	40.2 (2.3)	29.4 (1.5)	8.8 (0.9)	8.1 (0.6)	6.5 (0.4)
Education†						
<high school	20.3 (2.9)	14.6 (1.7)	12.6 (1.3)	12.4 (1.7)	9.6 (1.1)	12.9 (1.2)
High school or equivalent	41.4 (3.5)	34.0 (2.3)	40.5 (1.7)	10.7 (1.1)	9.2 (0.7)	12.3 (0.6)
Some college	23.5 (3.0)	28.2 (2.2)	24.1 (1.5)	10.2 (1.5)	10.4 (0.9)	10.7 (0.7)
Completed college or higher	14.8 (2.5)	23.2 (2.1)	22.8 (1.6)	7.8 (1.6)	9.9 (1.0)	10.7 (0.8)
Federal poverty level†						
≤149%	18.5 (2.8)	17.5 (1.9)	20.1 (1.4)	8.9 (1.2)	8.7 (0.8)	11.0 (0.8)
150–299%	30.7 (3.3)	20.6 (2.0)	28.4 (1.8)	10.0 (1.3)	8.1 (0.8)	10.5 (0.7)
≥300%	50.7 (3.6)	61.9 (2.4)	51.5 (2.0)	11.1 (1.2)	10.9 (0.7)	12.5 (0.6)
Race/ethnicity						
Hispanic	11.7 (2.2)	10.4 (1.4)	11.8 (1.1)	12.2 (2.5)	9.1 (1.4)	10.8 (0.8)
Non-Hispanic white	73.2 (3.0)	73.4 (2.1)	68.8 (1.5)	8.1 (0.7)	8.4 (0.5)	10.0 (0.4)
Non-Hispanic black	12.9 (2.3)	12.0 (1.5)	13.5 (1.0)	8.6 (0.9)	7.8 (0.6)	10.1 (0.7)
Non-Hispanic other	2.2 (1.0)	4.2 (0.9)	5.9 (0.9)	6.3 (3.2)	8.7 (2.3)	13.1 (1.9)
Total	100.0	100.0	100.0	na	na	na
No. (in millions)	4.6	4.9	6.2	54.1	57.9	60.2

†Among women aged 22–44 only. *Notes:* In this and subsequent tables, characteristic measured at time of interview. Hispanic women can be of any race. na=not applicable.

*Projections based on somewhat higher impaired fecundity rates than observed in the 1988 NSFG and on all three sets of Census Bureau assumptions (low, medium and high series) for fertility, mortality and migration still yielded a projected figure of only 5.3 million fecundity-impaired women in 1995 (see: reference 5).

†Total birthrates increased from 64.1 births per 1,000 women aged 30–34 in 1982 to 82.5 per 1,000 in 1995, and rates also rose from 21.2 births per 1,000 35–39-year-olds to 34.3 per 1,000 over the same period (see: Ventura SJ et al., reference 2). These trends in overall birthrates, which were mirrored by trends in first-birth rates among older women (see: NCHS, reference 2), support the assumption that more older women were in fact trying to conceive in 1995 than in earlier years.

Table 3. Adjusted odds ratios (and 95% confidence intervals) showing the likelihood of impaired fecundity among sexually experienced women aged 15–44 who were not surgically sterile, by selected characteristics, according to year of survey

