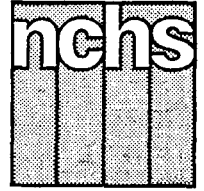


# Advance Data



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

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

by James W. McNally, M.A., and William D. Mosher, Ph.D., Division of Vital Statistics

Changes in sexual behavior in response to acquired immunodeficiency syndrome (AIDS) were quite common in 1988. About 6.8 million sexually experienced unmarried women (31 percent) had made one or more changes in their sexual behavior since hearing of AIDS. Misconceptions concerning some of the means of HIV (human immunodeficiency virus) transmission were fairly common among women of reproductive age in 1988: for example, 11 million women thought that they could become infected with HIV (the virus that causes AIDS) by giving blood. For most of the items discussed in this report, low-income women and non-Hispanic black women were more likely to have misinformation concerning the means of HIV transmission, and to say they had a greater chance of contracting the disease. These groups were also the most likely to have reported making some change in their sexual behavior since hearing of AIDS.

These findings are from Cycle IV of the National Survey of Family

Growth (NSFG), conducted in 1988 by the National Center for Health Statistics (NCHS). The survey was based on personal interviews conducted between January and August of 1988 with 8,450 women 15-44 years of age in the civilian noninstitutionalized population of the United States. The NSFG interview included information on a number of topics related to childbearing, family planning, and maternal and infant health. The design of the 1988 survey and estimates of sampling errors are discussed further in the Technical notes.

In response to requests from public health agencies for more information on knowledge and behavior related to HIV, the NSFG included a series of questions concerning the woman's knowledge of the means of HIV transmission, changes in sexual behavior to avoid infection, and the woman's own estimate of her chance of becoming infected. Including these questions in Cycle IV was considered important because the NSFG obtains information concerning the woman's

marital history, sexually transmitted disease (STD) history, and number of lifetime sexual partners. Because these variables are not available from any other nationally representative source, the NSFG provides an important means for analyzing the level of knowledge and behavior change among women in groups at risk of HIV infection.

This report covers three topics related to HIV: a) misinformation about HIV transmission, b) changes made in sexual behavior since hearing of HIV, and c) perceptions of the chances of becoming infected with the AIDS virus.

Prior research suggests that knowledge and behavior related to the transmission of HIV differs between white and black women, and the findings of this report are consistent with that (1-4). The number of Hispanics in the NSFG sample (641) is much smaller than the 2,771 black women or the 5,354 white women in the sample. This smaller sample size makes it impossible to look at the data for Hispanic women in the same detail as



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Public Health Service  
Centers for Disease Control  
National Center for Health Statistics  
Manning Feinleib, M.D., Dr. P.H., Director



that for non-Hispanic black and white women. Thus, detailed data are shown here for white and black women, and summary data for Hispanic women are cited in the text. Data on AIDS related knowledge and attitudes have been collected in another NCHS survey, the National Health Interview Survey (NHIS). The wording and purpose of the AIDS related questions in the NHIS, and the population covered by it, were different than those in the NSFG. These differences, and the comparability of the results, are discussed in more detail in the Technical notes, under "Other sources of data."

The overall level of misinformation is quite low for most of the measures shown in this report; more than 85 percent of women gave correct answers on most items. With one exception, which will be discussed later, the number of women reporting that they did not know whether a means of transmission could spread the virus was less than 1 percent. This suggests that at least some of the women giving correct answers may have been guessing, so the proportion of women with correct information may be lower than the percent giving correct answers. The estimates in this report may be viewed, then, as minimum estimates of the percent with misinformation in 1988.

## Findings

In the 1988 NSFG, all women, including both married and unmarried women were asked "Which activities listed on card 25 are ways in which a person can get the AIDS virus? Just read me the letter for those activities in which you think a person can get the AIDS virus." The card listed the following possible means of transmission:

- A. Shaking hands or hugging?
- B. Sharing hypodermic needles?
- C. Sharing an apartment, classroom, or office?
- D. Receiving a blood transfusion?
- E. Sexual intercourse between men?

- F. Sexual intercourse between a man and a woman?
- G. Giving a blood donation?
- H. Being bitten by an insect that has bitten someone with the AIDS virus?
- I. Sharing personal items like dishes, toilets, etc?

For all of these means of transmission a response of "Yes," "No," or "I don't know" was recorded. If she reported that one of the above activities could cause HIV transmission but, in fact, it cannot, or if she reported that an activity could not cause infection when, in fact, it could, she is classified as having "misinformation." Tables 1 and 2 show the percent of women who had misinformation. Measures are not included for item A, "shaking hands or hugging" or item C, "sharing an apartment, classroom, or office" because the proportion of women holding misinformation on these items was less than 5 percent of the population and most of the differences in the subgroups were too small to be statistically significant.

HIV cannot be contracted by donating blood (item G, above) (5). Almost 20 percent of all women 15–44 years of age reported in 1988 that they could contract HIV if they donated blood. This misbelief was especially common among non-Hispanic black women (32 percent, table 1) and Hispanic women (32 percent, not shown in tables) compared with 15 percent of non-Hispanic white women. Low-income women were also more likely to believe that they could contract HIV by donating blood: 29 percent compared with 17 percent of high-income women. Among low-income non-Hispanic black women this misinformation was even more common (36 percent). This mistaken belief could have public health consequences if it deters women from donating blood.

HIV cannot be transmitted by the bite of an insect (item H, above) (5). Although holding the belief that HIV can be transmitted in this manner does not put women at increased risk

of HIV infection, it does illustrate the range of uncertainty that often existed in 1988 about how the virus is spread. Almost 22 percent of women 15–44 years of age reported that the AIDS virus could be spread by the bite of an infected insect. Strong differences were found by both race and income: 30 percent of non-Hispanic black women said HIV could be spread in this way, compared with 19 percent of non-Hispanic whites. Similarly, 27 percent of low-income women and 20 percent of high-income women had this misinformation.

