



A STUDY OF PREVALENCE OF HIV INFECTION ACCORDING TO SEX, AGE AND MODE OF TRANSMISSION – A RETROSPECTIVE OBSERVATIONAL STUDY AT TERTIARY CARE HOSPITAL, JHARKHAND.

Medical Science

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ABSTRACT

Objectives – To estimate the prevalence of HIV, associated socio-demographic factor and mode of transmission in a population of those who are attending in ICTC counselling center of tertiary care hospital of Jharkhand.

Materials and methods – The survey interviews were performed with patients capable to consent and with those accompanied by a capable caregiver who consented. HIV counselling and testing was offered to participants.

Results – A total of 2904 persons were surveyed; 151 of these subjects were positive for HIV, yielding an overall prevalence of HIV infection of 5%(151/2904) in this sample. Among HIV +ve individuals(151), males(80/151) are more prone to infection i.e 53%. Among age distributions the key affected populations are 35-49 years of age group (59/151) 39%. Among the population more HIV +ve individuals are commercial sex partners 44%(66/151).

Conclusion – HIV prevalence among persons attending the clinic, particularly men, was higher than among the general population in a population survey. The extremely high prevalence of HIV suggests an urgent need to allocate adequate resources for HIV prevention and treatment in this area. Effective monitoring of the epidemic in Jharkhand needs to include efforts to strengthen sentinel surveillance of HIV in rural areas and strategies for the surveillance of migrants and mobile individuals and commercial sex workers.

KEYWORDS:

Commercial sex partner, HIV prevalence, HIV surveillance, ICTC counselling center

Introduction :

The AIDS prevalence rate in India is lower than in many other countries. In 2015, India's AIDS prevalence rate stood at approximately 0.26% — the 90th highest in the world.[1] The spread of HIV in India is primarily restricted to the southern and north-eastern regions of the country and India has also been praised for its extensive anti-AIDS campaign.[2] The main factors which have contributed to India's large HIV infected population are extensive labor migration, poor knowledge of sex education and low literacy levels in certain rural areas resulting in lack of awareness and gender disparity.[3] The Government of India has also raised concerns about the role of intravenous drug users and prostitution in spreading AIDS, especially in northeast India and certain urban pockets.[3] Recent studies suggest that many married women in India, despite practicing monogamy and having no other risk behaviours, acquire HIV from their husbands and HIV testing of married males can be an effective HIV prevention strategy for general population.[4] The states with high HIV prevalence rates include Manipur (1.40%), Andhra Pradesh (0.90%), Mizoram (0.81%), Nagaland (0.78%), Karnataka (0.63%) and Maharashtra (0.55%). The adult HIV prevalence in India is declining from estimated level of 0.41% in 2000 through 0.36% in 2006 to 0.31% in 2009.[5]

According to Avert,[6] the statistics for special populations in Jharkhand are as follows:

State	Antenatal clinic HIV prevalence 2007 (%)	STD clinic HIV prevalence 2007 (%)	Female sex workers HIV prevalence 2007 (%)
Jharkhand	.00	.40	1.09

Rising or stabilising epidemics in some of India's states/UTs and insufficient decreases in key indicators such as new infections and AIDS related deaths in other states are also a source of concern. These trends and patterns in the epidemic need to be investigated at state and district level by analysing the new estimates in conjunction with data from programme monitoring, surveillance, evaluations and research. Triangulation and analysis of data from different sources, especially at state and district level, will allow drawing useful lessons on what works in programmes and what instead needs improvement. Understanding the epidemic at the local level (i.e. at the inter-state and intra-state levels) will provide useful insights on what needs to be done to consolidate achievements and accelerate progress towards the elimination of new infections and AIDS related deaths. HIV prevalence at a national level has declined notably in many states, but variations still exist across the states. This paper assessed HIV prevalence and risk factors among the population those who attended in ICTC counselling center of tertiary care hospital in Jharkhand.

Materials & Methods :

Study design:

This is a retrospective cross sectional study at tertiary care hospital of Jharkhand, India.

Study sampling:

The study sample included those visited the ICTC counselling center of RIMS, Ranchi for the period of 6 month i.e. January, 2016 to June, 2016. A sample of 2904 persons were recruited for the study.

Data collection:

The survey interviews were conducted in confidential settings by the field researchers using a questionnaire developed in the Hindi language. Data on the demographic, social, economic and living conditions of the subject were collected by means of a structured KABP (Knowledge, Attitude, Behaviour and Practices) survey questionnaire designed for this study. A blood sample was collected at integrated counseling and testing center (ICTC), RIMS, Ranchi from all study subjects by trained phlebotomists and transported the same day for serological testing i.e. ELISA in the microbiology department of RIMS, Ranchi. The tools were approved as part of the overall proposal approval process by the regulatory body of institute that insures the protection of human subjects in research. Written and/or verbal consent was obtained from all participants prior to the survey interview and blood sampling. Pre and post test counseling was done by trained counselors. The serological test i.e. ELISA results were distributed to participants in a confidential setting at a ICTC Counseling Center where participants were able to receive comprehensive HIV and STI (sexually transmitted infection) related services, if desired.

