

P.K. BHARGAVA, "Poverty Linked HIV/AIDS as Determinants of Mortality: Evidence from a Community Based Study in Karnataka, India", CICRED Seminar on *Mortality as Both a Determinant and a Consequence of Poverty and Hunger*, Thiruvananthapuram, India, February 23-25, 2005, pp. 1-22.

Draft paper before publication, please do not use it as reference

Poverty Linked HIV/AIDS as Determinants of Mortality: Evidence from a Community Based Study in Karnataka, India

By

P.K. BHARGAVA¹ AND D.G. SATIHAL²

Population Research Centre, JSS Institute of Economic Research, Dharwad, INDIA

Introduction

Current estimates place the number of people living with HIV in India at approximately five million. HIV/AIDS now considered as a major threat to India. The sentinel site data show that the epidemic has now spread from urban to rural areas and from individuals practicing risk behavior to the general population. Three sets of factors strongly influenced the course of the emerging HIV/AIDS epidemic in different parts of India i.e.; sexual contact, contaminated blood and pattern of injection drug use. However, the complex epidemic that has emerged in India is primarily one of heterosexual transmission, fuelled by an active sex industry. These factors are aggravated due to several socio-cultural and economic factors (Ramesh and Satihal 2003; Verma and Roy 2001). About 85% of the infection occurs from the sexual route (both heterosexual and homosexual), about 4% through blood transfusion and another 8% through injecting drug use. About 89% of the reported cases are occurring in sexually active and economically productive age group of 18-49 years. The factors for such rapid spread of the epidemic across the country today are labor migration and mobility in search of employment from economically backward to more advanced region, low literacy level leading to low awareness among the potential high risk groups, gender disparity, sexually transmitted infections and reproductive transmitted infections among both men and women. The social stigma attached to STI also holds good for HIV/AIDS, even in a much more serious manner. The effects of stigma are devastating. Discrimination against people living with HIV/AIDS denies them access to treatment, service and support and hinders effective responses. It is predicted that India will soon emerge as the country with the largest HIV burden in the world. HIV/AIDS is an unprecedented global development challenge that has already caused too much hardship, illness and deaths.

¹ Director, Population Research Centre, JSS Institute of Economic Research, Vidyagiri, Dharwad – 580 004, Karnataka, India (pkbhargava2@rediffmail.com).

² Research Investigator, Population Research Centre, JSS Institute of Economic Research, Vidyagiri, Dharwad – 580 004 (dayanandsatihah@rediffmail.com).

The behaviors that spread HIV are fuelled by socio-cultural, economic and legal factors, which make it more difficult for people to protect themselves, and worsen the consequences of the epidemic. HIV epidemics start and spread in different ways and in different places, but the epidemic is consistently accompanied by fear, blame and prejudice associated with stigma, discrimination denial of services.

Studies conducted so far suggest that the vulnerability and risk of HIV transmission are greater among respondents in rural areas than those who are illiterates, agricultural labors, widows and lower caste people belong poor segments of the society. There is interlink between the increase in HIV/AIDS related mortality and morbidity, the lack of farm inputs and labor force, deterioration of household economy and its impact on education, health and social system and it leads to break down of traditional coping mechanism. In order to analyze the long term effects of HIV/AIDS on economy there is need to investigate in details the relationship between course of HIV epidemic and premature (adult) mortality, between parents' mortality due to HIV and their children's education, and on formation of human capital and output.

Over 300 million people or 1/3rd of the population of India live below poverty line. The average literacy rates in India 54% for females and 76% for males. India has a large and thriving sex industry, estimated to number around 100,000 workers in each of the metropolitan city (Verma et al, 1999). The poor and uneducated persons are more likely to contract sexually transmitted diseases (STD) and other infections since they are deprived of the right to information on risk behavior, and are too illiterate to understand prevention messages and have less access to quality services. Moreover, given the growing number of HIV/AIDS cases and cost involved just in treating opportunistic infections, the developing countries like India will have increasingly great difficulty in finding the resources to meet the need for health care.

Karnataka is one of the six Indian states having highest HIV/AIDS prevalence rate. The empirical evidence suggests that the HIV virus is spreading from high-risk groups into the general population. (PRC, Dharwad, 2004). Several factors are found responsible for the high prevalence, including the practice of *Devadasi* system in the state. Several studies conducted by the PRC, Dharwad on HIV/AIDS revealed that highest prevalence rate was observed in rural areas among economically productive population aged 18-40 years that may have adverse economic impact at household level. It is not only the cost in monetary terms for controlling the opportunistic infections but also the loss of productive years in prime ages causing serious economic repercussions to the household. Further, the study found that the poor and illiterates are more susceptible to HIV/AIDS infection since they had little knowledge of the risk factors and preventive measures. Due to high illiteracy and prevailing superstitious beliefs the plight of the infected households is aggravated due to prejudice and their segregation from the society that may have devastating economic impact at the household level.

In order to throw more light on the issue of poverty, HIV/AIDS and mortality / morbidity a conceptual framework has been developed by the authors based on the empirical evidences collected on the above issues especially in developing countries of the world.

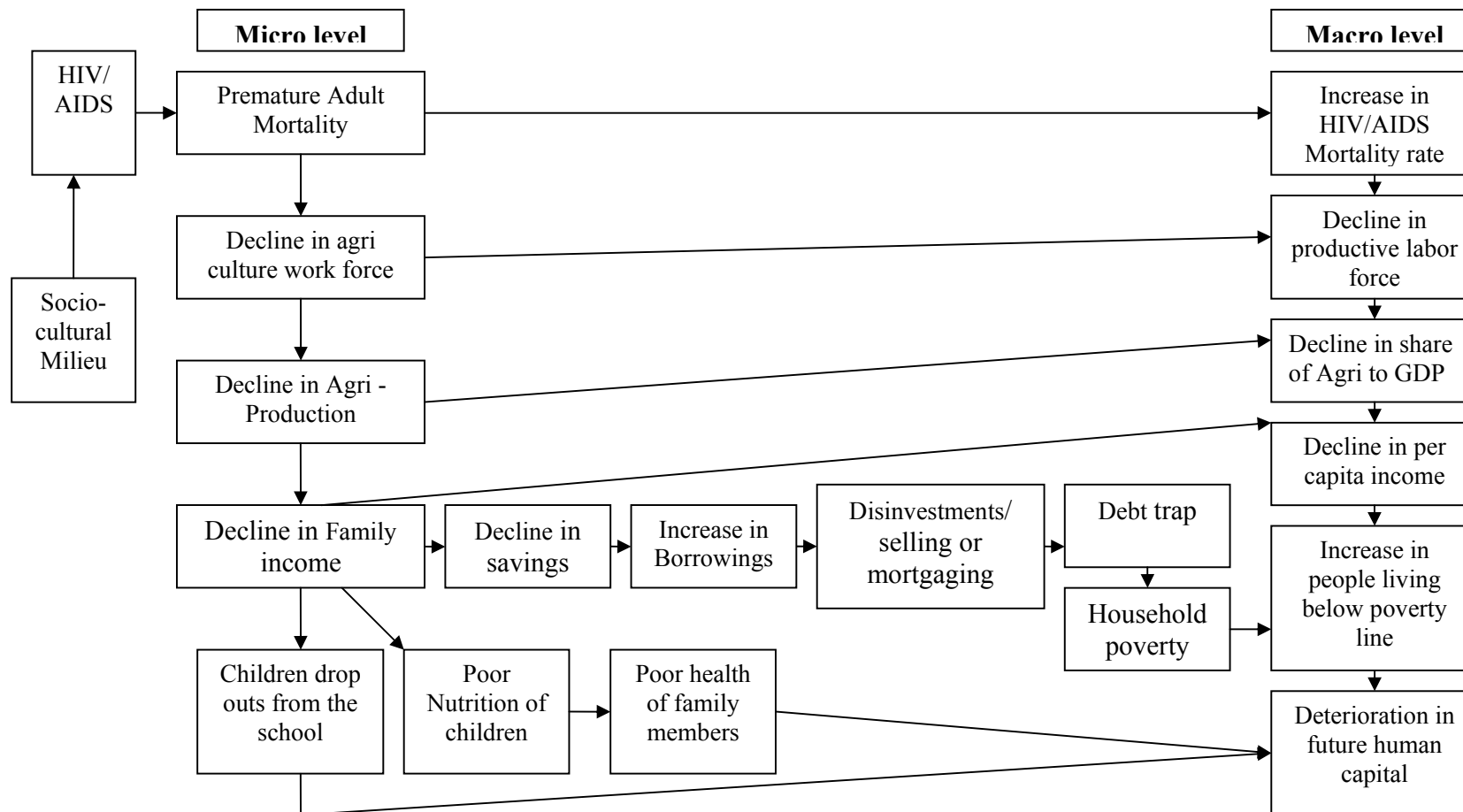
The Conceptual Framework of the Interrelationship between HIV/AIDS morbidity /Mortality and Poverty:

Based on literature review on the subject, a conceptual framework portraying the interrelationship between HIV/AIDS morbidity /Mortality and Poverty has been proposed in figure 1. HIV/AIDS is not just a biomedical problem but has a socio-cultural dimension as well. The pandemic affects not only individuals, but also devastates households and communities, and threatens entire nations. In almost all the cases, poor and marginalized people are disproportionately vulnerable to HIV/AIDS and its consequences. This is particularly true for girls and women because of biological and socio-cultural factors. The HIV/AIDS pandemic leads to vulnerability situation especially in poor segments of the population in various ways. At the micro household level HIV/AIDS leads to premature adult mortality that causes decline in adult workers in the family and fall in production especially in rural agricultural sector and thus family income declines.

Several studies revealed that higher prevalence rate was observed in rural areas among economically productive population aged 18-40 years that may have adverse economic impact at household level. It is not only the cost in monetary terms for controlling the opportunistic infections but also the loss of productive years in prime ages causing serious economic repercussions to the household. As HIV/AIDS leads very often to more than one family member affected and died. Bearing of medical costs to the patient and caring for sick family member will become burden to the entire family. It has adverse repercussion on household saving/disinvestments. Many families forced to sell or pawn the meager household jewellery, land and other assets leaving the surviving family members with out means of support. In most cases children are left with very few resources so basic needs like clothing, housing, food (nutrition) and schooling obviously affected. Borrowing is other means of managing the household expenditure thereby putting the dependents on debt trap.

Older children are often taken out of school by parents, not only to reduce pressure on the family budget but also to help with the care of sick member of the household (Mukoyogo and Williana 1993). HIV/AIDS cause increase in child labor (particularly girls withdrawn from the school), as family require maintaining current cropping pattern. Further, decline in income caused by decline in cropping intensity and livestock production, which is accompanied by an increase in medical expenses leads to poverty. Family nutrition level declines due to less production in the family farm. As HIV/AIDS leads very often more than one family member affected and died. As a result, the entire assets and saving, which are meager before onset of the disease, may be completely spent, leaving the surviving family members with out means of support. HIV/AIDS leads widows with children entrenched in poverty. HIV/AIDS stigmatization compounded their situation further. As the ability to produce and accumulate food and income decreases, the household falls into a downward spiral of increasing dependency rations, poor nutrition and health and decreasing household viability. In fact, vulnerability of AIDS orphans begins to increase long before a parent dies from AIDS. Materials deprivation usually begins when a parent falls ill and family resources are used for medical care. The adverse impact of HIV/AIDS on household economy is due to increase medical cost, cost incurred for traveling to hospitals, for buying drugs and nutritional food (Bharat 1996).

Fig 1. Schematic display of the interrelationship between HIV/AIDS morbidity /Mortality and Poverty



Objectives of the Study:

In light of the above discussion, the paper tries to analyze the linkages between poverty linked HIV/AIDS (morbidity) and associated mortality with the following specific objectives:

- (i) To estimate the HIV prevalence rate among the general population by background characteristics and
- (ii) To assess causes and consequences of HIV/AIDS, associated morbidity and mortality in general population

Date and Methodology:

The data used for the present paper has been taken from the India Canada Collaborative HIV/AIDS Project (ICHAP) sponsored study “*Community Based HIV Prevalence Study in ICHAP Demonstration Area in Bagalkot district of Northern Karnataka, India*” undertaken by Population Research Centre, Dharwad from March - August 2003. The main objective of the study was to understand the levels and determinants of HIV infection in the ICHAP Demonstration Project Area in Bagalkot district. The study was conducted in 10 villages and 20 urban blocks of 3 taluks (Bagalkot, Jamakandi and Mudhol) in Bagalkot district of North Karnataka. A stratified random sample of 6703 (3,403 rural and 3,300 urban) respondents, of reproductive age 15-49 male and female were selected for the survey. Out of them 4,949 persons gave the interview and 4,008 persons, gave the blood sample for HIV and VDRL tests.

Study Procedure

Since the study involved interviewing unmarried men and women on sensitive issues including sexual behavior patterns and sexual networks, it was implemented with close cooperation and involvement of the community in 3 phases

(a) Building partnership with the community

A meeting of the District-level Steering Committee, set up by ICHAP, was held in Bagalkot at district head quarter prior to implementation of the survey, wherein the nature and objectives of the study and the proposed study design was discussed. The Steering Committee agreed upon the need for such a study to plan, implement and evaluate HIV prevention and care programs in the district. Subsequently, a team of researchers from University of Manitoba, ICHAP, and PRC, Dharwad visited the selected villages and urban blocks during 10-20 December 2002 to build community support for the study. Village-level committees were formed in each of the 10 villages selected for the study. In this initial meeting with the village committee, the objectives, methodology and processes of the study were shared. Even during the survey, meetings were organized at the lane/Oni levels and the nature and objectives of the study were discussed. During the course of fieldwork, it was also felt necessary to print and distribute pamphlets explaining the need, nature and objectives of the study. During the fieldwork in urban areas, advertisements were given in the local newspapers and cable TV networks, seeking cooperation of the community in the survey.

