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Awareness and knowledge of AIDS among Indian women: evidence from 13 states*

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Abstract

Over 30,000 ever-married women in 13 (out of 25) Indian states where HIV is thought to be highly prevalent—Maharashtra, West Bengal, Tamil Nadu, and ten other less populous states—were surveyed about their awareness and knowledge of AIDS. Only one in six women had heard of AIDS. Among those, knowledge about transmission and prevention is poor. Multivariate analyses reveal that rural, poorly educated, and poor women are the least likely to be AIDS-aware and if aware, have the poorest understanding of the syndrome. Despite low levels of awareness and knowledge, we find a strong positive association between AIDS awareness and knowledge and condom use.

Since the human immunodeficiency virus (HIV) was first detected in India in 1986, the prevalence of HIV infection has increased rapidly and sizably: a cautious estimate suggests that the rate of seropositivity from convenient samples has increased at least threefold in less than a decade (Dasgupta, Jain, and John 1994; NACO 1995). Current estimates of persons infected with HIV in India range from 1.6 to 1.75 million (Merson, noted in Bollinger, Tripathy and Quinn 1996; Anthony, Mertens and Lal 1995). By the year 2000, it is estimated that India will have at least five million HIV-infected individuals and over one million persons with the acquired immunodeficiency syndrome, AIDS (NACO 1993). Figure 1 shows the official statewise estimates of HIV prevalence in high-risk populations in 1993. Only a few states have levels of seroprevalence that might be considered low by conventional standards. Several states in the northeastern region that border Myanmar have alarmingly high rates, as do many urban areas, which are not identified on the map. Much of the rest of India shows rates that are much lower; nevertheless, these rates pose a considerable public health threat unless the population has a good understanding about AIDS or the ability and inclination to behave in a correspondingly low-risk fashion, or both.[1]

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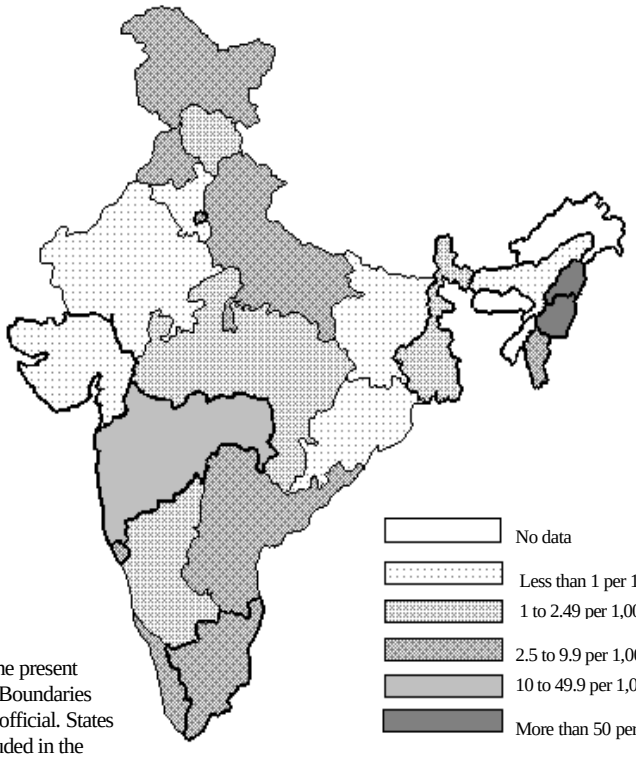
[1] Low-risk behaviour may occur 'naturally' in a population. For example, there may be strict social rules about sexual conduct to which everyone adheres. Alternatively, low-risk behaviour may be fostered by new information and technological innovation.

Figure 1. High-risk seropositivity rates in India around the time of the NFHS Survey,



This map is intended for the present illustrative purposes only. Boundaries shown are not necessarily official. States outlined in bold were included in the NFHS special module on AIDS.

Source: NAC0, 1993.

The knowledge of AIDS is the focus of this study. We ask three general questions: first, which women are likely to know about AIDS? Second, what do they know about transmission and prevention: what is the quality of their AIDS knowledge? Third, how do they know about AIDS and what are the most common and effective sources of information? We also examine the association between knowledge of AIDS and condom use. However, the important issue of how knowledge of HIV and AIDS relates causally to risk-taking behaviour cannot be addressed here. We assume, nevertheless, that knowledge of HIV and AIDS is a necessary but not sufficient condition to alter high-risk behaviour and to prevent the spread of HIV (WHO 1992; Jain, John and Keusch 1994; Nag 1994).[2]

To answer these questions we use data from the National Family Health Survey (NFHS), the first large-scale representatively-sampled national health and demographic survey in India, which we describe below.[3] Before doing so, we review estimates of HIV prevalence in India, as well as the government's response, and the related literature on AIDS awareness and knowledge in India. In the second section, we describe who is more likely to be aware of AIDS. In the third section, we describe what AIDS-aware women know about AIDS and conduct a multivariate analysis predicting the quality of their knowledge about it. In the fourth section, we briefly consider the relationship between knowledge of AIDS and condom use. We conclude with a discussion and recommendations for policy and research.

Background on HIV and AIDS in India: prevalence, awareness, response

By early 1996, all but one Indian state, Arunachal Pradesh, had officially reported the incidence of HIV infection (NACO 1996). According to official epidemiological records, at 31 July 1993, 6.9 per cent of 1,813,840 persons screened throughout India were found to be infected with HIV and 444 cases of full-blown AIDS had been reported (NACO 1993), as shown in Table 1. Eighteen months later, by 28 February 1995, 7.24 per cent of the 2,462,865 persons screened were found to be infected and 1035 cases of AIDS had been reported, as shown in Table 2 (NACO 1995). This translates to an increased incidence of approximately 295 HIV-positive cases per month, on average. Provisional estimates, for April 1996, suggest that prevalence continues to rise at an alarming rate and that the number of full-blown AIDS cases has more than doubled in the past 14 months (NACO 1996).

[2]This assumption is challenged by Smith (1993), as applied to knowledge in the general population of low HIV-prevalence countries, and by Fishbein et al. (1993), as applied to risk perception and behaviour in two Caribbean nations.

[3]The NFHS was conducted by the International Institute for Population Sciences (IIPS), Mumbai, under the auspices of the Ministry of Health and Family Welfare, Government of India, New Delhi. Data collection was undertaken by various consulting organizations in collaboration with population research centres in each state. Technical assistance for all of the survey operations was provided by the East-West Center, Honolulu, and by Macro International, Calverton MD. The United States Agency for International Development (USAID) provided funding for the survey.

Table 1
Estimates of HIV/AIDS prevalence among high-risk populations in India (31 July 1993) and awareness of AIDS among the general female population,[a] 1992–93

	Population[d]	Number of persons screened[e]	Number confirmed by Western Blot[e]	Number of full-blown AIDS cases[e]	Sero-positivity rate per 1,000[e]	% of women who have heard of AIDS[f]
States that included AIDS module on NFHS:						
Arunachal Pradesh	864,558	n.d.	n.d.	n.d.	n.d.	16.2
Assam	22,414,322	6,498	4	1	0.62	8.4
Delhi	9,420,644	259,857	842	35	3.24	35.8
Goa	1,169,793	42,599	196	2	4.60	41.7
Gujarat	41,309,582	126,599	108	2	0.85	10.6
Maharashtra	78,937,187	179,434	5,482	117	30.55	18.6
Manipur	1,837,149	13,398	1,734	8	129.42	72.5
Meghalaya	1,774,778	n.d.	n.d.	n.d.	n.d.	26.7
Mizoram	689,756	5,519	22	0	3.99	84.8
Nagaland	1,209,546	1,239	112	0	90.40	40.9
Tamil Nadu	55,858,946	532,606	2,338	152	4.39	23.4
Tripura	2,757,205	n.d.	n.d.	n.d.	n.d.	13.2
West Bengal	68,077,965	89,994	125	6	1.39	9.8
Subtotal[b]	286,321,431	1,257,743	10,963	323	8.72	16.8
States that did not include AIDS module on NFHS:						
Andhra Pradesh	66,508,008	32,637	130	1	3.98	n.d.
Bihar	86,374,465	6,884	1	0	0.15	n.d.
Haryana	16,463,648	72,020	59	1	0.82	n.d.
Himachal Pradesh	5,170,877	9,648	11	3	1.14	n.d.
Jammu & Kashmir	7,718,700	4,548	12	2	2.64	n.d.
Karnataka	44,977,201	193,643	257	2	1.33	n.d.
Kerala	29,098,518	31,241	173	42	5.54	n.d.
Madhya Pradesh	66,181,170	37,848	45	15	1.19	n.d.
Orissa	31,659,736	21,472	2	0	0.09	n.d.
Pondicherry	807,785	34,351	421	6	12.26	n.d.
Punjab/Chandigarh	20,281,969	40,998	119	47	2.90	n.d.
Rajasthan	44,005,990	18,602	14	1	0.75	n.d.
Uttar Pradesh	139,112,287	52,205	312	1	5.98	n.d.
Subtotal	558,360,354	556,097	1556	444	2.80	
All India	846,302,688				6.90[c]	

[a] Awareness is based on the proportion of those who answered yes to the question, 'Have you heard of an illness called AIDS?'. [b] The rate of seropositivity prevalence is 70.23 per 1000 for the northeastern states and 7.38 per 1000 for the other states in which the AIDS survey module was included. [c]Includes all states and union territories.

Sources: [d] Census of India 1991; [e] NACO 1993: 26-27; [f] Estimated with data from the NFHS, 1992–1993.

Table 2
Changes in the estimated rates of HIV/AIDS prevalence among high-risk populations in India from July 1993 to February 1995

	1995 Estimates (28 February)			
State	Number of persons screened	Number confirmed by Western Blot	Seropositivity rate per 1,000	Change in seropositivity rates
Arunachal Pradesh	n.d.	n.d.	n.d.	n.d.
Assam	9,575	6	0.63	0.01
Delhi	307,522	978	3.18	-0.06
Goa	55,359	544	9.83	5.23
Gujarat	299,650	513	1.71	0.86
Maharashtra	230,672	5,482	23.76	-6.79
Manipur	32,364	3,148	97.27	-32.15
Meghalaya	n.d.	n.d.	n.d.	n.d.
Mizoram	8,852	72	8.13	4.14
Nagaland	1,466	122	83.22	-7.18
Tamil Nadu	573,156	2,766	4.83	0.44
Tripura	n.d.	n.d.	n.d.	n.d.
West Bengal	102,081	251	2.46	1.07
Subtotal[a]	1,620,897	13,882	8.56	-0.16
Andhra Pradesh	32,981	143	4.34	0.36
Bihar	8,401	3	0.36	0.21
Haryana	115,522	123	1.06	0.24
Himachal Pradesh	12,167	13	1.07	-0.07
Jammu & Kashmir	7,009	10	1.43	-1.21
Karnataka	345,571	1,643	4.75	3.42
Kerala	33,994	180	5.30	-0.24
Madhya Pradesh	42,771	64	1.50	0.31
Orissa	33,450	33	0.98	0.89
Pondicherry	45,781	1,061	23.18	10.92
Punjab/Chandigarh	54,019	165	3.05	0.15
Rajasthan	36,462	43	1.18	0.43
Uttar Pradesh	74,040	475	6.42	0.44
Subtotal	842,168	3,956	4.48	1.68
All India	2,462,865[b]	17,838[b]	7.24[b]	0.34

Note: Changes in the seropositivity rate reflect the difference in rates for February 1995, shown above, and those for July 1993, shown in Table 1.

[a] In 1993, the rates of seropositivity prevalence are 70.23 per 1000 for the northeastern states and 7.38 per 1000 for the other states in which the AIDS survey module was included. In 1995, the rates are 63.82 per 1000 and 6.72 per 1000, respectively. [b] Includes all states and union territories.

Source: NACO 1995.

Furthermore, by most accounts, these official estimates are unrealistically low and too regionally variable for reasons that are elaborated elsewhere (Jain et al. 1994; John, Babu et al. 1993).[4] John, Babu and colleagues (1993:423) estimate that by mid-1992 about 7,656 cases of AIDS should have occurred, although only 200 cases had been officially reported. Further, because the surveillance identifies mostly persons in high-risk groups, it is hard to estimate the level of HIV infection in the general population.[5]

Nevertheless, the general population is believed to be at considerable risk. This is because heterosexual contact is the primary mode of transmitting HIV infection in India, originating largely through contacts between male clients and female prostitutes (John, Babu et al. 1993; John, Bhushan et al. 1993; Simoes et al. 1993; NACO 1994; Narain et al. 1994; Jain et al. 1994; Nag 1994).[6] Although rates of HIV infection are lower, to date, in South Asia than in parts of Southeast Asia, Africa and elsewhere, according to WHO (1994:22):

> In India, an indication of the population's vulnerability to HIV can be found in the millions of sexually transmitted diseases (STDs) occurring each year. In addition to being a 'marker' for behavioural vulnerability to HIV infection, untreated STDs facilitate HIV transmission. In Pune [near Mumbai], HIV infection rates among people seeking STD care climbed from nearly nine per cent in 1991 to 17 per cent in 1992.

Besides sexual contact, other major transmission routes for HIV are the transfusion of HIV-contaminated blood, the use of HIV-contaminated needles or syringes, and transmission from an infected mother to her unborn foetus or newborn child (perinatal transmission). There is no evidence so far to indicate that HIV can be transmitted through food, water, insect bites or casual physical contact. In India, HIV is spread predominantly through heterosexual intercourse. However, in most of the northeastern states, which border the illicit drug-trafficking region known as the 'Golden Triangle'—Manipur, Nagaland, Mizoram—and, to some extent, in Delhi, HIV is believed to be transmitted largely through intravenous drug use (Narain et al. 1994; Jain et al. 1994; Lahiri and Gotpagar 1994).

