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RESEARCH ARTICLE

SOCIO-DEMOGRAPHIC CHARACTERISTICS OF HIV/AIDS PATIENTS VISITING ART CENTRES OF WESTERN INDIA

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ABSTRACT

Background: At the beginning of pandemic of HIV, it's prevalence had been extremely dominated by male patients, but afterward this gender gape diminished very fast. In India disease is not generalised but seen in some high risk group like drivers, labourers etc. Our studied area, i.e. Gujarat state contains big amount of migratory labourer from other states of India.

Material &Method: Total 1261 HIV positive patients were included in the study out of which 961 (T group) were with complaints of secondary respiratory tract infections and 300(C2 group) HIV patients without RTI at the time of their interview who were coming to ART centre for treatment. The NACO guidelines for diagnosis of HIV were followed. For these patients a preformed questionnaire was made to enquire about socio-demographic characteristics.

Results: The total male patients (59.00%) outnumbered the female patients (40.93%) with even one TG/TS patient (0.07%). Maximum number of males (56.91%) as well as females (57.82%) was in the age group of 25-44 years. Age of the patients ranged between 0-75 years but the mean age was found to be 33.94+9. 54 years. The most common route of transmission was found to be heterosexual in 81.68% patients followed by mother to child in 10.31% and 4.44% patients had given a history of blood transfusion. Majority of group C2 patients presented with fever (44.73%) and loss of weight (47.91%).

Conclusion: Among studied 1261 HIV-infected patients, highest patients been noted as 628(49.84%) migratory labourer. Most of the affected population was from lower socioeconomic class, either illiterate or had education up to primary school & belonged to reproductive age group i.e. 15-44 years which increases the economic burden & affects the overall development of the family, community and country. Marital life itself becomes a risk factor for those women who get infected by their HIV positive spouse.

INTRODUCTION

Human Immunodeficiency Virus (HIV) is RNA virus that causes Acquired Immune Deficiency Syndrome (AIDS). The virus destroys the T-helper cell which fights opportunistic infections such as pneumonia and tuberculosis (TB). One can contract the virus for a long time without showing any symptoms of the disease, yet during this period, transmission is possible especially through sexual contact with people. An infected woman can also transmit the disease to her infant during pregnancy, delivery and breastfeeding. HIV can also be spread through blood transfusions or blades that have been in contact with blood of an HIV infected person. AIDS itself is defined in terms of how much deterioration of the immune system has taken place as seen by the presence of opportunistic infections.

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Two main transmission mechanisms account for most new HIV infections globally. These are heterosexual contact and mother-to-child (MTC) transmission. About 80% of infections are transmitted through heterosexual contact (National AIDS, 2001) Although the probability of transmitting HIV during intercourse can be quite low, a number of factors increase the risk of infection dramatically. One is the presence of a sexually transmitted disease (STD) such as syphilis and gonorrhoea in either partner during unprotected sex. These diseases form ulcers and sores that facilitate the transfer of the virus. The human immunodeficiency virus (HIV) infection is a global pandemic. HIV continues to be a burden globally and presents serious public health problems in the developing countries, especially in India. According to the UNAIDS and World Health Organization (WHO) reports of November 2010, there are approximately 33.3 million people living with HIV/Acquired immunodeficiency syndrome (AIDS) worldwide, with a global prevalence of 0 .8% (http://www. unaids.org/en/HIV-data). It is now the leading cause of adult

deaths in the world due to infectious diseases (Javed M. Iqbal, 2007). HIV has become the first truly international epidemic easily crossing the oceans & borders. Despite the improved access to antiretroviral therapy (ART) & care in many regions of the world AIDS has killed millions of people (http://www.avert.org). The HIV cases in south and South-East Asia account for 4.1 million people with HIV. It is estimated that 90% of the HIV infected persons live in the developing countries, with the estimated number of infected Indians being 2.31 million, with an adult prevalence of 0.3% (http://www.unaids.org/en/HIV-data). HIV/AIDS is no longer just a public health issue in India but become one of the most serious socioeconomic & developmental concerns, because nearly 89% of reported cases are occurring in sexually active & economically productive age group (15-44yrs). Deaths of young adults have an especially damaging impact on their families and communities, skills are lost, workforce shrinks & children's are orphaned (Kishore, 2006).

