Awareness, Attitude and Prevention of HIV among Pregnant Women in Maharashtra State, India

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Abstract

Background: India’s one billion inhabitants has been brought up against the pandemic of HIV. Knowledge and awareness about HIV/AIDS is the important weapon that has to fight ignorance, illiteracy and poverty in this culture. Young women today are most at risk of HIV-infection because of their low status and their expected ignorance of sex and sexuality. Information about HIV will reduce their and their babies' risks of getting infected and is therefore lifesaving. Our aim was to investigate knowledge and awareness of HIV/AIDS among pregnant women in Maharashtra State, India.

Methods: Interviews with 255 pregnant women were done in rural villages and antenatal clinics in Solapur District and Bombay City with a questionnaire. We assessed the women’s HIV awareness and related the results to education and socio-economic factors. We have calculated approximations of binomial distribution. The confidence interval (CI) of 95% was used.

Results: At least 10% of the pregnant women had no awareness and knowledge of HIV. 82-89% knew that HIV is spread through sexual contacts, sharing needles and breast feeding. But there are still misconceptions as 11-17% thought HIV is spread by eating and drinking together, hugging or shaking hands and caring for an AIDS-patient. Poor and uneducated women had the lowest awareness of HIV/AIDS. 86% of the pregnant women wanted to have the HIV-test taken, but only 12% reported that they had already been tested.

Conclusions: Awareness and knowledge of HIV/AIDS has increased in the rural areas of Maharashtra since 1999 and can be considered equal with the urban women from 2001. There are still people who have no knowledge of HIV and people with misconceptions of how it is spread. Further campaigns in media and additional efforts to continue to raise the level of awareness among the people in India are essential. To prevent an AIDS-epidemic like in Sub-Saharan Africa, India must fight poverty, increase the general level of education and empower the women.

Introduction

It has become painfully clear that the developing countries of the world have been less fortunate than Western Europe and United States in their efforts to control the spread of HIV. During the next decade millions of people will die of AIDS in Africa and Asia. HIV continues to spread largely unchecked fuelled by poverty and ignorance. The rapid expansion of HIV makes the development of effective prevention and awareness programs an urgent priority.

Epidemiology

According to UNAIDS Epidemic update in December 2002 there are 42 million people living with HIV in the world today. 38.6 million are adults, 19.2 million are women and 3.2 million are children under the age of 15. The total number of newly infected during year 2002 are estimated to be 5 million, of which 2 million are women and 800 000 are children. The AIDS-deaths in 2002 were a total of 3.1 million. The HIV-epidemic is on its way into its third decade. The consequences of the disease are undeniable and in some regions there are major crises. This plague has an impact on the human resources needed for work and further development. In some of the most populous regions and countries of the world the epidemic continues to expand. It would be impossible to look away from this devastating situation. Asia and the Pacific now has 7.2 million HIV-infected people. Of these almost 1 million acquired the virus in 2002. India is one of the affected countries (1).

Pregnancy and breastfeeding in HIV-infected women

The United Nations Program on HIV/AIDS (1) estimates that approximately 800 000 children continue to be infected with HIV-1 every year (1). The major part acquire the virus from their mothers in uteri, during delivery or through breastfeeding. HIV transmission from mother to child without antiviral treatment has been considered to be 16 – 40 % and breastfeeding contributing with one third to
one half of this transmission (2,3). The higher risk of vertical transmission is then correlated to more advanced HIV-infection/AIDS, p24-antigemini, low CD4-cell counts, high viral load and with prematurity (2). A study from Dar-Es-Salaam in Tanzania examined predictors of vertical transmission and they found a 8.4% (CI,6.4-10.5%) intrauterine transmission rate and a 16.1% (CI,12.3-19.8%) intrapartum transmission rate (4). Another report (5) showed a mother to child transmission (MTCT) rate of 30% with no treatment.

In developed and high-income countries mother to child transmission is reduced thanks to a combination of modern antiviral therapy and avoidance of breastfeeding. Since 1998 – 99 studies has shown the protective effect of elective caesareans approximately two weeks before estimated delivery (6). Antiretroviral therapy is complex and very costly for large-scale application in less-developed countries even though some of them have become more widely available and affordable. Nevirapine (NVP) is a simple and inexpensive antiretroviral drug that can be given orally in a single dose regime to the HIV-infected mother to lower the risk of HIV-1 transmission. It is given to the mother, when the labour has started, as well as to the baby, before 48 – 72 hours old (2). A study in Uganda, 1999, with 626 HIV-infected women enrolled, showed that the efficacy of Nevirapine compared with Zidovudine, another antiretroviral drug, was 47% up to the age of 14–16 weeks in a breastfeeding population (7). This intervention target the critical period around labour and delivery when the highest rate of mother to child transmission is known to occur (8).

A study done by NACO in New Delhi, India, assessed the feasibility of administration of AZT to reduce MTCT of HIV in pregnant women at 11 institutions in India. Active group education, counselling of women and their husbands, HIV-testing and cost free AZT for sero-positive women was carried out. Despite efforts by project staff only 43.6% of sero-positive women took AZT prophylaxis. But the ones who accepted AZT reduced transmission rate by over 50%. The authors of the study recommend the Government of India to initiate feasibility of administering Zidovudine (or Nevirapine) to reduce MTCT of HIV infection in pregnant women and expand this programme across the country (9).

A study from Malawi showed a 0.7% incidence per month of transmission from breast feeding at age 2-6 months and 0.3% per month incidence at age 12-17 months (10). This data suggests a higher risk during the earlier months of breastfeeding. This is also supported by other studies (11,12). Avoidance of breastfeeding is a pressing dilemma for the HIV-infected women in the poorly resourced countries as acceptable, affordable and safe breast-milk substitutes may be too expensive and the access to clean water often is inadequate. The WHO UNAIDS recommendations (13) for 2001 is exclusive breastfeeding (EBF) as the optimal feeding method for infants from 0 to 6 months of age, including infants of HIV-infected women from developing countries who choose to breastfeed. Educating the HIV-infected women in safe breastfeeding is very important and has also been discussed. HIV transmission may also be reduced through good breastfeeding practises which includes preventing cracked nipples and mastitis (14).

Several studies have shown that formula feeding in resource-poor settings increases infant mortality due to infectious diseases (3,15). This is especially critical in the first six months of life (3). But the most common mode of feeding in these areas is mixed breastfeeding, which is associated with increased mortality and morbidity and the highest rates of vertical transmission of HIV (16). EBF has been considered less likely than mixed breastfeeding to be associated with diarrhoea and respiratory illness and the risk of transmission of HIV to be less with EBF for at least 3 months than mixed breast-feeding (17). But according to one report done in Kenya on HIV infected mothers they found no significant difference in mortality rates and incidence of diarrhoea or pneumonia in children assigned to formula feeding and breastfeeding respectively, in the first two years of life. They showed that the HIV-free survival was significantly higher in the formula arm. In this study there was a safe preparation of the formula and the women received education during the study (8).
Whether exclusive breastfeeding is the optimal feeding method and the best way to protect infants against vertical transmission or not is still open for debate and more research and studies has to be done in this field (3). Research also has to be done to solve the problem of resistance development between the antiretroviral drugs.