Although no prior study has considered awareness of AIDS in the general Indian population, a few studies have examined awareness of AIDS either among special groups or in specific regions. For example, Jana and colleagues (1994) report that among prostitutes in Calcutta in 1992, only 30 per cent knew of AIDS; however, almost 70 per cent knew of other sexually transmitted diseases. Jacob and colleagues (1989) reported that in a clinical study in Vellore (Tamil Nadu), 29 per cent of the women and 58 per cent of the men attending a

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[4]Neither the HIV-screening process nor the sampling scheme is uniform in all the states (e.g., Anthony et al. 1995). Some states screen more effectively and systematically than others, probably because they have more trained persons and HIV-test kits. In all states, the screening process, coverage, and sample selection have improved over time, which may explain some of the larger changes shown in Table 2; however, the extent of improvement may also vary across states.

[5]In a study of pregnant women attending a clinic for antenatal and obstetric services in Vellore (Tamil Nadu), John, Bhushan et al. (1993) report that from 1987 to 1992, 0.54 per 1,000 women were HIV-positive. In a review paper by Jain et al. (1994), the percentage of pregnant women in Bombay found to be HIV-positive was 0.97 in the years 1986–92 and 0.69 in 1992. In Manipur state in 1991–92, it was 0.2 per cent. Also see the review by Bollinger et al. (1996).

[6]According to official records on 31 December 1994, out of all seropositive cases, 44 per cent, 16 per cent and 13 per cent belong to the heterosexually promiscuous, blood donors, and IV-drug users categories respectively (NACO 1994). Narain et al. (1994:S77) find that the percentage is larger for sexually transmitted cases: 'Sexual transmission is estimated to account for 70–75 per cent of total HIV infections in India, and unprotected sexual intercourse with multiple partners is considered the major risk behaviour associated with HIV spread'.

medical outpatient department for any illness were aware of AIDS but only 12 per cent of the women and 26 per cent of the men who were attending a clinic for STDs were aware of AIDS; moreover, among 71 female prostitutes, only four had heard of AIDS. In a study of men in north India, Izhar (1990) reports that awareness of AIDS has increased throughout the late 1980s.[7] All of these studies show that knowledge of AIDS is greater among those who are better educated and from higher socio-economic classes than among the general population. Other studies, mostly of teachers, doctors, and college students, suggest that in the absence of a cure or a vaccine, considerable fear and misconceptions about HIV/AIDS have been generated in at least a subset of the general public (Verma and Parvi 1988; Chuttani et al. 1990; Srivastava, Nirupam and Chandra 1992; Vasundhra 1993; Velhal, Daniel and Pal 1994; Nag 1994).

In 1985, the Indian Council of Medical Research (ICMR) established an AIDS Task Force (ICMR 1990). According to Dasgupta et al. (1994), when screening for HIV became available in 1986, the ICMR in collaboration with the Christian Medical College in Vellore began testing for HIV in South India. By March 1986, there was clear evidence of HIV infection among prostitutes in Madras and interior South Indian cities. This prompted a national four-year plan to increase surveillance activities. By 1990, the government had established surveillance centres in 23 states and union territories, and set up 128 blood banks in 68 cities and towns to screen blood donors. These activities were intended to be coupled with a campaign to inform the public about AIDS, but that effort 'mostly consisted of developing, printing, and distributing AIDS prevention messages and related information' (Dasgupta et al. 1994: S84). In collaboration with the World Health Organization, the government of India created a short-term plan, from 1990 to 1992, in selected states—Manipur, Maharashtra, Tamil Nadu, West Bengal—and Delhi, that placed greater emphasis on information and education while continuing active surveillance and blood screening.[8] During that period, HIV prevalence was believed to be increasing at an alarming rate in all of these states except West Bengal (Pal et al. 1990).

With support from international donors, in 1992, the Indian government developed a five-year plan (1992–1997) and established an overseeing agency, the National AIDS Control and Prevention Organization (NACO), to manage and co-ordinate all AIDS control and prevention activities in India. This five-year plan is broader than earlier plans and includes efforts to strengthen AIDS program management; increase surveillance and research; disseminate information and improve education and communications; control sexually transmitted diseases (STDs); distribute condoms; monitor and improve the safety of the blood supply; and reduce the effect of AIDS (Dasgupta et al. 1994: S85). The initiative for AIDS prevention and control is decentralized, giving considerable responsibility to each state government for organization, development, and implementation.

Response to the decentralized strategy has been varied among states. Differences are believed to be due to state officials' preferences, funding delays from the state ministries of finance, and a lack of experience in program development because other major health

[7]Also see Singh and Malaviya (1994) on awareness and sexual practices of long-distance truck drivers in India.

[8]From Table 1, we can verify that, in 1993, the numbers screened as a proportion of the population were typically much higher in each of these states: 7.29, 2.27, 9.53, 1.32, 27.58 per 1,000 persons, respectively. The national average was 2.14 persons per 1,000. Other states with disproportionately large screening samples (per 1,000 persons) include Goa (36.42), Gujarat (3.06), Mizoram (8.00), Haryana (4.37), Karnataka (4.31), and Pondicherry (42.53). Although the screening increased throughout India by mid-1995 to average 2.91 per 1,000 persons, there was little change among states in their relative amount of screening.

initiatives have been centrally developed. In some states (e.g., Maharashtra, Manipur, and Nagaland) where rates of HIV prevalence were quite high in 1993, the state governments were able to respond in a rapid and adequate manner: they strengthened the screening process by identifying high-risk groups, improved medical safety, and increased awareness and knowledge through the mass media. These efforts, in turn, may have contributed to the reduced rates of prevalence in 1995, as shown in Table 2.[9]

The government's efforts to change behaviour through information, education, and communication (IEC) have focused mainly on involving non-governmental agencies in training, support, and outreach, and on preparing materials for the mass media. The budget for NACO in 1992–93 was 700 million rupees (US $23.3 million),[10] the largest share of which (34%) went to IEC. The next largest share (30%) was allocated to protecting blood supplies. It is estimated that from 1987 to 1992, 15 per cent of a much smaller budget was allotted to IEC efforts. At the time of the NFHS interviews, therefore, special efforts aimed at increasing awareness and improving knowledge about AIDS in India were still limited.

The National Family Health Survey: special module on AIDS awareness and knowledge

The National Family Health Survey provides high-quality socio-demographic data on ever-married women of reproductive ages throughout India. The survey was conducted in 25 states, including Delhi, and covered 99 per cent of the population. In total, 89,777 ever-married women of ages 13–49 and 88,562 households were covered. Data collection for the NFHS was carried out in three phases on a state-by-state basis from April 1992 to September 1993. Uniform field procedures were adopted in all 25 states. The sample design, which is also the same in each state, is a systematic stratified sample of households, with two stages in rural areas and three stages in urban areas (see IIPS 1995).

In addition to collecting basic information on women's reproduction, child health, and household characteristics, in 13 states the NFHS included a special module on the knowledge of AIDS. These states were Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, and Tripura in the northeast; Goa, Gujarat, Maharashtra, in the west; Tamil Nadu in the south; West Bengal in the east; and the National Capital Territory of Delhi.[11] These states have bold outlines in Figure 1. The decision to include this special module on AIDS was made at the state level and represents a heightened concern about AIDS among the surveyors and the state health authorities. In a simple regression of 22 states (not shown), we find that the states that opted to include the AIDS module had somewhat higher levels of seroprevalence per 1,000 persons (regression coefficient=0.0058, *t*-statistic=1.78), when we control for state levels of female literacy, urbanization, and population density.[12] Thus, we resist generalizing from the subsample of 13 states to all of India, especially in estimating

[9]The extent to which these efforts have reduced prevalence in a 19-month period is, unfortunately, beyond the scope of this paper, as knowledge of AIDS is measured at only one point in time: not all high-prevalence states responded to the extent that the above-mentioned ones did. Tamil Nadu and Kerala were also quick to establish a state program for controlling AIDS (Dasgupta et al. 1994).

[10]This was a huge increase from a budget of 90 million rupees in 1991–92 and 45 million rupees in 1990–91, owing to the significant increase in international support (Dasgupta et al. 1994).

[11]The exact questionnaires are available in each state report of the NFHS.

[12]Four states are excluded because of missing data: Arunachal Pradesh, Jammu and Kashmir, Meghalaya, and Tripura. Even though the coefficient for seroprevalence is significant, the overall regression *F*-statistic is not.

levels of awareness and knowledge.[13] Because this module was selected for inclusion across a broad range of states with varying degrees of seroprevalence and socio-economic characteristics, it is nevertheless useful for understanding the determinants of AIDS awareness and knowledge throughout the diverse conditions that make up India. The sample of 32,077 ever-married women in these 13 states forms the basis of our study.

Awareness of AIDS

About 17 per cent of women in the 13 states told interviewers that they had heard of AIDS (Table 1). This percentage varies considerably by state. AIDS awareness is especially low in the populous states of West Bengal, Gujarat, and Assam. It is also low in Maharashtra, India's third largest state, where the level of HIV prevalence among high-risk groups is one of the nation's highest. Awareness is generally greater in the smaller northeastern states, Tripura and Arunachal Pradesh being exceptions. Even in Delhi, where the media have given considerable attention to AIDS, only slightly more than one-third of the respondents had heard of the syndrome.

In this section, we describe those who were more likely to know about AIDS, what they knew (both accurately and falsely) about the transmission and prevention of AIDS, and how, that is, through what sources of information, they had acquired their knowledge about AIDS. We begin by predicting who was most likely to be AIDS-aware. Then, after describing the kinds of things women knew about AIDS, we present multivariate analyses of the extent of women's knowledge about AIDS.

Who is more likely to know about AIDS?

One might hypothesize that any number of characteristics are likely to increase a person's knowledge of AIDS. For example, we expect that more educated persons, other things being equal, will be more likely to know about AIDS than less educated persons because education facilitates the acquisition and processing of information. Similarly, we expect that persons with greater exposure to mass-media messages in general, for example, on radio or television, are more likely to be aware of AIDS because they are more likely to be exposed to AIDS-specific messages delivered through these media. Along the same lines, we expect urban dwellers to be more likely to know about AIDS than rural inhabitants, independent of other factors, because the urban environment is more conducive to information dissemination of this sort. We might also expect awareness of AIDS to be greater in communities that have experienced higher rates of infection and illness, because the higher prevalence may lead to heightened awareness and a wider diffusion of information about the syndrome.[14] In the

[13]To the extent that the selection criterion used by state authorities to include the AIDS module leads to a misrepresentation of the levels of AIDS awareness and knowledge in all of India, it would probably do so by overestimating them.

[14]An analogous point is made with respect to an individual's knowledge of AIDS and having personal knowledge of someone diagnosed with AIDS (Kanouse et al. 1991: 41). Greater awareness may arise for a number of reasons, only some of which may be due to increases in prevalence. In a simple regression of 22 states (not shown), controlling for state levels of female literacy, urbanization, and population density, we find that in those states where the AIDS module was included, the level of seroprevalence per 1,000 persons has a positive effect on the level of AIDS awareness: regression coefficient=0.291, *t*-statistic 2.508. No other variables were significant. This is only suggestive evidence of what might be revealed by a fuller analysis of state characteristics, including those of state-specific efforts to control HIV and raise AIDS awareness.

multivariate analysis that follows, we opt to include state-dummy variables rather than the state-specific seroprevalence rates, as the more inclusive control variable.

Hypotheses such as these will be further elaborated and tested, to the degree possible, throughout. Additionally, certain characteristics of survey respondents merit attention, even though *a priori* the theoretical justification for considering them may be weak or ambiguous. Such characteristics include the respondents' age and religious affiliation, which may, if nothing else, confound other characteristics such as education if not controlled for in a multivariate analysis.[15]

These characteristics are used as independent variables in our multivariate analysis. Before we proceed with the multivariate analysis, a description of the bivariate relationship is useful. Table 3 shows that among ever-married women, those between ages 25 and 39 were more likely than women in other age groups to have heard of AIDS; women under 20 were the least likely to have heard of AIDS.[16] AIDS-aware women were also more likely to be currently divorced or married than separated or widowed and to be married only once. The majority of respondents lived in rural areas (65 per cent), and they were much less likely to have heard of AIDS than women who lived in urban areas; those who lived in the biggest cities were most likely to have heard of AIDS. Just under half of the respondents were literate. Those with the most schooling were unambiguously the most likely to have heard of AIDS. Only two per cent of illiterate women had heard of AIDS. Of those who had ever attended school, the average period of schooling was more than four years greater for those who had heard of AIDS (not shown). School attendance, however, did not ensure that a woman would know about AIDS: only 31 per cent of those who had ever attended school knew about AIDS (not shown). Those who listened to the radio or watched television at least once a week or attended the cinema once a month (in different combinations) were more likely to be AIDS-aware than were women not regularly exposed to these media. Lastly, Hindus, Muslims, and Buddhists or Neo-Buddhists were less likely than Christians and Jains to be aware of AIDS.[17] In the case of Christian women, for example, this may be because the majority of them in our subsample live in the northeastern states where awareness of AIDS is relatively high (Manipur, Meghalaya, Mizoram, and Nagaland), rather than because religion has an

[15]This point is also made by Peruga and Celentano (1993) in their review article of 80 studies that consider the correlates of AIDS knowledge in the general population of industrialized nations. In addition, the control variables for religious affiliation may not represent religion *per se.* Religious beliefs and customs, for example, may be highly correlated with other social and cultural beliefs and practices—which are not quantified in our data—that are also related to sexual and health beliefs and behaviour (e.g., Nag 1994).