Data were collected on general demographic and family status, education, medical and health related issues, sexual behaviours, drug injecting behaviours and other drug use, knowledge and awareness of HIV and AIDS, and media habits. Male and female participants were interviewed by investigators of the same gender. All interviews were conducted in quiet, private areas designed to make the participant feel comfortable.

Serological testing:

HIV serological testing was carried out using the WHO evaluated Enzyme Linked Immunoabsorbent Assay (ELISA) (HIV1-2 ELISA Diagnostic Kit (ARKRAY Healthcare Pvt. Ltd.) at the laboratory facility of Institute. Tests were performed using the WHO recommended algorithm for HIV testing and screening. All samples were tested in triplicate with ELISA. If the first test result was positive

a second ELISA test was performed on that sample. If the second result was positive, further testing was not carried out, and the test result was considered "Confirmed Positive." If the second test result yielded negative results, a third test was carried out as a "tie breaker."

Observation : A total of 2904 persons were surveyed; 151 of these subjects were positive for HIV, yielding an overall prevalence of HIV infection of 5% (151/2904) in this sample. Among 151 HIV + ve persons consisted of mostly males 53%(80/151) and female were 47% (71/151).

HIV+ve	151	
Male	80	53%
female	71	47%

Table :- 1 showing sex distribution among HIV +ve patients

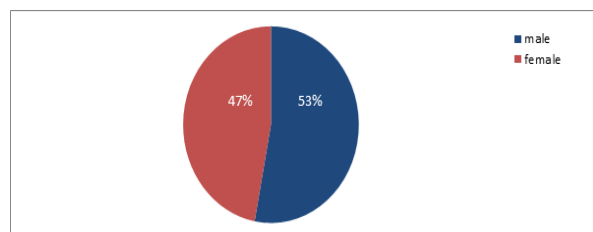


Diagram-1: showing sex variation among the HIV+ve patients.

According to age distribution, 35-49 yrs patients has shown the highest estimated HIV prevalence of 39%(59/151), followed by 25-34 yrs 28%(42/151), >50 yrs 12%(18/151), <14 yrs 11%(17/151) and 15-24 yrs 10%(15/151).

Age	HIV+ve	Percentage
<14	17	11%
15-24	15	10%
25-34	42	28%
35-49	59	39%
>50	18	12%

Table:-2, no of HIV +ve patients according to age variation

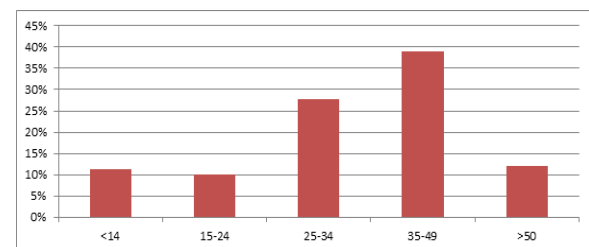


Diagram-2: Showing age distribution among HIV+ve patient.

According to the mode of transmission highest prevalence in commercial sex partner were 44%(66/151), followed by non-commercial regular partner(who is having regular sexual habit) were 37% (56/151), parent to child 9%(13/151), non commercial/non regular partner(who is not having regular sexual habit) 7%(11/151), transmission by blood & blood products 2%(3/151), homosexual 1%(1/151), & nonspecific/unknown 1%(1/151), transmission by infected syringe/ needle 0%(0/151).

Transmission	Total no	Percentage
Commercial sex partner	66	44%
Non commercial/regular	56	37%
Parent to child	13	09%
Non commercial/non regular	11	07%
Blood/ blood products	03	02%
Homosexual/ bisexual	01	01%
Non specific/unknown	01	01%
Infected syringe/ needles	0	0%

Table :-3, Showing mode of transmission of HIV infection.

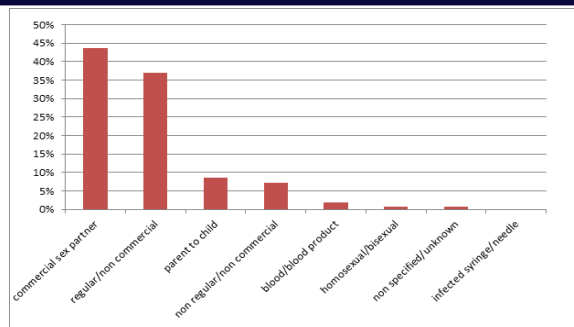


Diagram-3: showing the mode of transmission among HIV infection.