Though, ART does not cure HIV/AIDS, but effective ART regimens inhibit the efficient replication of the HIV virus, and reduce viremia to undetectable levels. Successes achieved by ART in terms of delaying the onset of AIDS have transformed the common perception about HIV from being a "virtual death sentence" to a "chronic manageable illness". The Government of India launched the free ART programme on 1 April 2004, since then more and more patients are put on ART treatment with rapid expansion of the programme (Hitenkumar P Sonani *et al*., 2011). However due to prevailing socioeconomic conditions, poor awareness & lack of facility for diagnosis in rural setup the incidence of HIV infection is highly underreported from the areas. Early diagnosis, ART, chemoprophylaxis and treatment of opportunistic infections are important for control of HIV replication, disease progression and ultimately containment of epidemic. The present study was conducted in ART centres of civil hospitals with the objective to assess the socio-demographic and clinical profile of HIV/AIDS patients.

MATERIALS AND METHODS

This study was conducted at ART centre of civil hospitals situated in North and Southern Gujarat state of India. The permission from head of institutions and clearance from Ethics Committee was obtained before starting the study. Even written approval from GSACS, Ahmedabad was also obtained. The HIV positive patients coming to ART centre for treatment were included in the study. The NACO guidelines for diagnosis of HIV were followed. First HIV test was carried out with HIV-Coomb test. As per the NACO guidelines if the sample is reactive in first test, it is confirmed by second (HIV-Trio-LF) and third (SD-Bioline) test.

Definition for T Group

Cases were defined as patients with both HIV sero-positive as well as having complaints of cough and fever for more than one week or in other words suffering from respiratory tract infections (RTI) at the time of data collection. One patient was included only once.

Definition for C2 Group (Control Group)

C2 Control group was defined as HIV- sero positive patients but without respiratory tract infection (RTI) at the time of sample and data collection.

RESULTS

Over a period of 3 years such 1261 HIV positive patients were studied. For these patients a preformed questionnaire was made to enquire about socio-demographic characteristics such as age, sex, literacy status, marital status, occupation, socioeconomic status and clinical presentation ensuring confidentiality at their homes after informed consent and guarantee of anonymity to the individuals. The data was analyzed using mean, standard deviation and Chi-Square test. In the present study out of 1261 patients, the male patients 744 (59.00%) outnumbered the female patients 516 (40.92%). Male to female ratio was 1.44:1. The distribution of patients according to the age showed that, the maximum number of males 447 (60.08%) as well as females 341(66.09%) were in the age group of 25-44 years. Age of the patients ranged between 0-75 years. Majority of patients i.e. 495 (39.24%) belonged to very lower socio-economic class followed by low class with 426 (33.78%) and 349(27.68%) HIV sero-positive belonged to middle class. It means 72.32% of HIV-sero positive patients belonged to lower socio-economic class. Maximum patients i.e. 1026 (81.36%) were residing in rural area while 235 (18.64%) in urban area. In the present study out of 1261 patients, 875(69.39%) were literate while 386(30.61%) were illiterate. Among literate maximum number of patients i.e. 457 (36.24%) were educated up to primary school. Maximum numbers of females were illiterate 214 (41.47%) as compared to males 172(23.11%).

Table 1. Distribution of genders in various groups

Gender	HIV+VE/RTI+VE (T)		HIV+VE/RTI-VE (C2)		Total T+C2	%
	(n)	%	(n)	%	(n)	
Male	577	60.05	167	55.67	744	59.08
Female	383	39.85	133	44.33	516	40.91
TS*/TG*	01	00.10	0	0	01	00.07
Total	961	100	300	100	1261	100

Table 2. Distribution of patients according to their residential area

Resident Area of Patients	HIV+VE/RTI+ve (T)		HIV+VE/RTI-ve (C2)		Total (T+C2)	
	(n)	%	(n)	%	(n)	%
Rural	823	85.64	203	67.67	1026	81.36
Urban	138	14.36	97	32.33	235	18.64
Total	961	100	300	100	1261	100

Table 3. Socio-economic distribution in various groups

Economic Classes	HIV+VE/RTI+VE (T)		HIV+VE/RTI-VE (C2)		Total (T+C2)	
	(n)	%	(n)	%	(n)	%
Very Low	397	41.31	89	29.67	587	37.61
Low	324	33.82	102	34.00	549	35.17
Middle Class	240	24.97	109	36.33	425	27.22
Total	961	100	300	100	1561	100