[16]Since all women had to be married to be included in the survey, the young women in this survey may differ in some ways from other women in their age group. We know that less-educated women tend to marry at younger ages (IIPS 1995) and thus the surveyed women of younger ages have disproportionately less education. Therefore, it is important to consider age and education, in this example, together. Conclusions from bivariate distributions, as in Table 3, should be taken as only suggestive.

[17]These background characteristics compare with the all-India sample as follows: the age distribution is about the same; there were slightly more widows and separated women in our subsample; our subsample was less rural than the all-India sample in which 73.9 per cent of women lived in rural areas; female literacy in our subsample was much greater than in the all-India sample, where it was estimated to be 37 per cent; owing to these differences in schooling and urban dwelling it is not surprising that women in this subsample also had greater exposure to mass media, particularly to television; and there were only small differences in the distribution of religious affiliations. For details of the comparison with the all-India sample, see the national report (IIPS 1995: 63–65).

independent effect on awareness. This possibility requires further consideration in the multivariate analysis.

The above description suggests that many of our *a priori* hypotheses about the knowledge of AIDS will be confirmed. However, a more fully controlled multivariate estimation procedure is required. We therefore use a logistic regression to predict AIDS awareness. Table 4 identifies the results for all 13 states and for five subregions (which in three cases represent single states).[18] To simplify the presentation, we show the direction of effects regardless of their statistical significance, and if the effects are significant, we also give the level of significance and the odds ratios—that is, the (multiplicative) effect of a one-unit change in any given independent variable on the odds that the respondent was aware of AIDS.[19]

[18]When we aggregate data from the 13 states, we have applied a weighting factor to adjust for the over-sampling which occurred in states with relatively small population sizes (e.g., many of northeastern states, Delhi, and Goa). When this weighting factor is applied, each state's population size relative to the other reflects that which is found in reality. (This is analogous to the all-India sampling weight (IWEIGHT) that is to be used for all-India aggregations, except that it is amended for use on 13 states only.) This factor also adjusts for over-sampled populations found in specific states (i.e., WEIGHT, the state level sampling weight). For the state-specific regressions, only the state-weighting factor is used. See IIPS (1995) and the 'Description of the NFHS Data File', available from IIPS, for more detail.

[19]The odds ratio of a variable that has a negative effect is always less than 1.0, and a positive effect is always greater than 1.0. For a continuous variable, such as age at first marriage, the odds that one is aware of AIDS rise by a factor of (that is, are multiplied by) 1.04 for each additional year of age (13-state equation). This is equivalent to saying that each additional year raises the odds by four per cent. In the case of categorical variables, the same logic holds: for example, in comparison with village dwellers (the reference group), the odds of being AIDS-aware rises by 84 per cent if one lives in a large city, by 54 per cent if one lives in a small city, and by 19 per cent if one lives in a town (13-state equation).

Table 3
Proportion of respondents who are aware of AIDS, by selected background characteristics

Characteristics	Women in the sample No.	%	Percentage who are aware of AIDS
Age (years)			
13-14	144	0.4	3.7
15-19	2,809	8.8	6.5
20-24	6,330	19.7	14.6
25-29	6,230	19.4	19.1
30-34	5,314	16.6	20.4
35-39	4,671	14.6	19.8
40-44	3,698	11.5	17.9
45-49	2,878	9.0	14.0
Current marital status			
Married	29,793	92.9	17.3
Separated	726	2.3	9.4
Widowed	1,425	4.4	9.0
Divorced	130	0.4	19.0
Number of marriages			
1	31,413	97.9	17.0
2 or more	661	2.1	4.3
Residence[a]			
Large city	5,595	17.4	37.5
Small city	2,600	8.1	31.8
Town	2,953	9.2	27.2
Village	20,926	65.2	7.9
Media owned by the household			
None	15,702	49.0	4.4
Radio only	7,935	24.7	10.9
Television only	1,720	5.4	30.2
Radio and television	6,716	20.9	49.2
Religion			
Hindu	25,266	78.8	16.5
Muslim	4,453	13.9	10.0
Christian	1,072	3.3	40.2
Buddhist/Neo-Buddhist	714	2.2	16.8
Jain	261	0.8	55.5
Other	297	0.9	23.9
Large religious ‘minority’ in state[b]			
No	26,580	82.9	16.7
Yes	5,493	17.1	17.2

Table 3 continued

Characteristics	Women in the sample No.	%	Percentage who are aware of AIDS
Caste/Tribe			
Scheduled Caste	2,819	8.8	6.9
Scheduled Tribe	2,913	9.1	10.4
Other	26,342	82.1	18.5
Formal education/literacy			
Illiterate	16,366	51.0	2.0
Literate, < middle school	8,283	25.8	12.0
Middle school completed	2,949	9.2	30.6
High school or higher	4,474	13.9	70.6
Regular exposure to mass media[c]			
No mass media exposure	11,820	36.9	2.5
Film only	743	2.3	5.6
Radio only	5,068	15.8	6.8
Television only	2,537	7.9	24.5
Film and radio	1,105	3.4	13.4
Film and television	658	2.1	22.0
Radio and television	6,776	21.1	36.8
Film, radio and television	3,368	10.5	38.5
Translator used for interview			
No	31,426	98.0	16.9
Yes	636	2.0	9.0
Occupation			
None	19,642	61.2	20.3
Professional, managerial, clerical	884	2.8	76.6
Sales or service	1,344	4.2	18.1
Agricultural	7,354	22.9	2.3
Non-agricultural	2,712	8.5	10.8
Other	136	0.4	10.1
Total	32,073	100.0	16.8

Note: Four cases have missing data. The means (and standard deviations) for the two continuous variables for the age at first marriage and number of rooms per capita, respectively, are: 16.50 (3.74) and 0.45 (0.35) for the entire sample and 19.70 (3.74) and 0.63 (0.40) for those who are AIDS-aware.

[a]Large cities are defined as capitals and cities with a population size greater than 1 million; small cities have a population size greater than 100,000 but less than 1 million; towns are other urban areas with a population size less than 100,000. [b]This variable represents those women who are not Hindus, the religion of most Indians, and whose religion is either in the majority or a large minority in their locality (state). If a religion is represented in any given state more than in the nation as a whole, it is included as a minority religion for the present purpose. This variable is included only in the 13-state equation in Table 4 because there are different religions with sizable minorities across the 13 states. [c]Regularity is defined as watching television or listening to the radio at least once a week and going to a film once a month.

The 13-state model, controlled for state of residence, provides a broad and consistent overview of the effects, although some relationships are further revealed when we disaggregate at the regional or state level. Education is the strongest and most consistent

predictor of whether or not a respondent was aware of AIDS. Among all women in the 13 states, schooling significantly increases the chances that the respondent had heard of AIDS. The more schooling, the more likely it is that she had heard of AIDS. As compared with illiterate women, literate women who had not completed middle school were about four times more likely, women who had completed middle school were nearly ten times more likely, and women with a high school (or higher) education were almost 33 times more likely to have such awareness. Although education is the strongest set of predictor variables in every equation, in certain states its effects are stronger than in others. For example, in West Bengal, where AIDS awareness was very low, the effect of education on the odds that the respondent was aware of AIDS is even greater. The effects of education are the weakest—although they are not weak in any absolute sense—in Delhi, the capital, where the level of education is itself much higher than in most other localities.

The difference between states is also highly significant. In the 13-state equation, Maharashtra, which is the most populous state in our subsample, is used as the reference state. As we have seen in Table 1, the proportion of women in Maharashtra who are AIDS-aware (18.6%) is close to the 13-state average (16.8%). Table 4 shows that only Tripura is not significantly different from Maharashtra. Here, where we have controlled for other characteristics, the rank order of AIDS awareness by state is quite similar to that found in Table 1. Women from most of the northeast were much more likely than others to be AIDS-aware, with women in Manipur and Mizoram being more than 50 times more likely than women in Maharashtra to have heard of AIDS. Even women in Arunachal Pradesh, where the overall level of AIDS knowledge is less than that in Maharashtra, were three times more likely to be AIDS-aware than their Maharashtran counterparts when other socio-economic and demographic factors are taken into account. The odds that a woman in Assam was AIDS-aware are about 30 per cent less than they are for a woman in Maharashtra. As one might expect from Table 1, Gujarati and West Bengali women were also less likely to be AIDS-aware than Maharashtran women. Perhaps surprisingly, women in Delhi were also less likely to be aware of AIDS, other factors being controlled for. This is presumably due to the fact that women in Delhi are more likely to have other traits that increase their odds of being AIDS-aware, for example they are urban dwellers and more highly educated, so that the residual effect of residing in Delhi actually lowers the odds of being AIDS-aware. These differences between neighbouring states persist in the regional equations for the northeastern and western states.

As expected, the degree of urbanization, other things being equal, increases the odds that a respondent was AIDS-aware. This is clearly shown in the 13-state equation, which incorporates women from cities and towns of all sizes: in comparison with village-dwellers (the reference group), the odds of being AIDS-aware rise by 84 per cent for women living in a large city, by 54 per cent for those living in a small city, and by 19 per cent for those living in a town.[20] This tends to be the case to varying degrees in all areas. For example, in the northeastern states, where there are no large cities, small-city residents were twice as likely as rural residents to be aware of AIDS. For reasons that we cannot explain, in Tamil Nadu there is no statistical significance in awareness between women who were living in the largest cities (e.g., Madras) and those who were living in villages; however, the odds that small-city dwellers were aware of AIDS are 76 per cent greater than for village dwellers. Although the 13-state equation indicates that women from towns were more likely than villagers to be AIDS-aware, the state and region-specific equations suggest that in any particular state or

[20]Women from India's four largest cities—Bombay, Calcutta, Delhi, and Madras—were included in our 13-state sample; the cities' respective population sizes (in millions) are 12.6, 11.0, 8.4, and 5.4 (Census of India 1991).

region, there is no statistically significant difference in awareness between those women living in towns and those living in villages.

We used two variables to examine the effects of wealth on the likelihood of being AIDS-aware: the types of media owned by members of the household, and the number of rooms in the house per household resident. Other things being equal, we assume that women who live in homes with more rooms per capita and with more consumer durables are wealthier than women living in homes with fewer rooms per capita and with fewer consumer durables.[21] We find that the number of rooms per capita is statistically significant in all equations. As expected, the effect is positive: each additional room per person increases the odds that the respondent was AIDS-aware by 58 per cent (13-state equation). These effects are greatest in West Bengal and Delhi, where each additional room generates a 200 per cent (or greater) increase in the odds. The other wealth variable, which accounts for the types of media owned,[22] is also statistically significant in all equations. The 13-state equation suggests that living in a household that owns a radio raises the odds that one is AIDS-aware by 38 per cent, that owning a television raises the odds by about 200 per cent, and that owning a radio and a television raise them by 268 per cent. This is unambiguous evidence that wealth is a strong predictor of AIDS awareness.

Consistent with these findings that wealthier and more highly educated women were AIDS-aware is the finding that women who worked in a professional, managerial, or clerical capacity (mostly likely in an office setting) were much more likely to be aware of AIDS than women who had no occupation. This was found in all regions except the northeast, even though a relatively high proportion of women in the northeast work in this capacity. Women in sales and service occupations tended to be more likely to know of AIDS, too. Women working in agriculture (as a stated occupation), who represent the largest share of working women (see Table 3), were much less likely to be AIDS-aware. Given that wealth and educational differences are controlled for, these occupational differences are especially noteworthy. They may, for example, suggest that something about various workplaces influences AIDS awareness, such as the degree and type of information exchanged between persons in the work environment. Alternatively, women may select into certain occupations on the basis of specific characteristics (other than wealth or education[23]) that also make them more or less likely to be AIDS-aware.

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[21]Although the variable for types of media owned is highly correlated with other consumer durables suggesting that it is an appropriate proxy for household wealth, it is also highly correlated with another independent variable, the one for exposure to mass media (r=0.624). Therefore, the variable for the number of rooms per capita (which is also highly, though not so highly, correlated with consumer durables) is added as a variable to control for household wealth because it is not highly correlated with the variable for mass media exposure (r=0.161). The correlation between these two wealth-related variables is r=0.176 in rural areas and r=0.311 in urban areas.

[22]This variable distinguishes between ownership of a radio only, a television only, and both. We do not know if a household had more than one of any of these items.

[23]This hypothesis assumes that the variable for occupation is truly independent of wealth or education. If it is not, occupation may serve partly as a proxy for these other characteristics.

Table 4
Logistic regression estimates of likelihood that the respondent has heard of AIDS: direction of effect (+/-), significance level (*s), and the odds ratios (noted parenthetically)**

Table 4 continued

Table 4 continued

Regular exposure to mass media, as expected, strongly affected the odds of being AIDS-aware. The effects are most strongly observed in the 13-state equation. The effects of any regular media exposure are significant. Generally, the more types of media that a woman was exposed to, the greater the likelihood that she was AIDS-aware. Those regularly exposed to film, radio, *and* television were more than twice as likely as those who regularly only attended films or listened to the radio and about 1.5 times as likely to be AIDS-aware as those who only watched television regularly (13-state equation). The lack of statistically significant cells in some states or regions, such as the northeast and Delhi, is probably due to very small cell sizes. Nevertheless, we found regional deviations from the 13-state pattern, for example, in the western states, which may indicate either the success of AIDS-education efforts through specific media (in this example, of film and television) in a given area or the popularity of certain media among specific groups of persons in those areas. Further information is required to distinguish between these two possible explanations. The positive influence of regular media exposure on AIDS awareness is least pronounced—indeed, slight in comparison with all other regions—in West Bengal.

In addition to accounting for media exposure, we included a variable to proxy for whether a respondent was socially isolated from mass-media messages: whether or not she used a translator during her NFHS interview. We found that this variable was not statistically significant above the 0.05 level in any of the equations. Only two per cent of the 13-state sample used a translator (Table 3); this occurred disproportionately often in the four largest states.