Characteristic	1982 (N=4,936)	1988 (N=5,036)	1995 (N=6,646)
Age			
15–24	1.0	1.0	1.0
25–34	3.3*** (2.5–4.2)	2.4*** (1.8–3.0)	2.6*** (2.0–3.3)
35–44	11.0*** (8.2–14.9)	7.5*** (5.6–10.0)	10.2*** (7.9–13.1)
Parity			
0	1.0	1.0	1.0
≥1	0.5*** (0.4–0.6)	0.6*** (0.5–0.8)	0.8 (0.7–1.0)
Marital status			
Married	2.1*** (1.7–2.6)	2.4*** (2.0–3.0)	2.2*** (1.8–2.6)
Unmarried	1.0	1.0	1.0
Ever had PID			
Yes	2.6*** (2.1–3.2)	2.6*** (2.1–3.3)	2.6*** (2.0–3.5)
No	1.0	1.0	1.0
Wants a baby			
Yes	1.5** (1.2–1.9)	1.5*** (1.2–1.8)	4.7*** (3.7–5.9)
No	1.0	1.0	1.0
Education			
<bachelor's degree	1.0	1.0	1.0
≥bachelor's degree	0.5** (0.4–0.6)	0.6*** (0.5–0.7)	0.5*** (0.4–0.6)
Federal poverty level			
<300%	1.0	1.0	1.0
≥300%	1.0 (0.8–1.2)	0.9 (0.8–1.1)	0.9 (0.7–1.0)
Race/ethnicity			
Non-Hispanic white/ other	1.0	1.0	1.0
Non-Hispanic black	1.1 (0.8–1.4)	1.0 (0.8–1.4)	1.2 (1.0–1.6)
Hispanic	1.4* (1.1–1.9)	1.0 (0.8–1.4)	1.0 (0.8–1.3)

*p<.05. **p<.005. ***p<.0005.

reported PID (from 14% in 1982 to 8% in 1995[10]), a larger percentage of women than before may now have unrecognized and possibly more serious (i.e., more difficult to treat) infections.

Moreover, clinical changes in the management of PID (for example, a preference for outpatient treatment over hospitalizations) might have increased the proportion of women at risk of impaired fecundity among those with a history of PID. While 20–40% of women infected with gonorrhea or chlamydia develop PID, which in about 20% of cases leads to involuntary infertility, it should be noted that approximately 70% of chlamydial infections and 50% of gonococcal infections are asymptomatic.[11] In addition to this problem of "silent infections," gonorrheal infections in the United States are becoming increasingly resistant to standard antibiotics.[12] Thus, such a masked increase in STDs, although difficult to discern from surveillance data, would affect women across all age-groups, including those at the youngest reproductive ages, among whom substantial increases in impaired fecundity would not be expected.[13]

Table 3 presents for each NSFG survey round the weighted logistic regression results, which estimate the odds ratios for currently having impaired fecundity, after adjusting for key correlates among sexually experienced women who were not surgically sterile at the time of the interview. The adjusted odds ratios, which in most cases were consistent across the survey years, mirror the associations apparent in the bivariate analyses, and in analyses based on earlier NSFG cycles.[14] For example, women who had ever had a child were less likely than nulliparous women to report impaired fecundity; the odds of impaired fecundity increased with age and with a history of PID; and married women were twice as likely as unmarried women to report impaired fecundity.*

In 1982, Hispanic women were significantly more likely (odds ratio of 1.4) than non-Hispanic whites and others to be classified with impaired fecundity at the time of the survey, although the number of cases involved was quite small. Analyses of larger samples of black and Hispanic women in the two later rounds, however, revealed no statistically significant associations, although in 1995, blacks were marginally more likely than whites to have impaired fecundity (odds ratio of 1.2).

We expected that women who wanted a child† would have increased odds of impaired fecundity, because the recognition of a fertility problem is largely dependent on attempting to conceive. The bivariate data from the 1982 and 1988 rounds showed no association between impaired fecundity and fertility desires, but descriptive data from the 1995 NSFG do show such an association. In the multivariate model, the strength of this association was significantly greater in 1995 than in earlier years, with women who wanted a baby at the time of the interview being nearly five times as likely to have impaired fecundity as those who did not want to have one.

Receipt of Services

In the remainder of this article, we present NSFG data on the receipt of infertility services—that is, the receipt of medical help either to become pregnant or to carry a baby successfully to term. The absolute number of all women aged 15–44 who had ever received such help increased by nearly 40% over the three surveys, from 6.6 to 9.2 million, and the bulk of this increase occurred since 1988.[15] In 1982, 1.8 million women with impaired fecundity at the time of the interview had ever sought infertility services, while in 1995 this number was 2.7 million.

