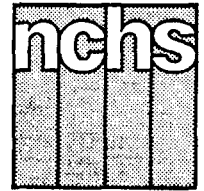


# Advance Data



From Vital and Health Statistics of the CENTERS FOR DISEASE CONTROL AND PREVENTION/National Center for Health Statistics

## AIDS-Related Behavior Among Women 15–44 Years of Age: United States, 1988 and 1990

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In 1990, 10 percent of sexually active women 15–44 years of age (those who had intercourse in the last month) were having intercourse with partners who always used condoms, either to prevent sexually transmitted diseases (STD's) or for contraception. In 1990, about 6 percent of married women and 16 percent of sexually active unmarried women always used condoms. Unmarried women with more than one sexual partner in the last 3 months were also more likely than those with one partner to use condoms sometimes, but they were not more likely to use condoms at every recent act of intercourse (always).

There was an increase from 14 percent in 1988 to 18 percent in 1990 in the proportion of sexually experienced women who reported changes in their sexual behavior to avoid the human immunodeficiency virus (HIV), the virus that causes the acquired immunodeficiency syndrome (AIDS). Increases occurred in each subgroup shown in this report. Most of the increases were not statistically significant, and none of the changes for unmarried women were significant. Thus, it appears that the public health impact of these reported changes was small.

These findings are from the 1988 National Survey of Family Growth (NSFG) and the 1990 NSFG telephone reinterview, both conducted by the National Center for Health Statistics (NCHS). These surveys were not focused exclusively on AIDS-related behavior. Rather, they were designed to provide a wide range of data on topics related to childbearing—including pregnancies and their outcomes, contraception, infertility, use of medical services for family planning, prenatal care, and other selected aspects of maternal and infant health. Questions on AIDS-related knowledge, behavior, and condom use were included in the 1988 and 1990 interviews in response to requests for AIDS-related information from other agencies in the United States Public Health Service.

The 1988 NSFG was based on a national sample of 8,450 women 15–44 years of age—2,771 black women, 5,354 white women, and 325 women of other races. These women were interviewed in person in their own homes between January and August 1988 by professional female interviewers. The sample was obtained from households that had participated in the National Health

Interview Survey in the 18-month period between October 1985 and March 1987. The methodology of the 1988 survey is described in detail elsewhere (1,2). The findings on AIDS-related knowledge and behavior for 1988 were summarized in a previous report (3).

Between July and November 1990, 5,686 women were interviewed for the NSFG telephone reinterview. The overall response rate was 68 percent. All interviews in 1990 were conducted by telephone; 5,359 were reinterviews of women previously interviewed in person in 1988. The other 327 were first-time telephone interviews with women 15–17 years of age, who had turned 15 in the 2½ years since the 1988 interview.

The average length of interview in 1990 was only 20 minutes compared with 70 minutes in 1988. In order to save interview time and make room for more questions, the 1990 telephone reinterview survey was divided into two “half-samples.” About 10 of the 20 minutes of interview time was devoted to questions that were asked of all responding women. In the other 10 minutes of interview time, half the sample (2,854 cases, called “half-



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sample I") was asked detailed questions on use of contraception and family planning services, as in previous NSFG interviews.

The other half of the sample (2,832 cases, called "half-sample II") was asked questions related to HIV and AIDS. These included questions on how HIV is transmitted, the sources and extent of HIV testing, behavior change, and condom use. Women were not asked about injecting drug use or types of intercourse. This report analyzes results from only half-sample II because half-sample I did not contain the necessary questions on AIDS-related behavior and condom use. Another report presents data on HIV testing from half-sample II of the 1990 survey.

The methodology of the telephone reinterview survey is described in more detail in the Technical notes of this report. The nonresponse adjustments and procedures for weighting the data for the 1990 survey are described in detail in a separate paper (4).

Unmarried women in 1990 will be used as a group in many of the analyses in this report. As a group, women who were unmarried in 1990 were young: 75 percent had never been married and 68 percent were under 30 years of age (not shown in tabular form). This means that most unmarried women began having intercourse during the HIV-AIDS era—the 1980's.

### Questions on AIDS-related behavior in 1988 and 1990

In the 1988 NSFG, all women who had ever had intercourse were asked,

To keep people from catching diseases such as genital herpes, chlamydia, or AIDS, doctors have suggested several changes people can make in their sexual behavior. In which of the ways shown on card 27, if any, have you changed your sexual behavior?

The changes women could have reported were:

- A. Stopped having sexual intercourse.
- B. Stopped having other types of sexual relations.
- C. Don't have sex as often.
- D. Stopped having sex with more than one man.
- E. Stopped having sex with men I don't know well.
- F. Stopped having sex with men who are bisexual.
- G. Stopped having sex with men who use needles to take drugs.
- H. Have made no changes.

Women who reported that they had made any of these changes in their behavior to avoid these diseases were then asked,

Which of these changes, if any, have you made since you first heard about AIDS?

These questions on behavior change were known to be limited when they were written in 1986 and 1987. For example, there are no questions asking how often the woman did these things before she heard of AIDS—such as questions asking the woman whether she had "other types of sexual relations" (other than vaginal heterosexual intercourse) before she heard of AIDS (B), or how often she had intercourse before she heard of AIDS (C), or whether she had intercourse "with more than one man" in the same month (D), or whether she had intercourse with men she didn't "know well" (E) before she heard of AIDS. That is, there is no "baseline" rate for those behaviors before the woman heard of AIDS. However, those "baseline" questions were judged too sensitive to be used in 1988. The 1988 questions were, primarily, an experiment to see whether the subject of AIDS-related behavior could be discussed in a survey of the general population of women. The questions did succeed in that goal and produced the following results.

About 3 percent of married women and about 31 percent of the

sexually experienced unmarried women reported making one or more of these changes since they first heard about AIDS (3). The most common changes reported were "Stopped having sex with more than one man," reported by 16 percent of unmarried women who had ever had intercourse, and "Stopped having sex with men I don't know well," reported by 12 percent of unmarried women who had ever had intercourse. These results encouraged NCHS to ask further questions.

In the 1990 NSFG telephone reinterview, there was concern that a list of changes in behavior like that used in 1988 would be difficult to administer by telephone, would be more sensitive over the telephone, and would take considerable interview time—given that only 10 minutes were available for AIDS-related questions in half-sample II. As a result of such concerns, two short questions were used in place of the above list:

Since you first heard about AIDS have you changed your sexual behavior in ANY way? (and, if "yes") Have you changed your sexual behavior specifically to keep you or your partner from being infected with the AIDS virus?

