

NFHS-3 is the first national survey in India to include HIV testing. Previously, national HIV prevalence estimates were derived primarily from sentinel surveillance among pregnant women attending government antenatal clinics. Because these surveillance estimates are not based on a representative sample of adults in India, it was decided that general population estimates of HIV in India could be greatly improved if HIV testing was included in NFHS-3. NFHS-3 was designed to provide a national estimate of HIV in the household population of women age 15-49 and men age 15-54, as well as separate HIV estimates for each of the six highest HIV prevalence states (Andhra Pradesh, Karnataka, Maharashtra, Manipur, Nagaland, and Tamil Nadu). The National AIDS Control Organization also requested that HIV data be collected in the survey to reliably estimate HIV in one low HIV prevalence state, and Uttar Pradesh was selected for this purpose.

Because of the low level of HIV prevalence in India (less than 1 percent of the adult population according to the official estimate at the time that NFHS-3 was being planned), very large samples would be required to obtain reliable estimates of HIV in individual states. Therefore, it was decided to design the sample to provide state-level HIV prevalence estimates only for the seven states mentioned above. To ensure that the state-level HIV estimates were reasonably precise, those seven states were oversampled. All women age 15-49 and all men age 15-54 living in all sample households in those states were eligible for the HIV testing component of NFHS-3. In the remaining 22 states, HIV testing was conducted in only a subsample of about six households per enumeration area, and all women age 15-49 and all men age 15-54 in those sample households were eligible for HIV testing. Sample sizes in those 22 states were large enough to contribute to a reliable estimate of national HIV prevalence. In all, more than 100,000 HIV tests were conducted throughout India in NFHS-3.

HIV testing in NFHS-3 was carefully designed and implemented based on sound scientific principles and substantial field experience in incorporating HIV testing in national household surveys. Respondents who consented to participate in the HIV testing provided blood drops from a finger stick that were collected on special filter paper cards and dried overnight. The dried blood spot samples were delivered to SRL Ranbaxy collection centres from where they were shipped by courier to the SRL Ranbaxy laboratory in Mumbai, where the HIV tests were conducted. External quality control for the HIV testing was conducted on more than 5,000 NFHS-3 blood samples by the National AIDS Control Organization in Pune. The Indian Council for Medical Research established an expert group to further evaluate the testing conducted at Ranbaxy and to assess the blood collection component of the fieldwork. Chapter 1 describes in more detail the planning, sample design, training, blood collection procedures, and testing protocols for the blood collection and HIV testing component of the survey.

This chapter presents NFHS-3 information on the coverage of HIV testing among eligible women and men, the prevalence of HIV, and variations in HIV in key subgroups of the population. The last section of the chapter analyzes the effect of nonresponse on HIV rates. The

understanding of the distribution of HIV within the population and the analysis of social, biological, and behavioural factors associated with HIV infection offer new insights about the HIV epidemic in India that may lead to more precisely targeted messages and interventions. However, caution is suggested in interpreting the differentials in HIV prevalence for categories with small sample sizes.

Previous HIV Prevalence Estimates for India and Revised Estimates Released in 2007

Although information from the ANC surveillance system has been very useful for assessing HIV levels for the population tested, and especially for monitoring trends in HIV prevalence, the inclusion of HIV testing in NFHS-3 offers the opportunity to better understand the magnitude and patterns of HIV infection in the general reproductive age population in India. In fact, the NFHS-3 HIV prevalence estimates have already provided important information for HIV/AIDS programmes in India. The NFHS-3 estimates are also being used to calibrate the annual sentinel surveillance data.

While the rate of HIV infection in pregnant women has been shown to be a reasonable proxy for the level in the combined male and female adult population in a number of settings (WHO and UNAIDS, 2000), there are several well recognized limitations in estimating the HIV rate in the general adult population from data derived exclusively from pregnant women attending selected antenatal clinics. First, the ANC data do not provide any information on HIV prevalence in non-pregnant women. They also do not provide any information on HIV prevalence for pregnant women who either do not attend a clinic for pregnancy care or who receive antenatal care at facilities not represented in the surveillance system. Pregnant women are also more at risk for HIV infection than women who may be avoiding both HIV and pregnancy through the use of condoms. Women who are less sexually active and are therefore less likely to become pregnant or be exposed to the HIV virus are also underrepresented in the surveillance data. There are additional biases in HIV estimates based on the ANC surveillance data because HIV infection reduces fertility and because knowledge of HIV status may influence fertility choices. Finally, the HIV rate among pregnant women is not a good proxy for male HIV rates. Moreover, although there were 391 ANC surveillance sites in 2005 (NACO, 2006) and 628 in 2006, these sites are not completely representative of India as a whole or even individual states. These sites have been supplemented by a large number of sites frequented by high-risk groups, such as patients visiting STI clinics, injecting drug users, and men who have sex with men. The system of surveillance sites, including surveillance sites for high-risk groups, has continued to expand and the total number of sites now exceeds 1,100.

The HIV Sentinel Surveillance Report for 2005 (NACO, 2006) estimated that India had 5.2 million adults age 15-49 living with HIV in 2005. More than half (57 percent) of the adults living with HIV were rural and 38 percent were women. The same report estimated the overall adult HIV prevalence in India to be 0.91 percent. HIV prevalence was greater than 1 percent in 95 districts, including 9 districts in low HIV prevalence states. The states with the highest HIV prevalence in the ANC population in 2005 were Andhra Pradesh (2.00 percent), Nagaland (1.63 percent), and Karnataka, Maharashtra, and Manipur (1.25 percent each).

In 2006, UNAIDS estimated that at the end of 2005, there were 3.4-9.4 million people in India living with HIV, with a best estimate of 5.7 million people (UNAIDS 2006). Out of this number, UNAIDS estimated that 5.6 million were adults, of whom 1.6 million were women age 15 and over. Although UNAIDS has estimated that India has a larger number of persons living with HIV than any other country in the world, their estimate of HIV prevalence for adults age 15-49 years (0.9 percent, with a range of 0.5-1.5 percent) is much lower than that in many other countries. Africa remains the global epicentre of the AIDS pandemic.

In 2007, NACO undertook an exercise, in consultation with Indian and international experts in HIV estimation, to revise the HIV official estimates based on the NFHS-3 household-based estimates of HIV in the population age 15-49 years, estimates of HIV from the expanded sentinel surveillance system, and related information about HIV in high-risk groups that do not live in households. The revised HIV estimate of 2.47 million persons in India living with HIV (equivalent to 0.36 percent of the adult population) was released by NACO in July, 2007. This national estimate reflects the availability of improved data rather than a substantial decrease in actual HIV prevalence in India. The new estimate is less than half the official HIV estimate for the previous year, and it moves India down to third place in the list of countries with the largest number of persons living with HIV.

12.1 COVERAGE OF HIV TESTING IN NFHS-3

Tables 12.1.1-12.1.3 show the coverage rates for HIV testing among eligible women and men and the reasons that some respondents could not be tested for each state. Blood collection for HIV testing was not conducted in Nagaland due to local opposition, so Nagaland has not been included in any of the tables in this chapter. In the remaining states, HIV tests were conducted for 85 percent of the 62,182 eligible women and 78 percent of the 64,175 eligible men in India. For both sexes combined, coverage was 82 percent. These response rates are similar to the response rates for HIV testing in Demographic and Health Surveys in other countries. In NFHS-3, 6 percent of women and 14 percent of men did not complete individual interviews, so they were not eligible for blood tests. In addition, 6 percent of women and 5 percent of men who completed individual interviews refused to provide blood for HIV testing. Only a small number of interviewed women (1 percent) and interviewed men (2 percent) were not at home at the time of the blood collection.

Table 12.1.1 Coverage of HIV testing by state: Women

Percent distribution of women age 15-49 eligible for HIV testing by testing status, according to state (unweighted), India, 2005-06

State	Testing status					Total	Number
	Blood tested	Refused to provide blood	Absent at the time of blood collection	Other/missing	Not interviewed		
India	85.0	6.1	1.1	1.4	6.4	100.0	62,182
North							
Delhi	61.5	19.9	5.6	5.9	7.1	100.0	733
Haryana	91.3	3.4	0.0	0.2	5.1	100.0	527
Himachal Pradesh	88.0	5.5	0.3	1.7	4.5	100.0	599
Jammu & Kashmir	79.4	4.6	0.6	3.1	12.3	100.0	699
Punjab	88.9	3.8	0.6	0.4	6.4	100.0	720
Rajasthan	95.9	1.5	0.3	0.0	2.3	100.0	661
Uttaranchal	87.8	3.7	0.2	0.7	7.7	100.0	575
Central							
Chhattisgarh	96.7	1.5	0.0	0.3	1.5	100.0	600
Madhya Pradesh	98.7	0.6	0.1	0.0	0.6	100.0	1,127
Uttar Pradesh	83.3	8.5	1.5	0.6	6.1	100.0	12,969
East							
Bihar	88.2	6.4	0.5	2.5	2.5	100.0	642
Jharkhand	83.3	7.0	1.1	3.2	5.4	100.0	558
Orissa	91.8	2.9	0.2	2.2	2.9	100.0	825
West Bengal	86.7	6.9	0.2	0.3	5.8	100.0	1,269
Northeast							
Arunachal Pradesh	95.0	0.9	0.0	1.2	2.8	100.0	321
Assam	86.1	5.9	1.3	1.7	5.0	100.0	700
Manipur	90.6	2.1	1.6	0.4	5.3	100.0	4,766
Meghalaya	54.3	27.9	0.2	6.0	11.5	100.0	416
Mizoram	95.2	2.6	0.0	0.6	1.7	100.0	352
Sikkim	86.2	7.3	0.0	1.2	5.3	100.0	412
Tripura	92.6	0.5	0.0	3.0	3.8	100.0	366
West							
Goa	83.0	4.0	0.1	2.9	9.9	100.0	695
Gujarat	90.1	3.9	0.6	0.8	4.7	100.0	644
Maharashtra	77.7	8.6	1.2	2.0	10.5	100.0	10,097
South							
Andhra Pradesh	85.2	6.0	1.7	0.5	6.5	100.0	7,627
Karnataka	82.4	5.6	0.9	3.3	7.7	100.0	6,512
Kerala	93.6	2.3	0.3	0.3	3.6	100.0	703
Tamil Nadu	93.4	2.5	0.2	1.4	2.4	100.0	6,067

Note: Table excludes Nagaland.