The demographic variables age, current marital status, number of marriages, and age at first marriage were among the less influential variables predicting AIDS awareness. As expected from Table 3, women younger than 25[24] were less likely to be AIDS-aware than those 25-to-29-years old (the reference group); and women 30 years and older tended to be more AIDS-aware, with the exception of women 45 to 49 (who were no more or less AIDS-aware than 25 to 29 year-olds). These effects are not strong, compared with the above factors, nor are they consistently significant in any of the state or region-specific models. Marital status seems to have little effect: the odds that a woman was AIDS-aware is reduced by 25 per cent if she was widowed, when all states are aggregated. This effect is also found in the western states. Only in West Bengal, divorced women had a much greater chance of being AIDS-aware than other women, for reasons unknown to us. The number of marriages does not affect the odds that one knew of AIDS. Age at first marriage, however, does: each additional year in one's age at marriage increases the odds that one was aware of AIDS by four per cent. Although this effect is highly significant, the magnitude is fairly small. A ten-year increase in the age at first marriage would still not increase the odds of being aware of AIDS as much as becoming literate or being regularly exposed to most forms of mass media.

Lastly, what effect did religious and caste affiliations have on AIDS awareness? Each religion for which we had at least 100 women in the 13-state sample is identified under the religion variable; those with fewer than 100 persons are grouped together as 'other'. In the state-specific equations, the religion variable represents only those with at least 100 persons (with the remainder represented in 'other').[25] Because India, although predominantly Hindu, has many religions that vary in their representation by state, we also include in the 13-state equation a variable to account for whether or not the respondent belonged to a national minority religion that is more commonly represented in her state, for example Islam in West

[24]The fact that only 144 females in the 13-state sample were between ages 13 and 14 at the time of the survey probably accounts for the lack of statistically significant findings.

[25]Because different weights are used in the state-specific equations, the number of Sikhs, which does not exceed 100 in the weighted 13-state sample, is greater than 100 in the Delhi state sample.

Bengal, Sikhism in Delhi, Christianity in many of the northeast states. The aggregated equation suggests that while there were a few differences in AIDS awareness by specific religious affiliation—notably that the odds of being AIDS-aware increased by 37 per cent only for Christian women—those affiliated with a commonly represented minority religion (in the respondent's state) had 30 per cent increased odds of being AIDS-aware. This suggests that what matters is not so much the religion with which one is affiliated but rather whether or not the religious group occupies a large minority or majority status in its locality.

This interpretation appears to be borne out by the state or region-specific regressions as well, except in the northeastern states. In the northeast, it appears that only Muslim women were less likely to be AIDS-aware. However, regressions of each state (not shown) suggest a more mixed picture: in two of three states that are predominantly Christian, Mizoram and Nagaland, there were no statistically significant differences in AIDS awareness by religion, perhaps because so few women are affiliated with other religions in those states; in the third, Meghalaya, those affiliated with 'other' religions were less likely to be AIDS-aware. In Assam, Muslim women make up a sizable minority, but they proved less likely to be AIDS-aware than the majority Hindus. In Tripura, Christians and Muslims, neither of whom constitute sizable minorities, were both more likely to be aware of AIDS than Hindus. In Maharashtra, a western state where Muslims and Buddhists/Neo-Buddhists are well represented, they were somewhat more likely than Hindus to be AIDS-aware. Christians represent a significant minority in Goa (27.1%), but Goa makes up a very small share of the western states (1%). Jains are more common in the western states than in the nation at large, but they constituted only 1.6 per cent of the respondents. These small sample sizes may explain why minority religious affiliations did not affect the likelihood of respondents' awareness of AIDS. Christian women in Tamil Nadu and Muslim women in Delhi, who are well represented in these respective states, were also more likely than Hindus to be AIDS-aware. These findings confirm our suspicion that the relationships shown in Table 3 either overstate, misstate, or oversimplify the true relationship between religious affiliation and AIDS awareness.

There also appears to have been a negative effect of belonging to a scheduled caste or a scheduled tribe (i.e., groups formerly considered 'untouchable') in some areas. Although the findings are not consistently revealed in all equations, they suggest that women in the most disadvantaged positions culturally, economically and historically, were less likely, all other things constant, to be aware of AIDS.

The overall percentage predicted correctly by the logistic regressions was the lowest for Delhi (84.42%) and the greatest for West Bengal (93.95%). The latter state, ironically, has one of the lowest proportions of AIDS-aware persons, and its estimation of AIDS awareness is dominated by a few key variables: education, the wealth variables, and urban residence. The 13-state equation correctly predicts slightly more than 90 per cent, overall. Although Tables 1 and 3 strongly indicated any number of patterns of AIDS-awareness, for example with respect to state differences, urbanization, religious affiliation or education, the multivariate analysis of Table 4 indicates, in every instance, that the relationships are more complex in the presence of a fuller range of factors.

This is the first step in understanding women's knowledge of AIDS in India. The second, which requires that we consider the content, breadth, and source of their knowledge, follows. We are ultimately interested in determining the extent to which the content and quality of their knowledge is predicted by the same factors that determine awareness.

Knowledge of AIDS

To assess what Indian women know about AIDS, the NFHS asked those who stated that they had heard of AIDS additional questions about AIDS transmission and prevention (see Tables

5 to 8). We have used a combination of these questions to create composite indices for the multivariate analysis presented below to assess the overall quality of each woman's knowledge of AIDS. It is therefore important to first look closely at each group of questions that comprises the indices. When interpreting the responses, it is important to bear in mind that most observers expect heterosexual transmission to account for the majority of HIV infections in India, and unprotected sexual intercourse with multiple partners is considered the major risk behaviour associated with HIV spread (John, Babu et al. 1993; John, Bhushan et al. 1993; Narain et al. 1994; Jain et al. 1994). AIDS-aware women were also asked about their sources of AIDS information, as described below.

What do Indian women know about AIDS? Knowledge about transmission and prevention

Table 5 shows the questions about general knowledge, and the corresponding distribution of responses. These questions, perhaps more than any other set of questions, indicate how well respondents understood the life-threatening risks associated with AIDS. The upper panel presents the questions verbatim and shows the proportions of women answering each question correctly, incorrectly, or by a statement that they did not know the answer. While each question prompted mostly correct answers, the proportion of individuals answering all questions correctly was much smaller. The lower panel of Table 5 shows that 23 per cent of all respondents correctly answered each of the four questions and only nine per cent answered no questions correctly. Half of the respondents gave three or more correct answers, but half gave at least one incorrect answer and 47 per cent responded that they did not know the answer to one or more questions.

Table 5
General knowledge about AIDS

Question as asked to respondent (correct response)	Percentage who responded:		
	Correctly	'Don't know'	Incorrectly
Is it possible for a healthy-looking person to be infected with the AIDS virus? (Yes)	64.6	14.7	20.7
Is it possible for a woman who has the AIDS virus to give birth to a child with the AIDS virus? (Yes)	68.7	17.4	13.9
Do you think AIDS is a curable disease? (No)	53.1	19.7	27.1
To your knowledge, is there any vaccine to prevent AIDS? (No)	59.5	33.4	12.0
Proportion giving			
0 responses	9.3	53.1	49.5
1 response	13.9	24.8	31.8
2 responses	26.5	11.7	14.7
3 responses	27.4	4.2	3.5
all responses	22.9	6.1	0.5

Note: These questions were asked only of those women who stated that they had heard of AIDS.

On the subject of HIV transmission, women were asked the open-ended question, 'How is AIDS transmitted?'. The interviewers coded each of the answers into appropriate

categories,[26] which are shown, along with their distributions, in Table 6. Some respondents stated 'sexual intercourse' whereas others specified more precisely 'heterosexual intercourse' or 'homosexual intercourse'. As this was a survey of ever-married women in a traditional society, we assume that 'sexual intercourse' and 'heterosexual intercourse' convey the same meaning in terms of respondents' personal understanding of risk, although we understand that some women may have meant 'sexual intercourse' more broadly. Seventy-nine per cent stated that AIDS was transmitted by either 'sexual intercourse' or 'heterosexual intercourse'. Three per cent of women knew only of ways other than 'sexual' or 'heterosexual' intercourse. Eighteen per cent did not know of any modes of HIV transmission. Among those who stated that AIDS was transmitted by 'sexual intercourse' or by 'heterosexual intercourse', 64 per cent knew of only this mode of transmission; however, this is the transmission route that is most likely to affect them (see Lazzarin et al. 1991). Thirty-six per cent identified more than one mode of transmission including skin punctures (13.7%), blood transfusion (11.5%), 'homosexual intercourse' (6.2%), and perinatal transmission (5.7%).[27]

Because misunderstanding about AIDS transmission is widespread, AIDS-aware respondents were also asked whether they believed AIDS could be transmitted by seven types of casual contact (see Table 7). Unlike the open-ended question on transmission, these questions were asked to prompt a response of yes, no, or don't know. Although 22 per cent of the respondents did not provide correct answers to any of these questions, almost 50 per cent gave five or more correct answers. The most common misperception, shared by 42 per cent of the respondents, was that AIDS could be contracted by 'kissing someone with AIDS'. The least common (shared by 19%) was that it could be spread through handshaking. Although each question elicited a high proportion of incorrect answers, only about ten per cent of respondents admitted not knowing the correct answer to any particular question. This suggests that although the knowledge of these false transmission modes is fairly accurate, misperceptions about AIDS are more common than simple lack of knowledge. Such misconceptions, rather than ignorance, may be causing individuals to adopt ineffective or inappropriate prevention strategies and may be undermining health officials' efforts not to stigmatize those who are infected (see Kanouse et al. 1991; Sittitrai et al. 1992).

[26] Although women were not asked 'tell us *every way you know* in which AIDS can be transmitted,' these responses are accepted as more or less representative of each woman's knowledge of the main routes of transmission.

[27] In contrast, 68.7 per cent of the respondents answered correctly that infected women could give birth to a child with the virus (Table 5). This large discrepancy suggests that respondents did not consider perinatal transmission to be like the others, perhaps because they viewed all the others from the perspective of protecting oneself from infection, whereas perinatal transmission concerned the protection of someone else (i.e., the unborn or newborn child). Similarly, this may explain why even fewer women mentioned 'avoiding pregnancy' as a way to avoid getting AIDS (Table 8). Alternatively, the respondents may have been better able to guess the correct answer in a yes-no format than to identify spontaneously the ways in which AIDS was transmitted or could be prevented.

Table 6
Knowledge of primary AIDS transmission modes, by modes of transmission

Respondents saying that AIDS is transmitted by	%	N
1A 'Sexual intercourse' only	44.7	2,404
1B 'Sexual intercourse' and at least one other mode of transmission[a]	26.9	1,445
2A 'Heterosexual intercourse' only	5.9	318
2B 'Heterosexual intercourse' and at least one other mode of transmission other than 'sexual intercourse'	1.2	64
3 'Homosexual intercourse' only	0.8	43
4 'Needles, blades, and/or skin punctures' only	0.5	27
5 'Mother to unborn child' only	0.2	12
6 'Transfusion of infected blood' only	1.0	56
7 Responses 3, 4, 5, or 6 and at least one other mode of transmission other than 'sexual intercourse' (1A) or 'heterosexual intercourse' (2A)	0.9	49
8 Do not know of any modes of HIV transmission	17.9	963
Total of those who have heard of AIDS	100.0	5,381
Subtotal of those who identified 'sexual intercourse' (1A, 1B)	71.5	3,849
Subtotal of those who identified 'heterosexual intercourse'[b] (2A, 2B)	7.1	382
Subtotal of those who identified only one mode of transmission (1A, 2A, 3, 4, 5, 6)	53.1	2,860
Subtotal of those who identified more than one mode of transmission (1B, 2B, 7)	29.0	1,558
Respondents identifying		
'homosexual intercourse' and any other mode	6.2	334
'needles, blades, and/or skin punctures' and any other mode	13.7	735
'mother to unborn child' and any other mode	5.7	304
'transfusion of infected blood' and any other mode	11.5	620
Respondents identifying 'sexual intercourse' or 'heterosexual intercourse' and also		
identifying at least one other mode	25.4	1,366
identifying at least two other modes	8.1	434

Note: This question was asked only of those women who stated that they had heard of AIDS. [a]This includes those women who responded that both 'sexual intercourse' and 'heterosexual intercourse' were ways of transmitting AIDS: 74 women identified only 'sexual intercourse' and 'heterosexual intercourse'; 17 women identified 'sexual intercourse' and 'heterosexual intercourse' along with 'homosexual intercourse'; 52 women identified 'sexual intercourse' and 'heterosexual intercourse' along with other modes of transmission. [b]This does not double count those who also identified 'sexual intercourse.'

Table 7
Knowledge of casual AIDS transmission modes, by modes of transmission

	Response (%)		
	No	Don't know	Yes
Do you think that you can get AIDS from . . .			
shaking hands with someone who has AIDS	70.9	10.3	18.8
hugging someone who has AIDS	65.3	10.2	24.6
kissing someone who has AIDS	48.6	9.9	41.5
wearing the clothes of someone who has AIDS	55.3	10.2	34.5
sharing eating utensils with someone who has AIDS	51.8	10.4	37.8
stepping on the urine or stools of someone with AIDS	52.0	10.4	37.6
mosquito, flea, or bedbug bites	51.0	11.1	37.9
Respondents giving			
0 responses	22.3	83.7	41.8
1 response	6.5	4.0	10.8
2 responses	7.5	1.8	7.7
3 responses	6.9	1.2	7.8
4 responses	7.5	0.7	7.0
5 responses	6.9	0.6	7.3
6 responses	9.9	0.5	6.0
7 responses	32.4	7.4	11.6

Note: The correct response to each of these questions is 'No.' These questions were asked only of those women who stated that they had heard of AIDS.