Table 4, which presents data from the 1995 NSFG only, illustrates the selectivity of women's characteristics, and in some cases the nonselectivity, associated with impaired fecundity and the receipt of medical help. As expected, relative to all women, women with impaired fecundity were older and were more likely to be married, to want a baby, to have ever adopted a child or to have had PID (see column 2). Although fecundity-impaired women were no more likely than all women to be nulliparous, among nulliparous women, those with impaired fecundity were significantly older. However, fecundity-impaired women were similar to the general population in terms of their education, income, and race and ethnicity.

Of the 6.2 million women with impaired fecundity in 1995, about 2.7 million (44%) had ever sought infertility services in their lives, and about 700,000 (11%) had done so in the previous year. The data in Table 4 confirm expectations that fecundity-impaired women who seek medical help remain a select group and are not representative of all women with impaired fecundity.[16] As expected, the former were more likely than the latter to be older (particularly among nulliparous women), married and wealthier. In addition, at the time of the interview, fecundity-impaired women who had ever received services were more likely than all such women to want a baby, but were not significantly more likely to have had PID or to have ever adopted a child.

Although relatively few women with impaired fecundity sought medical help in the year before their 1995 interview

*Unmarried women in all three survey years included a small number of cohabiting women, but these numbers were too small to analyze separately.

†The NSFG used separate measures of whether the woman *wanted* to have a child and whether she *expected* to have one. For this analysis, we used the former measure only. However, the line between desire and expectation may be blurred, particularly among women with impaired fertility, who may modify their desires based on their likelihood of successfully having a child.

(and thus statistically significant differences were rarely observed), the data suggest some potential differences between these women and those who had ever gone for help: Women who recently received services were more likely to be younger and nulliparous. They were also more likely to have wanted a child at the time of the interview, and were somewhat more likely (though only significant at the 15% alpha level) to have a history of PID.

The younger age distribution of women who recently received services, coupled with their greater likelihood of a history of PID, suggests not only that PID-related fertility problems may be more salient among younger women, but also that the prevalence of impaired fecundity among women with a history of PID may continue to rise over time.

The percentage of women with impaired fecundity at the time of the interview who had ever received medical help for their problem was the same in the 1988 and 1995 surveys (44%), while it was 38% in the 1982 round (Table 5, page 40). The finding that this proportion was constant between 1988 and 1995 is notable in itself, since the numbers of assisted reproductive procedures (such as in vitro fertilization) rose dramatically over this period,[17] as did the absolute number of women who ever received such services. Thus, the increase in the number of fecundity-impaired women who sought services, from 2.1 million in 1988 to 2.7 million in 1995, was due primarily to the larger size of the fecundity-impaired population.

Among fecundity-impaired women who received services, consistently higher proportions in all years were older (particularly aged 25–44), married, wealthier, well-educated and white. The receipt of infertility services was not associated with a history of PID in any of the survey years but, as expected, women who had ever adopted a child and those who said they wanted a child (or another child) at the time of the interview were more likely than others to have ever sought services.

Notably, the pursuit of medical help increased substantially among women at both ends of the reproductive age-span who had secondary impaired fecundity at the time of the interview. For example, while only 8% of parous 15–24-year-old fecundity-impaired women had ever sought help by 1982, 47% had done so by 1995; the analogous proportions among 35–44-year-olds who had ever given birth were 27% in 1982 and 50% in 1995.

Non-Hispanic black women with impaired fecundity were also somewhat more likely in the 1995 survey than in the 1982 survey to report having ever received treatment for their problem (31% vs. 24%), although this difference was significant only at the 15% alpha level. Another finding that was only significant at the 10% alpha level, but nonetheless calls for further investigation, is the apparent reversal over time in the relationship between receipt of services and parity: In 1982 and 1988, nulliparous women were more likely than parous women to have ever sought infertility services; in 1995, however, they were less likely to have done so.

Table 6 (page 41) shows the results of weighted logistic regressions of the likelihood that women with impaired fecundity had ever sought medical help for their problem. The adjusted effect of age was quite strong in 1982, with fecundity-impaired women aged 25–44 being 4–5 times more likely to have ever sought medical help than younger women. The net effect of age weakened considerably over time, however, as only 35–44-year-olds were significantly more likely than 15–24-year-olds to report ever receiving infertility services in the 1995 NSFG.