This pair of questions in 1990 was intended to be comparable to the longer set of questions in 1988. Assuming that they are approximately comparable, trends in the number of women reporting changes in their behavior in response to the HIV can be assessed. These trends are reported in table 1, and they show an increase between 1988 and 1990 in the percent who reported changing their sexual behavior in all of the 21 race-marital status and number of partners groups except one—unmarried non-Hispanic black women. The overall increase, from 14 percent in 1988 to 18 percent in 1990, was statistically significant. However, the changes were significant in only 6 of the 21 comparisons in table 1, and none of the increases for unmarried women was significant at

**Table 1. Number and percent of women 15–44 years of age who have ever had intercourse and who reported changing their sexual behavior specifically to avoid the AIDS virus, by selected characteristics: United States, 1988 and 1990**

Selected characteristic	All marital statuses		Married		Unmarried	
	1990	1988	1990	1988	1990	1988
	Number in thousands					
Total <sup>1</sup> . . . . .	53,369	51,799	31,417	27,840	21,952	20,264
Race and origin						
Hispanic . . . . .	4,639	4,574	2,867	2,279	1,771	1,901
Non-Hispanic white . . . . .	39,581	38,553	24,921	22,513	14,660	13,486
Non-Hispanic black . . . . .	7,015	6,778	2,396	1,977	4,618	4,276
Lifetime number of sexual partners						
1–3 men . . . . .	27,218	26,872	18,185	18,140	9,032	8,732
4–6 men . . . . .	13,520	10,573	6,665	5,351	6,854	5,222
7 men or more . . . . .	11,469	9,788	5,894	3,999	5,575	5,789
	Percent					
Total <sup>1</sup> . . . . .	18.0	14.4	5.3	2.9	36.3	32.8
Race and origin						
Hispanic . . . . .	20.7	18.4	7.1	*6.3	42.7	36.6
Non-Hispanic white . . . . .	15.0	11.2	4.4	2.4	33.1	27.8
Non-Hispanic black . . . . .	34.5	30.8	15.2	*6.4	44.5	45.9
Lifetime number of sexual partners						
1–3 men . . . . .	9.5	8.1	2.3	1.8	24.0	21.2
4–6 men . . . . .	23.4	19.5	6.7	*4.4	39.7	35.0
7 men or more . . . . .	30.9	30.6	13.1	6.5	49.7	47.2

<sup>1</sup>Includes other races and women whose lifetime number of sexual partners was not ascertained, not shown separately.

the 5 percent level. (The increase from 28 to 33 percent among unmarried non-Hispanic white women was significant at the 10 percent level.) Among black non-Hispanic married women in 1988, 6 percent reported changes in their behavior in response to the AIDS virus; in 1990, 15 percent reported changes.

The data are also shown in table 1 by the lifetime number of sexual partners. The lifetime number of partners does not reveal when women had those partners. Nevertheless, number of partners is considered one of the best indicators of the risk of STD's (5). Only one of the changes by number of partners was significant: 6.5 percent of married women with 7 or more partners in their lifetimes reported changes in 1988 compared with 13 percent in 1990.

The differences in table 1 by marital status are very large: in 1990, 5 percent of married women and 36 percent of unmarried sexually experienced women reported that

they made changes in their sexual behavior since they heard of AIDS. In 1988, these figures were 3 percent and 33 percent, respectively.

The differences between white and black women were also quite large in both 1988 and 1990. For example, the percent of black women who reported changes in their behavior since hearing of AIDS was 35 percent in 1990; for white women it was 15 percent. For married black women, the percent reporting a change was 15 percent compared with 4 percent of white married women; for unmarried women, the comparable percents were 45 percent of black and 33 percent of white unmarried women.

If the data on behavior change in table 1 were valid, objective indicators of behavior would be expected to show a reduction in the risk of HIV infection. The only objective indicator available in both the 1988 and 1990 surveys is the percent with more than one partner in the 3 months before the survey. A reduction in the

proportion with more than one partner would suggest that women have made an overall reduction in the risk of HIV infection. But the proportion with more than one partner did not drop; it increased significantly, from 7.5 to 10 percent of unmarried women. This one comparison does not show that the data on behavior change in table 1 are invalid, because the characteristics of partners have as much effect on risk of HIV infection as the number of partners (6). But it should encourage caution in making inferences about the public health impact of the changes shown in table 1.

### Condom use

Use of condoms has been recommended as a means to avoid HIV infection for those who do not remain in a mutually monogamous relationship (7). However, to be effective as prevention, condoms must be used consistently (at each act of intercourse). Women in half-sample

II of the 1990 NSFG telephone reinterview were asked separate questions about condom use to prevent STD's and condom use for contraception. The two questions designed to measure condom use to prevent STD's were:

In the last 3 months in which you were having intercourse, did you use condoms to avoid getting diseases such as genital herpes, gonorrhea, or AIDS?

Those who answered "yes" were asked,

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

Note that these questions ask about the frequency, not the correctness, of condom use. No questions on the correctness of condom use were asked. Women were also asked,

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

Those who answered "not at all" were excluded entirely from tables 2-8. (For ease of writing, the phrase "women used condoms" is sometimes used in the following text, although it is clear that their male partners were using the condoms.)

Table 2 shows sexually active women (those who had intercourse in the last month) by whether and how often they were using condoms for disease prevention: 6 percent were using condoms every time they had intercourse (labeled "Always" in the table; also described as "consistent use" in the text). Another 4 percent used condoms "on most occasions" (labeled "Most times" in table 2), and 5 percent, half the time or less. Note that *less than half* of all those using condoms for disease prevention in 1990 used them always (that is, every time they had intercourse). For example, only 6 out of 15 percent (less than one-half) used condoms

every time they had intercourse (always).

It is no surprise that the unmarried were much more likely to use condoms for STD-HIV prevention than married couples were (for example, 14 percent of unmarried women and 1 percent of married couples always used condoms for disease prevention). However, the data by race and origin in table 2 reveal that occasional or infrequent condom use is much more common among the partners of non-Hispanic black women than non-Hispanic white women. For example, 13 percent of black women and only 3 percent of white women reported that their partner used condoms "half the time or less." Among the unmarried, 19 percent of black women and only 9 percent of white women used condoms half the time or less. The estimates of the percent of women protected from HIV infection or other STD's by condom use in tables 5-8 of this report will include only those who used condoms every time they had intercourse.