Concerning prevention, women were asked, in an open-ended format, 'How do you think one can avoid AIDS?'. Their responses are shown in Table 8. Fifty-five per cent mentioned practising 'safe sex' and 28 per cent mentioned 'using condoms during intercourse' as ways to avoid AIDS. Respondents were not asked further what 'safe sex' meant to them, but about ten per cent mentioned both 'safe sex' and condom use. Few women (4.3%) mentioned only strategies unrelated to sexual intercourse, reconfirming most respondents' understanding of AIDS as a sexually transmitted disease. Of those who stated either condom use or 'safe sex,' 16 per cent also knew of at least one other method of prevention, and six per cent knew of at least two other methods of prevention. Among those who mentioned at least two ways to avoid AIDS, 13 per cent identified checking blood before having a transfusion, almost 13 per cent mentioned sterilizing needles and syringes, and almost four per cent stated 'by avoiding pregnancy if infected'. Twenty-one per cent of the respondents did not know of a single way to avoid AIDS.

Table 8
Knowledge about AIDS prevention

How do you think one can avoid AIDS?	%	N
Ways related to sexual intercourse:		
'Safe sex' only	34.6	1,860
'Condom use' only	12.6	680
'Safe sex' and other method of prevention other than 'condom use'	11.9	639
'Using condoms' and any other method other than 'safe sex'	6.3	340
'Safe sex' and 'condom use' only	3.7	198
'Safe sex' and 'condom use' and any other method of prevention	5.1	274
Subtotal	74.2	
Other ways:		
'Checking blood prior to transfusion' only	0.9	51
'Sterilizing needles and syringes for injection' only	0.3	18
'Avoid pregnancy if infected with the AIDS virus' only	0.4	21
Other	2.7	144
Two or more of the above ways	0.9	48
Subtotal	5.2	
Do not know of any correct way to avoid AIDS	20.6	1,109
Total	100.0	5,381
Respondents mentioning 'safe sex and/or condom use' who also knew of at least:		
one other method of prevention	15.7	847
two other methods of prevention	6.1	328
Among those mentioning two or more ways to avoid AIDS, respondents who stated		
'Checking blood prior to transfusion'	13.0	699
'Sterilizing needles and syringes for injection'	12.5	673
'Avoid pregnancy if infected with the AIDS virus'	3.8	202

Note: This question was asked only of those women who stated that they had heard of AIDS.

How do Indian women know about AIDS? Sources of information

Because India is a large, culturally diverse nation where most women live in rural areas and are illiterate[28] and because AIDS is not among the many infectious diseases with which many Indian women are familiar, we must consider how women acquired their knowledge. The single most common source of information about AIDS was television, as shown in Table 9. Among women aware of AIDS, most (74.6 %) learned about it from only one or two sources of information. About 43 per cent had learned about AIDS from a single source, mostly from television. Identified less frequently by those who mentioned one source were the radio (9.8%), newspapers (14.8%), and friends or relatives (13.7%). About 32 per cent stated that they had heard about AIDS from two sources, about 18 per cent identified three sources, and the remaining eight per cent identified four or more sources.

[28]The 1991 Indian Census estimates that 39.19 per cent of all females aged 7 years and above are literate (Statement 14, p. 51).

Among those women who knew about AIDS from more than one source, the most common sources were television (48.2%), radio (30.8%), and newspapers (34.9%). Less frequently mentioned sources were magazines (17.6%) and friends or relatives (9.2%). Magazines, mentioned by only 5.1 per cent of those who had a single source of AIDS information, were identified by more than three times as many women who mentioned many sources. Presumably women who are likely to read newspapers or watch television or listen to the radio also read magazines. Sources rarely mentioned, by fewer than three per cent of respondents, were slogans, pamphlets and posters,[29] health workers, school teachers, and community meetings. School teachers were mentioned least, by fewer than one per cent of women, regardless of the number of sources identified.

Table 9
Sources of AIDS information, among women aware of AIDS

	Percentage distribution	
	As the *sole* source[a]	With any *other* source[b]
Source of information:		
Television	51.2	48.2
Newspapers	14.8	34.9
Radio	9.8	30.8
Friends or relatives	13.7	9.2
Magazines	5.1	17.6
Slogans, pamphlets, posters	1.3	2.7
Health workers	2.6	2.0
School teachers	0.2	0.7
Community meetings	0.7	1.4
Other	0.6	0.8
Respondents knowing about AIDS from:		
a single source	42.9	
two sources	31.7	
three sources	17.5	
four or more sources	8.0	
Average number of information sources:	1.9	

[a] These percentages total to 100 per cent of those who have only a single source. [b] These percentages total to more than 100 per cent because each of these women stated that they had at least two sources of information.

From these data, we cannot systematically ascertain which sources, if any, are redundant because we do not know the order in which information from various sources was obtained or how pieces of information from different sources might complement one another. Nevertheless, since three-quarters of the respondents had only one or two sources of AIDS information, it seems that there was not much redundancy in information dissemination for the majority. The small minority of women who had many sources may represent certain types of individuals who have a propensity to consume information rather than indicating redundancy in dissemination activities. For example, those who knew of multiple sources were significantly more educated than those who knew of only a single source: those who

[29] Television and radio messages and printed advertisements in the newspapers and magazines may use slogans, but slogans in this context refer to those appearing on billboards, posters, etc.

named four or more sources had, on average, 12 years of schooling, whereas those who named a single source had an average of 8.5 years (not shown). Although India's primary concern may now be to educate persons about AIDS through all possible channels, as long as resources allocated to IEC efforts remain limited, it may become important to determine the value and sequencing of information obtained from various sources.

Since television was the most popular source of information, either by itself or in combination with other sources, we consider how effective television is as a medium for conveying AIDS information. We first consider ownership and then viewing frequency. Owning a television set appears to be highly associated with knowledge: 85 per cent of women who identified television as a source of information lived in households that owned a television set (not shown). Among the 29 per cent of AIDS-aware women whose households did not own a television set, 36 per cent had heard about AIDS from this source (not shown).[30] Television, therefore, is an important information medium even among the less privileged.

Viewing and listening frequency, however, seems to be a poorer predictor of AIDS knowledge. Of women who reported that they watch television at least once a week (42%),[31] regardless of whether they lived in a household that owned a television, only one-third were AIDS-aware (not shown). Of those who listened to the radio at least once a week (51%), only one-quarter had heard of AIDS (not shown). Thus, the majority of regular television watchers and radio listeners were not informed about AIDS. It is unclear whether they were not informed because of characteristics of the information available on television and radio—for example, those messages are not consistently aired, are of poor quality, or are ineffective—or because of characteristics of the individuals, such as a viewing pattern that is not conducive to becoming informed about HIV/AIDS: they may not watch the programs with information about AIDS or may not watch commercial and public-health messages on television when they are broadcast.[32] This is an important question for further research. In any case, our findings suggest that more can be done with these popular media to convey information about AIDS to a much wider audience. How regular exposure to these media affects the breadth of AIDS knowledge is addressed in the following section.

Who knows more about AIDS? An overall assessment

To examine which characteristics of respondents increased their level of AIDS knowledge, we created summary measures from the above series of survey questions to represent each woman's total knowledge about AIDS. Although the NFHS is less comprehensive in probing this subject than other studies focusing specifically on AIDS (see Bertrand et al. 1991; Kanouse et al. 1991; Fishbein et al. 1993; Lyttleton 1994), the questions on AIDS in the NFHS are central to a woman's understanding of AIDS and therefore a good measure of the extent of her knowledge of it.[33] For our summary measures, we first consider the accuracy of

[30]The proportion is even greater if we also look at homes without radios: among the 13 per cent whose households owned neither a radio nor a television set, 50 per cent had heard of AIDS from one or both of these sources.

[31]This is the only information we have on viewing frequency. Women were asked if they watched television or listened to the radio at least once a week or attended a cinema at least once a month. They were not asked about the actual frequency of their exposure to these and other media.

[32]Related concerns about campaigns to promote condom use in the popular press in Nigeria are considered by Renne (1993). Also see Lyttleton (1994) on the AIDS education campaign in Thailand.

[33]In their analysis of AIDS knowledge in Zaire, Bertrand et al. (1991) included questions about the symptoms of AIDS. Kanouse et al. (1991), in their survey in Los Angeles County, used questions similar

the respondent's knowledge, based on a subset of questions. Then we examine the determinants of her general knowledge of AIDS and her knowledge regarding its non-casual transmission; her knowledge of its casual transmission; and both of these.

The structure of the questions that form the indices raises an important issue. In two of the four sets of questions described above (shown in Tables 5 and 7), in addition to knowing what a respondent correctly knows, we also know what she falsely believes. This is useful because it allows us to consider whether certain background characteristics of respondents are more strongly associated with giving incorrect answers rather than statements of 'don't know'. This distinction is important because having an incorrect understanding may be more harmful than being aware that one's knowledge is limited; that is, thinking that one is correct about something, when one is not, may lead to unintended harmful action. Further, knowing what a respondent correctly knows and what she falsely believes is useful because we can see if such background characteristics uniformly affect all three types of responses. We hypothesized, for example, that more education would be strongly associated with a higher proportion of correct answers, fewer incorrect answers, and fewer 'don't know' responses. Unfortunately this cannot be determined from responses to the questions which were asked in an open-ended format, because the interviewers recorded only correct responses, even if respondents also gave incorrect ones; and for that reason we simply do not know what the respondents falsely believe. It would be conceptually misleading to create indices that include these different types of responses. Therefore, our overall indices are based on only statements of correct answers to all questions. Before constructing these indices, we have looked at the associations between selected characteristics of the respondents and the full range of their responses, when available, to see what might be omitted by basing the indices on correct answers only.

Table 10 shows, by selected characteristics of the respondents, the average number of questions that were answered correctly, incorrectly or with a statement of 'don't know', in the first set of columns to the questions on general knowledge (listed in Table 5) and, in the second set of columns to the questions on false or casual transmission (listed in Table 7). We saw in Table 3 that women of ages 25 to 39 were the most likely to know of AIDS, but the first set of columns in Table 10 reveals a much less clear pattern by age except for incorrect answers, which decline linearly with age; women in the oldest age group, on average, gave the most correct answers and fewest incorrect ones.[34] The second set of columns, showing the averages for the questions about false transmission modes, indicates that women of ages 20 to 24 gave the greatest number of correct answers and the fewest incorrect answers or 'don't know' responses. Otherwise, there appears to be no clear age pattern.

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to the ones in the NFHS, although all their questions had the same response type. However, in their multivariate analyses of AIDS knowledge, these studies included as independent variables whether the respondent knew someone with (or who had died of) AIDS and information about his or her sexual relationships. In both of these populations AIDS is more prevalent and matters of sexuality and marital fidelity are more openly discussed than in India. The studies by Lyttleton (1994) and Fishbein et al. (1993) also consider the relationship between risk factors and sexual and other behaviour.

[34]We ignore the results for the 13 to 14 year olds, since only five of them had heard of AIDS.

Table 10
Average number of correct, incorrect, or unknown answers to basic questions on AIDS, by selected background characteristics

Table 10 continued

Table 10 continued

While there are no differences in general knowledge by a woman's current marital status, women who were either currently married or widowed answered more questions about false transmission correctly and fewer questions on that subject incorrectly than did currently divorced or separated women. Current marital status did not affect the number of 'don't know' responses. There are no statistically significant differences, in either general knowledge of beliefs about casual transmission, between women who were married once or more than once, probably in part because few women were in higher-order marriages among those who had heard of AIDS.

The influence of urbanization tends to break between cities of any size on one hand and towns and villages on the other: city dwellers answered more questions correctly and fewer questions incorrectly than did town and village dwellers. The type of residence did not affect the number of 'don't know' answers given.

The influence of wealth is particularly interesting.[35] Women living in larger (per capita) homes gave more correct answers and fewer 'don't know' responses to the general knowledge questions, but their wealth does not significantly affect the number of incorrect responses. As with urbanization, the differences in the averages, even when significant, are small. Where false transmission is concerned, the per capita number of rooms is not significantly associated with the number of correct answers, but it is significant with respect to the 'don't know' responses and incorrect answers. As expected, women living in the smallest homes were more likely than others to give 'don't know' responses. Surprisingly, the number of rooms is positively associated with incorrect answers. This suggests that something more complex is going on: the most compelling explanation would be that wealthy women are more likely to be self-assured and thus more likely to answer a question incorrectly than to admit not knowing the answer. It would be important to clarify whether this explanation, if correct, reflects only the manner in which they participated in the survey or a more general way of interaction.

Schooling affects all types of responses on general knowledge and on casual transmission in the expected direction; however, the effects are stronger with respect to the latter. Concerning false transmission, illiterate women gave slightly more correct answers, on average, than incorrect ones, whereas women with at least a high school education gave almost twice as many correct answers, on average, as incorrect ones. The differences between women with an incomplete middle school education and those who had completed middle school is slight, except that those who had completed middle school gave the greatest average number of incorrect answers (of all educational categories). This latter difference is also observed with respect to the general questions, where the statistical significance of the differences in educational categories on the number of incorrect answers is weaker. The pattern of incorrect answers, which rises except for the last group, suggests that the same reason presented above in the case of the rooms per capita variable may apply. We do not know why the effects of education are not uniformly strong across all types of answers, as we would expect them to be.