(b) A complete census of all households and individuals in the sample area:

In the second stage, a complete census of all households and individuals in the sample areas was carried out with an objective of preparing a sample frame for the selection of individuals for the final survey. During the census survey, 11292 households (9,171 in rural areas and 2,211 in urban area) were enumerated in the study area.

c) Primary data with collection of blood sample for HIV test:

In the last phase, each of the sample respondents was interviewed with the help of a questionnaire and blood sample was drawn from each respondent. Behavioral and biological data obtained from a sample of 4949 male and female respondents of the reproductive age group 15-49 years in rural and urban areas using stratified random sampling procedure. Blood sample obtained from 4008 cases used for HIV estimation. During the survey, each respondent was interviewed with the help of a questionnaire that includes questions on person's demographic and socio-economic characteristics, poverty motivated sexual behaviors, knowledge of STI/HIV/AIDS, his/her attitude towards persons living with HIV/AIDS, treatment of HIV/AIDS and difficulties encountered due to limited means of income etc.

In order to further consolidate and substantiate the quantitative findings and understand the facilitating factors leading to exposure to HIV/AIDS in detail, the data collected by the ICHAP from the study "The Hidden Epidemics: HIV/AIDS in Rural Karnataka-A situation Assessment of Bagalkot district", was used. The main objectives of the study were to gain in-depth understanding of the community with regard to socio-cultural, economic, health and sexual behavior patterns especially in relation to HIV/AIDS and to identify specific vulnerable locations and populations. In addition, qualitative tools used that included in-depth interviews, key informant interviews and focus group discussions. Polling booths were used to collect quantitative data on risk behaviors.

Anecdotal Evidence of Poverty, HIV /AIDS and Mortality

The research staff of the population research centre, Dharwad during the field work of Reproductive and Child Health, National Health and Family Welfare surveys and other area specific surveys observed that lot of people dying due to HIV/AIDS in villages of the districts of Northern Karnataka. And most of these deaths were observed in poverty stricken households. In order to make an in-depth assessment and understand the magnitude of HIV infection in Northern Karnataka, a team of researchers from PRC, Dharwad visited the town Bagalkot (one of the districts of Northern Karnataka) and a neighboring village (Arakere). During their visit, preliminary discussions with the local health care providers and the members of the community that considered to be adversely affected by HIV/AIDS revealed that HIV infection was 'rampant' in the district, but the system of compiling statistics on its prevalence was very inadequate. District Health and Family Welfare officer told that many private practitioners in the town bring to his notice that they have come across many HIV positive cases. According to him majority of the infected people were migrant labours, agricultural labours and people work in flesh trade due to acute poverty.

The team also visited doctors from the five leading private nursing homes. They also indicated the high prevalence of HIV/AIDS in the district. Each of the Nursing Homes visited reported to have tested at least one patient as HIV positive in a day. When asked about the possible reasons for high and increasing prevalence of HIV infection in the region, the doctors listed the following two factors: Devadasi system leading to prostitution and general poverty leading to seasonal out-migration. The research teams visit to the village was much more revealing. The village leader was afraid that a considerable proportion of the young population in his village (with a total population of about 4000) might already be infected with HIV. The local health workers from the concerned PHC reported that a large number of village youth have been tested HIV positive, and about 200-300 women from the village are commercial sex workers in major cities of Maharashtra. Although the Devadasi-prostitution is a feature mainly among the lower castes (Scheduled castes and scheduled tribe) in the village, HIV infection is found in both the higher and lower caste groups.

The discussions with the doctors in Bagalkot also revealed that while prostitution was the main reason for the spread of HIV infection in the area, HIV infection in different parts of North Karnataka spread because of different socio-economic and cultural factors unique to that area. For instance, in Mudhol Taluka of Bagalkot district, HIV infection is more among people who regularly migrate to coastal Karnataka, Goa and Maharashtra for work. On the contrary, the increased HIV infection in Saundatti and Athani talukas of Belgaum District is mainly due to the prevailing traditional Devadasi system, which is different from the prostitution prevalent in some talukas of Bagalkot.

Empirical Evidences on Poverty Linked HIV and Mortality:

In order to through light on the issue PRC, Dharwad conducted a community based HIV prevalence study in Karnataka. The findings of the study supported the linkages between poverty, HIV and morbidity /mortality.

Evidence from Census survey

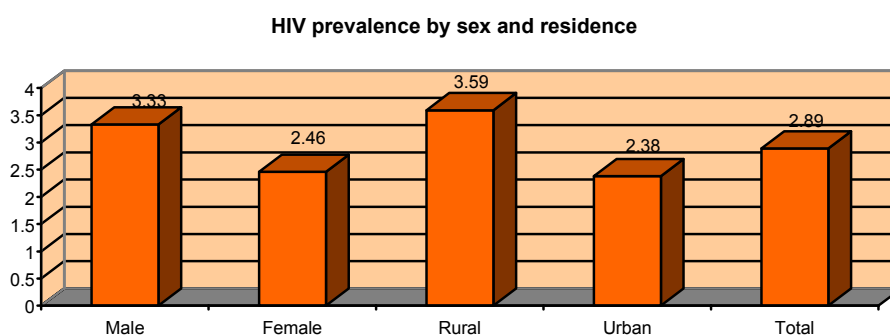
As mentioned earlier, in the second stage of study implementation a census survey was conducted in all the 10 villages and 10 urban blocks. Every household was asked to indicate whether any usual resident or a visitor of the household has been suffering from an illness that has lasted for more than two weeks. If the household had such a person, details were obtained as to the nature and duration of the illness. Each household was asked to indicate whether any of its usual residents died during the two years preceding the survey. Details regarding the age, age at death, month and year of death as well as causes of death were asked for every death during the reference period. The cause of death was also assessed in the study. Interestingly, AIDS is reported as a cause of death for a substantial number of deaths (overall 6%), and about 17% of deaths in the age group 15-49 are attributed to AIDS (Tables 1, 2 and 3). Besides, during the survey it was also observed that, many respondents reporting different causes for the deaths of a although the deaths were due to HIV/AIDS because of the stigma associated with the diseases and, discrimination and denial of services to the people living with HIV /AIDS.

Evidence from Behavioral and Biological Survey

The behavioral and biological data obtained from 4008 male and female respondents of the ages 15-49 years indicate that 2.9 percent of the general population is infected with HIV also supports poverty linked HIV and potential mortality in the study area. The detailed pattern HIV associated morbidity by various socioeconomic background characteristics is discussed below. The findings are presented in tables 4,5 and 6.

HIV morbidity by sex and residence

The overall prevalence of HIV among the study respondents who have given blood samples was 2.89 percent. In comparison, the HIV+ rate according to the 2003 sentinel surveillance among the women attending ante-natal clinics in Bagalkot district ranges from 2.0 percent in District Hospital to 4.25percent in the Jamkhandi Sub-Divisional Hospital.



HIV prevalence in rural areas was about 50 percent higher than that in urban areas (3.59 percent compared with 2.38 percent).

In rural areas, HIV prevalence was significantly higher in Mudhol Taluka (6.0 percent). Among the villages covered it was higher in Vantigodi village (8.2 percent), in the age group 20-34 years (4.0 percent to 4.8 percent) and 35-39 years (5.2 percent), among those who were either widowed, divorced, separated or deserted (8.4 percent), among those who have completed only the primary school (6.5 percent), agricultural and non-agricultural laborers (6.8 and 7.6 percent, respectively), among the low-caste Hindus (7.9 percent), among those who travel due to work (5.4 percent), among those who had sex with more than one partner (10.3 percent), and those who had reported any of the risky sexual behaviour (9.4 percent).