**HIV in India**

The first HIV case in India was detected in 1986 and by end of 2001, India was estimated to have about 4 million people living with HIV. In the Times of India on Nov 12th 2002 a recent US Central Intelligence Agency report covering five countries described India’s HIV/AIDS epidemic as a “security threat” to the US and said that five or eight million was a more realistic statistic. The report projected that these numbers would rise to 25 million by 2010 (19). This is due to the enormous population in India, who by now has the second largest after China. Mid 2000 India passed one billion people and it has a fairly young population (2). The men are more numerous than the women mainly because of abortion of female foetuses, high infant mortality for girl infants and neglect of female babies (2) The HIV prevalence is estimated to be less than 1% of the population according to UNAIDS, but the numbers may be higher since there is no governmental agency that is in charge of all testing and many people in the high risk groups simply do not go for testing. The reason could be poverty, ignorance, superstition and lack of education. In some states in India, like Andhra Pradesh, Karnataka, Maharashtra, Manipur, Nagaland and Tamil Nadu the HIV prevalence among women attending antenatal clinics was higher than 1% (1).

The pattern of spread in India is mainly heterosexual. There are certain high risk groups which include commercial sex workers (CSW), their clients, men who have sex with men (MSM) as well as intravenous drug users (IDU). The Indian society is from the external appearance very orthodox, but despite this fact extramarital or premarital relations are common as well as visiting commercial sex workers. Many truck drivers and other migrant labourers visit the commercial sex workers on their long periods away from their wife and family. In this way the virus is given also to the women in the rural areas, who are in a weak position to defend themselves. Because of their low status in India many women are not able to negotiate safe sex with their male partners. Survey data from UNAIDS show that Indians who cannot read are six times less likely to use a condom during casual sex than their compatriots who are educated beyond secondary school. Rural residents are half as likely as their urban peers to use a condom with casual partners. More than 80% of urban men recognised the protective value of consistent condom use, compared to just over 43% of rural women. Homosexuality is considered taboo and said to be very uncommon. The actual number is not known, but could be imagined to be higher than stated. The survey shows though that significant proportion of MSM also have sexual relations with women and many are often married. 31% of the MSM in the survey admit to have had sex with a female in the past six months and 36% of them have in a period of a month’s recall had sex with a male CSW. This represents a hidden facet of the epidemic. Condom use is low in this group, 39% admit to using them during last inter course and with female partners the number was 36% (1) Another risk group is the street children. The big cities have a huge number of street children who are very vulnerable and easily become victims of sexual assaults and exploitation.

It was not until recently the government of India decided to change their earlier policy to keep blood donation “anonymous and unlinked”, according to the Times of India on Dec 1 2002. Blood samples found to be infected with HIV were discarded without informing the person or performing a repeat test. Now the government has finally put together an action plan to improve the functioning of blood banks and ensure blood safety. A detailed action plan on a blood policy was released by Union health minister, Shatrughan Sinha, on World Aids Day 2002. The project director of NACO, Meenakshi Datta Ghosh has emphasised that only those who wanted to know their HIV status would be told about the results. She also said that the results would be revealed in the presence of trained counsellors only after a confirmatory test had been performed (19).
HIV-awareness programmes in India

As per WHO guidelines various AIDS Awareness programmes have been arranged all over India. These programmes are planned and controlled by National AIDS Control Organisation (NACO). In the State the work is carried out by State AIDS Control Society and at district level work is done by the District societies under chairmanship of the Honourable District Collectors and finally in the cities under the Honourable Chairmanship of the municipal Commissioner. Bombay is the epicentre of India, and has 16 hospitals managed by the Municipal Corporation, which provide secondary and tertiary level of health care to a majority of the middle and low socio-economic sections of the 12 million population. These hospitals will play a major role in the city’s fight against the HIV epidemic with the administrators as major players (21).

We stayed in Bombay for one week and visited a couple of HIV-projects. One of these were World Vision. World Vision is an international partnership of caring people active in helping the poor and the needy in nearly 100 countries. It started in Calcutta in 1962 and has its headquarters in Chennai with projects around India to ensure the well being and future of children. World Vision has four special projects in India focussed at working with HIV/AIDS. World Vision’s HIV/AIDS Initiative three key strategies is prevention, care and advocacy. Bombay’s network of care cares for the infected and affected people and works in and around the slums of Bombay teaching these communities how HIV spreads and encouraging behaviour that avoids its spread.

In Kamathipura, the Red Light District of Bombay, we visited a STD museum. This is a governmental initiative that offers pedagogic guided tours to educate youth and schoolchildren in knowledge about STDs and HIV/AIDS. In this neighbourhood we also visited the AIDS STD & Health Action Project (ASHA). This is a project of the Public Health Department of the Brihanmumbai Mahanagarpalika and was started in 1992 with the assistance from the WHO as a two years Intervention programme. This was basically an intervention programme between commercial sex workers and their clients which grew to a AIDS programme management in collaboration with SIDA until 1998. Now ASHA project has been implementing various intervention programmes in Red Light areas of Mumbai Metro and developed referral and NGO networking. The field staff function is to reach the women in prostitution and provide health services, guidance and necessary assistance for promoting healthy safer practices. They also focus on educating male clients visiting Red Light areas, hotel boys, cinema theatre staff and viewers, brothel boys and men having sex with men (MSM). This is activated through one to one contact, corner meetings, focus group meetings, training programme, awareness programme, mimicry shows, street plays and exhibitions. The project also ensure the consistent availability and proper distribution of condoms at easily available points.

The Bill and Melinda Gates Foundation announced on November 11th an initial $ 100 million commitment to support an initiative to slow down the spread of HIV/AIDS in India. The new effort, the India AIDS Initiative, will expand access to proven HIV prevention interventions among mobile populations. The initiative will also work to combat societal stigma surrounding the disease and increase in awareness and leadership on HIV/AIDS through nation wide communication and advocacy effort. The announcement was made at an event in New Delhi attended by Bill Gates and representatives (NGOs), people living with HIV/AIDS, industry associations, employers of mobile populations and the media (22).

Maharashtra State

The prevalence of HIV in Maharashtra state (including Bombay city) was in 2001 among STD patients 9 %, ANC-women 2 %, IDU 41 %, MSM 24 % and among CSW 52 %, according to a yearly survey done by NACO (23) According to Maharashtra’s director of health services Subash Salunke data for 2001 showed that as many as 2 % of pregnant women reporting for antenatal check-ups are HIV positive (19). The number of AIDS cases in Maharashtra state were 8948 and in Bombay city 1418 as of November 2002 (24) At least the figures show a downward trend among
The number of HIV positive blood donors in Maharashtra was 1 % in year 2000 (24).