Table 4. Age Distribution in all Three Groups (HIV+/RTI+=1st Test Group, 2nd Control Group for RTI= HIV-/RTI+ and 3rd Control Group for Predisposing Factors for RTI=HIV+/RTI-)

	HIV+VE/RTI+VE (T)			HIV=VE/RTI-VE (C2)			T+C		
Mean Age	33.94±9.54 years			33.86±3.1 years					
Age grop	MALE	FEMAL	TOTAL	MALE	FEMAL	TOTAL	MALE	FEMALE	TOTAL
0-14	52	33	85	12	9	21	64	42	106
15-24 yrs.	50	47	97	18	15	33	68	62	130
25-34 yrs.	159	128	287	49	41	90	208	169	377
35-44 yrs.	185	110	295	54	37	91	239	147	386
45-54 yrs.	87	45	132	28	21	49	115	66	181
55-64 yrs.	35	13	48	4	8	12	39	21	60
65-74 yrs.	8	6	14	2	1	3	10	07	17
75-84 yrs.	1	1	2	1	0	1	01	02	03
TOTAL	577	383	960*	168	132	300	745	515	1260

*=1 TG/TS in T Group

Table 5. Mode of Transmission of HIV in Test and Control groups C2

Mode of Transmission	HIV+VE/RTI+VE (T)		HIV=VE/RTI-VE (C2)		Total (T+C2)	
	(n)	%	(n)	%	(n)	%
Heterosexual	773	80.43	257	85.67	1030	81.68
Blood transfusion	46	04.79	10	03.33	56	04.44
IDU	05	0.52	00	00.00	05	0.40
Mother to Child	101	10.51	29	09.67	130	10.31
MSM	20	02.08	03	01.0	23	01.82
Prob Unsafe Injection	10	1.04	01	00.33	11	0.87
Unknown	04	00.42	00	00.00	04	0.31
Total	961	100	300	100	1261	100

Table 6. Marital status distribution in three groups

Marital Status	HIV+VE/RTI+VE (T)		HIV=VE/RTI-VE (C2)		T+C2	
	(n)	%	(n)	%	(n)	%
Singles	180	18.73	60	20	240	19.03
Married	574	59.73	179	59.67	753	59.71
2nd marriage	10	1.04	3	1	13	01.03
Divorcee	13	1.35	3	1	16	01.27
Widowed	184	19.15	55	18.33	239	18.95
Total	961		300		1261	

Table 7. Distribution of occupation in HIV Patients

Occuption	Male	Female	Total	%
Study	58(7.79)	36(6.98)	94	07.46
Labour	352(47.31)	276(53.49)	628	49.84
Farmer	137(18.41)	13(2.52)	150	11.90
Business	68(09.14)	07(1.36)	75	05.95
Driver	81(10.89)	00(00.00)	81	06.43
Services	35(04.70)	05(0.97)	40	03.17
Housewives	00(00.00)	179(34.69)	179	14.21
Unemployed	13(01.74)	00(00.00)	13	01.03
Professional	05(00.92)	00(00.00)	05	0.40
Total	744	516	1260	100

Table 8. Literacy distribution in various groups

Education Category	Male		Female		Total	
	N	%	n	%	n	%
Illiterate	30	04.03	356	68.99	386	30.63
Primary School	377	50.67	79	15.31	456	36.19
Seconary School	287	38.58	70	13.57	357	28.33
College	50	06.72	11	02.13	61	04.84
Total	744	100	516	100	1260	100

The distribution of patients by occupation depicts that majority of patients, who harboured the HIV infection, were labourers 628(49.84%). It includes the agricultural as well as non-agricultural labourers. Among males, farmers 150(11.90%), businessman 75(05.95%) and drivers 81(10.89%) constituted other occupations. Among the patients studied 753 (59.71%) were married and living with their spouse followed by unmarried 240 (19.03%), widows 239 (18.95%), followed by divorced and separated. The most common route of transmission was found to be heterosexual in 1030 (81.68%) patients and 56 (4.44%) patients had given a history of blood transfusion. Majority of patients in group C2 presented with fever and loss of weight i.e. 157 (52.33%), 141(47.00%), respectively followed by diarrhoea 47 (15.67%), weakness 32 (10.67%), itching 20 (6.67 %), and pain in abdomen 11 (3.67%). 161 (20.33%) patients had no complaints.