Table 12.1.2 Coverage of HIV testing by state: Men

Percent distribution of men age 15-54 eligible for HIV testing by testing status, according to state (unweighted), India, 2005-06

State	Testing status					Total	Number
	Blood tested	Refused to provide blood	Absent at the time of blood collection	Other/missing	Not interviewed		
India	78.1	4.6	2.1	1.7	13.5	100.0	64,175
North							
Delhi	50.1	12.6	7.0	5.6	24.7	100.0	881
Haryana	83.6	1.2	0.5	0.3	14.3	100.0	574
Himachal Pradesh	82.0	3.9	0.9	1.9	11.3	100.0	533
Jammu & Kashmir	70.6	2.7	0.4	2.8	23.4	100.0	705
Punjab	81.0	1.8	0.5	0.5	16.2	100.0	838
Rajasthan	93.9	0.5	0.2	0.3	5.1	100.0	644
Uttaranchal	77.8	3.2	2.0	0.7	16.3	100.0	558
Central							
Chhattisgarh	95.2	0.8	0.0	0.3	3.7	100.0	649
Madhya Pradesh	97.6	0.2	0.4	0.2	1.5	100.0	1,256
Uttar Pradesh	78.7	4.9	2.5	0.8	13.1	100.0	13,182
East							
Bihar	87.9	2.8	0.5	1.8	6.9	100.0	564
Jharkhand	75.5	4.8	2.8	2.9	14.0	100.0	580
Orissa	87.2	3.0	0.9	2.5	6.4	100.0	768
West Bengal	81.4	6.6	0.3	1.0	10.8	100.0	1,341
Northeast							
Arunachal Pradesh	94.9	0.5	0.0	1.1	3.5	100.0	370
Assam	75.5	3.8	2.7	4.4	13.6	100.0	742
Manipur	82.3	1.7	3.9	0.6	11.6	100.0	4,468
Meghalaya	41.5	27.1	1.2	6.7	23.5	100.0	417
Mizoram	95.4	2.4	0.0	0.3	1.8	100.0	327
Sikkim	80.6	8.1	0.0	2.4	8.8	100.0	454
Tripura	86.9	1.1	0.0	2.7	9.4	100.0	374
West							
Goa	74.1	1.1	1.7	3.6	19.4	100.0	715
Gujarat	82.0	3.6	0.4	0.6	13.4	100.0	673
Maharashtra	67.6	6.1	2.2	2.1	22.1	100.0	11,379
South							
Andhra Pradesh	80.7	5.0	3.3	0.4	10.6	100.0	7,973
Karnataka	71.7	5.8	1.8	4.1	16.6	100.0	6,630
Kerala	88.8	3.0	0.3	0.0	7.9	100.0	624
Tamil Nadu	89.6	2.7	0.9	2.5	4.4	100.0	5,956

Note: Table excludes Nagaland.

Table 12.1.3 shows that more than 90 percent of eligible women age 15-49 and men age 15-54 had their blood tested for HIV in 7 states, with coverage levels exceeding 95 percent in Madhya Pradesh, Chhattisgarh, and Mizoram. Coverage levels exceeded 80 percent in 21 of the 28 states. The lowest levels of coverage were in Meghalaya (48 percent), Delhi (55 percent), and Maharashtra (72 percent). HIV testing rates were higher for women than for men in every state except Mizoram, where 95 percent of both women and men had their blood tested for HIV. Refusal rates were generally low, except in Meghalaya and Delhi.

Table 12.1.3 Coverage of HIV testing by state: Women and men
Percent distribution of women age 15-49 and men 15-54 eligible for HIV testing by testing status, according to state (unweighted), India, 2005-06

State	Testing status					Total	Number
	Blood tested	Refused to provide blood	Absent at the time of blood collection	Other/missing	Not interviewed		
India	81.5	5.3	1.6	1.5	10.0	100.0	126,357
North							
Delhi	55.3	15.9	6.4	5.7	16.7	100.0	1,614
Haryana	87.3	2.3	0.3	0.3	9.9	100.0	1,101
Himachal Pradesh	85.2	4.8	0.6	1.8	7.7	100.0	1,132
Jammu & Kashmir	75.0	3.6	0.5	3.0	17.9	100.0	1,404
Punjab	84.7	2.7	0.5	0.4	11.7	100.0	1,558
Rajasthan	94.9	1.0	0.2	0.2	3.7	100.0	1,305
Uttaranchal	82.9	3.4	1.1	0.7	11.9	100.0	1,133
Central							
Chhattisgarh	95.9	1.1	0.0	0.3	2.6	100.0	1,249
Madhya Pradesh	98.1	0.4	0.3	0.1	1.1	100.0	2,383
Uttar Pradesh	81.0	6.7	2.0	0.7	9.6	100.0	26,151
East							
Bihar	88.1	4.7	0.5	2.2	4.6	100.0	1,206
Jharkhand	79.3	5.9	1.9	3.1	9.8	100.0	1,138
Orissa	89.6	3.0	0.6	2.3	4.6	100.0	1,593
West Bengal	83.9	6.7	0.3	0.7	8.4	100.0	2,610
Northeast							
Arunachal Pradesh	94.9	0.7	0.0	1.2	3.2	100.0	691
Assam	80.7	4.8	2.0	3.1	9.4	100.0	1,442
Manipur	86.6	1.9	2.7	0.5	8.3	100.0	9,234
Meghalaya	47.9	27.5	0.7	6.4	17.5	100.0	833
Mizoram	95.3	2.5	0.0	0.4	1.8	100.0	679
Sikkim	83.3	7.7	0.0	1.8	7.2	100.0	866
Tripura	89.7	0.8	0.0	2.8	6.6	100.0	740
West							
Goa	78.5	2.6	0.9	3.3	14.8	100.0	1,410
Gujarat	86.0	3.7	0.5	0.7	9.1	100.0	1,317
Maharashtra	72.3	7.3	1.7	2.0	16.6	100.0	21,476
South							
Andhra Pradesh	82.9	5.5	2.5	0.5	8.6	100.0	15,600
Karnataka	77.0	5.7	1.4	3.7	12.2	100.0	13,142
Kerala	91.3	2.6	0.3	0.2	5.6	100.0	1,327
Tamil Nadu	91.5	2.6	0.6	1.9	3.4	100.0	12,023

Note: Table excludes Nagaland.

Tables 12.2.1 and 12.2.2 show coverage rates for HIV testing by age group, residence, education, and household wealth. Coverage of HIV testing varies very little with age, but coverage is considerably lower in urban areas than in rural areas for both women and men. Coverage rates are somewhat lower for women and men with a high level of education and those in households in the highest wealth quintile, but otherwise differentials are quite small. Additional tables related to coverage of HIV testing are shown in the Chapter 12 Appendix at the end of this chapter.

Table 12.2.1 Coverage of HIV testing by background characteristics: Women

Percent distribution of women age 15-49 eligible for HIV testing by testing status, according to background characteristics (unweighted), India, 2005-06

	Testing status					Total	Number
	Blood tested	Refused to provide blood	Absent at the time of blood collection	Other/missing	Not interviewed		
Age							
15-19	85.0	6.5	1.3	1.3	5.9	100.0	11,883
20-24	83.9	6.5	1.1	1.6	6.9	100.0	11,432
25-29	84.5	6.2	1.1	1.5	6.7	100.0	10,431
30-34	86.5	5.3	1.1	1.4	5.6	100.0	8,923
35-39	85.8	5.7	1.0	1.2	6.3	100.0	8,055
40-44	85.2	6.4	1.1	1.4	6.0	100.0	6,551
45-49	84.0	6.0	0.9	1.4	7.7	100.0	4,907
Residence							
Urban	80.8	8.0	1.5	1.8	7.9	100.0	31,842
Rural	89.4	4.2	0.7	1.0	4.8	100.0	30,340
Education							
No education	84.6	6.3	1.1	1.3	6.6	100.0	19,793
<5 years complete	88.6	4.1	0.8	1.5	5.0	100.0	4,468
5-7 years complete	87.5	4.9	0.9	1.4	5.3	100.0	9,243
8-9 years complete	88.3	4.8	1.0	1.1	4.8	100.0	9,605
10-11 years complete	84.9	6.0	1.1	1.4	6.6	100.0	7,869
12 or more years complete	79.5	8.7	1.4	1.7	8.6	100.0	11,187
Wealth index							
Lowest	86.1	5.6	1.1	1.4	5.8	100.0	6,146
Second	88.1	5.2	0.9	1.0	4.8	100.0	8,704
Middle	88.8	4.4	0.8	1.1	4.9	100.0	12,409
Fourth	87.0	4.8	1.1	1.4	5.7	100.0	15,466
Highest	79.2	8.8	1.4	1.8	8.8	100.0	19,457
Total	85.0	6.1	1.1	1.4	6.4	100.0	62,182

Note: Table excludes Nagaland. Total includes women with missing information on education, who are not shown separately.