Muslim women, on average, gave the greatest average number of correct answers and the fewest incorrect ones to the general questions, but they gave the fewest correct answers and largest number of incorrect answers to the questions about casual transmission. Hindu women, who represent the majority of Indian women, had the worst net understanding on

[35]For the present purpose, we consider the rooms per capita variable only. The other wealth variable—the type of media owned by the household—is highly correlated with the variable for media exposure. Although this is presented in Table 10, we defer discussion of all media-specific variables to the multivariate analysis in Table 11.

the general questions and the second to worst on the false transmission questions. There are no statistically significant differences between these affiliations in the number of 'don't know' responses.

Differences in state averages are perhaps the most significant of all background characteristics. They are significant for correct, incorrect, and 'don't know' answers to both sets of questions. Tamil Nadu is the only state in which respondents did not answer more than half of the general questions correctly, on average; it is also the state with the greatest number of incorrect answers. While Tamil Nadu's averages for the questions on false transmission were not the lowest, they were among the lowest. This result can be seen as disheartening, given that awareness of AIDS in Tamil Nadu is above the 13-state average and that Tamil Nadu was one of the first states to respond to the national AIDS prevention and control initiatives.

The state with the greatest number of average correct answers to the general questions was Mizoram, which is also the state where awareness of AIDS was greatest (85%). However, women in Mizoram did not provide the fewest incorrect answers to the general questions (women in Meghalaya did), and they ranked among the lowest in the number of correct answers to the false transmission questions.

In only six states did women answer more than half of the false transmission questions correctly, on average. These include four of the six states in our sample that are not in the northeast: Gujarat, Maharashtra, Goa, and Delhi. Typically, the states that ranked highest on the average number of correct answers to the general questions ranked much lower in the average number of correct answers to the false transmission questions, Goa being the notable exception. This finding suggests that while knowledge in one subject area may be quite good, it might be quite poor in a related area. We were unable to collect sufficient information on the content and effectiveness of each state's AIDS interventions, but the fact that the state averages for the number of correct answers tended to be high for only one of the two sets of questions suggests that state programs may be focusing on disseminating only one of the two types of information about AIDS.

Lastly, we cannot explain why the questions on casual transmissions elicited only correct or incorrect answers in five states, but we find that result troubling. Nor can we explain why the pattern of the average number of 'don't know' responses as compared with the average number of incorrect answers is not the same across the two groups of questions.

More generally, it is interesting that the effects of any given characteristic, other than state of residence, are typically more significant or substantially larger on the number of correct answers than they are on the number of 'don't know' or incorrect answers. One would hope that an effective program of information dissemination would produce equally large proportionate differences. For example, if more education makes a person better able to digest information accurately, we should see large differences between educational categories in the average number of correct, incorrect, and 'don't know' answers and the averages should rise or fall monotonically, which they do not. This suggests that greater education, in this example, is not enough to dispel myths about AIDS. Finally, these inconsistencies suggest that summary indices that ignore incorrect answers, as do the ones that follow, will overestimate the accuracy of respondents' knowledge of AIDS. Future studies should bear this in mind.

Table 11 presents a multivariate analysis of AIDS-related knowledge. Some studies on AIDS knowledge find it useful to distinguish between knowledge about non-casual transmission and knowledge regarding casual transmission (e.g., Kanouse et al. 1991) while others find a single measure suitable (e.g., Bertrand et al. 1991).[36] We use all three here.[37] For

[36]Peruga and Celentano (1993) find that 40 out of 80 studies on knowledge about AIDS use composite indices such as these.

the first of these, we combine all correct answers given to the four questions on general knowledge (Table 5), the six possible answers for transmission (Table 6),[38] and six possible answers for prevention (Table 8) in equal weights; that is, answers to each type of question counted for one-third of the index. The sum of the parts is multiplied by 100, so that the scores theoretically span from 0 (no knowledge) to 100 (perfect knowledge). The second index, of knowledge about casual or false transmission, combines all correct answers to the seven questions in Table 7. Again, the index is standardized so that someone giving no correct answers would have a score of 0 and someone answering all questions correctly would have a score of 100. The third index, which combines the first two, treats the answers from Tables 5 to 8 in equal quarters; again the index is standardized from 0 to 100.[39] For shorthand, these indices are called index 1, index 2, and the combined index. The means (and standard deviations) of each of these indices, respectively, are: 35.4 (14.4), 56.2 (40.2), and 40.6 (16.4).[40] Seventy per cent of the AIDS-aware women provided answers to no more than half of all the possible questions that comprise the combined index and only one per cent of all AIDS-aware women could give correct answers to at least three-quarters of these questions. This suggests that even among AIDS-aware women, knowledge about AIDS is not comprehensive. Table 11 examines which factors are associated with more or less knowledge about AIDS.

Three general points are evident from Table 11. First, the factors that strongly predict awareness of AIDS do not necessarily lead to a better understanding of AIDS. Second, the factors that are associated with a greater understanding of general AIDS-related concerns and of non-casual transmission are not also uniformly associated with a greater understanding about the casual or false transmission modes. Third, background characteristics lose much of their statistical significance in the determination of knowledge when we introduce information about the respondents' sources of AIDS information. These are discussed below.

Table 11 contains three pairs of estimates for the above-described indices. For each pair of estimates, the first column shows the unstandardized regression coefficients of all background characteristics (i.e., the same ones which were selected to predict AIDS awareness in Table 4); the second column includes variables for the total number and types of information sources the respondents identified.

Table 11
Unstandardized (OLS) regression coefficients: estimates of AIDS-related knowledge among women in 13 Indian states, 1992-93

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[37]In contrast with Table 4, in Table 11 we do not run these regressions by individual states or regions because the number of observations would be sizably reduced.

[38]Women who said 'sexual intercourse' and 'heterosexual intercourse' were given credit for only one response.

[39]Cronbach's alpha coefficient is used to test the reliability of these scales. The standardized item alpha for the three-item index (i.e., each set of questions or answers is an item) on general knowledge and knowledge of non-casual transmission is 0.689. The standardized item alpha for the four-item summary index is 0.636. The lower alpha on the latter of these two indices is further justification, at least in terms of the reliability of the measure, for examining knowledge about false transmission modes apart from the other questions. These alpha coefficients compare favourably with those reported in Peruga and Celentano's (1993) review article. We have not tested the questions that make up each item—i.e., the questions from each table—for their reliability, because we have grouped them together solely on their conceptual validity.

[40]The respective medians are 36.1, 57.1, and 41.1. Although the scales theoretically range from 0 to 100, the minima and maxima for each are 11.1–94.4, 0–100, and 8.3–92.3.

Table 11 continued

Table 11 continued

The demographic characteristics of the respondents, which are not among the most important background variables for predicting AIDS awareness, are of essentially no statistical importance in accounting for variation in knowledge. Not even the age at first marriage, which was a highly significant predictor of AIDS awareness, is a predictor of AIDS-related knowledge. The combined index suggests that AIDS understanding is worse among women over age 30, with the exception of 45–49 year olds, and better among 15–24 year olds than among women aged 25–29; nevertheless, as in Table 10, the age pattern is not consistent across index 1 and index 2. Given the inconsistencies and lack of statistical significance (for the most part) in indices 1 and 2, it is not surprising that there is no age effect on the combined index.[41]

The variables that account for household wealth—the number of rooms per capita and media owned—are both strongly and positively associated with index 1. Although the variable for media owned is a significant predictor of knowledge about casual transmission (index 2), the number of rooms per capita is not a significant determinant. As discussed above, the same inconsistency is found in Table 10. Both wealth variables are strongly and positively associated with the combined index, which indicates that, in the case of the number of rooms per capita, the stronger effect on index 1 outweighs the weaker (insignificant) effect on index 2.

The effects of urbanization, that is, living in an urbanized area, are weak on index 1, strong on index 2, and moderate on the combined index. Further, it appears that, other things being equal, women who live in towns had a worse understanding of AIDS than did village women. Women living in cities, regardless of the cities' size, had the best understanding of AIDS. This is counter to our findings in Table 4, where being an urban dweller, town dwellers included, increased the odds that a woman was AIDS-aware. Since, from a policy perspective, it is not sufficient that women be only aware of AIDS, this means that towns should be regarded as being more like villages than like cities.

Muslim women had a greater understanding of AIDS than did Hindu women. Christian women had better general knowledge and knowledge about non-casual transmission but not about false transmission than did Hindu women. This is not what we would predict about their understanding of false transmission if all the information from Table 10 were included.[42] As in Table 4, here too we see that belonging to a scheduled caste or tribe had a weak negative effect on AIDS understanding (combined index). These effects diminish when the quantity and type of information sources are introduced.

In Table 4, education was the strongest and most consistent predictor of AIDS awareness: the more schooling a woman had, the more likely she was to be AIDS-aware. In Table 11, the effects of education are still positive on the level of a woman's knowledge about AIDS, but only the higher levels of schooling significantly affect knowledge. In other words, literate women who had not completed middle school were not statistically different from illiterate women in the breadth of their AIDS knowledge. Where knowledge about false modes of transmission is concerned, only the most highly educated women had a statistically significant better understanding than illiterate women. When we control directly for the number and types of information sources, the size of the education coefficients is substantially reduced.

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[41]Although 13 to 14 year olds appear to have a much worse understanding of AIDS than older respondents, we place no substantive importance on this coefficient because there were only five persons in this category.

[42]Table 10 does not control for other factors. This may explain discrepancies between Table 10 and the multivariate analysis in Table 11. However, there may also be variables omitted (through lack of data) from Table 11 which might affect the interpretation of broad variables like religious affiliation.

For example, in the combined index the coefficient falls from 5.833 (*t*-statistic = 5.888) to 2.830 (*t*-statistic = 2.867) for women with at least a high school education.

Working women, for the most part, appear to have a much better understanding of AIDS than do other women. Women doing agricultural work, although much less likely to be AIDS-aware, were not statistically different from women who did not work in terms of their AIDS knowledge.[43] All other working women, including non-agricultural labourers, who were like non-workers in terms of AIDS awareness, had a statistically significant greater understanding (combined index); these effects are slightly diminished when the information about sources is added. The effect of working in a sales or service capacity is small (compared with that of having a professional, managerial, or clerical occupation) on index 1 and not significant on index 2. The effect of working in a professional, managerial, or clerical capacity is greater on index 2 than on index 1. Why the effect should be so much stronger on one index than on the other is open to speculation. Are 'white-collar' women the most able to interpret accurately what might be complex information on casual transmission? Perhaps these women are the most trusting of the government and therefore most likely to believe government-sponsored messages about false transmission.

Regular exposure to mass media is an important predictor of AIDS awareness but it is a less important predictor of the breadth of a woman's knowledge about AIDS. Women regularly exposed to only one type of media, whether television, radio, or film, were not significantly different from women who had no regular media exposure. The same is true of women who watched both television and films. Regularly seeing films *and* listening to the radio had the strongest positive effect on AIDS knowledge; this coefficient does not decrease much even when the information about sources is added. The lack of a strong effect of television, in any combination, we interpret as further confirmation that frequent exposure to the television alone is not sufficient for informing women about AIDS.

As with AIDS awareness, there are important differences by state in AIDS knowledge; these are much stronger on index 2 than on index 1. As the 13-state equation from Table 4 indicated, women in Gujarat, West Bengal, Delhi, and Assam were less likely than women in Maharashtra to be AIDS-aware, other things being equal. Women in Manipur and Mizoram, in particular, were much more likely than others to be AIDS-aware. In Table 11, index 1 indicates that women in Mizoram had a much better understanding of AIDS than did women in Maharashtra, but there is no statistically significant difference between women in Maharashtra and those in Manipur. Women in Nagaland and Goa also had a much better understanding of AIDS than did women in Maharashtra. Women in two of the other big states, Gujarat and Tamil Nadu, as well as in the capital, had a worse understanding than women in Maharashtra. As for index 2, only women in Gujarat and Nagaland had a better understanding of AIDS than women in Maharashtra. Again, we suspect that these differences reflect, in part, specific activities on the part of local governments and non-governmental agencies to educate the public about AIDS. Unlike the coefficient for other characteristics, in several instances in both index 1 and index 2, the coefficients for states are slightly enhanced rather than weakened, when the information on the sources of AIDS knowledge is introduced. The state effects on the combined index suggest that women in Maharashtra had a better overall knowledge of AIDS than women in any of the other large states in our study and in most of the smaller states, Goa, Mizoram, and Meghalaya being the notable exceptions. Only a careful evaluation of specific state efforts may shed light on these important differences between awareness and knowledge of different types.

[43]Table 10 shows that only 14 women stated 'other' occupations. As this number of cases is small, we ignore these coefficients.

The number of sources of information about AIDS is an important determinant of AIDS knowledge: each additional source of information raises the respective index by four or five points. Although this effect is highly significant, the magnitude is not great. In other words, women can have quality information from few sources. The type of information seems to matter less (i.e., the rank order of the standardized beta coefficients is lower), but it, too, is an important determinant of AIDS knowledge. As index 1 shows, women identifying radio had a worse understanding than those identifying television (the reference group). With respect to index 2, television appears to be the superior source of AIDS information: women who identified friends and relatives, print media (newspapers and magazines), or other sources had a worse understanding of AIDS than did women who identified the television as their source. The effect is especially pronounced with respect to friends and relatives. It seems that women who rely on this source had a worse understanding of AIDS generally (combined index) and particularly with regard to false transmission modes (index 2) than did other women. This is unfortunate because informal information networks such as friends and relatives might play an important role in dispelling myths about AIDS, particularly among poorer women and in technologically remote areas. It will be especially important to identify effective techniques for disseminating accurate information about AIDS through this channel. As for a woman's overall knowledge, only print media have no statistical difference from television; all other media sources are less effective than television in educating women about AIDS.