Maharashtra State, which is the largest in India, has a longstanding and generalised epidemic. This has with time resulted in higher levels of awareness and behavioural change among female sex workers, their clients and injecting drug users. The rates of condom use in these three groups are among the highest in India (CSW 66 %, their clients 77 % and IDU 52 %) (1). Extensive information has been given to the high-risk groups. The ones most difficult to reach out to are the MSM and the women in rural areas. In Solapur District they have had 96 AIDS cases and 2 deaths from 1986 August to September 2002.

**Hinduism, other religions and the caste system**

The Indian constitution says it is a secular country and that there is no specific state religion. Though all of society is permeated by its influence. All the world religions are represented in India, but 83 % of the population confesses to Hinduism. Hinduism has no central authorities like the Bible or the Pope within Christianity. There is nothing like a divine service held in the temples. Hinduism is a nuanced religion, which is very flexible and has a tolerance for people of different conviction. They do not actively try to convert people to Hinduism. Some basic beliefs of among others of all things inner unity that is everything spring from the same highest essence (Brahma). Another central belief is reincarnation that is determined by people’s deeds in this life (Karma). The end goal (Moksha) is to free yourself of the circulation of death and rebirth (samsara) to be one with God in a non-existence. There are different ways to accomplish this state. Ritualism, studying and seeking for wisdom, doing good deeds, meditation and worshipping of a personal god are examples of ways to go(26).

Islam is the second biggest religion in India. After Indonesia India has the world’s second largest Muslim population (125 million or 12.5 %). Sikhism is a line of Hinduism which was influenced by Islam. There are 16-17 millions of Sikhs who are found in the big cities of the north. There is a minority of Christians mainly in the southern parts of India. Generally the religions coexist in peace, but sometimes violent outbursts come up between Hindus and Muslims (26).

In Hinduism there exists four casts arranged in a hierarchy (Varnas). Anyone who does not belong to one of these casts is an outcast (27). You are born into a Varna according to the deeds of your past life. The highest Varna is the Brahman (priests and educated people in society), then the Kshatriya (warriors and aristocracy), then Vaishya (landlords and businessmen) and last Shudra (peasants, working class and servants). Each Varna is divided into many communities called Jats or sub casts. These Jats are connected with an occupation worthy of its Varna status(28). You are to marry within your Jat only. Below these four casts are the outcasts who are “untouchable” to the four casts. This group worked in polluting and degrading jobs like scavengers, toilet cleaning, sewage. They belong only to a Jat but no Varna. The official term is “scheduled casts”, Harijans or like they prefer to call themselves, the Dalits. An individual can never change their Varnas or Jats (27). The following facts are collected from a report from Human Rights Watch. The Indian government 1950 abolished the cast system, but among the people these ideas continue to live on. The Dalits, especially in the rural areas, are often subjects for abuse, oppression and discrimination by the higher casts. Most vulnerable are the Dalit women who suffer from violence and sexual assaults. There is some positive discrimination by the government for the Dalits. There are positions reserved for them in the Government and Universities. Most of these privileges are far away from reality and they lead a difficult life. Especially the Dalit women are the victims. They have a high risk of getting raped or assaulted by men in higher casts, i.e landlords or even local police. This is a way for the high cast to traditionally keep the Dalits oppressed and keep power. In some rural areas there are Dalit girls who are forced into prostitution by high cast men, who claim it is an old tradition. Devadasis, literally meaning “female servant of God”, usually belong to the Dalit community. Once dedicated the girl is unable to marry, forced to become a prostitute for upper-caste community members, and
eventually auctioned off to an urban brothel (29).

**Ayurveda - the knowledge of life**

The word Ayurveda comes from “Ayur” which means life and “veda” which stands for knowledge. It is a 5000 year old healing tradition in India and teaches how life can be enriched and extended without interference from disease or ageing. Ayurveda teaches that good health is not simply the absence of disease, but a state of harmonious and dynamic balance on all levels encompassing the mind, body, soul and environment. It is intimately related with various rituals and traditions and advises people to achieve four aims: Dharma (not religious but social duties), Artha (to earn wealth through honest means), Kama (to enjoy life) and Moksha (self realisation). The healing tradition uses varieties of herbs, minerals and metals for the treatment of diseases. Many potential toxins are also used in the treatment procedures. All of these substances are purified and detoxified before they are used. But if this is not done properly or if not used in proper dosage these products may produce some side effects. For example, special herbs can be useful in cancer treatment as it is believed that their use prolongs the quality of life of cancer patients by reducing pain and other discomforts (34).

**Society and Women**

Of the population in India, 80% live in villages. Some of them are very primitive, inaccessible and utterly underdeveloped. In the rural areas a very traditional life is lead, where people have predestined occupations through the casts they were born into. The sex roles are very traditional and in many ways resembling the old western society in the pre industrial era. Men and women are completely dependent on each other and their co-operation is necessary for survival. The role of the man is to be the provider and protector of the family. The man is considered the head of the family and has the ultimate responsibility. To have a son and to pass on the family name is the major duty of the man. Practically it is a matter of being cared for in the old age and social security. In a religious sense the son also has a major role because it is the son that lights the cremation ceremony, prays for soul’s further happiness and sacrifices in the temple. When the father has married off his children and his son has had a son of his own, he can step back and leave the economic responsibility to the eldest son. The elder men have an advisory and religious function. Common for all women is their duty to give birth to children. It is her responsibility bringing up the children and caring for the household (30).

To be married is utterly important. Preparations for the coming marriage start as soon as the child is born. Women are married off at a young age, while men wait until in their thirties. Nowadays child marriage is prohibited by the government, but still it is common in the rural areas. Among the lower casts and the Dalits an early marriage can protect the girl from the risk of sexual harassment. A girl who has been raped is considered unmarriageable (29). Most weddings are arranged and the parents of the bride have to pay dowry. This is yet another reason that a girl child is not as desirable as a boy. The wedding always takes place in the bridal home. She then moves in with the groom and his family. The girl has a low position in her new family until her first son is born. Then her position compared to the mother in law gets stronger. Her position continues to improve as the years go by. These types of large families make it very difficult for the younger generations to change old traditions and attitudes (30).

Women do not generally have work outside the home. Even highly educated women seldomly work after marriage. Only those living under poor circumstances have to find work.

According to a survey done by NACO about sexual behaviour the medial age at first sex was 21 years for males and 18 for females in the entire country. The median age was marginally lower for males in rural areas while there were no differences in median age for first sex for females between urban and rural areas. But there are wide inter state variations ranging from 16 years in Bihar to 21 years in Goa (urban females). Overall, in the national context 12% of the males and 2% of the females reported sex with non-regular partners in a 12-month recall period. Wide inter state variations were found ranging from 3% in Manipur to 23% among urban males and
from 0.1 % in Orissa to 15 % in Maharashtra for urban females (31).