Table 12.2.2 Coverage of HIV testing by background characteristics: Men

Percent distribution of men age 15-54 eligible for HIV testing by testing status, according to background characteristics (unweighted), India, 2005-06

	Testing status					Total	Number
	Blood tested	Refused to provide blood	Absent at the time of blood collection	Other/missing	Not interviewed		
Age							
15-19	80.6	4.8	2.1	1.6	10.9	100.0	10,799
20-24	78.7	4.6	2.4	1.7	12.6	100.0	10,743
25-29	76.6	4.7	2.4	1.5	14.9	100.0	9,663
30-34	77.1	5.0	2.1	1.9	13.9	100.0	8,614
35-39	77.6	4.1	2.0	1.8	14.6	100.0	7,937
40-44	77.4	4.5	2.0	1.8	14.3	100.0	6,748
45-49	78.0	4.6	1.7	1.7	14.0	100.0	5,719
50-54	77.0	4.5	2.0	1.7	14.8	100.0	3,952
Residence							
Urban	73.2	5.9	2.7	2.0	16.3	100.0	35,178
Rural	84.0	3.0	1.5	1.3	10.2	100.0	28,997
Education							
No education	75.1	5.2	2.1	1.6	16.0	100.0	9,431
<5 years complete	82.9	3.8	2.0	1.6	9.6	100.0	5,457
5-7 years complete	80.7	3.9	1.9	1.9	11.6	100.0	9,808
8-9 years complete	81.2	3.4	1.8	1.6	11.9	100.0	13,179
10-11 years complete	77.7	4.5	2.3	1.6	13.8	100.0	10,533
12 or more years complete	74.1	6.0	2.4	1.7	15.7	100.0	15,725
Wealth index							
Lowest	81.4	3.9	1.9	1.7	11.2	100.0	5,771
Second	82.3	3.3	1.8	1.6	11.0	100.0	8,492
Middle	82.9	3.4	1.6	1.5	10.5	100.0	12,530
Fourth	78.5	4.3	2.2	1.8	13.3	100.0	16,767
Highest	72.1	6.3	2.6	1.8	17.2	100.0	20,615
Total	78.1	4.6	2.1	1.7	13.5	100.0	64,175

Note: Table excludes Nagaland. Total includes men with missing information on education, who are not shown separately.

12.2 HIV PREVALENCE

Results from NFHS-3 indicate that 0.28 percent of adults age 15-49 are infected with HIV (Table 12.3). This translates into 1.707 million HIV positive persons age 15-49 in India at the midpoint of the NFHS-3 survey period in April, 2006. The HIV prevalence rate is 0.22 percent for women and 0.36 percent for men age 15-49. The confidence intervals for the above estimates are 0.23-0.33 for adults, 0.17-0.27 for women, and 0.28-0.43 for men. The female-to-male infection ratio of 0.61 is consistent with NACO's estimated 2005 female-to-male ratio of 0.62 for adults living with HIV (NACO, 2006). The NFHS-3 female-to-male ratio is somewhat higher in urban areas (0.71) than in rural areas (0.56).

Table 12.3 HIV prevalence by age and residence						
Percentage HIV positive among women and men age 15-49 who were tested, by age and residence, India, 2005-06						
Age	Women		Men		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
URBAN						
15-19	0.08	3,275	0.00	3,032	0.04	6,307
20-24	0.24	3,107	0.23	2,992	0.23	6,099
25-29	0.18	2,902	0.60	2,592	0.38	5,494
30-34	0.84	2,545	0.82	2,268	0.83	4,813
35-39	0.34	2,369	0.53	2,202	0.43	4,571
40-44	0.20	1,849	0.46	1,872	0.33	3,721
45-49	0.11	1,429	0.44	1,544	0.28	2,973
Total age 15-49	0.29	17,475	0.41	16,502	0.35	33,978
Age 50-54	na	na	0.33	1,079	na	na
Total age 15-54	na	na	0.41	17,581	na	na
RURAL						
15-19	0.06	7,429	0.01	5,631	0.04	13,060
20-24	0.13	6,466	0.16	4,833	0.14	11,299
25-29	0.33	5,952	0.34	4,628	0.33	10,580
30-34	0.26	5,184	0.55	4,397	0.39	9,581
35-39	0.17	4,458	0.53	3,986	0.34	8,445
40-44	0.18	3,634	0.38	3,529	0.28	7,163
45-49	0.20	2,733	0.50	3,000	0.36	5,734
Total age 15-49	0.18	35,856	0.32	30,004	0.25	65,861
Age 50-54	na	na	0.35	2,029	na	na
Total age 15-54	na	na	0.33	32,033	na	na
TOTAL						
15-19	0.07	10,704	0.01	8,663	0.04	19,366
20-24	0.17	9,573	0.19	7,825	0.18	17,398
25-29	0.28	8,854	0.43	7,220	0.35	16,074
30-34	0.45	7,729	0.64	6,665	0.54	14,394
35-39	0.23	6,828	0.53	6,188	0.37	13,016
40-44	0.19	5,483	0.41	5,401	0.30	10,884
45-49	0.17	4,162	0.48	4,544	0.33	8,707
Total age 15-49	0.22	53,332	0.36	46,506	0.28	99,838
Age 50-54	na	na	0.34	3,108	na	na
Total age 15-54	na	na	0.35	49,614	na	na

Note: Table excludes Nagaland.
na = Not applicable

The HIV prevalence rate is 40 percent higher in urban areas than in rural areas (61 percent higher in urban areas than in rural areas for women and 28 percent higher for men). HIV prevalence rates are higher for men than for women in every age group except age 15-19, where the rates are very low overall. Women and men have similar age patterns, with HIV prevalence

increasing with age up through age 30-34 and generally decreasing with age thereafter. At age 30-34, 0.45 percent of women and 0.64 percent of men are HIV positive.

12.2.1 HIV Prevalence by Background Characteristics

Table 12.4 shows that HIV prevalence rates are low for all groups, so the differentials are generally small. By education, the HIV prevalence rate for men is highest for those who have no education. For both women and men, HIV prevalence is lowest for those with 10 or more years of education. Religious differentials are also small, and they need to be interpreted with caution because of the small number of cases in some religious groups. HIV prevalence is highest for Buddhists/Neo-Buddhists and Christians. Jains and Muslims exhibit the lowest HIV prevalence overall. Differentials by caste/tribe are quite small. There is no evidence that HIV prevalence is related to poverty in India. In fact, women and men in households in the next-to-highest wealth quintile are most likely to be infected with HIV.

Background characteristic	Women		Men		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
Education						
No education	0.27	21,203	0.50	8,238	0.33	29,441
<5 years complete	0.49	4,394	0.36	4,977	0.42	9,371
5-7 years complete	0.20	8,330	0.47	7,782	0.33	16,112
8-9 years complete	0.11	7,615	0.40	9,658	0.27	17,273
10-11 years complete	0.14	5,372	0.23	6,992	0.19	12,365
12 or more years complete	0.07	6,415	0.16	8,845	0.12	15,260
Religion						
Hindu	0.25	42,826	0.37	38,183	0.30	81,009
Muslim	0.06	7,285	0.21	5,626	0.13	12,912
Christian	0.30	1,362	0.56	1,061	0.41	2,423
Sikh	0.00	1,000	0.45	920	0.22	1,920
Buddhist/Neo-Buddhist	0.25	429	0.65	387	0.44	816
Jain	0.00	177	0.00	157	0.00	334
Other	0.26	188	0.15	163	0.21	351
Caste/tribe						
Scheduled caste	0.23	9,982	0.34	8,779	0.28	18,760
Scheduled tribe	0.12	4,231	0.39	3,997	0.25	8,228
Other backward class	0.24	21,044	0.36	18,227	0.30	39,271
Other	0.18	17,590	0.34	15,230	0.25	32,820
Don't know	0.63	263	0.00	109	0.44	371
Wealth index						
Lowest	0.18	9,075	0.39	7,496	0.27	16,571
Second	0.20	10,164	0.31	8,647	0.25	18,811
Middle	0.24	11,040	0.31	9,728	0.28	20,767
Fourth	0.34	11,176	0.52	10,165	0.43	21,342
Highest	0.12	11,877	0.24	10,470	0.18	22,348
Total	0.22	53,332	0.36	46,506	0.28	99,838

Note: Table excludes Nagaland. Total includes women and men with missing information on education, religion, and caste/tribe, who are not shown separately.

12.2.2 HIV Prevalence by Demographic Characteristics

Table 12.5 presents the relationships between HIV prevalence and a number of other socio-demographic characteristics. As expected, marital status is closely related to HIV prevalence. HIV prevalence is very low for women and men who have never been married. The

highest rates of HIV prevalence are for women and men who are divorced, separated, or deserted and for women who are widowed, although the precision of the estimates for these groups is low due to the small number of cases. It is not unusual, however, to see relatively high HIV prevalence among widows because in some cases their husbands have probably died from AIDS-related causes.