HIV cannot be spread by casual contact such as sharing dishes or toilets (item I, above) (5) and over 94 percent of women reported this knowledge. Less than 6 percent of all women reported a belief that a person could be infected by HIV through this kind of contact. This misinformation is important because it increases unwarranted concerns about the way in which the disease can be passed from one person to another and thus, can affect the way a person deals with others. Reducing the level of this misinformation is a major aspect of public education efforts on the virus, and these results reflect substantial success in this regard. Differences by race, income, and marital status are small, and all groups showed levels of misinformation at or below 8 percent. Currently married women appear to be more knowledgeable about blood donations and insect bites than women not currently married. These differences are both statistically significant for women of all races.

Table 2 shows the percents of unmarried women with misinformation about behaviors that can transmit HIV infection. Married women were not included in table 2 because their average risk of contracting HIV is generally lower than the risk for unmarried women, and because the behavior change items in table 3 are shown only for unmarried women. All unmarried women are included in table 2 because most become sexually active at young ages (6).

**Table 1. Number of women 15–44 years of age and percent with misinformation about selected means of HIV/AIDS transmission, by marital status, poverty level income, and selected characteristics: United States, 1988**

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

Characteristics and means of transmission	All women	Marital status			Poverty level income	
		Currently married	Formerly married	Never married	Less than 150 percent	150 percent or more
Number in thousands						
All women <sup>1</sup> . . . . .	57,900	29,147	7,695	21,058	13,561	44,339
Unmarried women . . . . .	28,753	...	7,695	21,058	9,861	18,892
Race:						
Non-Hispanic white . . . . .	42,575	23,367	5,212	13,996	7,274	35,301
Non-Hispanic black . . . . .	7,408	2,102	1,355	3,951	3,501	3,907
Percent						
Receiving a blood transfusion						
All women <sup>1</sup> . . . . .	8.1	7.3	7.8	9.3	11.6	7.1
Unmarried women . . . . .	8.9	...	7.8	9.3	11.9	7.4
Race:						
Non-Hispanic white . . . . .	6.5	6.1	6.4	7.1	*8.1	6.2
Non-Hispanic black . . . . .	12.7	11.1	10.8	14.2	16.6	9.2
Giving a blood donation						
All women <sup>1</sup> . . . . .	19.5	16.9	21.6	22.3	28.8	16.7
Unmarried women . . . . .	22.1	...	21.6	22.3	28.8	18.6
Race:						
Non-Hispanic white . . . . .	15.4	13.8	17.5	17.3	23.6	13.7
Non-Hispanic black . . . . .	32.1	28.3	31.5	34.4	35.9	28.6
Being bitten by an infected insect						
All women <sup>1</sup> . . . . .	21.6	18.6	22.7	25.3	27.3	19.8
Unmarried women . . . . .	24.6	...	22.7	25.3	28.4	22.6
Race:						
Non-Hispanic white . . . . .	19.2	17.3	19.9	22.1	22.9	18.4
Non-Hispanic black . . . . .	29.8	26.9	29.5	31.5	32.6	27.3
Sharing dishes, toilet, food						
All women <sup>1</sup> . . . . .	5.8	5.8	6.2	5.7	7.9	5.2
Unmarried women . . . . .	5.8	...	6.2	5.7	8.1	4.6
Race:						
Non-Hispanic white . . . . .	4.9	4.8	5.9	4.5	*7.3	4.4
Non-Hispanic black . . . . .	7.2	7.9	5.8	7.4	7.7	6.8

<sup>1</sup>Includes non-Hispanic white, non-Hispanic black, Hispanic, and other races; Hispanics and other races not shown separately. Also includes currently married women.

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

The measure “number of lifetime sexual partners” in table 2 is derived from the NSFG question “Thinking back, with how many men have you had intercourse in your life?”. The number of lifetime sexual partners has at least two analytic limitations: first, it is not the same as the number of current sexual partners. Only about 7 percent of unmarried women in most subgroups had 2 sexual partners or more in the 3 months prior to the survey. However, about 17 percent of unmarried women with 10 lifetime partners or more had more than one partner in the last 3 months (not shown in tables). The second limitation of this measure of the number of lifetime partners is that it does not reveal when women had those partners. For example, a

woman with 10 lifetime partners or more may have had all of them prior to the introduction of HIV into the United States; she may not be at high risk.

Three means of transmission account for most adult HIV cases: the sharing or using of tainted hypodermic needles used to inject illegal drugs, homosexual intercourse, and heterosexual intercourse (1,5,7–9). Data on misinformation about these means of transmission are shown in table 2. The use of contaminated needles is a special public health concern because HIV is transmitted through both the needle itself and through sexual activity with persons infected by the needle (7). About 10 percent of unmarried women reported the belief that the AIDS

virus cannot be spread through sharing hypodermic needles (item B, above), and differences by race and income were large. Only 7 percent of non-Hispanic white women reported this misinformation compared with 16 percent of non-Hispanic black women and 17 percent of Hispanic women. About 8 percent of high-income women reported this belief compared with 14 percent of low-income women. The level of misinformation about transmission by needles varied little by number of sexual partners for unmarried women with 1–9 lifetime partners, but unmarried women with 10 lifetime partners or more were less likely to be misinformed (5 percent compared with 10–12 percent). This was true in each race and income group (but the

**Table 2. Number of unmarried women 15–44 years of age and percent with misinformation about selected means of HIV/AIDS transmission, by number of lifetime sexual partners and selected characteristics: United States, 1988**