**St Luke’s Health and Welfare Centre, (SLHWC)**

Unfortunately the government health care does not meet the needs, as patients health is the responsibility of the government, patients are supposed to get free medical care. In spite of this, people prefer to attend a private health provider as the government care is unsatisfactory and most of the time not available. Therefore the government has encouraged non-governmental organisations to take over a great part of the work. At present churches and NGOs participate in health care services (32).

In 1946 the Swedish nurse Maj Franzén started the medical services of the Hindustani Covenant Church (HCC) in Solapur district. The work started in three villages, among them Nannaj, approximately 20 km from Solapur, Maharashtra State. In Nannaj she founded St Luke’s Health and Welfare Centre (SLHWC). The centre is a small hospital and within the premises there is a church, staff houses and a school for the disabled. The staff at centre consists of the medical superintendent, Dr Surendra Urunkar, one ayurvedic doctor, a number of nurses, social workers and additional staff. In total the centre has 16 employees and 7 contract workers. Nowadays only a token financial help from the Mission Covenant Church (MCC) of Sweden is provided, charging the patients a fee finances the rest. In the past MCC provided all the financial needs. Still though the centre operates with a non profit basis. The activities at the hospital include mobile clinics, outpatient department, inpatient service and maternity services. Since 1997 there has been an increase of 20 % in the number of attendencies at the health centre. The number of deliveries has also increased since then and was according to records at SLHWC 231 in 2002. The maternal mortality is 2 per 1000 women and the infant mortality is 5 per 1000 infants. An increasing number of tubectomies are performed every year at the centre. Vasectomies are also performed but are much less common. A total of 284 tubectomies and 2 vasectomies were performed at St Luke’s in 2002. There are 189 antenatal women registered at the health centre and an additional 230 registered at the mobile clinic. The total number of women catered to by SLHWC is estimated to be 18 000, including female adults and children.

There are 22 villages close to Nannaj which are covered by SLHWC with the population of 44 000. Nannaj itself has the population of 9 000. Most of these villages do not have proper infrastructure or the primary health facilities except Nannaj. According to government statistics the male and female ratio in Nannaj is 920/1000. The women in the area usually suffer due to the lack of medical facilities. People in the villages have no proper houses, drainage or toilets and in some places even potable water is not available. Due to this women and children of this area also suffer malnutrition and water borne diseases. Over 70 % of the women have anaemia and the most common diseases are skin lesions, respiratory tract infections including tuberculosis followed by diarrhoea. The reasons behind all these health problems are illiteracy, lack of awareness of good food habit and cleanliness, poverty, ignorance, frequent draught and ill treatment by their men folk (25,32,33).

The villages surrounding Nannaj are backward and the literacy rate is less than 45 %. Nannaj is situated on the national highway and as such many drivers from these villages visit the prostitutes. There is talk and rumours about some people who are sick and dying of AIDS in the different villages. Mostly these people have been drivers. At present this community is not an area of high incidence of HIV. Since August 2001 tests have been conducted at SLHWC. All pregnant women registered are selected along with anyone who volunteers to take tests. The method used for testing is ELISA screening by tri dot method. Only in case of uncertainty the sample is sent for Western Blotting. So far 343 tests have been made since the start. Three pregnant women have been tested positive for HIV at the centre. According to a survey done by SLHWC totally 7 people have been diagnosed with AIDS in the area around Nannaj, though this number is not certain.

If exposed due to the rapid improvement in transport and migration of population to cities, the area can become an epidemic one due to
lack of proper information about the disease and illiteracy. The need for information has been noticed by the Governing Board of the St Luke’s Medical Society and the Medical Officers of other Primary Health Centres in the area they have in co-operation launched a project of AIDS Awareness. This request has also come from the local body of the villages. The main target group of the campaign is the sexually active population of the community and the main goal is to make them aware of HIV and of how they can avoid it. Activities in the form of mass campaign will be held (25,32,33).

Aim of the survey

Our aim was to investigate knowledge and awareness of HIV/AIDS among pregnant women in Maharashtra State, India. Knowledge and awareness, about the disease and how it can be prevented, are two of the most important weapons this world has to prevent further spread of the HIV/AIDS pandemic. Prevention efforts among young people are very important and effective, because they are the future. Girls and women today are most at risk of HIV infection because of their low status in many societies and they are often expected to be ignorant about sex and sexuality. And pregnant women in these societies are young and unquestionably sexually active. Information about HIV reduce their and their babies’ risk of getting infected and is therefore lifesaving.

Methods and participants

In our survey we used a questionnaire (see Appendix) to determine knowledge and attitudes about HIV in Papua New Guinea and Tanzania. The questionnaire was originally constructed by Dr Glen Mola, Port Moresby, Papua New Guinea. We then adjusted it to fit Indian circumstances. The population interviewed consisted of antenatal women in Maharashtra State. Total number of interviews was 269, but 14 interviews had to be excluded because of language difficulties in the beginning. The major part, 243, of the interviews were conducted in the Solapur area and a minor part, 26 interviews, were conducted in the city of Bombay at World Vision and at V. N. Desai Municipal General Hospital Santa Cruz (East). The women interviewed were aged 17-36 and were between month two and nine of gestation. Due to the fact that most of the interviewed women had no knowledge of English, eight different interpreters had to be used. In order for some of the interpreters to fully understand and phrase the questions correctly, the questionnaire was translated into the local language of Maharashtra, Maharati. The translation was made by the ayurvedic doctor, Dr Priti, of St Luke’s Health and Welfare Centre (SLHWC), Nannaj, Solapur. Of our interpreters, one was a social worker from SLHWC, one volunteer, a former driver for Solapur Well Services, two nurses from SLHWC, the ayurvedic doctor from SLHWC, one Graduate of Social Studies, from World Vision project in Bombay, one trained clinical psychologist and one midwife from V. N. Desai Municipal General Hospital Santa Cruz (East), Bombay. Most interviews were made at the ANC-clinic in SLHWC, in Nannaj village and in the surrounding villages. In the villages we met the contact person of the government hospitals called a “Caretaker”, who often worked as a teacher in the local school. They held records of all pregnant women in the village. With the help of this person we could locate the women in question in their homes, where the interviews also were held.

Our arrival into the villages was considered a big event by the local people, so many times there was a big crowd of curious spectators. While interviewing we sat down on the ground, either inside the house or in the yard outside the house. Customary is to sit on a carpet and guests are often offered tea or various foods. Additional family members often took part of the interview and sometimes attempted to answer the questions asked. At the ANC-clinics in Nannaj and in the V. N Desai Municipal General Hospital, we had a small cubicle at disposal. Less spectators were there and the situation of the interview was more intimate and relaxing for the women. In Bombay, at the World Vision project, the interviews were performed in a similar manner as in the villages, with several spectators. It was often too awkward or inappropriate to ask the women about their socio-economic situation. Instead we discussed their status with our translators because their ability to estimate
was probably better. Still this is an assessment and there is some uncertainty in it.