Table 12.5 HIV prevalence by demographic characteristics
 Percentage HIV positive among women and men age 15-49 who were tested, by demographic characteristics, India, 2005-06

Demographic characteristic	Women		Men		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
Marital status						
Never married	0.03	10,844	0.16	16,650	0.11	27,494
Ever had sex	0.00	83	0.37	2,217	0.36	2,300
Never had sex	0.03	10,760	0.13	14,433	0.09	25,194
Currently married	0.19	39,901	0.45	29,181	0.30	69,082
Widowed	1.51	1,751	0.13	359	1.27	2,110
Divorced/separated/deserted	1.14	836	1.91	317	1.35	1,153
Times slept away from home in past 12 months						
None	na	na	0.44	14,455	na	na
1-2	na	na	0.22	8,247	na	na
3-4	na	na	0.41	7,678	na	na
5 or more	na	na	0.33	15,996	na	na
Time away in past 12 months						
Away for more than 1 month	na	na	0.44	5,097	na	na
Away only for less than 1 month	na	na	0.30	26,843	na	na
Not away	na	na	0.43	14,537	na	na
Male circumcision						
Circumcised	na	na	0.22	5,818	na	na
Not circumcised	na	na	0.37	40,037	na	na
Currently pregnant						
Pregnant	0.11	2,833	na	na	na	na
Not pregnant or not sure	0.22	50,499	na	na	na	na
ANC for last birth in the past 3 years						
ANC in a government health facility	0.07	5,121	na	na	na	na
ANC, but not in a government health facility	0.19	4,354	na	na	na	na
No ANC	0.07	2,763	na	na	na	na
No birth in past 3 years	0.25	41,081	na	na	na	na
Total age 15-49	0.22	53,332	0.36	46,506	0.28	99,838

Note: Table excludes Nagaland. Totals include men with missing information on times slept away from home, time away, and male circumcision, who are not shown separately.
 ANC = Antenatal care
 na = Not applicable

Men who are away from home frequently or for long periods of time are generally thought to be more exposed to the risk of HIV infection because they may be more likely to adopt high-risk sexual behaviour when they are away from home. In NFHS-3, men were asked how many times they traveled away from their home community and whether they had been away from their home community for more than one month at a time in the past 12 months. Table 12.5 shows that, contrary to expectations, the men with the highest HIV prevalence are those that have not slept away from their home community at all in the past year. There is also no clear relationship between the time spent away in the past 12 months and HIV prevalence, since men who have been away for more than one month at a time have the same HIV prevalence rate as men who have not been away at all.

Women who were pregnant at the time of the survey were less likely to be HIV positive than women who were not pregnant. One possible explanation for this pattern is that women with HIV are less fecund or if they know they are HIV positive, they may avoid having sexual intercourse or avoid becoming pregnant.

Women with a birth in the five years before the survey were asked if they received any antenatal care (ANC) during their pregnancy and, if yes, where they received ANC. Table 12.5 focuses on more recent births (births in the past three years). The highest level of HIV is seen among women who did not have a birth in the three years before the survey. HIV prevalence is lowest among women who received ANC in a government health facility and for those who did not receive any antenatal care during pregnancy. The HIV prevalence rate is about average for women who received ANC, but not in a government health facility. Among women who used government facilities for antenatal care, HIV prevalence is higher for women who went to government/municipal hospitals (0.11 percent) than for women who accessed other types of government health facilities (0.04 percent) [data not shown]. All HIV prevalence estimates in NFHS-3 are based on the weighted number of women and men, where the weights are calculated based on the sample design and differential non-response for HIV testing. However, because the official government estimates based on ANC surveillance data are not fully weighted, we also examined the relationship between HIV prevalence and ANC in NFHS-3 without using weights (data not shown). In the unweighted analysis, the HIV prevalence rate for women who received ANC for a recent birth in government hospitals is slightly higher than the prevalence rate for all other women.

Male circumcision is considered to be a protective factor for HIV infection, in part because of physiological differences that increase the susceptibility to HIV infection among uncircumcised men. Three recent randomized trial studies in Uganda, Kenya, and South Africa have provided evidence that uncircumcised men are more susceptible to HIV infection than circumcised men (Roehr, 2007; Bailey et al., 2007; Gray et al., 2007). NFHS-3 obtained information on male circumcision status, and these results can be used to examine the relationship between male circumcision and HIV prevalence. As indicated by Table 12.5, 13 percent of men who were tested for HIV are circumcised (the same as the percentage of all men interviewed in NFHS-3). Overall, 0.37 percent of men who are uncircumcised are HIV infected, compared with 0.22 percent of those who are circumcised. However, without conducting a multivariate analysis, it is difficult to definitively establish the effect of circumcision on the susceptibility to HIV infection since in India the practice of circumcision is so highly related to religious practices.

12.2.3 HIV Prevalence by Sexual Behaviour

Table 12.6 examines the prevalence of HIV infection by sexual behaviour indicators among respondents who have ever had sexual intercourse and were tested for HIV in NFHS-3. In reviewing these results, it is important to remember that responses about sexual behaviour may be subject to considerable reporting bias.

Table 12.6 HIV prevalence by sexual behaviour

Percentage HIV positive among women and men age 15-49 who ever had sex and were tested for HIV, by sexual behaviour, India, 2005-06

Sexual behaviour	Women		Men		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
Age at first sexual intercourse						
<16	0.28	14,487	0.29	2,306	0.28	16,793
16-17	0.27	11,010	0.51	3,736	0.33	14,746
18-19	0.24	8,235	0.40	5,671	0.31	13,906
20 or more	0.24	8,778	0.48	20,322	0.41	29,100
Higher-risk intercourse¹ in past 12 months						
Had higher-risk intercourse	2.23	79	0.33	1,628	0.42	1,707
Had intercourse, not higher risk	0.21	38,176	0.44	28,007	0.31	66,184
No intercourse in past 12 months	0.72	4,256	0.75	2,405	0.73	6,661
Number of sexual partners in past 12 months						
0	0.72	4,256	0.75	2,405	0.73	6,661
1	0.21	38,233	0.43	28,975	0.30	67,208
2	*	16	0.68	510	0.66	526
3 or more	*	6	0.78	144	1.51	149
Number of higher-risk partners² in past 12 months						
0	0.26	42,433	0.46	30,412	0.34	72,845
1	0.87	72	0.29	1,242	0.32	1,314
2	*	6	0.61	296	0.97	302
3 or more	nc	0	0.00	91	0.00	91
Condom use						
Ever used a condom	0.17	6,117	0.37	9,790	0.29	15,907
Never used a condom	0.28	36,343	0.50	22,213	0.36	58,555
Condom use at last sexual intercourse in past 12 months						
Used condom	0.07	2,333	0.36	2,742	0.22	5,075
Did not use condom	0.22	35,916	0.44	26,883	0.31	62,799
No sexual intercourse in past 12 months	0.72	4,256	0.75	2,405	0.73	6,661
Condom use at last higher-risk intercourse¹ in past 12 months						
Used condom	*	16	0.61	641	0.59	657
Did not use condom	2.83	62	0.16	988	0.31	1,050
No higher-risk intercourse/no intercourse in past 12 months	0.26	42,433	0.46	30,412	0.34	72,845
Number of lifetime partners						
1	0.25	41,649	0.39	25,670	0.30	67,319
2	0.98	712	0.60	3,681	0.66	4,393
3-4	(3.15)	20	0.84	1,610	0.87	1,630
5-9	*	4	1.15	626	1.14	630
10 or more	*	5	0.37	315	0.71	321
Paid for sex³ in past 12 months						
Yes	na	na	0.96	343	na	na
Used condom	na	na	1.31	208	na	na
Did not use condom	na	na	0.42	135	na	na
No paid sexual intercourse/no sexual intercourse in past 12 months	na	na	0.45	31,697	na	na
Total age 15-49	0.26	42,511	0.46	32,040	0.35	74,552
Age 50-54	na	na	0.32	3,075	na	na
Men age 15-54	na	na	0.45	35,115	na	na

Note: Table excludes Nagaland. Total includes women and men with missing information on age at first sexual intercourse, number of sexual partners in past 12 months, condom use (ever and in the past 12 months), and number of lifetime partners, who are not shown separately.

() Based on 25-49 unweighted cases.

* Percentage not shown; based on fewer than 25 unweighted cases.

¹ Sexual intercourse with a partner who was not a spouse and who did not live with the respondent.

² A partner who was not a spouse and who did not live with the respondent, among the last two partners for women and the last three partners for men in the past 12 months.

³ Includes men who report having a prostitute as at least one of their last three sexual partners in the past 12 months.

na = Not applicable; nc=Not calculated because there are no cases

HIV prevalence at age 15-49 among those who have ever had sex is 0.26 percent for women and 0.46 percent for men. HIV prevalence is not strongly related to the age at first sexual intercourse for women, but men who first had sex before age 16 have lower HIV prevalence than those who first had sex at older ages. For women, HIV prevalence is high (2.23 percent) for the small number of women who report higher-risk sexual behaviour in the past 12 months (that is, sex with a man who was not their husband and who did not live with them). Men who have had two or more sexual partners in the past 12 months have a much higher HIV prevalence (0.70 percent) than men with only one sexual partner (0.43 percent). For both women and men, HIV prevalence is quite high for those who ever had sex but have not had sex in the past 12 months. For women, this pattern is likely to be due to the high HIV prevalence rate for widows and women who have been divorced, separated, or deserted. Similarly, the male HIV prevalence rate for those with no sexual partners in the past 12 months is inflated by the high prevalence rate for men who are divorced, separated, or deserted. It is expected that the number of higher-risk sexual partners would be particularly strongly related to HIV prevalence. Women with one higher-risk sexual partner in the past 12 months and men with two higher-risk sexual partners have a relatively high HIV prevalence rate.