In urban areas, on the other hand, HIV prevalence was relatively higher in Jamkhandi town (3.9 percent), and in the age group 25-29 years (4.0 percent). In terms of literacy and education, the prevalence in urban areas was almost the same at 3.2 percent between the illiterate as well as those who have completed up to secondary level of education. The small sample of cultivators has a prevalence of 5.4 percent in urban areas, followed by agricultural laborers (3.5 percent). Even among the students, the HIV prevalence was beyond 1 percent (1.3 percent). In terms of caste, both the high-caste Hindus (2.9 percent) and low-caste Hindus (3.0 percent) have higher prevalence than others. HIV prevalence among those who ever had sex with more than one partner was almost twice as high as the prevalence among those who did not (2.2 percent compared with 4.4 percent).

HIV morbidity by sex

HIV prevalence among males was about 35 percent higher than the prevalence among females (3.3 percent among males compared with 2.5 percent among females). Prevalence among males was higher than among females in both the rural and urban areas. However, the male-female differences in prevalence was much higher in urban than in rural areas (male prevalence was 68 percent higher than the female prevalence in urban areas, compared with only 38 percent in rural areas).

HIV prevalence among males was relatively higher in rural areas (4.0 percent), in Mudhol Taluka (6.4 percent), in Shirol among all the villages (9.3 percent), in Mahalingpur among towns (6.1 percent), in the age group 25-29 (6.0 percent), among the currently married (4.3 percent), among the illiterate (5.6 percent), among the agricultural laborers (6.2 percent), low-caste Hindus (4.2 percent), among those who ever had sex with more than one partner (7.1 percent), and among those who have reported any of the risky sexual behaviour (6.6 percent).

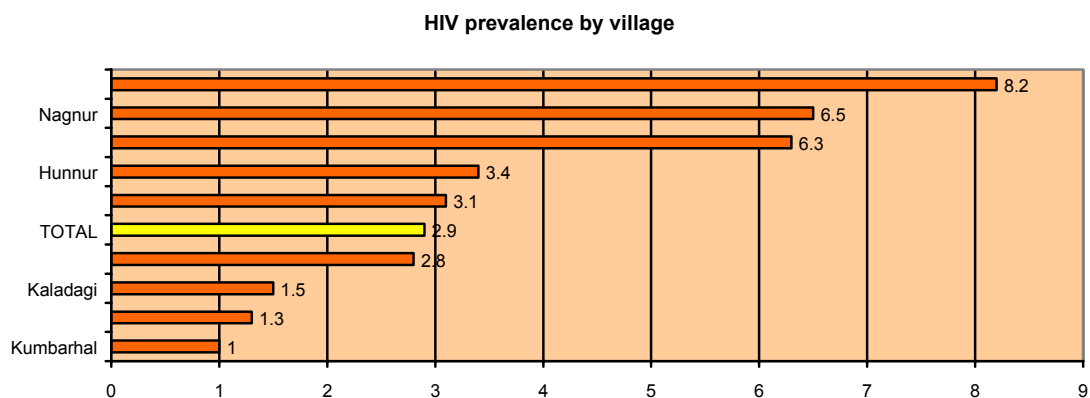
On the other hand, HIV prevalence among females was relatively higher in rural areas (3.2 percent), in Mudhol Taluka (3.2 percent), in Nagnur among all the villages (11.1 percent), in Jamkhandi among all towns (5.0 percent), in the age groups 20-24 years (3.1 percent) and 45-49 age years (3.5 percent), among those who are either widowed, divorced, separated or deserted (9.1 percent), among those who have completed primary school (4.6 percent), among the agricultural and non-agricultural labourers (6.2 and 6.3 percent, respectively), among the low-caste Hindus (7.2 percent), among those who travel due to work (5.0 percent), among those who ever had sex with more than one partner (7.7 percent), and among those who reported any of the risky sexual behaviour (7.5 percent).

HIV morbidity by Taluka

HIV Prevalence was highest in Mudhol Taluka (4.9 percent), followed by Jamkhandi (2.9 percent) and Bagalkot (1.2 percent). Prevalence among both the male and female respondents was highest in Mudhol Taluka (6.4 and 3.2 percent, respectively). Compared to the other two Talukas, Mudhol Taluka has the highest rural as well as the urban prevalence of HIV (6.0 and 3.7 percent, respectively).

HIV morbidity by village/town

HIV prevalence varies significantly by village/town. Among the 10 villages studied, prevalence ranges from 8.2 percent in Vantigodi to 1 percent in Kumbarhal. Some of the other high-prevalence villages include Nagnur (6.5 percent), Shirol (6.3 percent), and Hunnur (3.4 percent). Kirasur (1.3 percent) and Kaladagi (1.5 percent) were other two villages where HIV prevalence was less than 2 percent.



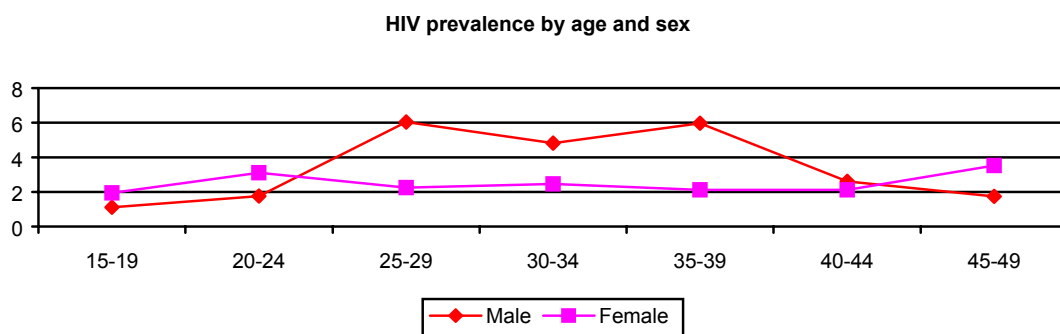
In village Vantigodi, where prevalence was highest, prevalence rates for both the males and females were high (7.7 percent and 8.7 percent, respectively). However, in Nagnur, where the prevalence was next highest, HIV prevalence was relatively higher among females than males (11.1 percent compared with 2.1 percent). On the other hand, in village Shirol, which has the third highest prevalence among the ten villages studied, HIV prevalence was relatively higher among males than among females (9.3 percent compared with 2.7 percent).

It may be recalled here that a relatively larger proportion of women than men in village Shirol did not participate in the survey (57 percent of female respondents did not give blood samples compared with 48 percent of male respondents). Most of the refusals from women came from the sex-worker community in that village. To that extent, the prevalence rate estimated for this village is biased.

In the urban areas, HIV prevalence was relatively higher in Mahalingpur (4.2 percent), Jamkhandi (4 percent) and Mudhol (3.2 percent) towns. While none from the small sample from Terdal testing positive, 1 percent of the respondents in Bagalkot town were HIV positive. Among the urban males, HIV prevalence was highest in Mahalingpur (6.1 percent). HIV prevalence among the urban females was highest in Jamkhandi town (5.0 percent).