Table 2 also includes data on condom use for STD prevention by the woman's education. Only 2.5 percent of unmarried women without a high school education (0-11 years of education) had partners using condoms consistently compared with 18.6 percent of those with some college education (13 years or more). The differences in the proportions using condoms most times or half or less were not significant, either for unmarried women or for all marital statuses combined. This is in sharp contrast to the data by race, where the significant difference was in inconsistent use.

The proportion of unmarried women whose partners were using condoms is also shown by the number of sexual partners the woman had in the last 3 months in which she was having intercourse. (Reliable estimates of the proportion of married women who had multiple partners could not be made because the sample was not large enough.) The difference in consistent condom use by number of partners

(14 percent versus 16 percent) was small and not significant; but the proportion of those with two or more partners who used condoms half the time or less was 27 percent compared with 11 percent of those with one partner. However, the 27 percent for unmarried women with more than one partner was only about 498,000 women; and 498,000 is only about 3 percent of all 15.23 million sexually active unmarried women shown in table 2.

Comparable data on condom use for STD/HIV prevention in 1988 are not available. In the 1988 survey, there was no followup question to ask whether condoms were used consistently (at every intercourse) or not. In addition, the 1988 question asked, "Do you use (condoms)?" This question does not ask about a specific time period (such as, "in the last month,...") and the question apparently allowed some women to report that they were using condoms, although they said elsewhere in the interview that they were not having intercourse in the month of interview. The absence of questions in the 1988 survey on consistency of condom use and the lack of a specific time reference mean that some women who did not use condoms consistently in 1988, and some who are not having intercourse currently, would be classified as being protected from STD's by condom use in 1988. The 1990 data do not have these problems.

Condom use can also be reported for contraceptive purposes, and if condoms are used consistently for contraception, they can offer protection from HIV infection as well. Women in half-sample II in 1990 were also asked,

In the past month have you and your partner used any method of birth control or family planning? (and if "yes") What method or methods was that?

Up to four methods were recorded, so those reporting condom use with other methods could be counted as condom users. Those who reported condom use (or any other

**Table 2. Number and percent distribution of women 15–44 years of age who have had intercourse in the past month by frequency of condom use in the past 3 months to avoid sexually transmitted diseases, according to selected characteristics: United States, 1990**

Selected characteristic	Sexually active women	Total	Condom use in the past 3 months to avoid sexually transmitted diseases			
			Never	Always	Most times	Half the time or less
	Number in thousands <sup>1</sup>		Percent distribution			
All marital statuses <sup>2</sup> . . . . .	45,432	100	85.5	5.5	4.2	4.8
Race and origin by marital status						
Hispanic . . . . .	4,283	100	81.4	8.0	4.4	6.2
Non-Hispanic white . . . . .	33,846	100	89.2	4.4	3.4	3.1
Non-Hispanic black . . . . .	5,465	100	67.0	10.3	10.0	12.7
Married women <sup>2</sup> . . . . .	30,200	100	97.4	1.2	*0.6	0.9
Race:						
Non-Hispanic white . . . . .	23,925	100	98.2	*0.9	*0.3	*0.6
Non-Hispanic black . . . . .	2,223	100	93.5	*0.9	*2.2	*3.4
Unmarried women <sup>3</sup> . . . . .	15,232	100	62.0	14.1	11.2	12.6
Race:						
Non-Hispanic white . . . . .	9,921	100	67.5	12.6	10.8	9.1
Non-Hispanic black . . . . .	3,242	100	48.8	16.8	15.4	19.0
Education by marital status <sup>4</sup>						
All marital statuses:						
0–11 years . . . . .	4,963	100	87.4	*2.3	*5.2	*5.2
12 years . . . . .	15,099	100	90.0	3.7	3.1	3.2
13 years or more . . . . .	22,553	100	87.0	6.3	3.3	3.5
Married:						
0–11 years . . . . .	3,248	100	94.7	*2.2	*0.2	*2.9
12 years . . . . .	10,759	100	97.9	*0.8	*0.6	*0.6
13 years or more . . . . .	15,968	100	97.5	*1.2	*0.7	*0.6
Unmarried:						
0–11 years . . . . .	1,715	100	73.4	*2.5	14.6	*9.5
12 years . . . . .	4,340	100	70.2	10.6	9.4	9.8
13 years or more . . . . .	6,585	100	61.3	18.6	9.7	10.4
Number of sexual partners in the past 3 months						
Unmarried:						
1 man . . . . .	13,270	100	65.3	14.0	10.1	10.6
2 or more men . . . . .	1,830	100	39.0	16.2	17.7	27.2

<sup>1</sup>Women who did not have intercourse in the month before interview are excluded from tables 2–8.<sup>2</sup>Includes other races not shown separately.<sup>3</sup>Includes women of Hispanic origin and other races not shown separately.<sup>4</sup>Education in years. Figures by education include women 19–44 years of age only.

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

coitus-dependent method) were also asked how frequently they used it, and only those who answered “every time (I) had intercourse” were classified as “consistent” condom users in table 3. In addition, those who reported that they did not have intercourse at all in the month before interview were excluded from tables 2 and 3. About 6 percent were using condoms consistently for

contraception and about 7 percent, inconsistently (table 3).

There are at least four important findings in table 3. First, consistent use is less than half of all contraceptive condom use. Among the unmarried, 10 percent of sexually active women used condoms inconsistently, but only 6 percent used them consistently. The second striking finding in table 3 is that although

there are pronounced marital status and race differences in condom use for STD prevention, the differences by race and marital status in condom use for contraception are quite small. Third, the pattern by education is similar for contraceptive condom use and preventive condom use: 11 percent of college-educated unmarried women were using condoms for contraception in 1990

**Table 3. Percent distribution of women 15–44 years of age who have had intercourse in the past month by how frequently her partner used condoms for contraception in the past month, according to selected characteristics: United States, 1990**