When used properly, condoms are an effective way of preventing the transmission of HIV and other STIs. Although this would suggest that HIV rates should be lower among condom users, there are a number of factors that may influence the direction of the relationship. For example, condom use rates may be higher among individuals who are infected if they are seeking to protect an uninfected partner. Also, reported condom use cannot be assumed to be ‘correct condom use.’ Thus, it is not surprising that the association between condom use and HIV infection levels is not uniform in Table 12.6. Among women, condom use (ever and the last time they had sex) is associated with lower levels of HIV infection. The same pattern is seen for men in the case of ever use of condoms and condom use at last sexual intercourse, but men who used a condom the last time they had higher-risk sexual intercourse have a higher HIV prevalence rate (0.61 percent) than those who did not use a condom (0.16 percent).

The number of lifetime sexual partners is an important indicator of the risk of HIV infection. For women, HIV prevalence increases from 0.25 percent for those who have had one lifetime sexual partner to 0.98 percent for those with two partners, and further to 3.15 percent for the small number of women with 3-4 lifetime partners. HIV prevalence also increases rapidly with the number of lifetime sexual partners for men, from 0.39 percent for men with one partner to 1.15 percent for those with 5-9 partners, before declining to 0.37 percent for small number of men with 10 or more partners.

Men who paid for sex at least once in the past 12 months are much more likely to be HIV positive (0.96 percent) than those who did not pay for sex (0.45 percent). However, among those who paid for sex, only those who used a condom the last time they paid for sex had a higher HIV prevalence, perhaps because those who knew they were HIV positive were more likely to use a condom.

12.2.4 HIV Prevalence by Other Characteristics Related to HIV Risk

Table 12.7 presents the variation in HIV prevalence by sexually transmitted infections (STIs) in the past 12 months and HIV testing prior to NFHS-3 among women and men who have

ever had sex. Women with an STI or symptoms of an STI have a slightly higher HIV prevalence rate (0.29) than other women (0.26 percent). However, contrary to expectation, men with a recent STI or STI symptoms have a lower HIV prevalence than other men.

Table 12.7 HIV prevalence by other characteristics

Percentage HIV positive among women and men age 15-49 who have ever had sex and were tested for HIV in NFHS-3, by whether they had an STI or STI symptom in the 12 months preceding the survey and by testing for HIV prior to NFHS-3, India, 2005-06

Characteristic	Women		Men		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
Sexually transmitted infection in past 12 months						
Had STI or STI symptoms	0.29	4,889	0.38	1,547	0.31	6,436
No STI, no STI symptoms	0.26	37,444	0.46	30,246	0.35	67,690
Prior HIV testing						
Ever tested	0.49	1,627	1.71	1,458	1.06	3,085
Received results	0.52	1,504	1.63	1,264	1.03	2,768
Did not receive results	0.04	123	2.24	194	1.39	317
Never tested	0.25	40,884	0.40	30,581	0.32	71,466
Total 15-49	0.26	42,511	0.46	32,040	0.35	74,552

Note: Table excludes Nagaland. Total includes women and men with missing information on STIs and men with missing information on prior HIV testing, who are not shown separately.
STI = Sexually transmitted infection

Men who were tested for HIV prior to NFHS-3 are more than four times as likely to be HIV positive as men who were never tested for HIV (1.71 percent, compared with 0.40 percent). HIV prevalence is even higher (2.24 percent) for the small number of men who were tested for HIV but did not receive the results of the test. Women who were tested for HIV prior to NFHS-3 are almost twice as likely to be HIV positive as those who were not previously tested. Among those who were ever tested for HIV prior to NFHS-3, 92 percent of women and 87 percent of men actually received the result of their last test. Despite the strong association between HIV testing and an individual's HIV status, most individuals who were found to be HIV positive in NFHS-3 had never been tested for HIV prior to the survey (Table 12.8). Only 7 percent of HIV-positive women and 12.8 percent of HIV-positive men were ever tested for HIV prior to NFHS-3. Only 3 percent of women and men who are HIV negative were ever tested.

Table 12.8 Prior HIV testing by current HIV status

Percent distribution of women and men age 15-49 who were tested for HIV in NFHS-3 by whether they were tested prior to NFHS-3 and received their test result, according to whether they were found to be HIV positive or negative in NFHS-3, India, 2005-06

HIV testing prior to NFHS-3	Women		Men		Total	
	HIV positive	HIV negative	HIV positive	HIV negative	HIV positive	HIV negative
Previously tested, received result of last test	6.8	2.9	12.8	3.1	10.3	3.0
Previously tested, did not receive result of last test	0.0	0.2	2.6	0.5	1.6	0.4
Not previously tested	93.2	96.9	84.6	96.4	88.1	96.6
Total	100.0	100.0	100.0	100.0	100.0	100.0
Number	115	53,216	165	46,341	281	99,558

Note: Table excludes Nagaland.

12.3 HIV PREVALENCE BY STATE

Table 12.9 shows the NFHS-3 estimates of HIV prevalence for each of six states (Andhra Pradesh, Karnataka, Maharashtra, Manipur, Tamil Nadu, and Uttar Pradesh) and groups of states. Among the six states for which HIV prevalence estimates can be calculated, the highest prevalence is in Manipur (1.13 percent). In Manipur, 0.76 percent of women and 1.59 percent of men age 15-49 are HIV positive. The second highest HIV prevalence rates are found in Andhra Pradesh (0.75 percent for women, 1.22 percent for men, and 0.97 percent overall). These states are followed by Karnataka (0.69 percent) and Maharashtra (0.62 percent). The HIV prevalence rate in Tamil Nadu is only slightly higher than the national average, although the rate for women is much higher than the national average and the rate for men is somewhat lower than the national average. The lower rate for Tamil Nadu is also consistent with the decreasing level of HIV prevalence that has been found in the ANC surveillance estimates for Tamil Nadu in recent years (NACO, 2006). In Andhra Pradesh, Karnataka, and Maharashtra, the ratio of female to male HIV prevalence is almost identical (0.61-0.64). The ratio drops to 0.48 in Manipur. Tamil Nadu is the only high prevalence state in which HIV prevalence is higher for women than for men. HIV prevalence for the five high HIV prevalence states combined is 0.67 percent (0.55 percent for women and 0.82 percent for men). For the remaining 23 states (excluding Nagaland), HIV prevalence is only 0.12 percent (0.08 percent for women and 0.16 percent for men).

State	Women	Men	Women and men	Men age 15-54
	Percentage HIV positive	Percentage HIV positive	Percentage HIV positive	Percentage HIV positive
Andhra Pradesh	0.75	1.22	0.97	1.20
Karnataka	0.54	0.85	0.69	0.82
Maharashtra	0.48	0.77	0.62	0.75
Manipur	0.76	1.59	1.13	1.51
Tamil Nadu	0.39	0.27	0.34	0.27
Total for five high HIV prevalence states	0.55	0.82	0.67	0.80
Uttar Pradesh	0.05	0.10	0.07	0.10
Total for five high HIV prevalence states and Uttar Pradesh	0.38	0.57	0.47	0.57
All other states¹				
Not including Uttar Pradesh	0.09	0.18	0.13	0.18
Including Uttar Pradesh	0.08	0.16	0.12	0.17

¹ Except Nagaland.

HIV is rare in Uttar Pradesh, where only 0.07 percent of adults age 15-49 are HIV positive. The HIV prevalence rate for women in Uttar Pradesh is half the HIV prevalence rate for men. For the five high HIV prevalence states and Uttar Pradesh combined, 0.47 percent of women and men are HIV positive.

12.4 HIV PREVALENCE AMONG COUPLES

All women age 15-49 and men age 15-54 in households selected for the NFHS-3 HIV sample were eligible for HIV testing. For over 27,000 married couples, both the husband and the

wife agreed to be tested for HIV in NFHS-3. Results shown in Table 12.10 indicate that both partners were HIV negative for 99.50 percent of couples and both partners were HIV positive for 0.11 percent of couples. The remaining 0.39 percent of couples had discordant HIV results, that is, one partner was infected and the other was not infected. For 82 percent of these discordant couples, the husband was HIV positive and the wife was HIV negative. The variation in the level of couple HIV infection by background characteristics generally conforms to the patterns observed with respect to the variation in individual seroprevalence rates. In addition, there are notable differences in HIV prevalence according to the relative ages of the marital partners. HIV positivity for both partners is highest when the man is 15 or more years older than his wife. Discordant cases are highest when the man is 10-14 years older than his wife. HIV prevalence overall is lowest when the woman is older than her husband.