HIV morbidity by age

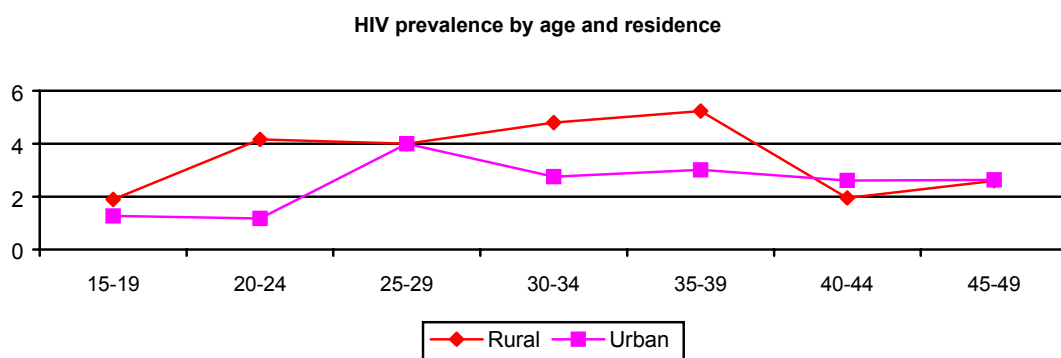
Overall, HIV prevalence was relatively higher in the age group 25-39 years (3.6 percent to 4.0 percent), and lowest in the age group 15-19 years.



Whereas, age-specific prevalence rate among the males was relatively higher in the age groups 25-39 years, with a peak of around 6 percent in the age group 25-29 years and 35-39 years. The prevalence among females, however, does not vary much across different age groups, although it peaks around 3 percent in the age group 20-24 years and 45-49 years.

HIV morbidity by rural/ urban

There was important rural-urban difference in the age pattern of HIV prevalence. In rural areas, the HIV prevalence ranges from 4 to 5 percent in the broader age group of 20-39 years, with a peak of 5.2 percent in the age group 35-39 years. In urban areas, the prevalence was at 4 percent in the age group 25-29 years, after which the rate stabilizes.

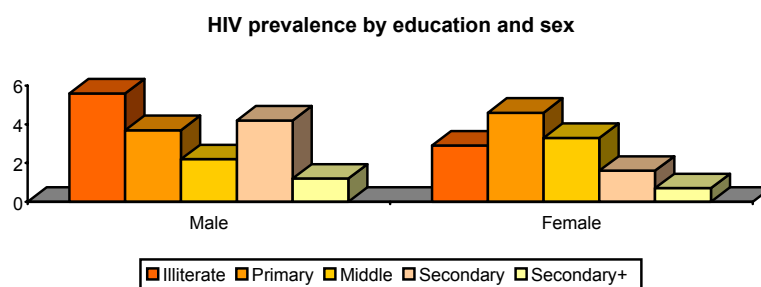


HIV morbidity by marital status

HIV prevalence varies significantly by marital status of the person: it was highest among persons who were widowed, divorced, separated, or deserted (9.4 percent) and lowest among the never married (1.1 percent). Persons whose marriage was disrupted had the highest prevalence in both the rural and urban areas (8.4 and 10.3 percent, respectively).

HIV morbidity by literacy and education

HIV prevalence was lowest at 1 percent among those who have studied beyond secondary level, and this holds true for the prevalence among both the males and females. Although the prevalence in this group in urban areas was less than 1 percent, it was 2 percent in rural areas. Prevalence was relatively higher among the illiterates (3.8 percent) and those who had completed only the primary level of education (4 percent).



HIV morbidity by occupation

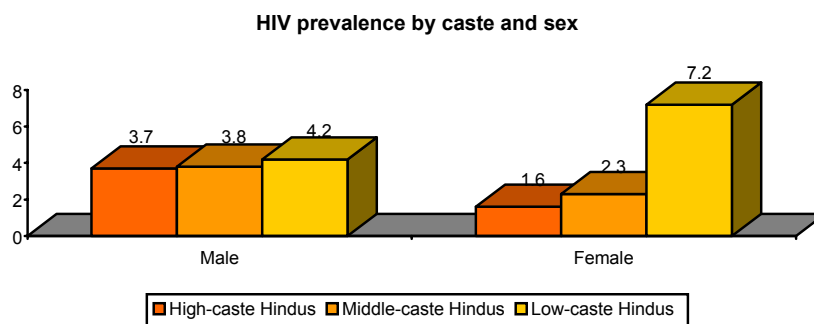
HIV prevalence varies substantially by the occupation of the respondent. Six percent of agricultural labourers were HIV positive, and this proportion was 4 percent among the non-agricultural labourers, around 3 percent among the cultivators, persons engaged in business, and salaried employment. Prevalence was around 2 percent among the housewives and around 1 percent among students. Among both males and females, prevalence was relatively higher among the agricultural (6.2 percent each among males and females) and non-agricultural labourers (4.2 and 6.3 percent among males and females, respectively). Agricultural and non-agricultural labourers were particularly vulnerable in rural areas with a prevalence of 6.8 percent and 7.6 percent, respectively. In urban areas, however, prevalence seemed to be around 3 percent in several of the occupation groups (agricultural and non-agricultural labourers, business and salaried employment).

HIV morbidity by religion

HIV prevalence varied significantly by religion: it was the lowest among Muslims (0.9 percent) and highest among other non-Hindus, consisting mostly of Jains (5.0 percent). Hindus had a prevalence of 3.3 percent. Religious differences in prevalence were significant both among the males and females. The Jains in rural areas seem to be particularly at high risk, with 4 out of 43 respondents (9.3 percent) testing HIV positive.

HIV morbidity by caste

Caste differentials in HIV prevalence found significant, with low-caste Hindus (Harijans and Kurubas) having the highest prevalence (5.7 percent), followed by middle-caste (Raddis, Marathas, Devangas, Ganigers) Hindus (3.0 percent), high-caste (Lingayats and Brahmins) Hindus (2.7 percent) and non-Hindus (1.3 percent). While men belonging to different castes did not differ much in terms of HIV prevalence, women belonging to lower castes had a significantly higher prevalence (7.2 percent) than the others. HIV prevalence did not vary much by caste in urban areas. However, in rural areas, differentials in HIV prevalence by caste found significant, ranging from 1.9 percent among non-Hindus to 2.2 percent among high-caste Hindus to 7.9 percent among low-caste Hindus indicating higher morbidity due to HIV among poor people.



HIV morbidity by travel

In rural areas, frequent travel due to work seemed to be associated with a relatively higher HIV prevalence. Five percent of the rural respondents, who reported that they travel regularly due to work, were HIV positive compared with 3 percent of those who do not travel due to work. The association was not significant, however, for the total sample as well as for the urban sample. Thus, it is evident that most of the people due to poverty migrate to neighboring towns and states in search of jobs and are in high risk of acquire HIV/AIDS.

Demographic and Socio-Economic Profile of HIV+ Persons

Of the total 118 persons who were HIV positive, 52 percent were in the rural areas and 57 percent were men. A quarter of them were under age 25, and 15 percent above age 40. While 1 in 3 HIV positive persons in rural areas was under age 25, only 1 in 5 in urban areas was in this age group. In terms of literacy and education, 47 percent were illiterate (58 percent in rural areas and 35 percent in urban areas) and 30 percent have studied secondary or beyond (21 percent in rural areas and 41 percent in urban areas).

Cultivators and agricultural labourers together constitute 58 percent of HIV positive people in rural areas whereas in urban areas, people engaging in business and salaried employment constitute the majority (57 percent). A majority of the HIV positive persons in rural areas belong either to the middle-caste (39 percent) or low-caste Hindus. On the other hand, in urban areas, high- and middle-caste Hindus constitute 79 percent of all the HIV positive persons.