Selected characteristic	Condom use in the past month for contraception			
	Total <sup>1</sup>	Never	Always <sup>2</sup>	Inconsistent
Sexually active women <sup>3</sup> . . . . .	100	87.3	5.8	6.9
Race and origin by marital status				
Hispanic . . . . .	100	88.5	4.5	7.0
Non-Hispanic white . . . . .	100	87.0	5.8	7.2
Non-Hispanic black . . . . .	100	88.4	5.4	6.2
All married women <sup>4</sup> . . . . .	100	89.3	5.6	5.2
Race:				
Non-Hispanic white . . . . .	100	88.9	5.3	5.7
Non-Hispanic black . . . . .	100	91.9	5.5	2.6
All unmarried women <sup>4</sup> . . . . .	100	83.5	6.2	10.2
Race:				
Non-Hispanic white . . . . .	100	82.5	6.9	10.6
Non-Hispanic black . . . . .	100	86.0	5.3	8.7
Education by marital status <sup>5</sup>				
All marital statuses:				
0–11 years . . . . .	100	91.0	*2.8	6.2
12 years . . . . .	100	91.0	4.3	4.7
13 years or more . . . . .	100	85.5	7.8	6.7
Married:				
0–11 years . . . . .	100	94.1	*3.2	*2.7
12 years . . . . .	100	91.4	4.7	3.9
13 years or more . . . . .	100	87.2	6.4	6.5
Unmarried:				
0–11 years . . . . .	100	85.1	*2.2	*12.7
12 years . . . . .	100	90.2	*3.2	6.6
13 years or more . . . . .	100	81.3	11.4	7.3
Number of sexual partners in the past 3 months				
Unmarried:				
1 man . . . . .	100	83.6	6.7	9.7
2 men or more . . . . .	100	84.1	*3.3	*12.6

<sup>1</sup>Percents based on number of women shown in table 2.<sup>2</sup>"Always" means at every act of intercourse.<sup>3</sup>Includes other races not shown separately.<sup>4</sup>Includes women of Hispanic origin and other races not shown separately.<sup>5</sup>Education in years. Figures by education include women 19–44 years of age only.

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

compared with 2 and 3 percent in the other two education groups. Fourth, in sharp contrast to condom use for disease prevention, there was no significant difference in contraceptive condom use by number of sexual partners in the last 3 months.

Table 4 shows the proportion of sexually active women who reported that they and their partners used condoms consistently (every time she had intercourse), either to avoid

STD's or for contraception. About 10 percent always used condoms: 6 percent of married and 16 percent of sexually active unmarried women. The differences by race and origin in consistent condom use were not large and not significant. The differences by race among the unmarried in inconsistent use were, however, quite large: The partners of 21 percent of sexually active unmarried white women and 34 percent of sexually active

unmarried black women were using condoms inconsistently in 1990.

The differences by race in condom use were in inconsistent use, but the differences by education in table 4 are found in the proportions who used condoms always—at every act of intercourse. Of unmarried women with less than a high school education, 4 percent were using condoms consistently in 1990 compared with 11 percent of high school graduates and 21 percent of

**Table 4. Number and percent distribution of women 15–44 years of age who had intercourse in the past month by how frequently her partner uses condoms either to avoid sexually transmitted diseases or for contraception, according to selected characteristics: United States, 1990**

Selected characteristic	Sexually active women Number in thousands	Total	Current condom use to prevent sexually transmitted diseases or for contraception		
			Never	Always <sup>1</sup>	Inconsistent
Total <sup>2</sup>	45,432	100	78.1	9.6	12.3
Race and origin by marital status					
Hispanic	4,283	100	75.5	10.9	13.5
Non-Hispanic white	33,846	100	81.0	8.6	10.4
Non-Hispanic black	5,465	100	63.8	13.3	22.9
All married women <sup>3</sup>	30,200	100	87.5	6.4	6.1
Race:					
Non-Hispanic white	23,925	100	87.9	5.9	6.2
Non-Hispanic black	2,223	100	86.3	6.5	7.2
All unmarried women <sup>3</sup>	15,232	100	59.5	15.8	24.6
Race:					
Non-Hispanic white	9,921	100	64.4	14.9	20.7
Non-Hispanic black	3,242	100	48.4	17.9	33.7
Education by marital status <sup>4</sup>					
All marital statuses:					
0–11 years	4,963	100	83.4	*4.9	11.7
12 years	15,099	100	84.0	6.9	9.1
13 years or more	22,553	100	77.3	11.3	11.4
Married:					
0–11 years	3,248	100	91.2	*5.4	*3.5
12 years	10,759	100	89.8	5.1	5.1
13 years or more	15,968	100	85.5	7.1	7.3
Unmarried:					
0–11 years	1,715	100	68.7	*3.9	27.4
12 years	4,340	100	69.5	11.4	19.1
13 years or more	6,585	100	57.3	21.4	21.3
Number of sexual partners in the past 3 months					
Unmarried:					
1 man	13,270	100	62.4	15.9	21.6
2 men or more	1,830	100	39.0	16.2	44.8

<sup>1</sup>"Always" means use at every act of intercourse.<sup>2</sup>Includes other races not shown separately.<sup>3</sup>Includes women of Hispanic origin and other races not shown separately.<sup>4</sup>Education in years. Figures by education include women 19–44 years of age only.

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

those with college educations. The differences by education in inconsistent use were not significant (27 percent versus 19 and 27 percent versus 21 percent, both not significant). Finally, women who had two or more partners in the last 3 months were twice as likely to use condoms inconsistently as those who had only one partner in the last 3 months (45 percent versus 22 percent).

Of unmarried women who were not using condoms in 1990, only 2 percent were trying to become pregnant; 45 percent said they had "no chance at all" of contracting HIV, and 37 percent said they had "not much chance." This leaves about 16 percent of those not using condoms—about 10 percent of all sexually active unmarried women, or 1.46 million—whose reasons for not using condoms were not clear.

### AIDS-related behavior in 1990

Tables 5–8 show the percent of sexually active women who had changed their sexual behavior specifically to avoid the AIDS virus, the percent who had always used condoms to prevent STD's or for contraception, the percent who either were using condoms or changed their sexual behavior, and the percent who did both. Table 5 contains the data by age and marital status.