In 1995, women with secondary impaired fecundity were roughly 40% more likely than those with primary impaired fecundity to ever have gone for help; this finding represents a reversal of the adjusted effect of parity in 1982 and 1988.

Marriage was one of the strongest correlates of the receipt of services in each survey year, as it was for reporting impaired fecundity; married women were nearly three times as likely as unmarried women to have ever sought services. In the 1982 and 1988 surveys, non-Hispanic black women had marginally lower odds than white women of reporting that they had ever sought medical help, but the association was no longer significant in the 1995 survey. Although a history of PID was associated with higher odds of impaired fecundity, having ever had PID did not significantly raise the likelihood in the 1988 and 1995 surveys of having ever

Table 4. Percentage distribution of women aged 15–44, by characteristic, according to fecundity status and service-seeking behavior, 1995 NSFG

Characteristic	All women	Women with impaired fecundity		
		All	Who ever sought services	Who sought services in past year
	(N=10,847)	(N=1,116)	(N=485)	(N=123)
Age				
15–24	29.9	17.8**	9.6**	20.9*
25–34	34.5	37.7	38.7	48.4
35–44	35.6	44.4**	51.7*	30.8**
Parity				
0	41.9	45.3	39.7	56.7**
≥1	58.1	54.7	60.3	43.3**
Parity and age				
Nulliparous women				
15–24	55.9	27.6**	9.9**	19.4
25–34	28.3	35.7**	39.4	49.5
35–44	15.8	36.7**	50.8**	31.1*
Parous women				
15–24	11.1	9.7	9.4	22.8
25–34	39.0	39.5	38.3	46.9
35–44	49.9	50.8	52.3	30.3**
Marital status				
Married	49.3	62.4**	78.7**	81.6
Unmarried	50.7	37.6**	21.3**	18.4
Ever adopted a child				
Yes	0.8	3.1**	6.1	0.0
No	99.2	96.9**	93.9	100.0
Ever had PID				
Yes	7.6	14.1**	13.5	19.2
No	92.4	85.9**	86.5	80.8
Wants a baby				
Yes	53.5	70.6**	78.6**	95.4**
No	46.5	29.4**	21.4**	4.6**
Education†				
<high school	11.4	12.6	8.1	8.9
High school or equivalent	38.1	40.5	39.2	36.1
Some college	26.0	24.1	24.7	20.5
Completed college or higher	24.6	22.8	28.0	34.5
Federal poverty level†				
≤149%	21.1	20.1	13.4*	10.9
150–299%	31.3	28.4	26.3	17.4
≥300%	47.6	51.5	60.3*	71.7
Race/ethnicity				
Hispanic	11.1	11.8	9.1	12.4
Non-Hispanic white	70.6	68.8	75.6	74.9
Non-Hispanic black	13.6	13.5	9.6	9.8
Non-Hispanic other	4.6	5.9	5.6	2.8
Total	100.0	100.0	100.0	100.0
No. (in millions)	60.2	6.2	2.7	0.7

*The 90% confidence interval for this percentage does not overlap with that for percentage in column to the left. **The 95% confidence interval for this percentage does not overlap with that for percentage in column to the left. †Among women aged 22–44 only.

Table 5. Among women with impaired fecundity, percentage (and standard error) who ever sought medical help, by characteristic, according to year of survey.