This study has several shortcomings which require explanations. First of all there were language difficulties. Our questionnaire was translated to the local Maharashtra language, Maharati, to help our interpreters understand our questions. Even though our translators were fantastic and enthusiastic some translators had limited knowledge of the English language. They had difficulties translating words from Maharati into English, and this is why the women’s answers sometimes seemed simple and similar to each other in those questions of descriptive nature. They also had a low medical education. One question was in the beginning too difficult for the interpreters to understand and were not asked to all women and one question was too difficult for the pregnant women to understand and this question therefore had to be excluded from the questionnaire. One question was also excluded because it was too difficult to interpret. This question was wrongly put from the beginning. When interviewing in the villages the women sometimes had an audience. We realised after a while that they sometimes helped the woman during the interview. We tried as much as possible to prevent this, and also tried to remove the people who listened. But this was at times difficult. In some cases the husband answered some of the questions and we also tried to prevent this by explaining, without any success though.

Statistics

Analysing our data we have been calculating approximations of binomial distribution. The confidence interval (CI) of 95 % was used. (Formula: Interval = mean value ± 1.96*SQRT(p*(100-p)/n), where n is number of observations and p is frequency in %) This was done for those numbers where p*n ≥ 500 and (1-p)*n ≥ 500. For those observations not applicable to this formula, a statistical expert, Dr Anders Odén, was consulted for computerised calculations of binomial distributions at 95 % CI.

Results

Interviews were done between November and December 2002 in 14 different villages in the Solapur district and three different ANC-clinics (Nannaj, Solapur, V. N Desai Municipal General Hospital in Bombay) as well as at World Vision, an NGO in Bombay.

The women interviewed were between 17 and 36 years old and 100 % of them were married. The mean and median ages were both 22 years. The women had between none and four children. 46 % of the women were pregnant for the first time and 31 % of the women had one child. Facts of distribution of age, religion, socio-economy, educational background etc can be viewed in Table I. Most of the women, 65 %, were housewives (unemployed), 20 % were labourers, 11% were self employed and 1 % were working as professionals. When asked about the husband’s profession the women stated that 35 % were self employed, 35 % were labourers, 18 % only employed and 7 % were clerks or working as professionals. Of all the women 98 % claimed they were living together with their husband.

Knowledge of HIV

The women were asked if they had heard about the sickness called HIV or AIDS and 81 % answered that they had and 19 % that they had not. Out of the these 19 %, we estimate that 9 % might have heard of HIV even if they answer no to this question (see Fig.1). And this is because of their ability to answer correctly on how HIV is spread in the following questions. These questions were obviously embarrassing and made the women feel very shy. We think that they dared not always answer what they actually knew from the start. As the interview moved along they answered more correctly than expected for someone without knowledge of HIV. In some interview situations we noticed that spectators gave the women clues to the correct answers. These mentioned factors may have influenced our results. 13 % of the women thought that they could by looking at a person see if she/he is infected with HIV, 15 % did not know and 72 % knew that they could not. Only 20 % of the women knew a symptom caused by HIV. 15 % mentioned weakness and sleeping a lot, 7 % said fever and 4 % thought affections of the
skin could be manifestations of an HIV infection. Of the pregnant women 11 % had HIV infected relatives or friends. In answer to the question if they knew if special groups are more often infected with HIV than others 49 % said that they did not know. 24 % of the women mentioned drivers as a special group, 26 % said city-people. Only 5 % of the women answered people with multiple sex partners and 4 % said commercial sex workers. Of those women having a friend or relative with HIV, 86 % are able to mention special groups of people that are more often infected with HIV than others. Of the women that do not know an HIV infected friend or relative, only 47 % can mention a special group. The women were asked what they thought about the rate of adults infected with HIV in city or village. The answers range from 2 – 3 persons to half of Bombay. We understood quite soon that some of them do not know what rate or percentage is.

When asked how they heard about HIV/AIDS most women claim they heard about HIV from media, but also hospitals and friends were sources of information (see Fig. 2). The question about the main way of spread were only asked to 212 of the interviewed women because of language difficulties in the beginning. Of these 54 % answered that they did not know. 39 % knew that sexual contacts was the main way of spread, 18 % mentioned through injections, 8 % said through blood, 4 % mentioned commercial sex workers and only one person said from mother to child. Figure 3 mirrors the believed routes of transmission of HIV. A factor increasing the insecurity of these findings is that in some cases the women may have been helped to the right answers by people listening in on the interview. We can also not judge if sometimes the interpreters phrased these questions in ways leading the women to correct answers. In some cases we had a feeling this might have happened, although we can not be sure of this, as we do not speak the language. Therefore there may be more misapprehensions of the spread of HIV than the numbers tell.

Comparisons between subgroups

The data regarding knowledge about HIV was cross analysed with age, socio-economy, education, interview location and religion (see Table II).

Between the age groups there was no significant difference in the distribution of ignorance or false ideas about spread. There was though a tendency towards a difference, if comparing the socio-economic situation. Poor people seemed to be a little less informed than those with a fair or good economic situation. A significant difference was only seen between those regarded as poor and those living under good conditions. Misconceptions of the three ways of spread, mentioned above, were possibly a little more common among poor than the other two groups, but nothing showing significance. The bigger distinction between the groups was when it came to their educational background. Of those with no schooling at all 43 % had never heard of HIV or AIDS. Among those with tertiary school or college education, everyone had heard of HIV or AIDS. If comparing those with no education to those with secondary or higher, there were significant distinctions. Between 18-29 % of those with nil education or primary school had misapprehensions of how HIV is spread. There was a declining tendency of having these misconceptions as education level would rise, although there was no clear pattern. What could be seen was that there were seemingly more false ideas about firstly breast feeding and secondly injections as non risky modes of transmission. Of those with college or tertiary education everybody knew that HIV is spread through sexual contacts and this significantly differed from those with nil education. There were significant differences regarding knowledge of spread through injections between the uneducated and highest educated groups.

Between the different locations of interview there were no significant distinctions to be noted. The Bombay answers were hard to interpret, as 15 % state they have never heard of HIV or AIDS, whereas everyone in the group know HIV is spread through sexual contacts. In addition 35 % respectively 19 % did not believe that HIV can be spread through breast feeding or injections. The findings from Bombay could be considered bias and it was therefore hard to analyse this data. We attempted to compare religions and ignorance of HIV, but found no significant differences as
the Muslim and Christian sub-populations were to small to analyse in this aspect. The rates for Hindus, the only group large enough to analyse, were similar to those for the whole population. Table II shows that more people think that HIV is not spread through, firstly breast feeding and secondly, injections, compared to through sexual contacts.

Attitudes towards HIV/AIDS

We asked the pregnant women if they wished to find out if they have HIV/AIDS in their blood/body (see Fig. 4). 86 % answered that they wished to find out if they were HIV-positive or not. They were then asked why they would, or would not, like to find out. 66% said they would because they wanted to know, wanted to feel good. Only 12 % of the women said that they had had the test already. Other answers were not to give the baby, 10 %, that it is a dangerous disease, 9 %, and to prevent further spread 9 %. 7 % of the women did not wish to find out because they were sure they did not have this disease.