Discussion :

In our study we found that a total of 2904 persons were surveyed; 151 of these subjects were positive for HIV, yielding an overall prevalence of HIV infection of 5% in this sample. This is over 19 times higher than the estimated HIV prevalence of the general population of India at 0.26%(NACO-2015) [1] and 12.5 times higher than the estimated HIV prevalence of the general population who visits STD clinic in Jharkhand at 0.40%(NACO-2007).[6] In our study we found that male HIV patients were 53% and females were 47% that may be due to male is going to different partner. Recent studies suggest that many married women in India, despite practicing monogamy and having no other risk behaviors, acquire HIV from their husbands and HIV testing of married males can be an effective HIV prevention strategy for general population.[Among the age distribution, 35-49 yrs were more prevalent (39%) may be because of the fact that this is the most potent period having higher sexual activities.

Among the different population commercial sex partners were more prevalent for HIV(44%) may be due to they are having unprotected sexual intercourse and lack of awareness about the HIV. An estimated 2.2% of female sex workers in India are living with HIV, although this figure varies between states.[8] For example, one 2013 study cited HIV prevalence among sex workers in Maharashtra at 17.9%, Manipur at 13.1%, Andhra Pradesh at 9.7% and Karnataka at 5.3%.[9] Stigma and discrimination against sex workers restrict their access to healthcare. Sex workers are one of the high-risk groups targeted by India's National AIDS Control Organization (NACO) with peer-to-peer HIV interventions (when individuals from key affected populations provide services to their peers or link them to services within healthcare settings). In 2015, NACO reported reaching 77.4% of sex workers with HIV prevention activities of this kind.[10]

Among key affected population Prevalence among those who were transmitted the infection using infected syringe/needle were less in number i.e. 0% than other part of India may be due to they are least interested for HIV testing and counselling as well. On the other hand the number of people who inject drugs (sometimes referred to as PWID) living with HIV in India is rising. The prevalence rate remained steady at around 7% between 2007 and 2013, but was estimated at 9.9% in 2015.[11] Injecting drug use is the major route of HIV transmission in India's north-eastern states.[12] HIV prevention efforts in the north-east have been effective in reducing the number of new infections. However, there is evidence that the number of people who inject drugs is growing.[13] HIV prevention activities for people who inject drugs in India include needle and syringe exchanges and opioid substitution therapy (OST), with the former intervention more common. NACO reports the number of clean needles and syringes distributed as 16.5 million as of September 2015, a figure that is rising year on year.[14]

In our study the HIV prevalence among homosexual/bisexual is 1%. On the other hand around 4.3% of men who have sex with men in India are living with HIV.[15] A 2015 study of men who have sex with men, conducted across 12 Indian cities, found that 7% tested positive for HIV.[16] The legal status of same-sex conduct in India has fluctuated in recent years. In December 2013, India's Supreme Court re-criminalised adult consensual same sex sexual conduct, after the Delhi High Court had decriminalised it in 2009. This raised fears about access to HIV prevention and treatment for men who have sex with men.[17,18] However, in February 2016, India's Supreme Court announced a review of the 2013 decision.[19]

2015 HIV Estimates results reaffirm the country's success story in responding to HIV/AIDS epidemic. India has successfully achieved the 6th Millennium Development Goal (MDG 6) of halting and reversing the HIV epidemic. Between 2000 and 2015, new HIV infections dropped from 2.51 lakh to 86 thousand, a reduction of 66% against a global average of 35%.[20] While reduction of new infections is testimony of impact of prevention programmes, India has also demonstrated progress in halting and reversing the number of AIDS-related deaths by expanding care, support and treatment services at an incredible pace after initiation of treatment in April 2004. By 2007, AIDS-related deaths started to decline, falling by 54% from 2007 to 2015 against a global average of 41% decline during 2005-15.[21] India has managed to achieve MDG 6 because it has pioneered evidence-informed responses to the epidemic and has provided a comprehensive package of prevention as well as treatment services. However, results of the new estimates presented in this technical report, show that there remain a number of challenges ahead. The pace of reductions in new HIV infections has decreased indicating greater prevention efforts will be required to change the epidemic trajectory further. This is a necessary condition if NACPIV's prevention targets are to be reached by 2017.

Conclusion :

In our observation we found that the commonest mode of transmission is in commercial sex partners i.e. 44% followed by non commercial/regular is 37%, direct transmission from parent to child is 9%, non commercial/non regular are 7%, blood/blood products is 2%, through infected syringe/ needles 1%,homosexual/bisexual is 1% and not specified/unknown 1%. It may be due to that commercial sex workers having unprotected sex with different partners. Sex education is very important to prevent the prevalence of HIV in commercial sex partners.

In our study the percentage of patient acquired HIV through infected syringes is '0' although it is one of the most important mode of transmission may be due to the fact that this type of patient are not reporting to our center.

On the other hand the extremely high prevalence of HIV suggests an urgent need to allocate adequate resources for HIV prevention and treatment in this area. Effective monitoring of the epidemic in Jharkhand needs to include efforts to strengthen sentinel surveillance in rural areas and strategies for the surveillance of migrants and mobile individuals and commercial sex workers.

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