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

Characteristics and means of transmission	All unmarried women <sup>1</sup>	Never had intercourse	1 partner	2–4 partners	5–9 partners	10 partners or more
Number in thousands						
All unmarried women <sup>2</sup> . . . . .	28,753	6,735	4,296	7,742	5,165	4,121
Race:						
Non-Hispanic white . . . . .	19,208	4,612	2,887	4,923	3,318	3,035
Non-Hispanic black . . . . .	5,306	719	582	1,848	1,298	645
Poverty level income:						
Less than 150 percent . . . . .	9,861	2,028	1,510	2,797	1,811	1,408
150 percent or more . . . . .	18,892	4,707	2,785	4,945	3,353	2,713
Sharing hypodermic needles						
Percent						
All unmarried women <sup>2</sup> . . . . .	10.0	9.5	12.2	11.2	10.2	5.4
Race:						
Non-Hispanic white . . . . .	6.8	6.1	8.3	7.6	6.4	4.1
Non-Hispanic black . . . . .	16.0	10.1	21.1	17.4	17.1	13.2
Poverty level income:						
Less than 150 percent . . . . .	14.1	16.0	18.8	14.1	13.8	*6.1
150 percent or more . . . . .	7.9	6.6	8.6	9.6	8.3	5.0
Homosexual intercourse						
All unmarried women <sup>2</sup> . . . . .	5.7	5.2	4.9	8.4	5.1	3.0
Race:						
Non-Hispanic white . . . . .	3.7	3.4	*2.6	6.2	3.6	*1.4
Non-Hispanic black . . . . .	11.1	10.8	11.2	12.7	9.7	9.5
Poverty level income:						
Less than 150 percent . . . . .	8.0	*5.5	7.8	11.9	6.9	*5.9
150 percent or more . . . . .	4.4	5.0	*3.3	6.4	4.1	*1.5
Heterosexual intercourse						
All unmarried women <sup>2</sup> . . . . .	6.9	5.4	9.2	9.0	5.7	4.7
Race:						
Non-Hispanic white . . . . .	5.4	3.8	6.6	8.1	4.1	3.9
Non-Hispanic black . . . . .	12.0	10.2	18.3	12.3	10.6	9.4
Poverty level income:						
Less than 150 percent . . . . .	8.5	7.5	11.1	10.4	*5.5	*6.8
150 percent or more . . . . .	6.1	4.5	8.1	8.3	5.8	*3.6
Getting AIDS from an HIV positive person						
All unmarried women <sup>2</sup> . . . . .	29.0	27.5	30.8	31.7	30.2	22.6
Race:						
Non-Hispanic white . . . . .	24.5	24.6	24.0	27.6	25.2	18.7
Non-Hispanic black . . . . .	37.8	42.0	40.0	37.3	39.6	30.4
Poverty level income:						
Less than 150 percent . . . . .	36.6	36.6	42.8	38.1	36.6	28.1
150 percent or more . . . . .	24.9	23.6	24.4	28.1	26.7	19.8

<sup>1</sup>Includes women whose number of lifetime sexual partners was not ascertained, not shown separately.<sup>2</sup>Includes non-Hispanic white, non-Hispanic black, Hispanic, and other races; Hispanic and other races not shown separately.

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

differences were not statistically significant in each group). Thus, unmarried women who are at greatest risk also seem to be more knowledgeable about the dangers associated with sharing hypodermic needles.

Homosexual intercourse (item E, above) can be a means of transmitting HIV, and, as reflected in table 2, about 94 percent of unmarried women reported a correct answer for this question; only 6 percent did not. Knowing that sexual intercourse between men can

transmit the AIDS virus is important for women because it points to the importance of knowing their sexual partners. Knowledge about this risk was very high, but misinformation concerning it varied significantly by race and income. Only 4 percent of unmarried non-Hispanic white women thought that homosexual intercourse could not result in HIV transmission, but 11 percent of non-Hispanic black and 8 percent of Hispanic women thought that it could not spread the virus. There is no clear pattern by number of lifetime sexual partners,

but misinformation about homosexual transmission is rare among unmarried white and high-income women with 10 partners or more.

HIV can also be transmitted by heterosexual intercourse (item F) (5,8) and this was reported correctly by 93 percent of unmarried women (table 2). Only 7 percent reported that a person could not be infected in this way. Again, however, the differences in misinformation by race are notable: Only 5 percent of non-Hispanic white women, 7 percent of Hispanic women, and 12 percent

of non-Hispanic black women said that heterosexual intercourse could not spread HIV. The proportion with misinformation was about 9 percent for unmarried women with one to four lifetime sexual partners and 5 percent for those women with 10 lifetime partners or more. Thus, unmarried women at greatest risk of HIV infection—those with the highest number of sexual partners (10)—were the least likely to be misinformed.

The most striking finding in table 2 concerns the responses to the question: "Can a person get AIDS from someone who has only the AIDS virus but does not have the disease?". This question is important

because the population of HIV-positive individuals is much larger than the population with recognized symptoms of AIDS (11). About 29 percent of unmarried women either reported that HIV could not be transmitted in this way, or that they did not know whether it could be transmitted in this way. This represents more than 8 million unmarried women.

The differences by race were large: 25 percent of non-Hispanic white women reported this misbelief, compared with 38 percent of non-Hispanic black women (table 2) and 44 percent of Hispanic women (not shown in tables). The differences

by income were also large: 25 percent of those with high income compared with 37 percent of low-income women. For both race groups and both income groups, the percent who had misinformation or did not know was lower for unmarried women with 10 partners or more than for women with 1–9 partners: 30 percent of women with 5–9 lifetime partners reported that HIV could not be contracted from an individual who had only the HIV infection or did not know, compared with 23 percent of women with 10 partners or more.