In-depth interviews, key informant interviews and our field experience revealed that the following factors facilitate exposure to risky sexual behaviour that leads to HIV/AIDS morbidity and mortality in the study area:

- Seasonal out migration and mobility are widespread in the study area as well as in most part of north Karnataka districts, largely due to the poverty resulting from recurring droughts and erratic rainfall. Under such conditions, even farmers with fertile land are unable to raise crops. A majority of the small farmers and landless laborers face considerable hardships and are forced to migrate over summer months to cities such as Kolhapur, Mumbai, Goa, Ratnagiri and Pune where they work at brick kilns and construction sites. This increases the chance of sexual exposures and prone to HIV/AIDS.
- The construction of Almatti Dam and the rehabilitation programs resulted in sudden increase in the income among the people that in turn have increased their mobility. The sudden increase in money in the hands of people due to rehabilitation program associated with illiteracy resulted in some undesirable behavioral change in terms of alcohol consumption and ‘*Chaini*’ pleasure seeking and enjoyment (including sex).
- The *devadasi* system is widely prevalent in the study area, as is the case in northern parts of the state. It is mostly associated with the SC community. However, today sex work is reported among other non-Devadasi, upper and lower caste women due to

- alcohol addicted husbands, poverty, widowhood, or abandonment. Usually sex work in the study area is home based. However, field team discussions with sex workers revealed an increase in lodge based sex work, especially during *shandy* (market) days and urban commercial areas in some places like Rabakavi –Banahatti in Kamakandi Taluka and Lokapur in Mudhol have high concentration of sex workers.
- Socio-cultural beliefs of muscularity and femininity contribute significantly to unsafe sexual behavior. Men in the community believe multiple sexual partners as an indication of their masculinity. Many young men report peer pressure to have multiple sexual experiences. However, women engaging in such social sanction and hence are forced to keep their relationship secretive resulting in increased vulnerability to forced sex, especially with friends of their boy friends.
 - Lack of knowledge about safe sexual behavior and condom and non-accessibility of condom facilitates risky sexual behavior and thus to HIV/AIDS pandemic.

Conclusions and Recommendations

It is to be noted that the infected people will die within a short span of time and mean time transmit the infection to many more people in the absence of proper care and supportive measures. The existing stigma, discrimination and denial of services to affected people and poor knowledge about HIV/AIDS, illiteracy associated poverty among the population in the region forms a conducive atmosphere for rapid spread of the epidemic, which further aggravates the problem. The spread of the disease is also attributed to seasonal out migration from the area, wide spread of prostitutions and trafficking of women to larger cities within and neighboring states. Due to above factors, the experts estimate that HIV/AIDS will soon emerge as a major factor in determining mortality levels in study area as well as in India where the similar conditions prevails. Thus, HIV prevention programs need to be recognized this and strategically tailor the intensity of intervention in high and low risk villages. The data also suggest that certain community level or village level factors may have an effect on HIV prevalence independent of individual level factors. There is need to create awareness about HIV/AIDS to change their attitude towards HIV/AIDS and to minimize existing stigma and discrimination and further spread of disease. It is also important to make available ART drugs at affordable rate to poor people to afford the treatment at early stage and live longer.

References

- ICHAP. *The Hidden Epidemic: HIV/AIDS in Rural Karnataka-A situation Assessment of Bagalkot district, September 2003 (ICHAP Report Bangalore)*.
- P.K. Bhargava, D.G. Satihal, James Blanchard, Stephan Moses, B. M. Ramesh and Reynold Washington, *Community Cased HIV Prevalence Study in ICHAP Demonstration Project Area*, PRC Report No. 132. Population Research Centre, JSS Institute of Economic Research, Dharwad.
- B.M.Ramesh and D.G.Satihah, *Socio Economic and Cultural Antecedents of HIV/AIDS in Northern Karnataka*, was presented in the workshop on *AIDS Prevention and Care for People Affected by AIDS in India*, at Amsterdam, Netherlands during 27-29 June 2001.
- P.K. Bhargava and D.G. Satihal, *Prevalence of HIV/AIDS in Northern Karnataka, India*, a paper presented at the seminar on “Challenges in the Demographic and Health Scenario Before India in the 21st Century”, at Population Research Centre, University of Kerala India, during Novemebr 2004.
- D.G.Satihah, P.K.Bhargava, S.S. Halli and B.M. Ramesh, *Sexual Behavioural Patterns and Condom Use among Unmarried Men and Women in Kernataka: Findings from a Community Based Study*, presented in ASIA conference on, *Young Population Sexual and Reproductive Health Needs” in New Delhi during 2-4 December 2004*, organised by Centre of Operation Research and Training (CORT) Vadodara.

TABLES

Table 1: Percent distribution of persons who are reported to be suffering from a chronic illness by nature of illness, according to sex and place of residence

Reported nature of illness	RURAL			URBAN		
	Male	Female	Total	Male	Female	Total
Accident	2.7	3.3	3.0	1.3	0.0	0.7
AIDS	1.0	0.5	0.7	0.0	0.7	0.3
Appendicitis	0.5	0.7	0.6	0.7	0.7	0.7
Arthritis	0.5	1.2	0.8	0.7	0.0	0.3
Asthma	6.9	6.6	6.7	6.7	4.2	5.6
Back pain	0.0	0.9	0.5	0.7	0.7	0.7
Body ache	2.0	3.5	2.8	3.4	3.9	3.6
Blood pressure	4.9	8.0	6.5	13.4	34.8	24.3
Cancer	0.7	1.2	1.0	0.0	0.0	0.0
Cough	3.0	2.4	2.4	1.3	0.7	1.0
Diabetes	7.6	1.0	5.8	26.2	7.7	16.8
Dysentery	0.7	0.5	0.6	0.7	0.0	0.3
Fever	6.6	8.2	7.5	0.7	1.9	1.3
Fits	2.7	1.9	2.3	1.3	1.3	1.3
Heart problem	3.4	3.1	3.3	3.4	3.2	3.3
Jaundice	0.7	0.5	0.6	0.0	0.0	0.0
Joint pain	1.2	1.9	1.6	0.7	0.0	0.3
Mental illness	4.9	3.1	4.0	1.3	2.6	2.0
Nerve problem	2.2	1.9	2.0	0.7	0.0	0.3
Paralysis	9.1	3.8	6.4	10.1	2.6	6.3
Piles	1.0	0.9	1.0	0.0	0.0	0.0
Polio	2.5	1.2	1.8	0.0	0.7	0.3
Skin disease	3.7	1.7	2.6	3.4	2.6	3.0
Stomach ache	3.0	3.3	3.1	4.7	3.2	4.0
Tuberculosis	2.7	2.1	2.4	1.3	2.6	2.0
Teku (heavy breathing, palpitation)	9.8	11.1	10.5	5.4	6.5	5.9
Typhoid	1.2	0.7	1.0	0.7	0.0	0.3
Ulcer	1.5	0.7	1.1	0.7	0.7	0.7
Vata	0.7	0.0	0.4	0.0	0.7	0.3
Vayu	1.2	2.6	1.9	1.3	3.2	2.3
Waist pain	0.3	1.4	0.8	0.7	1.3	1.0
Weakness	1.0	2.4	1.7	0.7	5.2	3.0
White discharge	0.0	1.4	0.7	0.0	0.0	0.0
Other	10.1	13.7	11.9	8.1	8.4	8.2
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number	407	425	832	149	155	304