**Table 5. Number and percent of women 15–44 years of age who had intercourse in the past month, by age and marital status and selected characteristics: United States, 1990**

Age and marital status	Sexually active women	Behavior change to avoid AIDS	Always use condoms	Condoms or behavior change	Both condoms and behavior change
	Number in thousands	Percent			
<b>All marital statuses:</b>					
15–44 years . . . . .	45,432	16.1	9.6	22.3	3.3
15–19 years . . . . .	3,895	33.2	15.3	40.4	8.1
20–24 years . . . . .	7,052	23.2	13.4	33.6	*3.0
25–29 years . . . . .	8,862	18.6	7.4	24.0	*2.0
30–34 years . . . . .	9,626	12.6	10.5	19.7	3.3
35–44 years . . . . .	15,997	9.5	7.1	13.6	3.0
<b>Married:</b>					
15–44 years <sup>1</sup> . . . . .	30,200	5.3	6.4	11.1	0.6
20–24 years . . . . .	3,055	13.0	*6.5	19.5	0.0
25–29 years . . . . .	5,923	7.1	7.2	13.1	*1.1
30–34 years . . . . .	7,200	3.7	7.7	11.1	*0.3
35–44 years . . . . .	13,434	3.5	4.9	7.9	*0.5
<b>Unmarried:</b>					
15–44 years . . . . .	15,232	37.5	15.8	44.7	8.7
15–19 years . . . . .	3,306	37.6	15.4	44.5	8.4
20–24 years . . . . .	3,998	31.1	18.7	44.5	*5.4
25–29 years . . . . .	2,939	41.9	7.9	46.0	*3.8
30–34 years . . . . .	2,426	39.0	18.5	45.2	12.4
35–44 years . . . . .	2,563	41.1	18.4	43.3	16.1

<sup>1</sup>Includes women 15–19 years of age not shown separately.

The data on behavior change in tables 5–8 show the percent who answered “yes” to two questions:

Since you first heard about AIDS have you changed your sexual behavior in ANY way?” (and if “yes”) “Have you changed your sexual behavior specifically to keep you or your partner from being infected with the AIDS virus?”

The percents in the “behavior change” column in tables 5–8 differ from those in table 1 because those in table 1 are percents of all women who have ever had intercourse at some time in their lives. The percents in tables 5–8, in contrast, are percents of women who had intercourse in the last month.

Overall, 16 percent of women sexually active in the last month reported that they changed their sexual behavior to avoid the AIDS virus, and 10 percent reported that they used condoms consistently, either to avoid STD’s or for contraception. Most women were

asked both the questions on behavior change and the questions on condom use. Behavior change and condom use are not mutually exclusive categories, so some women (3 percent in table 5) reported both.

The proportions who reported changing their behavior declined sharply as age increased, from 33 percent of sexually active teenagers to 10 percent of sexually active women 35–44 years of age. There were not enough married teenagers in the sample to make an estimate for that group, but a decline (from 13 to 4 percent) from ages 20–24 years—ages 35–44 years is apparent among married women. Among sexually active unmarried women, however, the percent who reported changing their behavior was 38 percent overall and did not vary significantly by age.

Note that although 5 percent of married women reported that they changed their behavior, they did not necessarily change it while they were married. The behavior change is measured since the woman heard of

AIDS, not since she was married. She may have changed her behavior before she was married. It is possible that getting married may have been a response of some of these women to the risk of HIV infection.

The proportion of sexually active women who consistently used condoms, either to prevent STD’s or for contraception, was about 15 percent for teenagers, 13 percent for those 20–24 years of age, and 7 percent for those 35–44 years. The proportion always using condoms was about 6 percent for married couples and did not vary significantly by the age of the woman. Among sexually active unmarried women, about 16 percent used condoms and there was no consistent pattern by age.

About 22 percent either changed their behavior or always used condoms; this proportion declined from 40 percent among teenagers to 14 percent at ages 35–44 years. Among married couples, the percent declined from 20 percent at ages 20–24 years to 8 percent at ages 35–44 years. Among unmarried



**Table 6. Number of women 15–44 years of age who had intercourse in the past month and percent who reported that they changed their sexual behavior, whose partners always use condoms, who either changed their behavior or always use condoms, and who did both, by selected characteristics: United States, 1990**

Selected characteristic	Sexually active women	Behavior change to avoid AIDS	Always use condoms	Condoms or behavior change	Both condoms and behavior change
	Number in thousands	Percent			
All races <sup>1</sup> . . . . .	45,432	16.1	9.6	22.3	3.3
Race and origin					
Hispanic . . . . .	4,283	19.1	10.9	26.2	3.9
Non-Hispanic white . . . . .	33,846	12.9	8.6	18.9	2.6
Non-Hispanic black . . . . .	5,465	33.9	13.3	39.9	7.3
Poverty-level income <sup>2</sup>					
0–149 percent . . . . .	7,785	31.6	11.1	37.4	5.3
150 percent or more . . . . .	35,645	12.9	9.5	19.3	3.1
Married					
Race and origin:					
All races <sup>3</sup> . . . . .	30,200	5.3	6.4	11.1	0.6
Non-Hispanic white . . . . .	23,925	4.5	5.9	9.7	0.6
Non-Hispanic black . . . . .	2,223	15.0	6.5	21.5	0.0
Poverty-level income: <sup>2</sup>					
0–149 percent . . . . .	3,058	7.6	8.8	15.2	1.2
150 percent or more . . . . .	25,712	5.2	6.2	10.9	0.6
Unmarried					
Race and origin:					
All races <sup>3</sup> . . . . .	15,232	37.5	15.8	44.7	8.7
Non-Hispanic white . . . . .	9,921	33.2	14.9	40.9	7.2
Non-Hispanic black . . . . .	3,242	46.9	17.9	52.5	12.4
Poverty-level income: <sup>2</sup>					
0–149 percent . . . . .	4,727	47.2	12.5	51.8	7.9
150 percent or more . . . . .	9,933	32.6	17.8	40.9	9.5

<sup>1</sup>Includes other races not shown separately.<sup>2</sup>Women with poverty-level income not ascertained are not shown separately.<sup>3</sup>Includes women of Hispanic origin and other races not shown separately.

women, there was no significant pattern by age.

Table 6 contains the same measures as table 5 for sexually active women classified by race, Hispanic origin, and poverty-level income instead of age. About 34 percent of sexually active non-Hispanic black women compared with 13 percent of non-Hispanic white women, reported changes in behavior to avoid the AIDS virus. Among married women, 15 percent of black wives and 5 percent of white wives have made changes. Among sexually active unmarried women, 47 percent of black women and 33 percent of white women made changes.

For all marital statuses, 13 percent of sexually active black

women and 9 percent of sexually active white women used condoms consistently. Some of this difference, however, was due to the higher proportion of black women who are unmarried. Among married women, the difference was very small (5.9 for white women versus 6.5 percent for black women, table 6); among unmarried women, the difference was 3 percentage points (14.9 versus 17.9) and not significant. As noted in connection with tables 2, 3, and 4, the larger differences by race and origin were in inconsistent condom use (using condoms sometimes but not every time they had intercourse). Differences by race and origin in the "Condoms or behavior change" column were due

primarily to differences in behavior change.