Table 12.10 HIV prevalence among couples						
Percent distribution of couples in the same household, both of whom were tested for HIV by HIV status, according to background characteristics, India, 2005-06						
Background characteristic	Both HIV positive	Man HIV positive, woman HIV negative	Woman HIV positive, man HIV negative	Both HIV negative	Total	Number
Woman's age						
15-19	0.00	0.13	0.09	99.78	100.0	1,749
20-29	0.15	0.36	0.02	99.47	100.0	10,544
30-39	0.10	0.34	0.11	99.44	100.0	10,118
40-49	0.07	0.26	0.08	99.59	100.0	5,360
Man's age						
15-19	0.00	0.00	0.00	100.00	100.0	167
20-29	0.06	0.31	0.04	99.59	100.0	6,134
30-39	0.13	0.37	0.09	99.40	100.0	10,470
40-49	0.15	0.26	0.03	99.56	100.0	8,612
50-54	0.00	0.32	0.17	99.50	100.0	2,389
Age difference between partners						
Woman older	0.02	0.19	0.00	99.79	100.0	1,420
Same age/man older by <5 years	0.11	0.29	0.08	99.51	100.0	10,666
Man older by 5-9 years	0.10	0.34	0.06	99.51	100.0	11,420
Man older by 10-14 years	0.13	0.40	0.10	99.37	100.0	3,597
Man older by 15 years or more	0.26	0.19	0.00	99.54	100.0	669
Residence						
Urban	0.08	0.40	0.13	99.39	100.0	8,722
Rural	0.12	0.28	0.04	99.56	100.0	19,049
Woman's education						
No education	0.11	0.35	0.06	99.48	100.0	12,822
<5 years complete	0.29	0.34	0.18	99.19	100.0	2,486
5-7 years complete	0.08	0.43	0.00	99.49	100.0	4,280
8-9 years complete	0.10	0.25	0.08	99.57	100.0	3,273
10-11 years complete	0.05	0.21	0.18	99.57	100.0	2,141
12 or more years complete	0.03	0.14	0.04	99.79	100.0	2,770
Man's education						
No education	0.17	0.35	0.14	99.34	100.0	6,609
<5 years complete	0.09	0.23	0.06	99.62	100.0	3,683
5-7 years complete	0.16	0.49	0.04	99.32	100.0	4,865
8-9 years complete	0.11	0.41	0.04	99.44	100.0	4,649
10-11 years complete	0.01	0.29	0.04	99.66	100.0	3,297
12 or more years complete	0.05	0.09	0.07	99.79	100.0	4,661
Religion						
Hindu	0.12	0.31	0.08	99.49	100.0	22,899
Muslim	0.02	0.30	0.03	99.65	100.0	3,228
Christian	0.03	0.53	0.09	99.36	100.0	698
Sikh	0.00	0.93	0.00	99.07	100.0	495
Buddhist/Neo-Buddhist	0.03	0.09	0.21	99.67	100.0	208
Jain	0.00	0.00	0.00	100.00	100.0	109
Other	0.45	0.09	0.00	99.46	100.0	109

Continued...

Background characteristic	Both HIV positive	Man HIV positive, woman HIV negative	Woman HIV positive, man HIV negative	Both HIV negative	Total	Number
Caste/tribe						
Scheduled caste	0.10	0.38	0.06	99.46	100.0	5,268
Scheduled tribe	0.05	0.33	0.00	99.62	100.0	2,556
Other backward class	0.11	0.26	0.06	99.56	100.0	11,042
Other	0.08	0.35	0.11	99.46	100.0	8,664
Don't know	0.47	0.55	0.00	98.98	100.0	122
Wealth index						
Lowest	0.08	0.36	0.02	99.54	100.0	5,138
Second	0.15	0.15	0.06	99.64	100.0	5,464
Middle	0.07	0.45	0.07	99.41	100.0	5,798
Fourth	0.18	0.40	0.11	99.30	100.0	5,570
Highest	0.06	0.22	0.09	99.63	100.0	5,801
Total	0.11	0.32	0.07	99.50	100.0	27,771

Note: Table excludes Nagaland. Total includes women and men with missing information on education, religion, and caste/tribe, who are not shown separately.

A similar pattern of discordance is seen for the high HIV prevalence states in Table 12.11. In each of these states, when there is discordance, the man is much more likely than the woman to be HIV positive. In the five high HIV prevalence states combined, men are almost six times as likely to be HIV positive as women when the couple has discordant results. About 1 percent of all married couples in Manipur, Karnataka, and Andhra Pradesh have discordant HIV results. Manipur has the highest percentage of couples in which both marital partners are HIV positive (0.62 percent) and the highest percentage in which at least one of the marital partners is HIV positive (1.61 percent).

State	Both HIV positive	Man HIV positive, woman HIV negative	Woman HIV positive, man HIV negative	Both HIV negative	Total
Andhra Pradesh	0.38	0.83	0.13	98.66	100.0
Karnataka	0.34	0.82	0.15	98.69	100.0
Maharashtra	0.32	0.58	0.11	98.99	100.0
Manipur	0.62	0.89	0.10	98.39	100.0
Tamil Nadu	0.14	0.29	0.04	99.53	100.0
Total for five high HIV prevalence states	0.31	0.64	0.11	98.95	100.0
Uttar Pradesh	0.00	0.10	0.05	99.85	100.0
Total for five high HIV prevalence states and Uttar Pradesh	0.21	0.47	0.09	99.23	100.0
All other states¹					
Not including Uttar Pradesh	0.03	0.20	0.05	99.72	100.0
Including Uttar Pradesh	0.02	0.18	0.05	99.74	100.0

¹ Except Nagaland.

12.5 HIV PREVALENCE AMONG YOUNG PEOPLE

Tables 12.12-12.14 provide information on HIV prevalence among persons 15-24 years old. As indicated earlier, HIV prevalence is lower among young persons (age 15-24) than among persons in any other age group. Very few women or men age 15-17 are HIV positive and HIV

prevalence remains low at age 18-19. Among youth, HIV prevalence is highest for women age 20-22 and for men age 23-24. For young women and young men, HIV prevalence is higher in urban areas than in rural areas. The HIV prevalence rate is highest (1.9 percent) among the small number of young women who are divorced, separated, or widowed. Even among women and men who never had sex, there are a few HIV positive cases.

Table 12.12 HIV prevalence among young people by background characteristics
 Percentage HIV positive among women and men age 15-24 who were tested for HIV, by background characteristics, India, 2005-06

Background characteristic	Women		Men		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
Age						
15-19	0.07	10,704	0.01	8,663	0.04	19,366
15-17	0.03	6,354	0.00	5,293	0.02	11,647
18-19	0.12	4,350	0.02	3,369	0.07	7,719
20-24	0.17	9,573	0.19	7,825	0.18	17,398
20-22	0.21	5,964	0.17	5,129	0.19	11,093
23-24	0.10	3,609	0.21	2,696	0.15	6,305
Residence						
Urban	0.16	6,382	0.11	6,024	0.14	12,406
Rural	0.09	13,895	0.08	10,464	0.09	24,358
Marital status						
Never married	0.02	9,993	0.08	13,624	0.06	23,616
Ever had sex	0.00	70	0.17	1,611	0.16	1,681
Never had sex	0.02	9,923	0.07	12,013	0.05	21,936
Currently married	0.17	10,068	0.15	2,809	0.16	12,877
Widowed/divorced/ separated/deserted	1.91	216	0.00	55	1.53	270
Total	0.11	20,276	0.09	16,488	0.10	36,764

Note: Table excludes Nagaland.

In NFHS-3, women age 15-24 who ever had sex were asked for the age of their first sexual partner. Young women whose first sexual partner was 10 or more years older than them are almost twice as likely to be HIV positive as other women (Table 12.13). Information on the number and type of sexual partners in the past 12 months shows that young women and men who have ever had sex, but have not had sex in the past 12 months, have much higher HIV prevalence than average. HIV prevalence is also high for young men who have had two or more sexual partners in the past 12 months, particularly if they have had two or more higher-risk sexual partners. HIV prevalence is more than six times as high among young men who have had five or more lifetime partners as among men with 1-2 lifetime partners. Young men who use condoms (ever, at first sex, and at last sex in the past 12 months) have an elevated prevalence of HIV, but the same is not true for women.