Table 3 contains results from a series of NSFG questions that examined changes that women have

**Table 3. Number of unmarried women 15–44 years of age who have ever had intercourse and percent who have made some change in their sexual behavior since hearing of HIV/AIDS, by marital status, number of lifetime sexual partners, poverty level income, and selected characteristics: United States, 1988**

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

Characteristics and means of transmission	Marital status			Number of lifetime sexual partners				Poverty level income	
	All unmarried women <sup>1</sup>	Formerly married	Never married	1 partner	2–4 partners	5–9 partners	10 partners or more	Less than 150 percent	150 percent or more
Number in thousands									
All unmarried women who have ever had intercourse <sup>2</sup> . . . . .	22,018	7,695	14,323	4,296	7,742	5,165	4,121	7,833	14,185
Race:									
Non-Hispanic white . . . . .	14,596	5,212	9,384	2,887	4,923	3,318	3,035	3,770	10,826
Non-Hispanic black . . . . .	4,586	1,355	3,231	582	1,848	1,298	645	2,717	1,869
Percent									
Stopped having intercourse?									
All unmarried women <sup>2</sup> . . . . .	5.5	6.2	5.1	6.6	5.9	4.2	5.0	5.4	5.5
Race:									
Non-Hispanic white . . . . .	4.8	5.7	4.3	4.8	4.4	4.1	5.9	5.9	4.4
Non-Hispanic black . . . . .	7.2	7.9	6.9	12.1	9.7	*4.0	*2.3	5.7	9.3
Reduced frequency of sex?									
All unmarried women <sup>2</sup> . . . . .	9.3	9.6	9.1	5.7	8.0	9.2	16.2	13.7	6.9
Race:									
Non-Hispanic white . . . . .	7.7	8.6	7.2	4.4	5.1	7.0	16.3	12.3	6.1
Non-Hispanic black . . . . .	14.7	12.0	15.8	12.9	14.8	16.1	14.6	16.1	12.5
Restricted sexual partners to one man?									
All unmarried women <sup>2</sup> . . . . .	15.6	15.7	15.5	4.2	12.0	18.6	29.1	18.5	13.9
Race:									
Non-Hispanic white . . . . .	13.7	14.1	13.7	*1.8	9.5	16.0	28.7	16.5	12.7
Non-Hispanic black . . . . .	20.3	20.8	20.2	10.2	17.2	21.9	33.1	21.5	18.7
Restricted sex to men you know well?									
All unmarried women <sup>2</sup> . . . . .	11.5	13.7	10.3	*1.8	6.1	12.7	29.1	12.6	10.9
Race:									
Non-Hispanic white . . . . .	11.8	13.7	10.7	*1.1	4.7	12.7	30.8	13.5	11.2
Non-Hispanic black . . . . .	11.1	14.3	9.7	*3.3	8.3	13.4	22.0	13.0	8.3
Made one change or more <sup>3</sup>									
All unmarried women <sup>2</sup> . . . . .	31.0	32.4	30.3	16.5	25.9	34.1	50.4	37.3	27.5
Race:									
Non-Hispanic white . . . . .	27.6	30.0	26.2	11.3	19.5	30.8	51.0	34.4	25.2
Non-Hispanic black . . . . .	41.1	40.7	41.3	34.4	40.4	40.5	49.6	43.4	37.8

<sup>1</sup>includes women whose number of lifetime sexual partners was not ascertained, not shown separately.

<sup>2</sup>includes Hispanic, non-Hispanic white, non-Hispanic black, and other races; Hispanic and other races are not shown separately.

<sup>3</sup>includes women who made the changes specified above as well as women who stopped having intercourse with bisexual men or with men who used intravenous drugs, not shown separately.

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

made in their sexual behavior to avoid infection with HIV. All women who had ever had intercourse were asked the question, "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?"

Women who reported that they had made changes in their behavior out of concern over these sexually transmitted diseases were then asked a followup question: "Which of these changes, if any, have you made *since* you first heard about AIDS?" The changes that these women could have reported since hearing of AIDS 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?  
(or) Have made no changes.

Table 3 contains the responses of unmarried women who had ever had intercourse to these questions. The answers were tabulated to show the proportion who made these changes specifically since hearing of AIDS. Women who reported no change in their sexual behavior since hearing of AIDS were not necessarily engaging in any of the listed behaviors when interviewed. All we know is that they have not made changes in their sexual behavior out of a concern about AIDS.

Only 3 percent of married women reported any changes in their behavior, compared with 31 percent of unmarried women, so table 3 includes only unmarried women. Less than 2 percent of unmarried women reported that they had stopped

engaging in "other types of sexual relations" (other than heterosexual intercourse), or had stopped having intercourse with bisexual men or men who used intravenous drugs, so these categories are not shown separately in table 3, although women who changed these behaviors are included in the percent who made one or more changes.

The most frequent change reported in table 3 was that of unmarried women reducing their number of sexual partners to one man: 16 percent of unmarried women 15-44 years of age reported this change; 6 percent reported that they had stopped having sexual intercourse entirely, 9 percent had reduced their frequency of intercourse, and 12 percent stopped having intercourse with men they did not know well. The percents of these women add up to more than the percent of women who made one or more changes because some unmarried women made more than one change.

About 20 percent of unmarried non-Hispanic black women compared with 14 percent of non-Hispanic white women had stopped having intercourse with more than one man (table 3).

In table 3 there is a uniform pattern of change by number of sexual partners. With the exception of women who reported that they had stopped having sexual intercourse entirely since hearing of AIDS, there is a dramatic increase in the percent of women changing their sexual behavior as their number of lifetime sexual partners increases. For example, 12 percent of women with 2-4 lifetime partners reported that they had stopped having sex with more than one man, compared with 29 percent of women with 10 partners or more. This is also true for women who reported that they had restricted their sexual partners to men whom they knew well: Only 6 percent of women with 2-4 lifetime partners reported this change compared with 29 percent of women with 10 lifetime partners or more.