Characteristic	1982	1988	1995
Total	**38.4 (3.3)**	**43.6 (2.3)**	**43.7 (1.7)**
Age			
15–24	16.7 (5.7)	25.7 (4.9)	23.5 (3.8)
25–34	50.6 (5.1)	46.9 (3.6)	44.8 (2.9)
35–44	35.7 (5.3)	48.5 (3.8)	50.8 (2.5)
Parity			
0	45.2 (5.3)	46.3 (3.7)	38.2 (2.5)
≥1	33.5 (4.1)	41.3 (3.0)	48.2 (2.1)
Parity and age			
Nulliparous women			
15–24	20.1 (7.4)	23.1 (6.0)	13.6 (3.2)
25–34	56.5 (8.2)	54.1 (5.5)	42.2 (4.5)
35–44	59.9 (10.4)	57.2 (6.8)	52.8 (4.1)
Parous women			
15–24	7.8 (7.3)	31.3 (8.2)	46.7 (7.7)
25–34	46.2 (6.5)	40.7 (4.7)	46.7 (3.4)
35–44	27.0 (5.7)	44.2 (4.5)	49.6 (2.9)
Marital status			
Married	46.4 (4.3)	52.6 (3.1)	55.1 (2.3)
Unmarried	22.3 (4.5)	27.2 (3.3)	24.7 (2.3)
Ever adopted a child			
Yes	79.4 (11.5)	91.7 (6.4)	86.0 (7.7)
No	38.2 (3.4)	41.2 (2.4)	42.3 (1.7)
Ever had PID			
Yes	37.3 (6.2)	45.2 (5.4)	42.0 (4.1)
No	42.4 (3.9)	43.2 (2.6)	44.0 (1.8)
Wants a baby			
Yes	47.1 (4.3)	48.5 (3.1)	48.6 (2.0)
No	25.4 (4.7)	36.2 (3.5)	31.8 (2.9)
Education†			
<high school	25.0 (6.6)	37.6 (5.8)	30.2 (5.2)
High school or equivalent	45.5 (5.6)	40.3 (4.1)	45.5 (2.8)
Some college	41.8 (7.0)	44.4 (4.6)	48.0 (3.4)
Completed college or higher	54.1 (10.1)	61.8 (5.5)	57.5 (4.2)
Federal poverty level†			
≤149%	24.3 (6.1)	23.0 (4.3)	31.3 (3.8)
150–299%	36.1 (6.1)	45.0 (5.3)	43.4 (3.6)
≥300%	51.5 (5.4)	52.9 (3.3)	54.9 (2.4)
Race/ethnicity			
Hispanic	28.2 (11.7)	35.1 (7.9)	33.8 (4.4)
Non-Hispanic white	42.5 (4.8)	47.2 (3.1)	48.0 (1.9)
Non-Hispanic black	24.0 (4.4)	30.6 (3.9)	31.2 (3.9)
Non-Hispanic other	42.6 (23.8)	38.4 (13.6)	41.7 (7.8)
No. (in millions)	4.6	4.9	6.2

†Among women aged 22–44 only.

received medical help, and it only marginally raised that likelihood in the 1982 survey. As expected, women with impaired fecundity who at the time of the interview wanted a child were 2–3 times as likely as those who did not want one to report in each survey year that they had ever sought related medical help.

Discussion and Conclusions

Because the NSFG is the only source for current, nationally representative infertility data, projections of future demand for services and estimates of the population at risk of fertility problems have relied on NSFG-based estimates of the proportions of women with impaired fecundity and of those who seek medical help.[18] Our primary purpose in this article was to present new data from the 1995 NSFG, and thus to document recent trends; we did not intend to embark at this stage on a definitive analysis of the reasons behind the trends. In addressing the two central questions of this article, we identified several points that merit closer scrutiny in future work with the NSFG data.

While overall and age-specific rates of impaired fecundity did not change substantially between 1982 and 1988, the overall rate rose by nearly two percentage points from 1988 to 1995, which represents a 20% increase. The prevalence of impaired fecundity rose in almost all subgroups of women over time, even though the differences between surveys were not always statistically significant. In addition, the increase in women who were classified as "subfecund" appeared to account for the rise in overall impaired fecundity.

We wish to emphasize here that impaired fecundity (and the "subfecund" component of it in particular, which imposes no requirements of duration or of absolute sterility) is a subjective measure, and therefore its usefulness in assessing the population at risk of impairment and future demand for services is somewhat limited.[19] Notably, although fecundity-impaired women were more likely than others to report wanting to have a child at the time of the interview, impairment was not synonymous with wanting a child at that moment. However, such women most likely wanted a child at some point, since fecundity-impaired women generally needed to have tried to conceive at some point in their lives to detect a fertility problem.