DISCUSSION

This study demonstrates the importance of socio demographic and clinical features of HIV/AIDS patients who were attending an ART centre in civil hospitals of Gujarat. The overall male patients outnumbered the female patients (744/516) and male to female ratio was 1.44:1. Male predominance was also observed in study done by Ahmad *et al*. (2003), Singh *et al*. (2007). The male preponderance might have been due to the fact that in the existing social milieu, females do not seek medical care fearing ostracism, gender bias, social stigma and neglect attached with the disease which decreases the number of females attending the HIV clinic. So the low number of females may not be the true representation of the proportion of females.

Table 9. Sex-wise distribution of estimated HIV infected population in India (2000-05) NACO-05

Year	HIV estimates in (in millions)			Percentage of female
	Male	Female	Total	
2000	1.94	1.24	3.86	36.8
2001	2.04	1.24	3.97	38.5
2002	2.58	1.21	4.58	31.9
2003	3.22	1.89	5.10	36.9
2004	3.13	2.00	5.13	38.9
2005	3.18	2.03	5.21	39.0

Globally, there has been a dramatic increase in the number of young women being infected by HIV. Gender Impact of HIV and AIDS in India account for over 60 percent of 15 to 24 year old PLWHA and they are 1.6 times more likely to be living with HIV and AIDS than young men (UNAIDS/UNFPA/ UNIFEM, 2004). According to NACO, in India, an estimated

5.21 million PLWHA in 2005, accounting for 13 percent of the PLWHA globally (NACO, 2005). Though the current prevalence rate is less than one percent of the country's population, given the large population base, any rise in this ratio of the HIV-prevalence rates can push up the number of PLWHA to several millions. The rates of HIV infection amongst women in India are steadily rising. Women account for around 2 million of the approximately 5.2 million estimated cases of PLWHA, constituting 39 percent of all HIV infections (Table 9). Of these, only 0.5 percent of the women are sex workers. Of the 1,11,608 cases of AIDS reported in the country till 31 July,2005,females accounted for nearly 30 percent. The biggest HIV and AIDS risk for many women and girls is through heterosexual sex; almost 85 percent of infections in women result from sex with their husbands or primary partners. In India, women are increasingly getting susceptible to HIV and a large proportion of new infections are occurring in women who are married and are infected by husbands who (either currently or in the past) is frequent sex workers (Suneetha Kandiyala and Barnett, 2004). The surveillance data indicates that in high-prevalence states, the epidemic is spreading gradually from urban to rural areas and from high-risk groups to the general population.

The epidemic continues to shift towards women and young people and is slowly moving beyond its initial focus among sex workers. HIV transmission through sex between men is also a major cause for concern in many areas of India as the research shows that many MSM also have sex with women. In 2002, behavioural surveillance in five cities among MSM found that 27 percent reported being married, or living with a female sexual partner. There are a number of factors-biological, socio-cultural and economic, which make women and young girls more vulnerable to HIV and AIDS. As already mentioned, the major source of infection is through heterosexual transmission and as compared to men, women are at a biological disadvantage in contracting HIV. HIV is more easily transmitted from men to women than women to men; male-to-female transmission during sex is about twice as likely as female-to male transmission (Zena *et al*., 1996 and Dixit, 2005). Biologically, young women appear to be more susceptible to HIV infection than older women; in sub-Saharan Africa, young women aged 15-24 were 2.5 times more likely to be infected as compared to young men.