The percents of women with one lifetime sexual partner who reported

that they had restricted their partners to one man (4 percent) or restricted intercourse to men they knew well (2 percent) since hearing of AIDS are low, but they may be interpreted in one of two ways: (a) they may have understood the question to ask what they will do in the future or may have decided to restrict their sexual activity to their current and only partner, and (b) they may have rejected opportunities to engage in intercourse with other men out of concern about HIV infection. Although 31 percent of unmarried women reported that they had made one or more changes in their sexual behavior since hearing of AIDS, statistically significant differences existed by number of partners, income, and race.

Low-income women were more likely to say they had made one or more changes than high-income women (37 percent compared with 28 percent). About 41 percent of non-Hispanic black women and 28 percent of unmarried non-Hispanic white women reported making one or more changes since hearing of AIDS (table 3).

There is a striking increase in the proportion of women reporting one or more changes by number of partners: 17 percent of unmarried women with one lifetime partner reported that they had made one or more changes, compared with 50 percent of women with 10 partners or more. This pattern is also found for non-Hispanic white women: 11 percent of those with one partner had made one or more changes, compared with 51 percent of those with 10 partners or more. Among non-Hispanic black women this pattern was less pronounced: 34 percent of those with one partner versus 50 percent of those with 10 partners or more. As was seen in the other measures of change for those women with one lifetime partner, the percent of these women who report a change may reflect actual change, such as stopping sexual activity entirely, or reporting their expectation to make a change in their future behavior if they find themselves with the choice of having

sex with a potentially high-risk partner.

Table 4 contains the responses of women of all marital statuses to the question "What would you say are the chances that you could get AIDS? Would you say that you have . . .

- A. A very strong chance,
- B. A strong chance,
- C. Some chance,
- D. Not much chance, or
- E. No chance at all?"

Two of every five women 15–44 years of age (41 percent) said they had "no chance at all" of contracting AIDS, another two in five (40 percent) said they had "not much chance", whereas 17 percent said

they had some chance and 2 percent said they had a strong or very strong chance. Women with one lifetime sexual partner were most likely to report that they had no chance at all of contracting HIV (51 percent) compared with 27 percent of women with 10 lifetime sexual partners or more. Non-Hispanic black women were slightly more likely than non-Hispanic white women to report that they had no chance of contracting AIDS (44 percent compared with 39 percent). This perception is not, however, consistent with available evidence that black women are more likely to develop AIDS than white women (1,7,8).

Low-income women and black women were twice as likely as high-

income women to say that they had a "strong chance" of contracting the AIDS virus, but the percents were small. The percent of women who had ever had intercourse who reported "some chance" of contracting the AIDS virus increased as the number of lifetime sexual partners increased (13 percent for those with 1 lifetime partner to 23 percent for those with 10 or more).

Currently married women were the most likely of all marital statuses to say that they had "no chance at all" of contracting AIDS (45 percent compared with 36–37 percent of never married or formerly married women). Both categories of unmarried women were more likely to

**Table 4. Number of women 15–44 years of age who have ever heard of AIDS and percent distribution by perceived risk of contracting the human immunodeficiency virus (HIV/AIDS), according to selected characteristics: United States, 1988**

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

Characteristics and perceived risk of contracting AIDS	Marital status				Number of lifetime sexual partners					Poverty level income	
	All women <sup>1</sup>	Currently married	Formerly married	Never married	Never had intercourse	1 partner	2–4 partners	5–9 partners	10 partners or more	Less than 150 percent	150 percent or more
Number in thousands											
All women <sup>2</sup> . . . . .	57,567	28,978	7,638	20,951	6,691	16,417	17,069	9,367	6,767	13,429	44,138
Unmarried women . . . . .	28,589	...	7,638	20,951	6,691	4,268	7,676	5,157	4,118	9,781	18,808
Race:											
Non-Hispanic white . . . . .	42,426	23,297	5,186	13,942	4,575	12,215	12,517	6,855	5,364	7,237	35,189
Non-Hispanic black . . . . .	7,338	2,086	1,333	3,919	714	1,162	2,728	1,682	786	3,465	3,873
Percent distribution											
All women <sup>2</sup> . . . . .	2.3	1.2	3.5	3.3	2.7	1.2	2.9	2.3	3.3	4.4	1.7
Unmarried women . . . . .	3.4	...	3.5	3.3	2.7	*2.2	3.7	3.6	5.0	5.0	2.5
Race:											
Non-Hispanic white . . . . .	1.7	0.9	3.2	2.6	*2.6	*0.6	*2.4	*1.3	2.8	3.8	1.3
Non-Hispanic black . . . . .	5.3	3.3	6.8	5.8	*3.9	5.3	4.8	5.2	7.5	5.7	4.9
Some chance											
All women <sup>2</sup> . . . . .	17.4	14.2	21.7	20.2	17.6	12.5	17.1	21.2	23.4	18.9	16.9
Unmarried women . . . . .	20.6	...	21.7	20.2	17.6	14.2	19.5	23.5	28.5	20.7	20.6
Race:											
Non-Hispanic white . . . . .	17.5	14.3	22.7	21.0	18.7	12.8	17.8	20.9	21.6	19.6	17.1
Non-Hispanic black . . . . .	19.5	18.1	20.8	19.8	14.8	12.8	18.4	22.6	29.8	19.0	20.0
Not much chance											
All women <sup>2</sup> . . . . .	39.6	39.7	38.6	40.0	37.7	35.6	39.8	43.0	46.1	33.5	41.5
Unmarried women . . . . .	39.6	...	38.6	40.0	37.7	35.6	39.6	41.4	45.2	35.7	41.6
Race:											
Non-Hispanic white . . . . .	41.9	41.6	39.8	43.1	41.3	38.1	41.5	44.8	48.1	36.8	43.0
Non-Hispanic black . . . . .	31.5	31.6	33.8	30.8	24.4	27.9	32.6	34.2	33.0	29.1	33.7
No chance at all											
All women <sup>2</sup> . . . . .	40.7	44.9	36.2	36.5	42.0	50.7	40.3	33.5	27.2	43.2	39.9
Unmarried women . . . . .	36.4	...	36.2	36.5	42.0	48.0	37.2	31.5	21.3	38.6	35.2
Race:											
Non-Hispanic white . . . . .	38.8	43.2	34.3	33.2	37.4	48.6	38.2	33.0	27.4	39.8	38.6
Non-Hispanic black . . . . .	43.7	47.1	38.6	43.6	57.0	54.0	44.3	38.0	29.7	46.2	41.4