Almost all the women, 98 %, wanted to discuss/ inform their husband if they were found to have HIV in their blood. Only 51 % would also inform their family and 48 % of the women would not. The majority, 89 %, did not want to inform a Hindu leader/Muslim leader. And almost all of the women 98 % would also discuss/inform a doctor and hospital staff. The women were asked if they would want to have more children even if they were found to have HIV in their blood and 97 % said that they would not. Only 1 % said that they would have more children and 2 % said that they did not know. They were also asked if they were prepared to shorten breastfeeding period to about six months to prevent the risk of the HIV/AIDS sickness getting into their baby. 87 % of the women answered that they were prepared to do this, 8 % said they did not know and 5 % were not prepared to shorten the breastfeeding period.

The answers to how many years the women thought they would live, if they were found to have HIV, range between a few days up to 35 years. The mean value of the years they thought they would live with HIV was 2.7 years. 12 % of the women answered that they did not know. The final question was if they thought they would get support from the Hindu leaders/Muslim leaders or other persons/ groups/ NGOs if they would have HIV in their blood. 97 % of the women did not think that they would get support from religious leaders, but 95 % answered that they would get support from doctors and hospital staff, 10 % mentioned their husband and 4 % said they would get support from their families.

Discussion

It is utterly important to raise the level of knowledge and awareness about HIV and its ways of transmission. Especially in low-income countries where poverty, lack of education and ignorance exists and it therefore requires a great deal of effort to spread the message. India is one of these countries and HIV/AIDS is spreading rapidly and by most heterosexually. It is no longer restricted to high risk behaviour groups and the high level of infection among antenatal women indicates that the epidemic is becoming more generalised.

The married women in the childbearing age group is obviously a very vulnerable category, because of their low status in the society and are often ignorant about sex and they have little influence on their husband’s behaviour. That is why correct knowledge and HIV awareness is most important among these women. They must learn how to protect themselves and their babies from this disease. But there is still a barrier of embarrassment, shyness and socio-cultural beliefs, associated with sexually transmitted infections (STIs) and HIV/AIDS, that needs to be overcome. In the Indian society many myths and misunderstandings about sex exist. A study from Stanford University in United States examined the effects of HIV-associated stigma upon HIV-awareness and education among 187 high school students in India. The results demonstrated the influence of conservative Indian culture on the views of teens and that those who held stigmatised views are the least exposed to HIV knowledge. Stigma caused the teens to became ashamed and afraid to learn about HIV since they had been told that such education is immoral (35).
Peoples Health Organisation in Bombay claims that of a billion people in India, 70% are in the rural area with low literacy level (male 64% and female 40%) and poor access to HIV awareness. They say it is a popular belief that HIV is mainly an urban disease, and instead HIV has been spreading faster in rural areas and that it has been established by sentinel surveillance data of urban/rural areas (36).

As mentioned earlier Maharashtra State has a longstanding and generalised HIV epidemic, which with time has resulted in a higher level of awareness. Bombay has the highest prevalence of HIV/AIDS in India and this economic capital has also been called the AIDS capital of India. A study from Mumbai district AIDS Control Society International Institute for Population Sciences estimated that HIV prevalence among general population (12 million) in Bombay to be 1.66 percent (37). The city of Bombay had 1418 AIDS cases in November 2002. The Solapur District has had 96 reported cases of AIDS and 2 deaths from 1986 August to September 2002.

Knowledge of HIV

81% of the women in our study claimed that they had heard of HIV/AIDS. This is actually more than we expected from the beginning, especially for the women in the rural area of Solapur. 19% answered that they had not heard about HIV/AIDS, but we estimate that 9% of these, might have heard of HIV even though they answered no to this question. A study from 1999 assessed HIV awareness among 1251 pregnant rural women in three Primary Health Centres in Pune district of Maharashtra. HIV awareness in this study was 70% (38). A later study from the same area (Pune) describe knowledge of HIV/AIDS of 707 pregnant women attending an urban hospital antenatal clinic (ANC) in 2001. In general women’s awareness of HIV/AIDS was high. 28% exhibited no awareness of HIV/AIDS as an infectious disease and 24% had low knowledge (39). NACO have done a survey (March – August 2001) in the 35 states of India on awareness of transmission and prevention of HIV/AIDS among the general population and compared urban to rural situation. 84,478 people participated and overall, 76% had ever heard of HIV/AIDS (82% males and 70% females). In the urban areas 89% of the respondents had heard of HIV/AIDS as against 72% in the rural areas (31).

The majority of the women knew that you cannot by looking at a person see if he or she is infected with HIV/AIDS. Only 20% of the women knew a symptom caused by HIV. The women who had a friend or relative with HIV infection were 11%. In the NACO survey where 9% reported that they knew or heard of somebody suffering from HIV/AIDS and nearly 1 out of 10 respondents (9%) in the country knew or heard of someone who died of AIDS. Such experiences were most commonly reported from Manipur (37%) and Maharashtra (21%) (31). 38% of those women aware of symptoms also had an HIV infected friend or relative. It seems that women who know someone infected with HIV are more likely to know special groups of people that are more often infected with HIV than others.

What became clear to us rather quickly was that the women were not capable to distinguish between HIV and AIDS. In India the sickness is often referred to as HIV/AIDS. This can be confusing if you do not have the proper knowledge of the disease. This is also obvious when looking at the different answers of expected length of life with HIV/AIDS.

Media is very powerful in getting messages through and 77% of our women had heard about HIV/AIDS through TV, radio or newspapers/magazines and 35% had heard it from doctors, hospital staff or campaigns. In the study from Pune in 1999 they found that the main sources of information on HIV/AIDS were health camps, health workers (70%), and television (45%) (38). This surely shows that these campaigns has succeeded in getting the information through and should continue as much as possible. So we agree with the following statement “Increased frequency and duration of HIV/AIDS messages on television will have a positive influence on HIV/AIDS knowledge in this group” (40) But there is a also a study from The Indian Institute of Technology in Madras and University of Madras that has studied the increase in knowledge and awareness of HIV/AIDS among women, 15 – 49 years, in several states in India (1992 – 1999). They have evidence that the committed efforts by NACO and other NGOs have contributed to the increase in
knowledge and awareness and that the women’s education and other cultural factors is the key to this (41).

In our study, on the knowledge of transmission the women gave correct answers in 89% on sexual contacts, 86% on injections and 82% on breastfeeding. Even though most of the women answered correctly there are still people that answer that they do not know (14% on sexual contacts, 11% on injections and 11% on breastfeeding) and a few percent (2% on sexual contacts, 3% on injections and 6% on breastfeeding) that remain completely ignorant. In the Pune study from 1999 only 33% of the pregnant women knew about all the main modes of HIV transmission (38). In the Pune study from 2001, 5% showed low and 17% no understanding of the transmission routes. Only 8.5% knew about prevention of MTCT though and only 2% knew that avoiding breastfeeding or taking treatment during pregnancy could protect the infant form HIV (39). Comparing the numbers from Pune 2001 of those aware of the routes of transmission with our numbers they are within the same confidence interval.