The additional data on AIDS sources account for much more of the total explainable variance in index 1 (31%) than in index 2 (4%). In the combined index, they account for 17 per cent of the total explainable variance in AIDS knowledge. Twenty-eight per cent of the overall variance in women's total knowledge about AIDS can be explained by the more inclusive model. This compares favourably with other studies (see Kanouse et al. 1991; Bertrand et al. 1991).

The relationship between AIDS knowledge and condom use

This survey was not designed to assess women's actual or perceived risk of contracting HIV or to measure behaviour explicitly related to HIV transmission: types or number of sexual relationships, use of intravenous drugs, etc. Nevertheless, the NFHS, in a module on contraception, asked respondents whether they had ever used condoms. Therefore, in this section we cannot undertake a thorough behavioural analysis, but we briefly consider whether women who are AIDS-aware and AIDS-knowledgeable are more likely than other women to have ever used condoms with their sexual partners.

Sixty-one per cent of the women in the 13-state sample had ever used contraception.[44] Only 2.5 per cent of never-users were aware of AIDS. Twenty-two per cent of the women who had ever used contraceptive methods other than condoms were aware of AIDS but twice as many women (47%) who had ever used condoms were aware of AIDS. Among the women who could recall how long they had been using condoms continuously, 51 per cent of those who had begun continuous use in the 12 months before the survey were aware of AIDS and 71 per cent of the women who had used condoms continuously for five years or longer were AIDS-aware. The longer a woman has continuously used condoms, the greater her knowledge of AIDS also tended to be (not shown).

In a series of logistic regressions (not shown), we predicted condom use (and any contraceptive use), controlling for all of the same covariates found in Table 4 in addition to whether or not the respondent was AIDS-aware or her level of AIDS knowledge. We found that AIDS-aware women were much more likely than other women to have ever used contraception, other things being equal (odds ratio=3.97, $p<0.001$). Among contraceptive

[44]This compares to 47 per cent in the all-India sample (IIPS 1995: 133).

ever-users, AIDS-awareness significantly raised the odds of ever using condoms by 64 per cent. Fourteen per cent of the ever-users of family planning reported that they had, at some point, used condoms.[45] A one-unit increase in the overall index of AIDS knowledge (i.e., the combined index in Table 11) also significantly increases the odds of using any contraceptive method, by 3.34 per cent ($p<0.001$), and of using condoms in particular, by 1.04 per cent ($p<0.001$). A ten-point increase on the scale would therefore increase the odds of condom use by more than ten times. Although it seems unnecessary to describe the other covariates introduced into these regressions, it is worth noting that the state effect on condom and contraceptive use is highly negative for the northeastern states where AIDS awareness is high (Manipur, Mizoram, Nagaland, and Meghalaya) and for Tamil Nadu. This may suggest the need for policies aimed at promoting condom use and even supplying condoms in certain areas.

Because after controlling for socio-economic and demographic characteristics we find that women who were aware of and knowledgeable about AIDS were not only more likely than others to have ever used some form of contraception, but also more likely to be condom users, we infer that AIDS-aware women are more likely to be protected or are protecting others, at least in part, from contracting HIV. The extent to which they are protected, the circumstances under which they use condoms, and the onset of condom use with respect to their learning about AIDS are questions that should be addressed in future research. Future studies might also consider the extent to which AIDS-prevention efforts, at least through the promotion of condom use, may be compatible with already existing family planning efforts (see Pachauri 1994).

Conclusions

In the 13 Indian states where questions about AIDS were included in the NFHS questionnaire, only one in six ever-married women had heard of AIDS. This multivariate analysis has revealed that educated, wealthier, and urban women were much more likely than other women to be AIDS-aware. Women exposed to any form of mass media (television, radio, film) were also much more likely to be aware of AIDS. Women in the northeastern states, except Assam and Tripura, were more likely to be AIDS-aware, other things being equal. Demographic factors, for the most part, were not important predictors of AIDS awareness.

Among AIDS-aware women, the level of knowledge was low. Only 30 per cent of AIDS-aware women gave correct answers to more than half of the possible answers, and only one per cent could answer 75 per cent correctly. Although schooling and wealth were also important determinants of AIDS knowledge, the effects are observable only at high levels of schooling and wealth. For example, any formal education appears to enhance significantly the odds that a woman is aware of AIDS, but she needs at least a high school education to have a significantly greater understanding of the syndrome. In contrast with AIDS awareness, AIDS knowledge is greater only among city dwellers; the understanding of town dwellers is worse than that of village dwellers, other things being equal. All working women (i.e., those who stated an occupation), except agricultural labourers, had a greater understanding of AIDS. This was especially the case for women working in professional, managerial, or clerical occupations. Women in Nagaland and Goa had the best overall knowledge about AIDS and women in Tamil Nadu the least. Whereas women in Tamil Nadu and Delhi had less AIDS-knowledge, based on any of our summary indices, than women in Maharashtra, the reference state, women from the other states in our sample had more general knowledge (than Maharashtran women) but less knowledge about false transmission. This is taken as evidence

[45] Or 8.6 per cent of all women in the 13-state sample, as compared with 6.9 per cent national average (IIPS 1995: 134).

that women in the states which where reported to have first established AIDS control and education programs, Maharashtra, Manipur, Nagaland, and Tamil Nadu, were not uniformly more likely than women in other states to be knowledgeable about AIDS.

In contrast to our findings about AIDS awareness, exposure to any single medium does not significantly increase a woman's knowledge about AIDS; further, exposure to television (in combination with exposure to other media) is less important than exposure to film and radio combined. Nevertheless, women who identified television as a source of AIDS information had a better overall understanding of the syndrome than did women who relied on radio, friends or relatives, and other sources instead. The level of knowledge of women who relied on print media was not significantly less than that of women who relied on television. The more sources of AIDS-specific information a woman had, the greater was her knowledge about AIDS. The most common sources of AIDS information, television, radio, and print media, were those that are readily available to women who are wealthier, urban, and literate. Nevertheless, the vast majority of television viewers and radio listeners were unaware of AIDS. Therefore, these media need to become more effective communicators about AIDS. More important, it is imperative that effective ways be developed to convey AIDS information to the rural majority and the illiterate, perhaps through new uses of films, health workers, community meetings, and other accessible channels.

Despite the very low levels of awareness and knowledge of AIDS in India, we find a strong association between a woman's ever having used condoms and her AIDS awareness and knowledge. Use of condoms was the only aspect of behaviour we could examine with these data, and our examination of that was far from exhaustive. Although the associations are strong, we can only guess about the causality of the relationship. Further investigation is undoubtedly warranted.

Women must become aware of AIDS before they can be expected to have a comprehensive knowledge about it. Given that AIDS awareness and AIDS knowledge are not determined by the same covariates, either in their entirety or by an order of magnitude, policy makers must bear in mind both sets of significant predictor variables. In this study, we have only speculated about the meaning of many of the socio-economic determinants of AIDS awareness and knowledge. Further empirical consideration of how these factors improve knowledge will be important in policy formation and in determining whether a general strategy (e.g., enhanced education programs for all) or a specific strategy (e.g., AIDS-specific mass media campaigns) is more appropriate.

Broad-scale surveys contribute much to our understanding of AIDS awareness and knowledge, but they reflect only a single point in time, and in many cases do not collect many of the types of background information that might be useful for a study of this subject. Repeated surveys will be important for observing trends in AIDS awareness and knowledge. They will be even more useful if they can be combined with good data on AIDS education at the state, or otherwise appropriate local level, where efforts to prevent and control AIDS are based.

Future research on AIDS in India must consider exploring some issues that are sensitive, such as sexual relationships, and others that are hard to measure, such as the real and perceived risks of contracting AIDS. Whether it is appropriate to do this through broad-scale surveys or through other observation and data-collection techniques, which may be more time-consuming, will be an important decision for the investigators. To date, no study in India has considered these factors as they relate to AIDS awareness or knowledge. Future research must also take a closer look at the content and effectiveness of media messages, for their capacity both to educate and to influence behaviour. Lastly, this study has looked at what Indian women know about AIDS, but it has not been able to make comparisons between Indian women and men. Many assume that Indian women's lower status in relation to men

will place them at greater risk of contracting HIV and, even if they are fully informed, inhibit their ability to protect themselves. This issue in all its complexity needs to be explored.

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Table 4

Characteristics	All 13 states	North eastern states	Western states	Tamil Nadu	West Bengal	Delhi
Age (years)						
13-14	+	-	+	-	+	-
15-19	-***(0.58)	-	-	-** (0.49)	-* (0.45)	-** (0.40)
20-24	-* (0.85)	+	-	-	-	-** (0.66)
25-29						
30-34	+	+	+	+	+	+
35-39	+** (1.21)	+	+* (1.26)	+	-	-
40-44	+***(1.35)	+	+** (1.39)	+	+* (1.78)	-
45-49	-	+	-	-	+	-
Current marital status						
Married						
Separated	-	+	-	+	-	-
Widowed	-* (0.71)	+	-* (0.55)	-	-	-
Divorced	+	-	+	-	+* (12.15)	-
Number of marriages						
1						
2 or more	-	+	-	-	+	+
Age at first marriage	+***(1.04)	+	+***(1.05)	-	+* (1.06)	+***(1.08)
Residence						
Large city	+***(1.84)	—	+***(2.00)	-	+***(2.85)	+** (1.82)
Small city	+***(1.54)	+** (2.01)	+* (1.28)	+** (1.76)	+** (2.14)	—
Town	+* (1.19)	+	+	+	+	—
Village						
Per capita rooms in the house	+***(1.58)	+***(1.57)	+***(1.42)	+***(1.51)	+***(2.30)	+***(2.01)
Media owned by the household						
None						
Radio only	+***(1.38)	+* (1.55)	+** (1.43)	+	+	+
Television only	+***(2.07)	+* (1.94)	+***(2.26)	+***(2.45)	+	+* (1.75)

Table 4 cont.

Characteristics	All 13 states	North eastern states	Western states	Tamil Nadu	West Bengal	Delhi
Radio and television	+***(2.68)	+***(2.00)	+***(3.45)	+***(2.14)	+***(2.43)	+* (1.96)
Religion						
Hindu						
Muslim	-	-* (0.55)	+** (1.32)	-	+	+*** 1.96)
Christian	+* (1.37)	+	-	+** (1.89)	—	—
Buddhist/Neo-Buddhist	+	—	+***(1.70)	—	—	—
Jain	-	—	-	—	—	—
Sikh	—	—	—	—	—	+
Other	-	-	-	-	+	+* (1.85)
Religious minority in state	+* (1.30)	—	—	—	—	—
Caste/Tribe						
Other						
Scheduled Caste	-* (0.79)	-	-	-	-	-
Scheduled Tribe	-	+	-** (0.62)	+	+	+
Formal education/literacy						
Illiterate						
Literate, < middle school	+***(3.83)	+***(2.74)	+***(3.79)	+***(4.76)	+***(4.23)	+***(2.41)
Middle school completed	+***(9.67)	+***(8.82)	+***(9.14)	+***(11.62)	+***(14.59)	+*** (5.16)
High school or higher	+*** (32.90)	+*** (36.70)	+*** (29.67)	+*** (36.22)	+*** (55.37)	+*** (23.55)
Regular exposure to mass media						
No mass media exposure						
Film only	+* (1.61)	+	+***(3.77)	-	+	+
Radio only	+** (1.38)	+** (2.13)	+	+	-	+
Television only	+***(2.20)	+***(3.90)	+***(1.98)	+	+	+***(3.32)
Film and radio	+***(2.50)	+	+	+** (2.30)	+	+
Film and television	+***(2.62)	+* (4.27)	+** (2.05)	+	+* (2.63)	+* (3.73)
Radio and television	+***(2.76)	+***(3.88)	+***(2.32)	+***(2.84)	+	+***(3.74)
Film, radio, and television	+***(3.30)	+***(4.48)	+***(3.27)	+***(3.16)	+	+***(3.61)

Table 4 cont.

Characteristics	All 13 states	North eastern states	Western states	Tamil Nadu	West Bengal	Delhi
Translator used for interview[a]	-	-	-	-	-	-
Occupation						
None						
Professional, managerial, clerical	+***(2.88)	+	+***(3.76)	+***(2.87)	+** (2.61)	+***(3.61)
Sales or service	+***(1.41)	+* (1.83)	+** (1.66)	+	+	-
Agricultural	-*** (0.50)	+	-*** (0.40)	-*** (0.45)	-	-
Non-agricultural	-	+	-	-	-	-
Other	-	+	-	+	-	+
State (Region)						
Arunachal Pradesh (NE)	+** (2.90)	+** (3.41)	-	-	-	-
Assam (NE)	-*** (0.70)	reference	-	-	-	-
Manipur (NE)	+*** (69.51)	+*** (74.12)	-	-	-	-
Meghalaya (NE)	+*** (4.00)	+*** (4.66)	-	-	-	-
Mizoram (NE)	+*** (63.72)	+*** (87.92)	-	-	-	-
Nagaland (NE)	+*** (8.73)	+*** (10.71)	-	-	-	-
Tripura (NE)	-	+	-	-	-	-
Goa (West)	+* (1.89)	-	+** (2.41)	-	-	-
Gujarat (West)	-*** (0.35)	-	-*** (0.35)	-	-	-
Maharashtra (West)	reference	-	reference	-	-	-
Tamil Nadu (South)	+*** (1.64)	-	-	-	-	-
West Bengal (East)	-*** (0.45)	-	-	-	-	-
Delhi (North)	-*** (0.59)	-	-	-	-	-
Overall % predicted correctly	90.40	91.62	90.46	86.48	93.95	84.42
No. of observations (unweighted)	32,077	9,272	11,079	3,948	4,322	3,456
No. of observations (weighted)	32,077	3,553	13,604	6,185	7,638	1,091

[a] Number of observations in boldface type represent those used: In the equations that include more than one state, (i.e. the equations for all 13 states, the northeastern states, and the western states), each state is weighted to accurately represent its true relative size. For each sole-state equation, a sample that is not weighted by the state's relative size is used to better account for underrepresented subpopulations (e.g. rural women in Delhi). This is a dichotomous variable to control for women who needed a translator

for the interview. The reference group comprises those women who did not use a translator. Notes: *Italics* indicate the category that is used as the basis of comparison, except for the state (region) dummy variable, which is noted in the respective columns. Significance levels are denoted as follows: *** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$.