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

<sup>2</sup>Includes non-Hispanic white, non-Hispanic black, Hispanic, and other races; Hispanic and other races not shown separately. Also includes currently married women.

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

report that they had a strong chance of contracting the AIDS virus than married women (3–4 percent compared with 1 percent), or some chance (20–22 percent compared with 14 percent).

### STD history

The number of women who reported to the 1988 NSFG that they had ever had a sexually transmitted disease (STD) was too small to analyze by number of sexual partners

and other variables. However, a woman's STD history is an important means of measuring her risk for HIV infection, so summary tabulations using STD history are shown in table 5. A woman was classified as ever having an STD if she responded affirmatively to one of the following questions:

“Has a doctor ever told you that you have genital warts?”

“Has a doctor ever told you that you have gonorrhea?”

“Has a doctor ever told you that you have genital herpes?”

“Has a doctor ever told you that you have chlamydia?”

Women were classified as never having had an STD if they responded negatively to all four of these questions.

A history of STD has a small but consistent effect on the percent with misinformation on the means of HIV transmission (table 5). Only two of the differences are statistically significant at the 5-percent level (“sharing dishes, toilets, and food,” and “Heterosexual intercourse,” table 5), but the pattern is consistent: In every comparison but one, women who had an STD appear to be less likely to have misinformation about HIV transmission. The data suggest that women with no STD history were more likely to be unaware that HIV can be spread by a person who has the virus but not AIDS (29 percent versus 24 percent).

The differences by STD history in the proportion of unmarried women who changed their sexual behavior since hearing of AIDS are striking. One-fourth of unmarried women with an STD history (26 percent) had “stopped having sex with more than one man,” compared with 15 percent of unmarried women with no STD history. Women who had ever had an STD were twice as likely as others to report that they had stopped having intercourse with men they did not know well. (22 percent compared with 10 percent). This may be the result of women with an STD history having more need to make these changes than women with no history. Overall, 43 percent of unmarried women with an STD history made one or more changes in their sexual behavior since hearing of AIDS, compared with 30 percent of unmarried women with no STD history.

Large differences were also seen in a woman's perceived risk of contracting HIV when examined by STD history. Women with a history of STD were more likely to report that they had “some chance” of

**Table 5. Number of women 15–44 years of age in selected categories and percent with misinformation about the means of HIV/AIDS transmission, percent who made changes in sexual behavior since hearing of HIV/AIDS, and percent distribution by perceived risk of acquiring AIDS, according to STD history and age: United States, 1988**

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

Selected characteristics	Ever had an STD <sup>1</sup>	Never had an STD <sup>1</sup>	15–19 years	20–44 years
	Number in thousands			
All women . . . . .	4,226	53,674	9,179	48,721
	Percent			
Misinformation				
Receiving a blood transfusion? <sup>2</sup> . . . . .	6.9	8.2	10.3	7.7
Giving a blood donation? <sup>2</sup> . . . . .	16.0	19.8	24.3	18.6
Being bitten by an infected insect? <sup>2</sup> . . . . .	21.6	21.6	28.3	20.3
Sharing dishes, toilets, and food? <sup>2</sup> . . . . .	*3.3	6.0	6.1	5.8
	Number in thousands			
Unmarried women . . . . .	2,224	26,529	8,867	19,886
	Percent			
Sharing hypodermic needles? <sup>3</sup> . . . . .	*7.1	10.2	10.7	9.7
Homosexual intercourse? <sup>3</sup> . . . . .	*3.4	5.8	6.0	5.5
Heterosexual intercourse? <sup>3</sup> . . . . .	*4.0	7.2	5.5	7.5
Getting AIDS from an HIV positive person? <sup>3,4</sup>	23.8	29.3	29.5	28.6
	Number in thousands			
Unmarried, sexually experienced women . . .	2,224	19,776	4,544	17,456
	Percent			
Changes in behavior				
Stopped having intercourse? <sup>5</sup> . . . . .	*5.4	5.5	5.6	5.4
Reduced frequency of sex? <sup>5</sup> . . . . .	12.8	8.9	11.9	8.6
Restricted sex to one man? <sup>5</sup> . . . . .	25.5	14.5	13.3	16.2
Restricted sex to men you know well? <sup>5</sup> . . . .	21.7	10.4	8.4	12.3
Made one or more changes <sup>5</sup> . . . . .	42.9	29.7	31.7	30.8
	Number in thousands			
Women who have heard of AIDS <sup>6</sup> . . . . .	2,687	54,881	9,146	48,421
	Percent distribution			
Chances of getting AIDS				
Total . . . . .	100.0	100.0	100.0	100.0
Strong or very strong? <sup>2</sup> . . . . .	*3.9	2.2	3.8	2.0
Some chance? <sup>2</sup> . . . . .	24.5	16.8	18.5	17.2
Not much chance? <sup>2</sup> . . . . .	45.9	39.1	39.5	39.7
No chance at all? <sup>2</sup> . . . . .	25.7	41.9	38.2	41.2

<sup>1</sup>Sexually transmitted disease, including gonorrhea, genital herpes, chlamydia, or genital warts.