Sexual behaviour	Women		Men		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
Relative age of first sexual partner						
10 or more years older	0.32	1,547	na	na	na	na
<10 years older/same age/ younger/Don't know	0.18	7,366	na	na	na	na
Higher-risk intercourse¹ in past 12 months						
Had higher-risk intercourse	(0.00)	28	0.11	985	0.11	1,014
Had intercourse, not higher risk	0.20	9,858	0.11	2,714	0.18	12,572
No intercourse in past 12 months	0.34	440	0.36	762	0.35	1,202
Number of sexual partners in past 12 months						
0	0.34	440	0.36	762	0.35	1,202
1	0.19	9,880	0.09	3,389	0.17	13,269
2 or more	*	7	0.37	304	0.36	310
Number of higher-risk partners² in past 12 months						
0	0.20	10,298	0.17	3,476	0.19	13,774
1	(0.00)	28	0.00	719	0.00	748
2 or more	nc	0	0.42	266	0.42	266
Number of lifetime partners						
1	0.20	10,184	0.13	3,235	0.19	13,419
2	0.00	112	0.00	647	0.00	760
3-4	*	4	0.33	344	0.33	348
5-9	*	1	0.82	137	0.81	138
10 or more	*	1	0.52	83	0.52	84
Condom use						
Ever used a condom	0.21	1,404	0.22	1,455	0.21	2,859
Never used a condom	0.20	8,915	0.13	3,004	0.18	11,919
Condom use at first sex						
Used condom	0.00	250	0.51	668	0.37	918
Did not use condom	0.20	9,628	0.09	3,782	0.17	13,410
Don't know/don't remember	0.42	150	na	na	0.42	150
Condom use at last sex in past 12 months						
Used condom	0.01	563	0.29	541	0.14	1,103
Did not use condom	0.21	9,323	0.08	3,158	0.17	12,480
No sexual intercourse in past 12 months	0.34	440	0.36	762	0.35	1,202
Total (ever had sex)	0.20	10,326	0.15	4,462	0.19	14,788
Total (had sex in past 12 months)	0.19	9,887	0.11	3,700	0.17	13,586

Table 12.14 shows state-level estimates of HIV prevalence for women and men age 15-24 for the five high HIV prevalence states, Uttar Pradesh, and the rest of the states (except Nagaland). For the five high HIV prevalence states combined, HIV prevalence rates are much lower for women and men age 15-24 than for older women (cf. Table 12.9). At age 15-24, HIV prevalence is about the same for women and men in the five high HIV prevalence states combined, but HIV prevalence is higher for men than for women in Andhra Pradesh and

Table 12.14 HIV prevalence among young people by state			
Percentage HIV positive among women and men age 15-24 who were tested, by state, India, 2005-06			
State	Percentage HIV positive		
	Women	Men	Women and men
Andhra Pradesh	0.29	0.48	0.37
Karnataka	0.33	0.14	0.25
Maharashtra	0.18	0.31	0.24
Manipur	0.39	0.38	0.39
Tamil Nadu	0.24	0.00	0.13
Total for five high HIV prevalence states	0.25	0.27	0.26
Uttar Pradesh	0.03	0.00	0.02
Total for five high HIV prevalence states and Uttar Pradesh	0.17	0.17	0.17
All other states¹			
Not including Uttar Pradesh	0.07	0.03	0.05
Including Uttar Pradesh	0.06	0.02	0.04

¹ Except Nagaland.

Maharashtra, lower for men than for women in Karnataka and Tamil Nadu, and about the same in Manipur. For youth, the highest levels of HIV prevalence among the five high HIV prevalence states are found in Manipur and Karnataka for women and in Andhra Pradesh and Manipur for men.

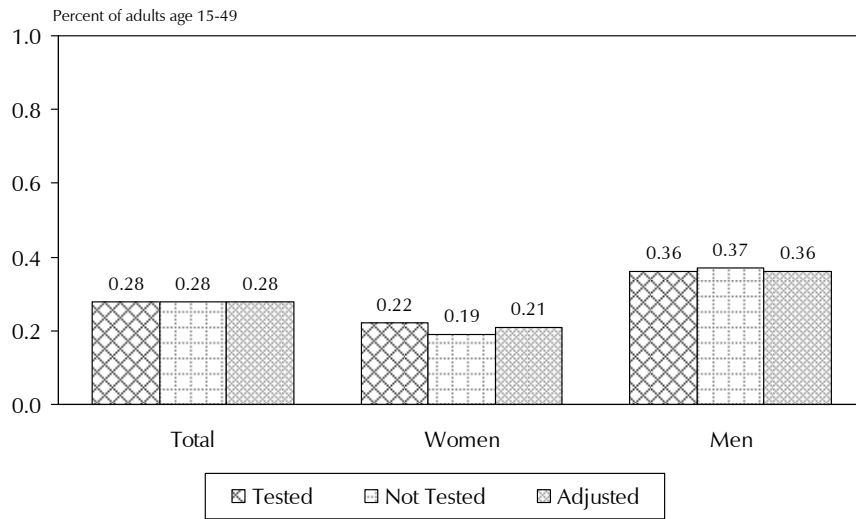
12.6 NONRESPONSE ANALYSIS

As seen earlier in this chapter, not all eligible NFHS-3 respondents participated in the HIV testing component of the survey. The potential for bias associated with this non-participation is a concern since respondents who refused to be tested or were absent at the time of testing may have different characteristics or behaviour from those who consented to provide a blood sample for HIV testing. To address this concern, it has become standard procedure in large-scale household surveys with an HIV testing component to conduct an analysis of those who are eligible to be tested but could not be tested in order to examine potential biases. The calculation uses information from the survey itself on the known characteristics of the non-tested population to predict their HIV prevalence, based on a multivariate analysis of HIV prevalence for women and men who were tested for HIV.

Figure 12.1 summarizes the results of the nonresponse analysis that was conducted for NFHS-3. The figure shows the observed HIV prevalence rates for women, men, and the total sample, the predicted prevalence rates for the non-tested group, and the rates for women, men, and the total sample following an adjustment for nonresponse. Overall, the adjustment for nonresponse does not change the HIV prevalence at age 15-49 at all for the total population and for men. The predicted HIV prevalence for non-tested women age 15-49 (0.19 percent) is slightly lower than the actual prevalence (0.22 percent), but the adjusted prevalence for women is almost identical to the prevalence for women who were tested for HIV in NFHS-3. It is important to recognize that the adjustments only partially address the nonresponse bias. The estimates can only be adjusted to the extent that the socio-demographic and behavioural characteristics included in the analysis are correlated with the risk of HIV infection. In fact, most of the characteristics included in the multivariate analysis are statistically significantly related to

HIV prevalence. The overall conclusion of the nonresponse analysis is that non-participation in the blood collection for HIV in NFHS-3 makes virtually no difference to the NFHS-3 HIV prevalence estimates for the household-based population of women and men in India.

Figure 12.1 Observed and Adjusted HIV Prevalence Rates for NFHS-3



NFHS-3, India, 2005-06

CHAPTER 12 APPENDIX

Chapter 12 Appendix Table 1 Coverage of HIV testing by social and demographic characteristics: Women

Percent distribution of interviewed women age 15-49 by HIV testing status, according to social and demographic characteristics (unweighted), India, 2005-06

Characteristic	Testing status				Total	Number
	Blood tested	Refused to provide blood	Absent at the time of blood collection	Other/missing		
Marital status						
Never married	89.5	7.3	1.5	1.7	100.0	14,141
Ever had sex	95.6	4.4	0.0	0.0	100.0	91
Never had sex	89.5	7.3	1.5	1.7	100.0	14,050
Currently married	91.2	6.3	1.1	1.4	100.0	41,151
Widowed	91.1	6.0	1.5	1.4	100.0	1,942
Divorced/separated/deserted	90.8	6.1	1.0	2.0	100.0	979
Ever had sexual intercourse						
Yes	91.2	6.3	1.1	1.4	100.0	44,105
No	89.5	7.3	1.5	1.7	100.0	14,095
Currently pregnant						
Pregnant	90.2	7.1	1.3	1.4	100.0	2,695
Not pregnant or not sure	90.8	6.5	1.2	1.5	100.0	55,518
Religion						
Hindu	91.6	5.8	1.1	1.5	100.0	44,049
Muslim	85.9	10.7	1.8	1.7	100.0	8,351
Christian	91.2	6.7	0.9	1.3	100.0	3,184
Sikh	93.7	5.0	1.0	0.3	100.0	599
Buddhist/Neo-Buddhist	93.7	4.6	0.8	0.9	100.0	996
Jain	81.2	14.0	1.6	3.2	100.0	308
Other	92.4	5.1	1.1	1.4	100.0	662
Caste/tribe						
Scheduled caste	92.1	5.5	1.2	1.3	100.0	10,135
Scheduled tribe	92.0	5.8	0.7	1.5	100.0	4,499
Other backward class	91.8	5.6	1.1	1.5	100.0	22,755
Other	88.8	8.3	1.4	1.6	100.0	20,267
Don't know	88.6	6.1	0.7	4.7	100.0	429
Total	90.8	6.5	1.2	1.5	100.0	58,213

Note: Table excludes Nagaland. Total includes women with missing information on ever had sexual intercourse, religion, and caste/tribe, who are not shown separately.