In the present study, we found highest number of women in the age group of 25-34 years in the both HIV-infected groups, with 33.42% (128/383), in the T group while 30.83 % (41/133) in the C2 group, which shows different scenario/condition in our country (Table 4). The linkages between gender inequality and vulnerability to HIV and AIDS is now fairly well known. In fact, gender inequality and poverty are responsible for the spread and disproportionate impact of HIV and AIDS on women. "Faced with economic hardship, women and girls become more vulnerable to prostitution, trafficking and transactional sex in which they have little power to negotiate safe sex." (UNICEF, 2005). In India, women in general enjoy a very low economic and social status; the sex ratio of 933 women to 1000 men is one of the lowest in the world. This is the result of a strong son preference and the widespread sex selective abortion that is prevalent in the country. There is a large gender gap in literacy and employment as well. These gender inequalities get reflected in the sexual relations between husband and wife. First, men are more likely to play a dominant role and are more likely to initiate, dominate and control sexual interaction. In the Indian context, women do not have control over their own bodies and they do not have the right to decide when to have sex. As a result, women cannot negotiate safe sex and ask men to use condom. There is also lack of availability of female controlled HIV prevention methods. Secondly, the cultural norms and attitude of condoning multiple partnership or pre-marital or extra-marital sexual affairs of men in the society increases women's risk of getting infected with the virus. As a result of the low socio-economic status and limited educational opportunities, women and girls often lack basic information about HIV and AIDS. In India, knowledge and awareness about HIV and AIDS seem to be quite low, especially among women. For instance, the Behavioural Surveillance Survey conducted in 2001 found gender disparities in the knowledge about HIV and AIDS and the awareness was particularly low among rural women in Bihar, Gujarat, Uttar Pradesh (NACO, 2001). In addition, cultural taboos like speaking about sex or showing interest in or knowledge about sexual matters acts as a barrier to girls receiving HIV-related information from the elders or for that matter even from their peers.

The economic dependency on men is also one of the factors contributing to spread of HIV among women. Discriminatory inheritance rights, lack of access to and control over property and unequal access to education, healthcare and income earning activities further weakens their position. In addition, the various forms of violence against women further increase the risk of contacting HIV as sex is often forced on them. Thus, poverty, early marriage, trafficking, sex work, migration, lack of education, gender discrimination and violence against women are some of the factors responsible for the spread of HIV among women and girls in the Asia and the Pacific region (UNICEF, 2005). Gender analysis is crucial to understanding HIV/AIDS transmission and initiating appropriate programmes of action. Key to this is an understanding of the socially constructed aspects of male-female relations that underpin individual behaviour, as well as the gender-based rules, norms and laws governing the broader social and institutional context. Gender analysis forms the basis for the changes required to create an environment in which women and men can protect themselves and each other.

Reasons of more vulnerability of HIV/AIDS to women than men in General

1. Women are more susceptible to HIV infection on each sexual encounter because of the biological nature of the process and the vulnerability of the reproductive tract tissues to the virus, especially in young women. Men's and women's risks of acquiring HIV escalate in the presence of Sexually Transmitted Infections (STIs). STIs in women are less noticed and often go undiagnosed. The stigma of STIs in women also presents a barrier that discourages them from accessing adequate treatment.
2. Cultural, social and economic pressures make women more likely to contract HIV infection than men. Women are often less able to negotiate for safer sex due to factors such as their lower status, economic dependence and fear of violence.

3. There is a large difference in attitudes towards men's and women's sexuality before or outside marriage. Promiscuity in men is often condoned and sometimes encouraged, while it is usually frowned upon in women. One of the consequences of this gender difference is that men expose themselves to an increased risk of infection by having multiple partners, and in turn become the vector for transmission of HIV/AIDS to their partners, even if the women themselves are not behaving promiscuously.
4. Young women and girls are increasingly being targeted for sex by older men seeking safe partners and also by those who erroneously believe that a man infected with HIV/AIDS will get rid of the disease by having sex with a virgin.
5. Women and girls tend to bear the main burden of caring for sick family members, and often have less care and support when they themselves are infected.
6. Women known to have HIV/AIDS are more likely to be rejected, expelled from the family home, denied treatment, care and basic human rights.
7. There is also a strong gender difference in the age-related prevalence of HIV/AIDS, with the average age of infected women in Africa typically being several years lower than that for men. For example, 1998 data for Namibia shows that most of the women who tested positive for HIV were in their twenties, while most of the men were in their mid-to-late thirties.