<sup>2</sup>Includes women of all marital statuses.

<sup>3</sup>Includes only unmarried women.

<sup>4</sup>“HIV positive person” is a person with the AIDS (HIV) virus, but not the disease.

<sup>5</sup>Includes only sexually experienced unmarried women.

<sup>6</sup>Excludes women with missing data on whether they had heard of AIDS.

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



contracting the virus than women who never had an STD (25 percent compared with 17 percent).

Conversely, women with a history of STD were also far less likely to report that they had "no chance at all" of contracting the virus compared with women with no history of STD (26 percent compared with 42 percent).

The results of table 5 may be affected by the other characteristics of women with and without a history of STD: These characteristics include race, income, education, and number of lifetime sexual partners. One other factor may be affecting these differences as well. Because the measure of STD history used in this table is based on a woman being told by a doctor that she has an STD, she may have received counseling along with her treatment. If so, she might know more about the means of HIV transmission and the changes in behavior needed to prevent it, and may have a better understanding of her risk of becoming infected with the virus.

### Teenage knowledge and behavior

Table 5 also contains the differences in knowledge and behavior for women 15–19 years of age compared with women 20–44 years of age. Preliminary analysis found that differences between age groups were not statistically significant for most categories. As they begin sexual activity, teenagers may be exposed to HIV. Other research has suggested that sexual activity among teenagers is increasing (6), so it is important to have a measure of their awareness of the means of HIV transmission and the ways the risk of infection can be avoided.

Women 15–19 years of age were more likely than women 20–44 years of age to have the mistaken belief that they could contract the AIDS virus by donating blood (24 percent compared with 19 percent). Teenage women were also more likely to have the mistaken belief that HIV can be

transmitted by the bite of an insect (28 percent compared with 20 percent, table 5).

Teens and women 20–44 years of age did not differ significantly in the percent with misinformation about the actual means of HIV transmission: sharing hypodermic needles (11 percent versus 10 percent), homosexual intercourse (6 percent in both groups), heterosexual intercourse (6 percent compared with 8 percent), and contracting the AIDS virus from an HIV positive person (30 percent compared with 29 percent). These numbers suggest that the level of knowledge among teenage women (15–19 years of age) is comparable to that for women 20–44 regarding the means by which one can contract the HIV virus.

The proportions of unmarried women who changed their sexual behavior since hearing of AIDS are shown by age in table 5. The differences between teenagers and women 20–44 years of age are generally small. About 32 percent of unmarried teenagers and 31 percent of women 20–44 years of age made one or more changes. These proportions must be interpreted cautiously, however, as women 15–19 years of age have not had as many years to engage in sexual activity as women 20 years of age and older. Differences by age in perceptions of the chances of contracting the AIDS virus were also small (table 5).

### References

1. Guinan ME, Hardy A. Epidemiology of AIDS in women in the United States: 1981–86. *JAMA* 257(15): 2039–42. 1987.
2. Dawson DA. AIDS knowledge and attitudes for July 1988: Provisional data from the National Health Interview Survey. Advance data from vital and health statistics; no 161. Hyattsville, Maryland. National Center for Health Statistics. 1988.
3. Dawson DA, Hardy AM. AIDS knowledge and attitudes of Black Americans: Provisional data from the National Health Interview Survey. Advance data from vital and health

statistics; no 165. Hyattsville, Maryland. National Center for Health Statistics. 1989.

4. Dawson DA. AIDS knowledge and attitudes for July–September 1989: Provisional data from the National Health Interview Survey. Advance data from vital and health statistics; No 183. Hyattsville, Maryland. National Center for Health Statistics. 1990.
5. U.S. Department of Health and Human Services. Surgeon General's report on acquired immune deficiency syndrome. U.S. Government Printing Office.
6. Forrest JD, Singh S. The sexual and reproductive behavior of American women, 1982–88. *Fam Plann Perspect* 22(5):206–14, 1990.
7. Schoenbaum EE, Hartel D, Selwyn PA, et al. Risk factors for human immunodeficiency virus infection in intravenous drug users. *N Engl J Med*. 321(13):874–79. 1989.
8. Holmes KK, Karon JM, Kreiss J. The increasing frequency of heterosexually acquired AIDS in the United States, 1983–88. *AJPH* 80(7): 858–63. 1990.
9. Gayle JL, Selik RM, Chu SY. Surveillance for AIDS and HIV infection among black and Hispanic children and women of childbearing age, 1981–89. *MMWR* 39(SS-3):23–30. 1990.
10. Aral SO, Holmes KK. Epidemiology of sexual behavior and sexually transmitted diseases. In: *Sexually transmitted diseases*. New York: McGraw Hill, 19–36. 1990.
11. Division of STD/HIV Prevention (Centers for Disease Control). Annual report 1989.

## 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 and infertility, family planning, and related aspects of maternal and infant health. Fieldwork for Cycle I was conducted in 1973 by the National Opinion Research Center. Fieldwork for Cycles II, III, and IV was conducted by Westat, Inc., in 1976, 1982, and 1988.

For Cycle IV of the NSFG, personal interviews were conducted between January and August of 1988 with a national sample of women who were 15–44 years of age as of March 15, 1988. Interviews were completed with 8,450 women. Data have been weighted to be representative of the civilian noninstitutionalized population of the United States, and black women were oversampled in order to yield reliable estimates by race.