Attempts to project future demand for infertility services will have to consider that a certain unverifiable fraction of women who have never tried to conceive, including many practicing contraception at the time of the interview, may have undetected fertility problems. These women may or may not wish to conceive in the future. Similarly, a fraction of those who reported impaired fecundity at the time of interview did not want a child (e.g., nearly 30% of fecundity-impaired women in 1995), had already given birth with medical help or both. Thus, incorporating data on the desire for a future birth is a necessary but only partial step in quantifying the population at risk for having and recognizing fertility problems.

Other numerous interrelated issues, which are beyond the scope of this article, need to be considered in evaluating self-reports of fertility problems. Most pertain to the selectivity associated with recognizing and reporting such problems. For example, certain socioeconomic variables (e.g., being married or having a college education) may have acquired different meaning over time. This possibility, along with differentials and temporal changes in abortion reporting, may be behind the divergent trends in the two NSFG-defined measures of fertility problems—"impaired fecundity" and "infertility." (As mentioned earlier, the prevalence of 12-month infertility has declined over time, while that of impaired fecundity has increased.)

One also needs to explore the extent to which changing attitudes and awareness about infertility affect self-reported data, although this might be more difficult to ascertain from available data. For example, women may be more likely in recent years to report difficulties having a baby based solely on their age, rather than on their actual experience of not being able to conceive after sufficient time or of receiving an infertility diagnosis.

The proportion of women with impaired fecundity who sought medical help for that problem did not change between 1988 and 1995, remaining at about 44%. The absolute number of fecundity-impaired women who ever sought help, however, increased by nearly 30%, from 2.1 to 2.7 million. This increase was due to the fact that there were simply more women with impaired fecundity, because the large baby-boom cohort had reached their later and less-fecund reproductive

years, and because impaired-fecundity rates grew by roughly two percentage points from 1988 to 1995.

Data from the 1995 NSFG indicate that service-seekers continue to be a highly selected group among all women with impaired fecundity, as was observed in earlier cycles of the survey.[20] Given that a greater range of services and providers is now available and that public awareness of these options has also grown, further studies might explore whether women (or couples) are pursuing medical help earlier or more assiduously. Women may decide to try to conceive at younger ages as they become more aware that fertility declines with age. Conversely, older women may be reassured by recent successes in new fertility technologies (e.g., the use of donor eggs) and may continue to delay childbearing, or women may seek medical help after relatively fewer months of trying to conceive.

In 1982 and 1988, women with secondary impaired fecundity were less likely than those with primary impaired fecundity to pursue medical help, but in 1995 this association was reversed. We hypothesized that some women with secondary impaired fecundity may also have had fertility problems before having their first child (i.e., they might have conceived through medical help, but were still reporting impaired fecundity at the time of the interview). In the series of questions on impaired fecundity, these women, regardless of their fertility desires at the time of interview, were probably classified as subfecund because they reported (appropriately) that it would be physically difficult for them to have another child.

While this potential shortcoming applies to all three subgroups of impaired fecundity, it is mainly problematic among subfecund women; women in the two other categories (nonsurgically sterile and those with a long interval without a conception) met somewhat more objective criteria—either an absolute sterility requirement or a duration requirement. If these women had secondary impaired fecundity at the time of their interview, the onset (or recognition) of their impaired fecundity would most likely not have preceded their first birth. This is not as certain for women in the subfecund group.

While the relative timing of a first birth and the first receipt of infertility services was a concern in all three surveys, the 1995 round was able to disentangle this issue more than the earlier rounds, because it provided more precise data on primary and secondary impaired fecundity. The 1995 questionnaire asked whether women with impaired fecundity had sought medical help in achieving conception and in preventing miscarriage for *each* pregnancy. As a first step in testing our hypothesis—that is, that the shift in the association between parity and service-seeking over time arose from the nonspecificity in the timing of the receipt of services—we reclassified some women with secondary fecundity impairment as having primary impairment if they reported any medical help with a first pregnancy that ended in a live birth.