Table 10

Characteristics	General knowledge			False or casual transmission			Number of observations
	Correct	Don't know	Incorrect	Correct	Don't know	Incorrect	
Age (years)							
13-14	**2.216**	1.709	**0.075**	**1.206**	2.860	*2.934*	5
15-19	**2.106**	0.818	**1.076**	**3.919**	0.711	*2.369*	183
20-24	**2.345**	0.862	**0.785**	**4.264**	0.647	*2.062*	925
25-29	**2.476**	0.777	**0.741**	**3.938**	0.661	*2.356*	1189
30-34	**2.393**	0.877	**0.730**	**3.891**	0.724	*2.355*	1086
35-39	**2.422**	0.877	**0.701**	**3.778**	0.755	*2.459*	926
40-44	**2.400**	0.923	**0.677**	**3.770**	0.747	*2.450*	664
45-49	**2.513**	0.823	**0.663**	**3.911**	0.912	*2.103*	403
Current marital status							
Married	2.414	0.850	0.733	**3.963**	0.717	**2.290**	5,160
Separated	2.338	0.932	0.730	**3.135**	0.891	**2.951**	128
Widowed	2.381	0.921	0.698	**4.164**	0.277	**2.559**	25
Divorced	2.139	0.876	0.985	**2.934**	0.841	**3.030**	68
Number of marriages							
1	2.406	0.854	0.737	3.934	0.722	2.312	5,352
2 or more	2.788	0.579	0.633	3.325	0.567	3.108	29
Residence[a]							
Large city	**2.485**	0.873	**0.641**	**4.390**	0.821	**1.759**	2,096
Small city	**2.489**	0.779	**0.733**	**4.328**	0.314	**2.333**	827
Town	**2.312**	0.871	**0.817**	**3.408**	0.694	**2.895**	803
Village	**2.317**	0.856	**0.820**	**3.405**	0.810	**2.734**	1,654
Rooms per capita							
More than 2 persons per room	**2.312**	**0.948**	0.736	3.932	**0.865**	**2.178**	2032
0.5-1 room per person	**2.412**	**0.838**	0.747	4.000	**0.644**	**2.321**	2351
1-2 rooms per person	**2.599**	**0.684**	0.718	3.787	**0.602**	**2.586**	909
2 or more rooms per person	**2.566**	**0.793**	0.641	3.530	**0.663**	**2.610**	88

Table 10 cont.

Characteristics	General knowledge			False or casual transmission			Number of observations
	Correct	Don't know	Incorrect	Correct	Don't know	Incorrect	
Media owned by the household							
None	**2.076**	**1.064**	**0.841**	**2.971**	**1.221**	**2.733**	696
Radio only	**2.286**	**0.909**	**0.805**	**3.106**	**0.848**	**3.003**	862
Television only	**2.446**	**0.823**	**0.730**	**3.979**	**0.675**	**2.345**	520
Radio and television	**2.504**	**0.798**	**0.698**	**4.341**	**0.589**	**2.045**	3303
Formal education/literacy							
Illiterate	**1.958**	**1.323**	*0.719*	**2.961**	**1.465**	**2.566**	323
Literate, < middle school	**2.139**	**1.079**	*0.782*	**3.503**	**1.110**	**2.356**	997
Middle school completed	**2.269**	**0.939**	*0.791*	**3.498**	**0.817**	**2.611**	901
High school or higher	**2.579**	**0.708**	*0.708*	**4.288**	**0.494**	**2.195**	3,160
Religion							
Hindu	**2.379**	0.857	**0.761**	**3.862**	0.730	**2.365**	4,168
Muslim	**2.603**	0.806	**0.591**	**3.580**	0.847	**2.520**	431
Christian	**2.450**	0.797	**0.753**	**4.240**	0.483	**2.264**	445
Other	**2.459**	0.938	**0.603**	**4.818**	0.653	**1.529**	337
Occupation							
None	**2.377**	**0.888**	0.733	**3.894**	0.744	**2.326**	3982
Professional, managerial, clerical	**2.738**	**0.529**	0.732	**4.572**	0.344	**2.074**	677
Sales or service	**2.434**	**0.852**	0.714	**3.514**	0.716	**2.769**	243
Agricultural	**1.974**	**1.097**	0.891	**3.058**	1.066	**2.748**	171
Non-agricultural	**2.305**	**0.962**	0.733	**3.859**	1.056	**2.082**	294
Other	**2.249**	**1.318**	0.433	**2.640**	1.096	**3.263**	14
Regular exposure to mass media							
No mass media exposure	**2.174**	**1.173**	**0.651**	**3.068**	**1.359**	**2.510**	291
Film only	**2.113**	**1.001**	**0.886**	**2.667**	**1.978**	**2.355**	42
Radio only	**2.323**	**0.984**	**0.693**	**2.962**	**1.039**	**2.961**	346
Television only	**2.459**	**0.894**	**0.646**	**3.724**	**0.655**	**2.540**	621

Table 10 cont.

Characteristics	General knowledge			False or casual transmission			Number of observations
	Correct	Don't know	Incorrect	Correct	Don't know	Incorrect	
Film and radio	**2.141**	**0.940**	**0.919**	**3.079**	**0.797**	**3.114**	148
Film and television	**2.012**	**1.135**	**0.853**	**2.932**	**1.080**	**2.988**	145
Radio and television	**2.505**	**0.808**	**0.684**	**4.155**	**0.635**	**2.185**	2490
Film, radio, and television	**2.358**	**0.766**	**0.872**	**4.301**	**0.600**	**2.080**	1298
State (Region)							
Arunachal Pradesh (NE)	**2.077**	**1.203**	**0.720**	**3.259**	**0.727**	**3.014**	16
Assam (NE)	**2.670**	**0.687**	**0.643**	**2.369**	**0.739**	**3.889**	212
Manipur (NE)	**2.298**	**1.203**	**0.499**	**2.645**	**2.434**	**1.920**	150
Meghalaya (NE)	**2.678**	**0.967**	**0.355**	**3.753**	**0.000**	**3.247**	54
Mizoram (NE)	**3.247**	**0.272**	**0.481**	**2.957**	**0.763**	**3.280**	67
Nagaland (NE)	**2.566**	**0.915**	**0.519**	**5.517**	**0.000**	**1.483**	57
Tripura (NE)	**2.669**	**0.517**	**0.814**	**2.538**	**0.000**	**4.462**	41
Tamil Nadu (South)	**1.998**	**0.968**	**1.035**	**2.652**	**1.352**	**2.976**	1,448
Goa (West)	**2.812**	**0.650**	**0.539**	**4.819**	**0.091**	**2.020**	54
Gujarat (West)	**2.322**	**1.010**	**0.668**	**5.624**	**0.000**	**1.376**	490
Maharashtra (West)	**2.548**	**0.859**	**0.585**	**5.196**	**0.507**	**1.220**	1,650
Delhi (North)	**2.610**	**0.754**	**0.633**	**3.769**	**1.268**	**1.957**	391
West Bengal (East)	**2.648**	**0.608**	**0.744**	**3.299**	**0.000**	**3.693**	751
Subsample Mean/Total	2.408	0.853	0.737	3.931	0.721	2.317	5,381

Note: **Bold** face indicates that differences between categories are statistically significant where $p < .01$; *italics* indicates that $p < .05$. Row totals of 'general knowledge' may not equal 4.00 and of 'false or casual transmission' may not equal 7.00 because of rounding. [a] See Table 3 for definitions of urban areas.

Table 11

Characteristics	Index 1 General knowledge & knowledge about non-casual transmission		Index 2 Knowledge about casual transmission		Combined Index All knowledge about AIDS	
Age (years)						
13-14	2.041	2.252	-33.381*	-35.436*	-6.815	-7.170
15-19	-0.407	-0.446	2.904	2.910	0.421	0.393
20-24	-0.237	-0.298	3.636*	3.413*	0.731	0.630
30-34	-0.366	-0.707	-0.047	-0.410	-0.286	-0.632
35-39	-0.342	-0.495	-2.697	-2.725	-0.931	-1.052
40-44	0.371	-0.097	-2.423	-2.721	-0.328	-0.753
45-49	1.011	1.046	-1.569	-1.329	0.366	0.453
Current marital status						
Separated	-1.818	-2.010	-8.550	-8.570	-3.501	-3.650*
Widowed	-0.779	-0.674	-5.423	-5.067	-1.940	-1.772
Divorced	-1.663	-0.990	-6.230	-6.480	-2.805	-2.363
2 or more marriages	1.566	2.457	-7.345	-5.367	-0.662	0.501
Age at first marriage	0.086	0.070	0.035	0.001	0.073	0.053
Residence						
Large city	0.810	0.402	4.145**	3.873**	1.644**	1.270*
Small city	0.654	0.342	4.306**	4.300**	1.567*	1.331*
Town	-1.180*	-0.938	-3.511*	-3.123*	-1.763**	-1.485*
Per capita rooms in the house	2.153***	1.878***	1.847	1.818	2.077***	1.863***
Media owned by the household						
Radio only	1.312	0.907	0.254	-0.515	1.048	0.552
Television only	2.815**	2.534**	6.369**	4.960*	3.703***	3.141***
Radio and television	3.068***	2.156**	7.475***	5.568**	4.169***	3.009***
Religion						
Muslim	2.933***	2.509***	6.170***	5.759**	3.742***	3.322***
Christian	2.314**	2.213**	2.905	3.097	2.462**	2.434**

Table 11 cont.

Characteristics	Index 1 General knowledge & knowledge about non-casual transmission		Index 2 Knowledge about casual transmission		Combined Index All knowledge about AIDS	
Others	-0.068	0.046	0.957	1.474	0.189	0.403
Scheduled caste/tribe	-1.983 *	-1.691*	-1.814	-1.348	-1.941*	-1.605
Formal education/literacy						
Literate, < middle school	0.924	-0.138	2.011	1.055	1.196	0.160
Middle school completed	2.614 **	0.572	3.856	2.157	2.925**	0.968
High school or higher	5.341 ***	2.109*	7.311**	4.994*	5.833***	2.830**
Occupation						
Professional, managerial, clerical	4.656 ***	3.005***	9.212***	7.731***	5.795***	4.187***
Sales or service	2.434 **	1.758*	1.684	1.566	2.247*	1.710
Agricultural	-0.634	-0.578	0.076	0.371	-0.457	-0.341
Non-agricultural	1.448	1.423	3.455	3.365	1.950*	1.908*
Other	-1.313	-0.617	-19.844*	-17.640	-5.946	-4.873
Regular exposure to mass media						
Film only	2.830	2.868	-1.609	-0.875	1.720	1.932
Radio only	0.776	1.171	2.156	1.372	1.121	1.221
Television only	1.591	0.832	1.206	-0.465	1.495	0.508
Film and radio	3.593 *	3.034*	11.945**	11.092**	5.681***	5.049**
Film and television	-1.069	-2.119	-2.702	-5.157	-1.478	-2.879
Radio and television	2.510 *	1.295	3.906	1.155	2.859**	1.260
All three	3.060 *	1.471	9.135***	6.118*	4.579***	2.633*
State (Region)[a]						
Arunachal Pradesh (NE)	0.275	-1.769	-20.581*	-21.746*	-4.939	-6.763
Assam (NE)	2.689 **	1.754	-35.772***	-35.920***	-6.926***	-7.665***
Manipur (NE)	1.919	0.001	-26.000***	-26.320***	-5.061***	-6.580***
Meghalaya (NE)	6.306 *	3.297	-12.770*	-12.894*	1.537	-0.751

Table 11 cont.

Characteristics	Index 1 General knowledge & knowledge about non-casual transmission		Index 2 Knowledge about casual transmission		Combined Index All knowledge about AIDS	
Mizoram (NE)	12.683***	8.619**	-19.099***	-19.757***	4.739*	1.525
Nagaland (NE)	13.006***	7.513**	16.491**	12.341*	13.87***	8.720***
Tripura (NE)	1.406	0.892	-32.561***	-31.508***	-7.086**	-7.208**
Goa (West)	9.277***	7.476**	0.261	-0.462	7.023***	5.491**
Gujarat (West)	-4.147***	-3.962**	6.052**	7.277***	-1.597*	-1.152
Tamil Nadu (South)	-6.466***	-7.597**	-33.211***	-33.767***	-13.152***	-14.140***
West Bengal (East)	-0.641	-0.557	-25.065***	-23.068***	-6.747***	-6.185***
Delhi (North)	-2.417**	-2.895**	-22.533***	-22.304***	-7.446***	-7.747***
Number of sources		4.142***		5.684***		4.528***
Source of information[b]						
Friends and relatives		-0.772		-7.900***		-2.554***
Print media		1.044*		-4.924***		-0.448
Radio		-1.625**		-2.457		-1.833**
Others		-1.225		-4.427*		-2.025*
(Constant)	24.634***	22.711***	52.107***	52.233***	31.503***	30.092***
R^2	0.151	0.219	0.227	0.236	0.233	0.282
F-statistic	19.007***	91.790***	31.222***	13.491***	32.416***	71.911***

Notes: There are 5,381 observations for each regression. Significance levels are denoted as follows: *** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$. [a] The reference group is Maharashtra; [b] the reference group is television; all other reference groups are the same as those used in Table 4.