Poverty-level income is the total income of the family divided by the poverty level for a family of that size (see Technical notes). Women with low incomes (under 150 percent of poverty level) were more than twice as likely to report that they have changed their behavior than high-income women (32 versus 13 percent, table 6). Among married women, the difference was small and not significant (7.6 versus 5.2 percent); for unmarried women, it was large and significant (47 versus 33 percent). Differences by income in condom use were small overall and for married couples. For the unmarried, 13 percent of low-income, and

Table 7. Number of women 15–44 years of age who had intercourse in the past month and percent who reported that they changed their sexual behavior, whose partners always use condoms, who either changed their behavior or always use condoms, and who did both, by selected characteristics: United States, 1990

Selected characteristic	Sexually active women	Behavior change to avoid AIDS	Always use condoms	Condoms or behavior change	Both condoms and behavior change
	Number in thousands	Percent			
Total <sup>1</sup> . . . . .	45,432	16.1	9.6	22.3	3.3
Lifetime number of sexual partners:					
1–3 men . . . . .	23,432	8.0	9.8	16.3	1.5
4–6 men . . . . .	11,353	21.3	10.0	25.7	5.6
7 men or more . . . . .	9,596	28.5	7.9	31.7	4.8
Have you ever personally known anyone with the AIDS virus?					
Yes . . . . .	10,724	22.7	11.5	28.3	5.8
No . . . . .	34,527	14.1	8.9	20.4	2.6
Married					
Lifetime number of sexual partners:					
1–3 men . . . . .	17,551	2.4	7.5	9.5	*0.3
4–6 men . . . . .	6,400	6.7	4.6	10.5	*0.8
7 men or more . . . . .	5,576	13.3	*4.4	16.3	*1.4
Have you ever personally known anyone with the AIDS virus?					
Yes . . . . .	6,787	6.7	6.9	12.1	*1.5
No . . . . .	23,274	4.9	6.1	10.7	*0.4
Unmarried					
Lifetime number of sexual partners:					
1–3 men . . . . .	5,881	24.8	16.8	36.6	5.0
4–6 men . . . . .	4,953	40.2	17.0	45.3	11.9
7 men or more . . . . .	4,020	49.6	12.8	53.0	9.4
Have you ever personally known anyone with the AIDS virus?					
Yes . . . . .	3,937	50.2	19.4	56.3	13.3
No . . . . .	11,252	33.2	14.5	40.7	7.1
Number of sexual partners in the past 3 months					
Unmarried:					
1 man . . . . .	13,270	35.8	15.9	43.7	8.1
2 men or more . . . . .	1,830	48.6	16.2	51.1	13.6

<sup>1</sup>Includes women whose lifetime number of sexual partners was not ascertained; also includes women with missing data on whether they have ever known a person with the AIDS virus not shown separately.

18 percent of higher income, women reported consistent condom use (significant at the 10-percent level).

Table 7 contains data by the lifetime number of sexual partners and the number of recent partners. As explained previously, the lifetime number of partners does not specify how long ago the woman had those partners. Nevertheless, it is a good, if not perfect, measure of risk of STD's. About 8 percent of sexually active women with 1–3 lifetime partners

changed their behavior compared with 21 percent of women with 4–6 lifetime partners and 29 percent of women with 7 or more partners (table 7). This increase with number of partners held for both married and unmarried women. For sexually active unmarried women with 7 or more lifetime partners, 50 percent reported that they had changed their behavior specifically to avoid the AIDS virus.

Those who had more than one partner in the last 3 months were also

more likely to have changed their behavior than those with one partner (49 percent versus 36 percent). Variations by number of lifetime partners and by number of partners in the last 3 months in current consistent condom use were small and not statistically significant.

Women in the survey were also asked,

Have you personally known anyone with AIDS or the AIDS virus?

**Table 8. Number of women 19–44 years of age who had intercourse in the past month, and percent who reported that they changed their sexual behavior, whose partners always use condoms, who either changed their behavior or always use condoms, and who did both, by education and marital status: United States, 1990**

<i>Education and marital status</i>	<i>Sexually active women</i>	<i>Behavior change to avoid AIDS</i>	<i>Always use condoms</i>	<i>Condoms or behavior change</i>	<i>Both condoms and behavior change</i>
	Number in thousands	Percent			
<b>Education:</b>					
0–11 years . . . . .	4,963	20.6	4.9	24.3	1.2
12 years . . . . .	15,099	14.9	6.9	19.5	2.3
13 years or more . . . . .	22,553	13.2	11.3	21.0	3.5
<b>Married:</b>					
0–11 years . . . . .	3,248	10.5	5.4	14.7	1.2
12 years . . . . .	10,759	5.7	5.1	10.6	0.3
13 years or more . . . . .	15,968	3.7	7.1	10.4	0.4
<b>Unmarried:</b>					
0–11 years . . . . .	1,715	39.9	3.9	42.4	1.3
12 years . . . . .	4,340	37.6	11.4	41.6	7.4
13 years or more . . . . .	6,585	36.2	21.4	46.6	11.0

Among sexually active unmarried women, 50 percent of those who have known someone with HIV or AIDS reported that they had changed their behavior compared with 33 percent of unmarried women who did not know anyone with HIV or AIDS (table 7). However, this variable had no significant effect on behavior change among married women, and no significant effect on consistent condom use.

Table 8 shows women 19–44 years of age by years of education. We use 19–44 because it generally takes until at least age 19 to complete a year or more of college. (Using 19–44 prevents the lower 2 education groups from being comprised of mainly those still attending high school.) Among married women, none of the proportions in table 8 differ significantly by education. Among unmarried women, the striking difference in consistent condom use by education is shown: 4 percent of those who did not complete high school and 21 percent of those with some college used condoms every time they had intercourse (always used condoms). The proportion of unmarried women who changed their behavior did not differ significantly by education. The proportion who always used condoms or changed

their behavior also did not differ significantly by education. The proportion, however, who used condoms and changed their behavior was 1 percent in the lowest education category and 11 percent in the highest category.

### Evaluation of the data

Our findings suggest that in 1990, about 1 in 3 sexually active unmarried women reported that they were at least attempting to make changes in their sexual behavior to reduce their risk of infection with HIV and other STD's. That proportion may have increased slightly between 1988 and 1990, but as discussed previously and in the Technical notes, comparison of the 1988 and 1990 data requires some caution because the questions used to measure behavior change in 1988 and 1990 were different.