Table 2: Estimated crude death rates (per 1,000 population) by residence and age

Characteristic	Crude death rate
Rural	9.26
Urban	8.28
Age	
<14	10.07
15-49	5.55
50+	36.34
Total	9.07

Table 3: Percent distribution of deaths during the two years preceding the census by reported cause of death, according to place of residence and age at death

Cause of death	Residence			Age at death		
	Total	Rural	Urban	<14	15-49	50+
Cardio vascular	12.28	11.06	18.04	7.65	12.36	13.68
Paralysis	8.33	8.79	6.19	0.55	3.16	13.85
Cancer	7.26	7.59	5.67	1.09	8.33	8.55
Aging	6.36	6.29	6.70	0.00	0.00	12.14
Fever	5.82	6.07	4.64	7.65	8.05	3.93
Accident	5.65	5.86	4.64	6.01	7.18	4.62
AIDS	5.65	5.64	5.67	0.55	16.95	0.51
Tuberculosis	4.66	4.99	3.10	1.09	5.46	5.30
Asthama	3.76	4.12	2.06	1.64	0.29	6.50
Maternal causes	3.14	3.47	1.55	0.00	1.44	0.00
Neonatal	2.87	3.04	2.06	32.24	0.00	0.00
Diabetes	2.60	2.39	3.61	0.55	2.87	3.08
Jaundice	2.51	2.60	2.06	2.19	4.31	1.54
Alcoholism	1.97	1.74	3.09	0.00	4.02	1.37
Suicide	1.43	1.30	2.06	0.00	4.02	0.17
Fits	1.34	1.52	0.52	4.92	0.86	0.51
Diarrhoea	1.25	1.41	0.52	2.73	0.29	1.37
Typhoid	1.08	1.19	0.52	1.09	2.59	0.17
Other	14.60	14.10	16.99	23.49	17.25	10.92
Cause not known	7.44	6.83	10.31	6.56	0.57	11.79
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of deaths	1116	922	194	183	348	585

Note: Other causes of death include: mental illness, evil eye, snake/scorpion bite, sepsis, haemorrhage, liver ailment, etc.

Table 4: HIV prevalence in Rural in area (percentage tested HIV positive, according to sex and selected background characteristics)

Characteristic	Male		Female		Total	
	Percent	Number	Percent	Number	Percent	Number
Taluka						
Bagalkot	0.50	199	2.17	230	1.40	429
Mudhol	8.00	275	3.73	241	6.01	516
Jamkhandi	3.04	461	3.49	458	3.26	919
Level of significance of X ²	Pr<.01		Not significant		Pr<.01	
Village						
Kaladagi	0.68	148	2.09	191	1.47	339
Kirasur	(0.00)	44	(3.03)	33	1.30	77
Mudavinkoppa	*	7	*	6	*	13
Mirji	4.00	50	(2.08)	48	3.06	98
Shirol	9.25	173	2.72	147	6.25	320
Vantigodi	7.69	52	(8.70)	46	8.16	98
Kumbarhal	1.72	58	(0.00)	44	0.98	102
Hunnur	4.29	233	2.50	240	3.38	473
Navalagi	1.63	123	3.88	129	2.78	252
Naganur	(2.13)	47	(11.11)	45	6.52	92
Level of significance of X ²	Pr<.01		Pr<.05		Pr<.01	
Age						
15-19	0.55	182	3.19	188	1.89	370
20-24	4.21	190	4.09	171	4.16	361
25-29	6.37	157	1.79	168	4.00	325
30-34	6.62	136	2.96	135	4.80	271
35-39	6.09	115	4.39	114	5.24	229
40-44	1.27	79	2.67	75	1.95	154
45-49	1.32	76	3.85	78	2.60	154
Level of significance of X ²	Pr<.05		Not significant		Not significant	
Marital status						
Currently married	4.73	613	3.03	725	3.81	1338
Marriage dissolved	*	10	7.34	109	8.40	119
Never married	1.92	312	0.00	95	1.47	407
Level of significance of X ²	Pr<.01		Pr<.05		Pr<.01	
Literacy and education						
Illiterate	5.36	317	3.67	572	4.27	889
Primary	5.13	78	(8.89)	45	6.50	123
Middle	2.78	144	2.17	138	2.48	282
Secondary	3.40	206	1.68	119	2.77	325
Secondary+	2.63	190	0.00	55	2.04	245
Level of significance of X ²	Not significant		Not significant		Not significant	
Occupation						
Cultivator	2.94	340	3.31	242	3.09	582
Agricultural labourer	6.61	121	6.88	189	6.77	310
Non-agricultural labourer	8.08	99	*	6	7.62	105
Business	4.17	168	1.10	91	3.09	259
Salaried employment	3.70	108	(3.13)	32	3.57	140
Housework	*	1	2.13	329	2.12	330
Student	0.00	74	(0.00)	28	0.00	102
Other work	*	24	*	12	(0.00)	36
Level of significance of X ²	Not significant		Not significant		Pr<.01	
Total	3.96	935	3.23	929	3.59	1864

Table 4 (contd.): HIV prevalence in rural area (percentage tested HIV positive, according to sex and selected background characteristics)

Characteristic	Male		Female		Total	
	Percent	Number	Percent	Number	Percent	Number
Religion						
Hindu	4.42	814	3.31	785	3.88	1599
Muslim	0.00	96	0.79	126	0.45	222
Other	(4.00)	25	*	18	(9.30)	43
Level of significance of X ²	Not significant		Pr<.01		Pr<.01	
Caste						
High-caste Hindu	3.00	300	1.41	283	2.23	583
Middle-caste Hindu	4.70	362	2.51	359	3.61	721
Low-caste Hindu	6.04	149	9.72	144	7.85	293
Non-Hindu	1.61	124	2.10	143	1.87	267
Level of significance of X ²	Not significant		Pr<.01		Pr<.01	
Travel due to work						
No	3.10	548	3.05	886	3.07	1434
Yes	5.17	387	(6.98)	43	5.35	430
Level of significance of X ²	Not significant		Not significant		Pr<.05	
Level of significance of X ²	Not significant		Not significant		Not significant	
Total	3.96	935	3.23	929	3.59	1864
¹ Either had sex with a non-regular partner in the last 1 year, or ever had sex with more than one partner, or ever paid/received money for sex *Percentage not shown; based on less than 25 cases () Based on 25-49 cases Pr<.01: Pearson Chi-square is significant at .00 level Pr<.05: Person Chi-square is significant at .05 level						

Table: HIV prevalence in URBAN in area (percentage tested HIV positive, according to sex and selected background characteristics)