Chapter 12 Appendix Table 2 Coverage of HIV testing by social and demographic characteristics:
Men

Percent distribution of interviewed men 15-54 by HIV testing status, according to social and demographic characteristics (unweighted), India, 2005-06

Characteristic	Testing status				Total	Number
	Blood tested	Refused to provide blood	Absent at the time of blood collection	Other/missing		
Marital status						
Never married	89.4	5.7	2.8	2.1	100.0	21,122
Ever had sex	90.9	4.8	2.5	1.8	100.0	2,624
Never had sex	89.2	5.8	2.9	2.1	100.0	18,498
Currently married	90.8	5.1	2.2	1.9	100.0	33,624
Widowed	91.4	5.7	2.6	0.3	100.0	385
Divorced/separated/deserted	91.6	5.1	0.8	2.4	100.0	371
Ever had sexual intercourse						
Yes	90.8	5.1	2.2	1.9	100.0	36,964
No	89.2	5.8	2.9	2.1	100.0	18,514
Male circumcision						
Circumcised	85.6	8.4	3.8	2.3	100.0	7,745
Not circumcised	91.0	4.8	2.2	1.9	100.0	46,867
Times slept away from home in past 12 months						
None	89.1	6.1	2.8	2.1	100.0	21,786
1-2	90.8	5.1	2.2	1.9	100.0	9,538
3-4	91.3	4.8	2.1	1.8	100.0	7,870
5 or more	91.1	4.7	2.4	1.9	100.0	16,161
Time away in past 12 months						
Away for more than 1 month	92.0	4.4	2.1	1.4	100.0	5,180
Away only for less than 1 month	90.9	4.9	2.3	2.0	100.0	28,395
Not away	89.1	6.1	2.8	2.1	100.0	21,874
Religion						
Hindu	91.0	4.7	2.3	2.0	100.0	42,757
Muslim	85.0	8.8	3.9	2.3	100.0	7,401
Christian	91.2	5.5	1.6	1.7	100.0	2,757
Sikh	94.1	4.1	1.0	0.7	100.0	580
Buddhist/Neo-Buddhist	92.6	5.2	0.9	1.3	100.0	970
Jain	84.9	9.6	3.3	2.2	100.0	272
Other	89.7	5.2	4.0	1.2	100.0	757
Caste/tribe						
Scheduled caste	91.8	4.1	2.3	1.7	100.0	9,896
Scheduled tribe	91.6	5.0	1.5	1.9	100.0	4,350
Other backward class	91.1	4.6	2.1	2.1	100.0	22,130
Other	88.2	6.8	3.1	1.9	100.0	18,726
Don't know	86.8	4.1	1.8	7.3	100.0	219
Total	90.3	5.3	2.5	2.0	100.0	55,502

Note: Table excludes Nagaland. Total includes men with missing information on ever had sexual intercourse, times slept away from home in past 12 months, time away in past 12 months, male circumcision, religion, and caste/tribe, who are not shown separately.

Chapter 12 Appendix Table 3 Coverage of HIV testing by sexual behaviour characteristics: Women

Percent distribution of interviewed women who ever had sexual intercourse by HIV testing status, according to sexual behaviour (unweighted), India, 2005-06

Sexual behaviour	Testing status				Total	Number
	Blood tested	Refused to provide blood	Absent at the time of blood collection	Other/missing		
Age at first sexual intercourse						
<16	91.6	6.0	1.1	1.4	100.0	12,396
16-17	91.7	5.9	1.0	1.4	100.0	10,339
18-19	91.6	5.9	0.9	1.5	100.0	9,126
20 or more	90.1	7.3	1.2	1.4	100.0	12,243
Higher-risk intercourse¹ in past 12 months						
Had higher-risk intercourse	94.1	5.9	0.0	0.0	100.0	68
Had intercourse, not higher risk	91.2	6.3	1.1	1.4	100.0	39,241
No intercourse in past 12 months	90.9	6.1	1.2	1.8	100.0	4,796
Number of sexual partners in past 12 months						
0	90.9	6.1	1.2	1.8	100.0	4,796
1	91.2	6.3	1.1	1.4	100.0	39,290
2	*	*	*	*	*	15
3 or more	*	*	*	*	*	2
Number of higher-risk partners² in past 12 months						
0	91.2	6.3	1.1	1.4	100.0	44,037
1	93.8	6.2	0.0	0.0	100.0	65
2	*	*	*	*	*	3
Condom use						
Ever used a condom	90.5	7.1	1.2	1.1	100.0	6,900
Never used a condom	91.3	6.1	1.0	1.5	100.0	37,113
Condom use at last sexual intercourse in past 12 months						
Used condom	88.4	8.9	1.4	1.2	100.0	2,691
Did not use condom	91.5	6.1	1.0	1.4	100.0	36,610
No sexual intercourse in past 12 months	90.9	6.1	1.2	1.8	100.0	4,796
Number of lifetime partners						
1	91.2	6.3	1.1	1.4	100.0	43,272
2	92.3	5.4	0.8	1.5	100.0	649
3-4	(96.3)	(3.7)	(0.0)	(0.0)	(100.0)	27
5-9	*	*	*	*	*	5
10 or more	*	*	*	*	*	6
Prior HIV testing status						
Ever tested, received result	89.6	7.7	1.4	1.3	100.0	3,115
Ever tested, did not receive result	94.6	3.7	0.4	1.2	100.0	241
Never tested	91.3	6.2	1.1	1.4	100.0	40,748
Condom use at last higher-risk intercourse¹ in past 12 months						
Used condom	*	*	*	*	*	10
Did not use condom	94.8	5.2	0.0	0.0	100.0	58
No higher-risk intercourse/ no intercourse in past 12 months	91.2	6.3	1.1	1.4	100.0	44,037
Condom use at first sex³						
Used condom	88.1	8.8	1.8	1.3	100.0	226
Did not use condom	91.1	6.5	1.0	1.4	100.0	8,566
Don't know/don't remember	91.2	5.0	1.9	1.9	100.0	159
Total	91.2	6.3	1.1	1.4	100.0	44,105

Note: Table excludes Nagaland. Total includes women with missing information on age at first sexual intercourse, number of sexual partners in past 12 months, condom use (ever, at last sexual intercourse in past 12 months, and at first sex), number of lifetime partners, and prior HIV testing status, who are not shown separately.

() Based on 25-49 unweighted cases.

* Percentage not shown; based on fewer than 25 unweighted cases.

¹ Sexual intercourse with a partner who was not a spouse and who did not live with the respondent.

² A partner who was not a spouse and who did not live with the respondent, among the last two partners in the past 12 months.

³ Includes only women age 15-24.

Chapter 12 Appendix Table 4 Coverage of HIV testing by sexual behaviour characteristics: Men

Percent distribution of interviewed men who ever had sexual intercourse by HIV testing status, according to sexual behaviour (unweighted), India, 2005-06

Sexual behaviour	Testing status				Total	Number
	Blood tested	Refused to provide blood	Absent at the time of blood collection	Other/missing		
Age at first sexual intercourse						
<16	93.4	4.0	1.9	0.8	100.0	1,915
16-17	92.4	4.1	2.1	1.4	100.0	3,170
18-19	92.1	4.4	2.0	1.6	100.0	5,650
20 or more	90.1	5.4	2.4	2.1	100.0	26,223
Higher-risk intercourse¹ in past 12 months						
Had higher-risk intercourse	91.9	4.4	2.2	1.4	100.0	1,738
Had intercourse, not higher risk	90.8	5.1	2.3	1.9	100.0	32,065
No intercourse in past 12 months	90.4	5.3	2.1	2.2	100.0	3,161
Number of sexual partners in past 12 months						
0	90.4	5.3	2.1	2.2	100.0	3,161
1	90.8	5.1	2.3	1.9	100.0	33,184
2	94.1	3.3	1.6	1.0	100.0	512
3+	91.2	2.0	3.9	2.9	100.0	102
Number of higher-risk partners² in past 12 months						
0	90.7	5.1	2.3	1.9	100.0	35,226
1	91.7	4.6	2.2	1.5	100.0	1,402
2	94.3	3.8	1.1	0.8	100.0	264
3 or more	88.9	2.8	5.6	2.8	100.0	72
Condom use						
Ever used a condom	91.0	5.0	2.4	1.6	100.0	11,577
Never used a condom	90.7	5.1	2.2	2.0	100.0	25,346
Condom use at last sexual intercourse in past 12 months						
Used condom	89.9	6.0	2.5	1.7	100.0	3,391
Did not use condom	90.9	5.0	2.2	1.9	100.0	30,390
No sexual intercourse in past 12 months	90.4	5.3	2.1	2.2	100.0	3,161
Paid for sexual intercourse in past 12 months						
Paid for sex	91.6	4.9	3.0	0.5	100.0	367
Used condom	90.6	4.7	3.8	0.9	100.0	234
Did not use condom	93.2	5.3	1.5	0.0	100.0	133
No paid sexual intercourse/ no sexual intercourse in past 12 months	90.8	5.1	2.2	1.9	100.0	36,597
Number of lifetime partners						
1	90.3	5.4	2.3	2.0	100.0	29,984
2	92.9	3.7	2.0	1.4	100.0	3,834
3-4	93.3	3.6	1.8	1.2	100.0	1,756
5-9	94.2	2.5	1.6	1.6	100.0	747
10 or more	94.5	3.6	1.2	0.7	100.0	421
Prior HIV testing status						
Ever tested, received result	88.3	6.8	2.4	2.5	100.0	2,163
Ever tested, did not receive result	94.0	3.6	1.2	1.2	100.0	249
Never tested	90.9	5.0	2.2	1.8	100.0	34,547
Condom use at last higher-risk intercourse¹ in past 12 months						
Used condom	90.9	4.8	2.6	1.7	100.0	771
Did not use condom	92.8	4.1	1.9	1.2	100.0	967
No higher-risk intercourse/ no intercourse in past 12 months	90.7	5.1	2.3	1.9	100.0	35,226
Condom use at first sex³						
Used condom	90.9	5.1	2.2	1.8	100.0	768
Did not use condom	92.2	4.5	2.1	1.3	100.0	3,358
Total	90.8	5.1	2.2	1.9	100.0	36,964

Note: Table excludes Nagaland. Total includes men with missing information on age at first sexual intercourse, number of sexual partners in past 12 months, whether paid for sex in past 12 months, condom use (ever, at first sex, and at last sex in past 12 months), number of lifetime partners, and prior HIV testing, who are not shown separately.

¹ Sexual intercourse with a partner who was not a spouse and who did not live with the respondent.

² A partner who was not a spouse and who did not live with the respondent, among the last three partners in the past 12 months.

³ Includes only men age 15-24.