This reassignment confirmed our hypothesis: As with the 1982 and 1988 surveys, the reclassified 1995 data also indicate that women with primary impaired fecundity were more likely than those with secondary impaired fecundity to have pursued services. Our hypothesis was further supported when we considered the parity of women who had sought services within the past year; these women who recently sought services were more likely to be nulliparous than those who had ever gone for services in their lives.

In describing trends in impaired fecundity and in the receipt of medical help from 1982 through 1995, we were by necessity limited to using variables that were available in all three surveys. The 1995 NSFG, however, included additional data, as respondents who ever sought help were asked about a greater range of services than in earlier surveys, and also were asked directly about their insurance coverage and the diagnoses they received. These data will more fully characterize women who seek infertility services than was previously possible; a preliminary examination suggests that the prevalence of specific fertility-related conditions, based on the self-reported data on diagnoses, were fairly consistent with prevalences noted in patient-based studies. This consistency lends credibility to the NSFG's self-reported data on fertility impairment.

Table 6. Adjusted odds ratios (and 95% confidence intervals) showing the likelihood that women with impaired fecundity ever received infertility services, by characteristic, according to year of survey

Characteristic	1982 (N=665)	1988 (N=704)	1995 (N=1,116)
Age			
15–24	1.0	1.0	1.0
25–34	5.4*** (3.1–9.6)	1.9* (1.2–3.2)	1.5 (0.9–2.5)
35–44	3.9*** (2.1–7.3)	2.2* (1.2–3.8)	1.9* (1.9–3.2)
Parity			
0	1.0	1.0	1.0
≥1	0.6* (0.4–0.9)	0.7* (0.5–1.0)	1.4* (1.0–1.9)
Marital status			
Married	2.8*** (1.8–4.3)	2.6*** (1.8–3.8)	2.5*** (1.8–3.6)
Unmarried	1.0	1.0	1.0
Ever had PID			
Yes	1.5* (1.0–2.2)	1.3 (0.9–2.0)	1.2 (0.8–1.7)
No	1.0	1.0	1.0
Wants a baby			
Yes	2.7*** (1.8–4.2)	1.9*** (1.4–2.8)	2.0*** (1.4–2.8)
No	1.0	1.0	1.0
Education			
<bachelor's degree	1.0	1.0	1.0
≥bachelor's degree	1.3 (0.8–2.2)	1.8* (1.2–2.7)	1.3 (0.9–2.0)
Federal poverty level			
<300% of poverty	1.0	1.0	1.0
≥300% of poverty	1.5* (1.1–2.2)	1.2 (0.8–1.7)	1.4* (1.0–2.0)
Race/ethnicity			
Non-Hispanic white or other	1.0	1.0	1.0
Non-Hispanic black	0.6* (0.3–1.1)	0.6* (0.4–1.1)	0.7 (0.5–1.1)
Hispanic	0.7 (0.4–1.2)	0.7 (0.4–1.3)	0.7* (0.4–1.1)

*p<.05. **p<.005. ***p<.0005.

These new 1995 data, along with our documentation of trends since the 1980s, will help evaluate assumptions about the prevalence of self-reported fertility problems in future cohorts of women. They will also aid in fine-tuning estimates of the likelihood that subgroups of fecundity-impaired women will seek out services, and thus yield more accurate projections of service demand and health care costs than have been possible to date.

References

1. Chandra A and Mosher WD, The demography of infertility and the use of medical care for infertility, *Infertility and Reproductive Medicine Clinics of North America*, 1994, 5(2):283–296; Greenhall E and Vessey M, The prevalence of subfertility: a review of the current confusion and a report of two new studies, *Fertility and Sterility*, 1990, 54(6):978–983; Hirsch MB and Mosher WD, Characteristics of infertile women in the United States and their use of infertility services, *Fertility and Sterility*, 1987, 47(4):618–625; Kalmuss D, The use of infertility services among fertility-impaired couples, *Demography*, 1987, 24(4):575–585; Marchbanks P et al., Research on infertility: definition makes a difference, *American Journal of Epidemiology*, 1989, 130(2):259–267; and Mosher WD and Pratt WF, Fecundity and infertility in the United States: 1965–88, *Advance Data from Vital and Health Statistics*, 1990, No. 192, pp. 1–12.