In the present study maximum number of 623 patients (49.84%) were labourers both among 352 males (47.31%) and 276 females (53.49%). The study area is a urban but having big drainage areas of sub-urban and rural regions. Most of the labourers were engaged in agriculture, agricultural related activities and/or sugarcane, jiggery industries which also have migrant labourers. These labourers stay away from their families for long duration and get involved in promiscuous behaviour. This implies that the labourers are working as a link population and spreading the disease to general population. In females the second most affected group was of 179 housewives (34.68%) who are at mercy of their counterpart and are silent sufferers. They do not have the right to ask for contraception and suffer from deadly disease just because of their partners. In the present study 81 drivers (10.89%) were noted which had been less in number since the study area were far away from highways. The financially well off patients involved in the occupations like business, services constitute a totally different group they have more money and get involved in high risk behaviour when away from family.

Therefore they act as a bridging population and spread the disease from urban to rural area. The variation in occupations between present study and Joardar *et al*. (2006) could be due different occupations in different geographical areas. In the present study 68.88% women were illiterate, while 15.31 had education up to primary school. So, total 84.30% women were had very low education. Total 66.82 % HIV infected patients had very low level education. Hargreaves *et al*., 2006 indicated that macroeconomic policy may affect an individual's risk for being HIV positive. Further, among men, the extent of state-level inequality may create conditions under which lower educated men engage in risky sexual behavior whereas women may be less empowered to control their sexual behavior regardless of the inequality of the state in which they live. Perhaps a policy targeting places, in addition to targeting people, would prove successful in addressing HIV in India. Further systematic research is required to explore the variation in HIV prevalence and the specific mechanisms operating at the state level (as well as at the neighborhood level). Though India is a very low HIV prevalence country, it has a large number of infected people. On the one hand, the HIV epidemic in India may be more "generalized" than the responses to the revised HIV estimate indicated given the weak social gradient of HIV according to household wealth among both men and women. On the other hand, the epidemic may be focused on socially disadvantaged groups who mainly suffer an educational disadvantage, regardless of gender. The complex nature of these results is similar to other studies. Some studies have found an inverse relationship between socioeconomic status and HIV in wealthy countries (Ibrahim *et al*., 2008; Chu and Selwyn, 2008 and Majmudar, 2006). Other studies have illustrated a strong, positive relationship between socioeconomic status and HIV in sub-Saharan African countries (Mishra *et al*., 2007 and Shelton *et al*., 2005). This study, however, suggests an independent influence of education on HIV status beyond any influence that household wealth may have on individual HIV status.

Although India exhibited a relatively inconsistent relationship between household wealth and individual HIV status, the negative relationship between individual education and positive HIV status was stronger for both men and women. In the present study 486 patients (38.54%) belonged to very low socio-economic status and 426 (33.78%) belonged to low socio-economic status. Totally 912 (72.32 %) patients in the present study belonged to lower socio-economic group. Some argue that poverty creates the conditions – limited access to education, employment, training – for risk-taking and high risk sexual activity, and, thus, increasing exposure to HIV (Fenton, 2004). Others argue that wealth is associated with HIV by enabling individuals to purchase sex and maintain multiple concurrent sexual partnerships which increase exposure to HIV (Carter *et al*., 2007). The varying increased risk for positive HIV status by household wealth in India does not adhere solely to either of these theories. One reason for a weak wealth gradient may be that access to HIV prevention services does not depend on a household's ability to pay, for example, for free condom distribution.

Furthermore, although increased wealth may improve access to healthcare facilities which offer services to help reduce HIV transmission, utilization is not guaranteed because agency may not be guaranteed. Thus, solely poverty reducing strategies (Fenton, 2004), may not be the most effective intervention to reduce HIV prevalence in India. Similarly, the patterning of HIV status by education shown in this study (reduced risk associated with increased education) is confirmed by research in India (Becker *et al*., 2007) and in Africa (Barnighausen *et al*., 2007), though contrasted by research in some developing countries (Hargreaves and Glynn, 2002). People with greater education may have adopted risk-reduction behaviours more quickly than those with less education because the well educated were more exposed to health promotion messages or more empowered to negotiate protective behaviours with sexual partners (Hargreaves and Glynn, 2002 and Barnighausen *et al*., 2007). The different demographic and behavioural patterning of HIV status between men and women

suggests that groups differing on factors apart from just SES will be at high risk. Future studies should explore why age is important for men and not for women, and why multiple sexual indicators are predictive of a woman's HIV status, but not for men. These different patterns provide support for a generalized approach to HIV prevention so that all of the various groups at increased risk are likely to be reached by prevention programs. At the same time, if prevention interventions are targeted at a specific gender, taking into account age, marital status, and behavioural indicators may increase effectiveness because it may allow reaching out to certain groups of people beyond the typical "high risk" groups. Given these mixed results, India may want to be cautious in pursuing a solely "high risk" group strategy (referred to in the responses to the revised estimate) because it may not be the most effective way to combat HIV in India. However, the inverse relationship between education and HIV status should not be ignored as there is a clear relationship of increased risk for those with less education, presenting a different type of "high risk" group.