Comparisons between subgroups

When looking at the results from the cross analyse between different subgroups in the given population a few significant differences as well as some unconfirmed trends show. A significant difference was seen between poor and rich people in their knowledge of HIV. Among the poor 29% had never heard of HIV whereas only 4% of rich people had never heard of HIV. The same significant difference is not to be seen between any of the above groups and the middle group, those estimated to be neither poor nor rich. An increasing trend of knowledge can be seen but it is not big enough to be significant. The difficulty of judging economic status must be taken into consideration. As there is some arbitrariness in the judgement of this factor, the real situation could show bigger differences in either direction than it seems here. Where most distinctions were to be seen, were in the subgroups with different educational background. Those with no formal education, compared to those with secondary, tertiary or college education significantly differed from each other, answering the question if they had ever heard of HIV. The same tendencies were also seen in these subgroups when comparing the frequency of misconceptions of spread. Misconceptions of no spread through sexual contacts and injections were significantly lower among those with tertiary or college education than among those with nil education. There were generally declining trends towards less misconceptions of the routes of transmission (sexual contacts, injections and breastfeeding) with higher education although clear distinctions with significance were not always to be seen. Especially not in the case of breastfeeding.

It seems that the more education the more knowledge of HIV. Probably the difference between being illiterate or not also reflects in these results. You might assume that a great part of those with nil or primary school may be illiterate and among other reasons therefore are not as easily reached out to. The impact of education in awareness is also stressed the Pune study of 2001, where the levels of awareness were highly correlated to the educational status of the woman and her partner (Significant at 0.01 and 0.05 level respectively) (39).

In a study from 1999 married women in Bombay lacking HIV/AIDS awareness had significantly fewer years of formal education, lower personal and family incomes, less exposure to the mass media and were less likely to know of condoms in comparison to the women who had heard of HIV/AIDS (40). The above mentioned study also points out that those unaware of HIV also had less income and less education compared to those aware of HIV which correlates with our findings in these questions.

Attitudes towards HIV/AIDS

It is reassuring that 86% of our interviewed women wished to find out if they have
HIV/AIDS in their blood and that they would not want to have more children if they were HIV positive (97 %). The majority (81 %) were also prepared to shorten breastfeeding period to six months. This number may be overestimated as some women may have had difficulties understanding the question. But as many as 14 % of the women did not want to have the test at all. 7 % of the women were also sure that they can not have this disease. This is the common human response though, that “it does not happen to me”. Hopefully further campaigns will get rid of this attitude. Only 12 % of the women mentioned that they already had had the HIV-test. It is unfortunately not mandatory for pregnant women to have the HIV test at many ANC-clinics in India. Many pregnant women can not even afford it. The cost of the HIV test varies from place to place. HIV tests that were free of charge would of course be desirable, but India is a resource limited country and this is not yet possible. What is worse tough, is that many women do not even attend ANC-clinics and this is most probably because they can not afford it.

A vast majority of the women would also inform their husband if they found out they were infected with HIV. If this figure is to be trusted, then that is reassuring. We know from studies (35) that stigma is associated with being HIV positive, but the willingness and desire to find out more, inform and take precautions of further spread exists. The majority of the women (98 %) would discuss and inform a doctor and hospital staff if they were found to have HIV/AIDS. 95 % would also rely upon support from the doctor and hospitals. Most of the women did not want to inform (89 %) and did not rely upon support (97 %) from Hindu leaders/Muslim leaders. When we presented this at a HIV Seminar Dr Rune Andersson had in Solapur in December 2002 this information was considered as controversial information by the Indian participants. And it is complicated to understand the Indian situation because there are religious leaders and political “religious” leaders and they both have different roles in the Indian society. On the one hand there are the religious Hindu leaders, which only have ceremonial duties in the temples and on the other hand there are the political (“religious”) leaders, which are leaders because they have economic and financial power (farmers, landlords etc).

Compared to the studies from Pune from 1999 and 2001, we claim that the awareness and knowledge of HIV/AIDS has increased in the rural areas of Maharashtra since 1999 and can be considered as equal with the urban women from 2001 (38,39). The work of different NGOs as well as health organisations and campaigns in media is probably the cause of this. But there is still poverty, illiteracy and ignorance that inhibit peoples awareness. India has a very conservative culture and there is a lot of prejudices, religious ideas and stigmatised views to restore. Most importantly we think it is to improve the women’s situation and raise their status. Men and women have to be considered as equals and must the same rights of education and knowledge. This is not yet the reality everywhere in India, but times are slowly changing in the right direction. The women must be made aware of their sexuality and learn how to protect themselves and their babies from HIV and other STIs. As was mentioned in the introduction it would be desirable for the Government of India to initiate feasibility of administering Zidovudine (or Nevirapine) to reduce MTCT of HIV infection in pregnant women and expand this programme across the country (9).

Homosexuality is very taboo in India and there is a great need for further studies of this population. Men having sex with men is probably more common than statistics show. We think it is very important to make people accept this fact and not be prejudiced or condemn the people in question. It is important to keep contact with them and make them understand the importance of condom use. Most of the MSM are married to women as marriage is more or less compulsory in India. This is an important fact because it is known that women are more easily infected than men and these women are subjected to higher risks. It would be desirable to improve the people’s moral behaviour, but we realise that this is very difficult and almost impossible. Especially the male population would need more education of the risks connected the habit of visiting commercial sex workers. What must also be stressed, like above mentioned, is the further education of all young women and particularly those living in the backward rural
areas. An increasing freedom from prejudice and willingness to accept that there is a substantial problem is necessary to fight HIV in this nation. India is one of the world’s most crowded nations and there is a risk of rapid spread. If the level of knowledge of Indian people and their awareness about HIV/AIDS do not improve very fast, there is a risk of having the same trend of development like in Africa (1). Since there is no governmental agency that is in charge of all HIV testing and many people in the high risk groups simply do not go for testing it is of greatest importance that HIV programmes make the people of India understand the necessity of this. At least it would be desirable with mandatory HIV tests for pregnant women.

Conclusions

- Between 80-90 % of pregnant women in Maharashtra are aware of HIV, but there are still misconceptions of how HIV is spread.
- Knowledge and awareness of HIV/AIDS has increased in the rural areas of Maharashtra state, and are now close to the levels among urban women.
- It is important to stop discrimination of women, to increase their self confidence and make men aware of women’s sexual rights. Only by learning how to protect themselves and their children the spread of HIV can be stopped.
- To be able to prevent an AIDS-epidemic like in Sub-Saharan Africa, India must fight poverty, increase the level of general education and empower the women.

Acknowledgements

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Fig. 1. Proportion of pregnant women in Maharashtra, India, who have ever heard about HIV.
(based on 255 answers)

Fig. 2 Source of information about HIV reported by pregnant women in Maharashtra, India.
(based on 221 answers)

Fig. 3. Beliefs on routes of transmission among pregnant women in Maharashtra, India.