Characteristic	Male		Female		Total	
	Percent	Number	Percent	Number	Percent	Number
Taluka						
Bagalkot	1.37	292	0.65	306	1.00	598
Mudhol	4.62	195	2.69	186	3.67	381
Jamkhandi	3.02	562	2.33	602	2.66	1164
Level of significance of X ²	Not significant		Not significant		Pr<.05	
Town						
Bagalkot	1.37	292	0.65	306	1.00	598
Mudhol	3.09	97	3.26	92	3.17	189
Jamkhandi	2.76	181	5.03	199	3.95	380
Rabkavi-Banahatti	3.48	345	1.08	372	2.23	717
Terdal	(0.00)	36	(0.00)	31	0.00	67
Mahalingpur	6.12	98	2.13	94	4.17	192
Level of significance of X ²	Not significant		Pr<.01		Pr<.05	
Age						
15-19	1.56	192	1.00	201	1.27	393
20-24	0.00	217	2.43	206	1.18	423
25-29	5.77	156	2.58	194	4.00	350
30-34	3.42	146	2.07	145	2.75	291
35-39	5.88	119	0.68	147	3.01	266
40-44	3.33	120	1.82	110	2.61	230
45-49	2.02	99	3.30	91	2.63	190
Level of significance of X ²	Pr<.05		Not significant		Not significant	
Marital status						
Currently married	3.86	622	1.26	793	2.40	1415
Marriage dissolved	*	14	10.75	93	10.28	107
Never married	1.21	413	0.48	208	0.97	621
Level of significance of X ²	Pr<.05		Pr<.01		Pr<.01	
Literacy and education						
Illiterate	6.06	165	2.03	395	3.21	560
Primary	2.53	79	(0.00)	35	1.75	114
Middle	1.83	164	4.05	173	2.97	337
Secondary	4.73	275	1.57	255	3.21	530
Secondary+	0.55	366	0.85	236	0.66	602
Level of significance of X ²	Pr<.01		Not significant		Pr<.05	
Occupation						
Cultivator	*	24	*	13	(5.41)	37
Agricultural labourer	*	23	(2.94)	34	3.51	57
Non-agricultural labourer	1.60	125	(7.41)	27	2.63	152
Business	3.26	522	2.24	223	2.95	745
Salaried employment	2.01	199	3.75	80	2.51	279
Housework	*	4	1.61	622	1.60	626
Student	2.27	132	0.00	95	1.32	227
Other work	*	20	*	1	*	21
Level of significance of X ²	Not significant		Not significant		Not significant	
Total	2.86	1049	1.92	1094	2.38	2143

Table 6: HIV prevalence among total respondents (percentage tested HIV positive, according to sex and selected background characteristics)

Characteristic	Male		Female		Total	
	Percent	Number	Percent	Number	Percent	Number
Place of residence						
Rural	3.96	935	3.23	929	3.59	1864
Urban	2.86	1049	1.92	1094	2.38	2144
Level of significance of X ²	Not significant		Not significant		Pr<.05	
Taluka						
Bagalkot	1.06	491	1.24	536	1.15	1027
Mudhol	6.44	470	3.23	427	4.91	897
Jamkhandi	3.03	1023	2.78	1061	2.90	2084
Level of significance of X ²	Pr<.01		Not significant		Pr<.01	
Village/Town						
Kaladagi	0.68	148	2.09	191	1.47	339
Kirasur	(0.00)	44	(3.03)	33	1.30	77
Mudavinkoppa	*	7	*	6	*	13
Mirji	4.00	50	(2.08)	48	3.06	98
Shirol	9.25	173	2.72	147	6.25	320
Vantigodi	7.69	52	(8.70)	46	8.16	98
Kumbarhal	1.72	58	(0.00)	44	0.98	102
Hunnur	4.29	233	2.50	240	3.38	473
Navalagi	1.63	123	3.88	129	2.78	252
Naganur	(2.13)	47	(11.11)	45	6.52	92
Bagalkot (urban)	1.37	292	0.65	306	1.00	598
Mudhol (urban)	3.09	97	3.26	92	3.17	189
Jamkhandi (urban)	2.76	181	5.03	199	3.95	380
Rabkavi-Banahatti (urban)	3.48	345	1.08	372	2.23	717
Terdal (urban)	(0.00)	36	(0.00)	31	0.00	67
Mahalingpur (urban)	6.12	98	2.13	94	4.17	192
Level of significance of X ²	Pr<.01		Pr<.01		Pr<.01	
Age						
15-19	1.12	374	1.95	389	1.54	763
20-24	1.77	407	3.11	377	2.41	784
25-29	6.04	313	2.25	362	4.00	675
30-34	4.81	282	2.46	281	3.64	563
35-39	5.97	234	2.13	261	3.94	494
40-44	2.60	199	2.12	185	2.37	385
45-49	1.75	175	3.52	169	2.89	344
Level of significance of X ²	Pr<.01		Not significant		Not significant	
Marital status						
Currently married	4.25	1235	2.02	1519	3.02	2754
Marriage dissolved	*	24	9.07	202	9.38	226
Never married	1.48	725	0.35	303	1.14	1028
Level of significance of X ²	Pr<.01		Pr<.01		Pr<.01	
Literacy and education						
Illiterate	5.63	482	2.92	968	3.82	1450
Primary	3.70	157	4.58	80	3.99	237
Middle	2.23	308	3.30	311	2.77	619
Secondary	4.22	481	1.60	374	3.06	855
Secondary+	1.17	556	0.71	291	1.01	847
Level of significance of X ²	Pr<.01		Not significant		Pr<.01	
Total	3.33	1984	2.46	2024	2.89	4008

Table 6 (Contd.): Among the TOTAL respondents who have given blood sample, percentage tested HIV positive, according to sex and selected background characteristics

Characteristic	Male		Female		Total	
	Percent	Number	Percent	Number	Percent	Number
Occupation						
Cultivator	3.37	364	3.10	255	3.26	619
Agricultural labourer	6.19	144	6.17	223	6.18	367
Non-agricultural labourer	4.16	224	(6.26)	33	4.44	257
Business	3.45	690	1.95	314	2.98	1004
Salaried employment	2.53	307	3.59	112	2.82	419
Housework	*	5	1.77	951	1.76	956
Student	1.55	206	0.00	123	0.96	329
Other work	(2.51)	44	*	13	1.97	57
Level of significance of X ²	Not significant		Pr<.01		Pr<.01	
Religion						
Hindu	3.87	1632	2.63	1638	3.25	3270
Muslim	0.67	315	1.17	349	0.93	664
Other	(2.53)	37	(7.32)	37	4.97	74
Level of significance of X ²	Pr<.05		Pr<.05		Pr<.01	
Caste						
High-caste Hindu	3.73	708	1.58	703	2.65	1411
Middle-caste Hindu	3.79	671	2.27	699	3.01	1370
Low-caste Hindu	4.19	251	7.24	240	5.68	491
Non-Hindu	1.10	354	1.53	382	1.32	736
Level of significance of X ²	Not significant		Pr<.01		Pr<.01	
Travel due to work						
No	3.33	1269	2.36	1947	2.74	3216
Yes	3.32	715	5.00	77	3.49	792
Level of significance of X ²	Not significant		Not significant		Not significant	
Total	3.33	1984	2.46	2024	2.89	4008
¹ Either had sex with a non-regular partner in the last 1 year, or ever had sex with more than one partner, or ever paid/received money for sex *Percentage not shown; based on less than 25 cases () Based on 25-49 cases Pr<.01: Pearson Chi-square is significant at .00 level Pr<.05: Person Chi-square is significant at .05 level						