The epidemic continues to demand a serious and sustained national commitment (Rao *et al*., 2004). The lack of a clear social gradient of HIV according to wealth may indicate a "generalized" epidemic in India. However, the evidence of an educational gradient implies that the lower educated represent a high risk group for targeted prevention efforts. Further, study of Jessica Perkin *et al*. (2009) had highlighted several types of high risk groups that represent people beyond those who are traditionally thought of as "high risk", evidence which might be interpreted as supporting a picture of a more generalized epidemic than originally thought. Although the Indian Government's response to the country's HIV epidemic reflects a sincere, intensive, and long-term commitment to effective HIV prevention and care (Claeson and Alexander, 2008), prevention efforts which ignore some evidence of a "generalized" epidemic of HIV, or ignore other types of "high risk" groups, may prove inadequate, at best, for national AIDS control policy in India.

Conclusion and Recommendations

The results show a that greater number of the subjects are females with a good number of them lying below the age 44 years with at least 5 years of primary education but surprisingly low levels of income because of lack of jobs. It can therefore be inferred that the number of the people that contract the disease will probably reduce should there be an avenue for employment and other in-built structures put in place for the youths in these regions Based on the above, the following suggestions and recommendations are made: Promoting abstinence and faithfulness, promoting reductions in the number of sexual partners, encouraging delays in the onset of sexual activity among adolescents, promoting the correct use and consistent availability of condoms; strengthening programmes for STD control and encouraging voluntary counselling and testing. One set of intervention focuses on encouraging people to abstain from sex before marriage and remain faithful to a single partner. This could be promoted through a combination of mass media, counselling, and education programmes. Delays in the onset of sexual activity among adolescents can have a significant impact on the spread of HIV.

Information, education, and interventions to limit sexual transmission, encouraging voluntary counselling and testing communication and other programmes that address adolescents and the needs of young people. The reduction in the number of men who have unprotected sexual contact with prostitutes and bar attendants would contribute immensely in bringing the epidemic under control. Also promotion of condom use through mass media, counselling and education and to increase the availability of condoms through expanded public distribution, social marketing programmes, and programmes in the workplace. Special initiatives to promote condom use among high-risk populations such as commercial sex workers and long-distance truck drivers have proven effective in some countries. Recent efforts to increase risk perception especially among young people are, however, yielding some results as can be seen from the increased sales of condoms since the launch of the "STOP AIDS LOVE LIFE" in 2000 campaign. Another intervention focuses on controlling the spread of STDs such as syphilis, gonorrhoea and chanchroid because of the high positive correlation between HIV and sexually transmitted infections (STIs). One of the critical areas for the reduction of HIV infection is through programmes targeted at the prevention of mother-to-child transmission (MTCT).

Various approaches can be used to reduce the number of children who are infected. Interventions such as counselling, medical management, counselling on feeding options and the provision of (antiretroviral drug) Nevirapine. Health officials need to continue efforts to avoid infection through blood transfusion by keeping the blood supply to patients as safe as possible. This can be done by screening blood through laboratory tests and screening potential blood donors through interviews to reject as donors those who have a high probability of infection. Each of the measures described above can make an important contribution to the reduction of HIV. Adoption of these measures in isolation is not likely to solve the problem completely; some people will respond to or be affected by one type of intervention while others will respond to or be affected by another. Computer simulations suggest that a much larger effect can be achieved by implementing all the interventions together in a broad attack on the epidemic. An effective blood-screening programme, represented by the second line from the top reduces prevalence only modestly. However, an effective STD control programme brings expected prevalence down, and condom promotion and partner reduction interventions reduce HIV prevalence even more. Most importantly, when all four interventions are implemented simultaneously, the projected prevalence is reduced.

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