Fig. 4 Proportion of pregnant women in Maharashtra, India, who wish to find out if infected with HIV.
(based on 254 answers)
Table I: Demographic distribution of interviewed population pregnant women in Maharashtra state.

<table>
<thead>
<tr>
<th>Location</th>
<th>nr</th>
<th>Mean Age</th>
<th>Range</th>
<th>Religion</th>
<th>Socio-economy</th>
<th>Education</th>
<th>Unemployment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Poor</td>
<td>Fair</td>
<td>Good</td>
</tr>
<tr>
<td>Villages</td>
<td>198</td>
<td>22.4</td>
<td>17-36</td>
<td>93%</td>
<td>7%</td>
<td>57%</td>
<td>33%</td>
</tr>
<tr>
<td>Solapur</td>
<td>31</td>
<td>22.8</td>
<td>19-29</td>
<td>94%</td>
<td>6%</td>
<td>0%</td>
<td>16%</td>
</tr>
<tr>
<td>Bombay</td>
<td>26</td>
<td>23.9</td>
<td>19-35</td>
<td>88%</td>
<td>8%</td>
<td>36%</td>
<td>38%</td>
</tr>
<tr>
<td>Total</td>
<td>255</td>
<td>22.6</td>
<td>17-36</td>
<td>93%</td>
<td>7%</td>
<td>48%</td>
<td>32%</td>
</tr>
</tbody>
</table>

1) One Christian in Bombay

Table II: Lack of Knowledge about HIV/AIDS and how it is spread among pregnant women in Maharashtra state (95% CI).

<table>
<thead>
<tr>
<th>No:</th>
<th>Have not heard about HIV/AIDS</th>
<th>Believe HIV/AIDS is NOT spread by: (or Don’t know)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mean</td>
<td>95% CI</td>
</tr>
<tr>
<td></td>
<td>Sexual contact</td>
<td></td>
</tr>
<tr>
<td>Socio-economy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor</td>
<td>123</td>
<td>29% (21 – 37)%</td>
</tr>
<tr>
<td>Fair</td>
<td>81</td>
<td>12% (5 – 19)%</td>
</tr>
<tr>
<td>Good</td>
<td>51</td>
<td>4% (1 – 13)%*</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nil</td>
<td>63</td>
<td>43% (31 – 55)%</td>
</tr>
<tr>
<td>Primary</td>
<td>22</td>
<td>27% (8 – 46)%</td>
</tr>
<tr>
<td>Secondary</td>
<td>129</td>
<td>12% (6 – 18)%</td>
</tr>
<tr>
<td>Tertiary + College</td>
<td>40</td>
<td>0% (0 – 9)%*</td>
</tr>
<tr>
<td>Location</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Villages</td>
<td>198</td>
<td>21% (15 – 27)%</td>
</tr>
<tr>
<td>Solapur</td>
<td>31</td>
<td>6% (1 – 21)%*</td>
</tr>
<tr>
<td>Bombay</td>
<td>26</td>
<td>15% (4 – 55)%*</td>
</tr>
<tr>
<td>Religion 1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hindu</td>
<td>237</td>
<td>19% (14 – 24)%</td>
</tr>
<tr>
<td>Muslim</td>
<td>17</td>
<td>18% (1 – 43)%*</td>
</tr>
<tr>
<td>Total</td>
<td>255</td>
<td>19% (14 – 24)%</td>
</tr>
</tbody>
</table>

1) 1 Christian  
95% confidence interval is calculated as mean value ±1.96*SQRT(p*(100-p)/n), for data where n*p ≥ 500 or n(1-p) ≥ 500.  
Intervals marked with * are calculated by statistical consultant.
Appendix

Draft. (14.11.2002)

QUESTIONNAIRE TO DETERMINE KNOWLEDGE AND ATTITUDES ABOUT HIV IN ANTENATAL WOMEN IN INDIA

Name…………………………………. Record number……….. Date of booking………………

Husband’s name………………….Father’s name……………… Province of origin…………

Parity……… Age……….Gestation at booking……………… Socio-economic status Good/Fair /Poor

Education level attained: Nil/Primary/Secondary/Tertiary/College
Work situation: employed/unemployed/self-employed/labourer/clerical/professional
Religion:……………………………………………………………………………………

Husband: employed/unemployed/self-employed/labourer/clerical/professional

Do You live together with your husband?  Yes/No.
If No please specify if You are staying alone or if You are living together with relatives or other persons:……………………………………………………………………………………

KNOWLEDGE OF HIV
Have you heard about the sickness called HIV or AIDS? Yes/No  (Skip this section if “No”)
Can You by looking at a person see that he/she is infected with HIV? Yes/No/ don’t know
Do You know any symptoms that can be caused by HIV?
………………………………………………………………………………………………
………………………………………………………………………………………………

Does any of Your relatives or friends have HIV or AIDS?

Do you know if special groups are more often infected with HIV than others ? If yes specify…………………………………………………………………………

What do you think is the rate of adults infected with HIV in the NCD ( city, village)?
(For example 1/1000, 1/100, 1/10, 1/5, I don’t know).

How did you first hear about HIV/AIDS?
- from a friend or relative, village or community people?
- from the radio/TV or newspaper/magazines?
- from your teacher or pastor when you were at school?
- other, (describe)…………………………………………………………………………

How do you think is the main way HIV/AIDS is spread from one person to another? ……. 

Can HIV/AIDS be spread by
- eating together or eating and drinking from the same plates and cups? Yes/No/don’t know
- shaking hands/hugging/living in the same house together? Yes/No/don’t know
- caring for, washing, changing clothes for someone who has AIDS? Yes/No/don’t know
- kissing? Yes/No/don’t know
- having sexual contacts? Yes/No/ don’t know
- injecting narcotic drugs? Yes/No/ don’t know
- breast feeding? Yes/No/ don’t know
ATTITUDES TOWARDS HIV/AIDS

Do you wish to find out if you have HIV/AIDS in your blood/body? Yes/No.
If Yes, why do you wish to find out?..............................................................................................
If No, why do you not want to find out?..............................................................................................

If you are found to have HIV in your blood, would you wish to discuss/inform
- your husband/partner? Yes/No
- your family members? Yes/No
- your pastor or priest? Yes/No
- your doctor? Yes/No
- Anybody else? (describe or state if undecided).................................................................

If you are found to have HIV/AIDS in your blood/body would you,
- want to have more children? Yes/No/don’t know
- be prepared to shorten breast feeding period of your baby to about six months to prevent
the risk of the HIV/AIDS sickness getting into your baby? Yes/No/I’m not sure.

If you are found to have HIV/AIDS in your blood how many years do you think you will live?

If you are found to have HIV in your blood, do You think You will get support from,
- the church, or other religious organisation?
- From other persons/groups/NGOs/doctors etc.?

Name of Interviewer.................................................................

Date.................................................................
Interview situations in the villages around Nannaj, Maharashtra, India