The data on condom use, however, appear to be quite reliable because of the separate questions on condom use for disease prevention and for contraception, the follow-up questions on how often condoms are used, and the question on whether the woman was currently having intercourse. All of these questions are necessary to produce accurate estimates of current condom use. A

less complete series would tend to overestimate condom use because it would count those using condoms inconsistently and those not currently having intercourse as current condom users. Variations in consistent condom use by lifetime number of sexual partners, whether the woman has ever known a person with HIV infection or AIDS, and race are smaller than the variations in behavior change by these characteristics. Differences by education in consistent condom use among unmarried women, however, are quite large.

The analyses described here and in the previous report (3) show that it is possible to collect data on AIDS-related behavior change and condom use from the general population of women of childbearing age in the United States. The success of these questions to this extent suggests that behavior change issues can be measured more directly in these surveys in the future. Recently, NCHS has begun a series of small-scale studies to test new ways of asking questions on AIDS-related behavior in the general population. These studies include focus groups, "cognitive" interviews (8), and small-scale surveys.

These studies may suggest ways to obtain comparable data over time on the number and characteristics of women's sexual partners currently, and in an earlier time period. This could be done in a single survey by asking retrospective questions for the earlier time period (for example, from January to December 1985), and comparing them to a specific time period of the same length just before the survey (for example, the last 12 months).

Data like these could also be collected in successive surveys by asking only the questions on behavior just before the survey and asking the same questions again in the next survey. This approach has been taken in surveys of men who have sex with men (9,10). This approach was also used in at least one survey of the general population, but the details of the question wording were not given; that survey has not yet been repeated and the data were not shown for women of reproductive age, so comparisons with our results are not possible (11).

Estimates by Hearst and Hulley (6) suggest that partner selection may be just as important a factor in HIV risk as the number of partners per se. Their estimates suggest that in order to evaluate whether and how much women are reducing their risk of HIV infection, objective data are needed on what respondents mean when they report that they have "stopped having sex with men I don't know well" (the second most common change reported in 1988). Concepts such as "men I don't know well" will have to be defined—for example, by using specific questions to determine how long she knew the man, and what she knew about him before they had intercourse. Concepts such as "stopped having sex with more than one man" (the most common change reported in 1988) can be defined, for example, by determining the number of partners women had in specific time periods. Surveys providing objective data at two or more points in time could begin to measure directly whether HIV-infection risk

was being reduced, and if so, by how much.

The data on condom use could also be refined to get a clearer idea of how much reduction in HIV-infection risk is occurring. For the close to 10 percent of unmarried women who had more than one partner in the past 3 months, questions could be asked on whether condoms are used by each partner, and if so, whether they use them at every act of intercourse with the respondent. Women with multiple recent partners account for only 10 percent of unmarried women but they probably account for a larger proportion of cases of STD's and HIV infection.

In summary, then, to evaluate whether the general population of women 15–44 years of age is reducing its risk of HIV infection, and if so, how much reduction is occurring, data on the number and characteristics of partners in specific periods of time, and data on condom use specific to each partner, would be useful. Research is being conducted to determine the best and least sensitive ways of asking for such information.

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## Technical notes

### Survey design

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

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

The interviews covered the woman's pregnancy history; her past and current use of contraception; her ability to bear children; her use of medical services for family planning, infertility, and prenatal care; marriage and cohabitation; and a wide range of social, economic, and demographic characteristics. More detailed information on the procedures used in selecting the sample, weighting the data to make national estimates, and estimating sampling errors may be found in two other publications (1,2).

For the 1990 NSFG telephone reinterview, 5,686 women were interviewed by telephone between July 23 and November 5, 1990. Reinterviews were conducted with 5,359 women who had been interviewed in 1988, and first-time telephone interviews were conducted with 327 young women (sampled from the NHIS) who had reached 15 years

of age since March 15, 1988. They were 15–17 years of age when interviewed in 1990. The response rate for the initial interviews with those 15–17 years of age was 53 percent. The reinterview response rate for the women initially interviewed in 1988 was 69 percent of those originally interviewed in 1988. Overall, the response rate was 67.5 percent in 1990. The most common causes of nonresponse in 1990 were inability to locate or contact the respondent because she had moved and inability to contact her because she had no telephone or had an unlisted telephone number. The 1990 reinterviews lasted an average of 20 minutes.

The 1990 sample was divided equally into two "half-samples," as discussed in the text. This report is based entirely on the results of half-sample II, which contained the necessary questions on AIDS-related behavior and condom use. The data have been weighted to be representative of the civilian noninstitutionalized population of the United States. However, the use of the half-samples means that sampling errors are larger than in the previous report on AIDS-related behavior from the 1988 survey (3).

### Reliability of estimates

Because the statistics presented in this report are based on a sample, they may differ from the statistics that would result if all 58 million women represented by the 1990 survey had been interviewed. The standard error of an estimate (for example, a percent) is a measure of such differences. The standard error of an estimated number or percent is calculated by substituting the appropriate values of *A* and *B* from table I in the following equations:

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

and

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

where

*N* = number of women

*P* = percent

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

The parameters shown in table I were used to generate table II (preliminary estimates of standard errors for percents of women of all races), table III (estimates of standard errors for white women), and table IV (preliminary estimates of standard errors for black women).

The chances are about 68 in 100 (about 2 out of 3) that a sample estimate would fall within one standard error, and about 95 in 100 that it would fall within two standard errors of a statistic based on a complete count of the population represented by the NSFG.

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

The relative standard error (or coefficient of variation) of a statistic is the ratio of the standard error to

**Table I. Estimates of the parameters *A* and *B* for estimating standard errors for percents of women, by race: 1990 National Survey of Family Growth telephone reinterview, half-sample**

	Parameters	
	<i>A</i>	<i>B</i>
All races . . . . .	-.0004282	25,000
White or other. . . . .	-.0004947	25,000
Black . . . . .	-.0018417	14,450

Table II. Standard errors for percents of women of all races: 1990 National Survey of Family Growth telephone reinterview, half-sample

Base of percent	Estimated percent					
	5 or 95	19 or 90	20 or 80	30 or 70	40 or 60	50
	Standard error in percentage points					
500,000 .....	*4.9	*6.7	*8.9	*10.2	11.0	11.1
1,000,000 .....	3.4	*4.7	*6.3	7.2	7.7	7.9
5,000,000 .....	1.5	2.1	2.8	3.2	3.5	3.5
10,000,000 .....	1.0	1.5	2.0	2.3	2.4	2.5
30,000,000 .....	0.6	0.9	1.1	1.3	1.4	1.4
50,000,000 .....	0.5	0.7	0.9	1.0	1.0	1.1