2. Abma JC et al., Fertility, family planning, and women's health: estimates from the 1995 National Survey of Fam-

ily Growth, *Vital and Health Statistics,* 1997, Series 23, No. 19; Ventura SJ et al., Report of the final natality statistics, 1995, *Monthly Vital Statistics Report*, 1997, Vol. 45, No. 11, Supplement 2; and National Center for Health Statistics (NCHS), *Vital Statistics of the United States, 1993, Vol. 1, Natality,* in press.

3. Chandra A and Mosher WD, 1994, op. cit. (see reference 1); and Mosher WD and Pratt WF, 1990, op. cit. (see reference 1).

4. Chandra A and Mosher WD, 1994, op. cit. (see reference 1); Hirsch MB and Mosher WD, 1987, op. cit. (see reference 1); and Kalmuss D, 1987, op. cit. (see reference 1).

5. Stephen EH, Projections of impaired fecundity among women in the United States: 1995–2020, *Fertility and Sterility,* 1996, 66(2):205–209.

6. Mosher WD and Pratt WF, 1990, op. cit. (see reference 1); and Abma JC et al., 1997, op. cit. (see reference 2)

7. Brett KM, Marsh JVR and Madans JH, Epidemiology of hysterectomy in the United States: demographic and reproductive factors in a nationally representative sample, *Journal of Women's Health,* 1997, 6(3):309–316; and Lepine LA et al., Hysterectomy surveillance—United States, 1980–93, in CDC Surveillance Summaries, *Morbidity and Mortality Weekly Report,* 1997, 46(SS-4):1–15.

8. U.S. Bureau of the Census, <http://www.census.gov/population/socdemo/education/table a–02.txt>, accessed Dec. 15, 1997.

9. Abma JC et al., 1997, op. cit. (see reference 2); and Stephen EH, 1996, op. cit. (see reference 5).

10. Abma JC et al., 1997, op. cit. (see reference 2); and Aral SO, Mosher WD and Cates W, Jr., Self-reported pelvic inflammatory disease in the United States, 1988, *Journal of the American Medical Association,* 1991, 266(18):2570–2573.

11. Unpublished data from the Centers for Disease Control and Prevention (CDC), Sexually Transmitted Disease Surveillance, Atlanta, Sept. 1996.

12. Eng TR and Butler WT, eds., *The Hidden Epidemic: Confronting Sexually Transmitted Diseases,* Washington, DC: Institute of Medicine and National Academy Press, 1997.

13. Ibid.

14. Hirsch MB and Mosher WD, 1987, op. cit. (see reference 1); and Wilcox LS and Mosher WD, Characteristics associated with impaired fecundity in the United States, *Family Planning Perspectives,* 1994, 26(5):218–221.

15. Abma JC et al., 1997, op. cit. (see reference 2); and Chandra A and Mosher WD, 1994, op. cit. (see reference 1).

16. Chandra A and Mosher WD, 1994, op. cit. (see reference 1); Hirsch MB and Mosher WD, 1987, op. cit. (see reference 1); Kalmuss D, 1987, op. cit. (see reference 1); and Wilcox LS and Mosher WD, Use of infertility services in the United States, *Obstetrics and Gynecology,* 1993, 82(1):122–127.

17. Society for Assisted Reproductive Technology and American Society for Reproductive Medicine, Assisted reproductive technology in the United States and Canada: 1994 results generated from the American Society for Reproductive Medicine/Society for Assisted Reproductive Technology Registry, *Fertility and Sterility,* 1996, 66(5):697–701.

18. Stephen EH, 1996, op. cit. (see reference 5).

19. Ibid.; Greenhall E and Vessey M, 1990, op. cit. (see reference 1); and Marchbanks P et al., 1989, op. cit. (see reference 1).

20. Chandra A and Mosher WD, 1994, op. cit. (see reference 1); Hirsch MB and Mosher WD, 1987, op. cit. (see reference 1); Wilcox LS and Mosher WD, 1994, op. cit. (see reference 14); and Wilcox LS and Mosher WD, 1993, op. cit. (see reference 16).