Interviews for Cycle IV of the NSFG were conducted in households which had participated in another NCHS survey, the National Health Interview Survey (NHIS), sometime between 1985 and 1987. Respondents were interviewed in person in their own homes 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; her marital history and associated cohabiting unions; her occupation and labor force participation; and a wide range of social, economic, and demographic characteristics.

### Reliability of estimates

Because the statistics presented in this report are based on a sample, they may differ from the statistics that would result if all 58 million women represented by the NSFG had

been interviewed. The standard error of an estimate is a measure of such differences. The standard error of an estimated number or percent is calculated by substituting the appropriate values of A and B from table I in the following equations:

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

and

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

where  $N'$  = the number of women

$P'$  = the percent

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

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

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

The chances are about 68 in 100 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 the statistic, and usually is expressed as a percent of the estimate. In this report, 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.

### Other sources of data

This section includes comparisons of the NSFG results with the information on HIV knowledge in the NHIS. There are differences between the two surveys in the way some of the questions are asked, how answers were recorded, and in the populations covered. The NHIS data refer to males and females 20–75 years of age; the NSFG data are for women 15–44 years of age. In addition, the NHIS asked two separate questions concerning whether HIV can be spread through sharing dishes and glasses, and whether it can be spread through the use of public toilets, whereas the NSFG covers both of these issues in a single question.

The questions concerning the spread of HIV by contaminated hypodermic needles also differ. The NHIS asks, "How likely do you think it is that a person will get AIDS or the AIDS virus from sharing needles for drug use with someone who has the AIDS virus?" (reference 2, page 9), directly associating the spread of the virus with the practice by some drug users of sharing their hypodermic needles with each other. The NSFG asks a more general

question of whether or not HIV can be spread by "sharing hypodermic needles" (see text). These wording differences may result in some differences in levels of misinformation reported by the two surveys.

The method of recording responses also differed substantially between the two surveys. The NHIS respondents were asked whether the means of transmission was: "Very likely," "Somewhat likely," "Somewhat unlikely," "Very unlikely," "Definitely not possible," or "Don't know." In contrast, the NSFG simply recorded whether or not the suggested means of transmission could spread the virus as "Yes" or "No." This makes it difficult to compare the results from the two surveys with each other as the distributions differ for some questions and are quite close for other questions.

The results in table 2, on misinformation about contracting HIV from a person who has the AIDS virus but not the disease, differed from those reported by the NHIS, which found that less than 10 percent of females possessed this misinformation (2). However, the wording of the questions in the two surveys differed substantially. The NHIS asked how likely it is that "Any person with the AIDS virus can pass it on to someone else during sexual intercourse," whereas the NSFG asked: "Can a person get AIDS from someone who has only the AIDS virus but does not have the disease?" These wording differences are probably the primary cause of the differences in the results; but NHIS results are for women 20–75 years of age of all marital statuses, and the NSFG results shown here are for unmarried women 15–44 years of age—a much younger and much smaller group.

Because only a small proportion (2 percent) of all women reported either a very strong or a strong chance of contracting AIDS, these two categories are combined into one group in table 4. The question analyzed in table 4 is similar to the one found in NHIS reports on AIDS,

but differences exist between the two that result in somewhat different responses. In contrast to the NSFG question quoted in the text, the NHIS asks, "What are your chances of getting the AIDS virus?": "High," "Medium," "Low," "None," "Don't know," or "High chance of already having the AIDS virus."

### Definition of terms

*Race*—Race refers to the race of the woman interviewed and is reported as black, white, or other. In the 1988 NSFG, race was classified according to the woman's own report of the race that best described her.

*Hispanic origin*—In the 1988 NSFG, a respondent was classified as being of Hispanic origin if she reported that her only or principal national origin was Puerto Rican, Cuban, Mexican American, Central or South American, or other Spanish. For 3 percent of respondents, origin was not ascertained, so values were imputed.

*Marital status*—In the NSFG, persons were classified by marital status as married, widowed, divorced, separated, or never married. In Cycles I and II, informally married women—women who volunteered that they were sharing living quarters with their sexual partner—were classified as currently married. These women constituted about 2 percent of currently married respondents in Cycle I and 3 percent in Cycle II. In Cycles III and IV, such women were classified according to their legal marital status. In all cycles, women who were married but separated from their spouses were classified as separated if the reason for the separation was marital discord; otherwise, they were classified as currently married. Formal marital status is used throughout this report. In this report, "unmarried" means not legally married—that is, never legally married or formerly married, where formerly married includes widowed, divorced, or separated.

*Sexually experienced*—This refers to a woman who has had sexual intercourse at least once. Intercourse

before the first menstrual period is excluded.

*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.

---

### Symbols

- Data not available
  - . . . Category not applicable
  - Quantity zero
  - 0.0 Quantity more than zero but less than 0.05
  - \* Figure does not meet standard of reliability or precision
-

---

**Suggested citation**

McNally JW, Mosher WD. AIDS-related knowledge and behavior among women 15-44 years of age: United States, 1988. Advance data from vital and health statistics; no 200. Hyattsville, Maryland: National Center for Health Statistics. 1991.

---

**Copyright information**

This report may be reprinted without further permission.

---

U.S. DEPARTMENT OF HEALTH AND  
HUMAN SERVICES  
Public Health Service  
Centers for Disease Control  
National Center for Health Statistics  
6525 Belcrest Road  
Hyattsville, Maryland 20782

BULK RATE POSTAGE & FEES PAID PHS/NCHS PERMIT No. G-281
--

---

OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300

---

To receive this publication regularly, contact  
the National Center for Health Statistics by  
calling 301-436-8500

---

DHHS Publication No. (PHS) 91-1250