Table III. Standard errors for percents of white women: 1990 National Survey of Family Growth telephone reinterview, half-sample

Base of percent	Estimated percent					
	5 or 95	19 or 90	20 or 80	30 or 70	40 or 60	50
	Standard error in percentage points					
500,000 .....	*4.9	*6.7	*8.9	*10.2	11.0	11.2
1,000,000 .....	*3.4	*4.7	*6.3	7.2	7.7	7.9
5,000,000 .....	*1.5	2.1	2.8	3.2	3.5	3.5
10,000,000 .....	1.0	1.5	2.0	2.3	2.4	2.5
20,000,000 .....	0.8	1.1	1.4	1.6	1.7	1.8
40,000,000 .....	0.5	0.8	1.0	1.1	1.2	1.3

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

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

### Definition of terms

**Race**—Race refers to the race of the woman interviewed. Each woman was asked, "Which of the (following) groups best describe your racial background?" The categories include

black, white, Asian or Pacific Islander, and Alaskan Native or American Indian. Because of small sample sizes, the Asian or Pacific Islander and Alaskan Native or American Indian categories are combined and called "other" in this report.

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

**Marital status**—In this report, women were classified according to their legal marital status. In this report, "unmarried" means not legally married—that is, never legally married, widowed, divorced, or separated. "Married" means currently legally married. Cohabiting women who are not legally married are therefore classified in this report as

unmarried. Marital status refers to the data year indicated. For example, if a woman was married in 1988 and divorced by 1990, she is shown as married in the 1988 data and as unmarried in the 1990 data.

**Sexually active**—This refers to a woman who had intercourse at least once in the month (30 days) before the survey.

**Sexually experienced**—This refers to a woman who has had sexual intercourse at least once. Intercourse before the first menstrual period is excluded.

**Number of lifetime sexual partners**—This refers to the number of men with whom the woman has had sexual intercourse in her life, as of the date of interview. In the 1988 data, this refers to the number of men with whom she had had intercourse as of 1988; for 1990 data, this refers to the number of men with whom she had had intercourse as of the 1990 interview.

**Number of sexual partners in the last 3 months**—This refers to the woman's answer to a question asked in half-sample II in 1990: "In the last 3 months in which you were having

Table IV. Standard errors for percents of black women: 1990 National Survey of Family Growth telephone reinterview, half-sample

Base of percent	Estimated percent					
	5 or 95	19 or 90	20 or 80	30 or 70	40 or 60	50
	Standard error in percentage points					
500,000	*3.7	*5.1	*6.8	7.8	8.3	8.5
1,000,000	*2.6	*3.6	4.8	5.5	5.9	6.0
2,000,000	*1.8	2.6	3.4	3.9	4.2	4.3
3,000,000	*1.5	2.1	2.8	3.2	3.4	3.5
4,000,000	1.3	1.8	2.4	2.8	2.9	3.0
7,000,000	1.0	1.4	1.8	2.1	2.2	2.3

,intercourse, with how many men did you have intercourse?" (The phrase "boys or men" was substituted for "men" for younger teenagers.)

**Poverty-level income**—This is the ratio of the total family income to the poverty-level threshold for a family of specified size, as published by the U.S. Bureau of the Census. In the 1988 survey, 1987 poverty-level thresholds were used (12). In the 1990 survey, 1989 Census Bureau weighted average thresholds for householders were used. The 1989 thresholds used for 1990 data were \$6,451 for one person under age 65, \$8,343 for a family of two also under age 65, \$9,885 for a family of three, \$12,674 for a family of four, up to \$25,480 for a family of nine or more (13). Thus, if a family of four had an income of \$25,000, their poverty-level income would be \$25,000 divided by \$12,674, or 197 percent. In the 1990 NSFG, family income was not collected from the 327 women 15–17 years of age who were interviewed for the first time in 1990. In the tables of this report, data are not shown for those women who did not report the income or poverty level of their families.

**Education**—This refers to the number of years of regular schooling the woman had completed as of the date of interview in 1990. In this report, the following categories are used: 0–11 years, meaning that the woman did not complete high school; 12 years, meaning that she obtained a high school diploma or a GED, but did not complete a full year of college; and 13 years or more, meaning that she completed at least 1 year of college. In all tables

containing this variable, women 15–18 years of age are excluded from tabulations by education because it generally takes until at least age 19 to reach the "13 years or more" category.

**Data on behavior change in 1988 and 1990**

As discussed in the text, in 1988 women were asked if they had made any of seven specific changes in sexual behavior since hearing of AIDS—including "stopped having sex with more than one man," "stopped having sex with men I don't know well," and five others. In 1990, they were asked, "Since you first heard about AIDS have you changed your sexual behavior in ANY way?"

Of the women who were asked these questions in 1988 and 1990, about 8 percent reported in 1988 that they had made one or more changes in their sexual behavior since hearing of AIDS, but reported in 1990 that they had never made any changes since hearing of AIDS. Because "since you first heard about AIDS" refers to the same time before the 1988 interview, this is a logically impossible answer, but at least three explanations can be offered for it:

- Some of these women may have heard the question incorrectly, and may be saying that they have made no FURTHER changes since 1988.
- Some may be reporting that the changes they had made as of 1988 were no longer in effect.
- Some may have forgotten some of the specific items asked about in 1988, and thus answered "No" in 1990 even though the changes they

reported in 1988 were still in effect.

Thus, the magnitude of the changes reported in table 1 for 1990 may be affected by these kinds of reporting error and by misunderstanding of the question, although it is likely that these three types of reporting errors cancel each other out to some extent. Therefore the error in the percentages probably is small.

**Cooperating agencies**

The 1988 National Survey of Family Growth and the 1990 NSFG Telephone Reinterview were jointly planned and supported by the National Center for Health Statistics, the National Institute of Child Health and Human Development, and the Office of Population Affairs, all of the U.S. Department of Health and Human Services.

**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

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**Suggested citation**

Mosher WD, Pratt WF. AIDS-related behavior among women 15–44 years of age: United States, 1988 and 1990. Advance data from vital and health statistics; no 239. Hyattsville, Maryland: National Center for Health Statistics. 1993.

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BULK RATE POSTAGE & FEES PAID PHS/NCHS PERMIT NO. G-281
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DHHS Publication No. (PHS) 94-1250