ORIGINAL RESEARCH PAPER

Volume-7 | Issue-11 | November-2018 | PRINT ISSN No 2277 - 8179

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

TREND ANALYSIS OF HIV AND SYPHILIS PREVALENCE OF MOST AT RISK POPULATION AND ITS FUTURE PROJECTION IN WEST BENGAL

Medical Science

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ABSTRACT

Background: West Bengal is a low-prevalent state with high vulnerability for HIV (Human Immunodeficiany Virus) epidemic. Female Sex Workers (FSW), Men having Sex with Men (MSM), Injecting Drug Users (IDU), Transgender (TG), Long Distance Truckers (LDT) and Migrant Labour(ML) constitute high risk population who are at risk to acquire HIV and other sexually transmitted infections (STIs) like syphilis and transmit the same to others.

Objective: To determine the trend of HIV-positivity and Syphilis prevalence among different high risk population attending HIV Counselling and Testing Services (HCTS) over a period of three years and to project future HIV positivity based on ongoing trend

Methodology: The study was conducted with available program data year-wise from 2015-16 to 2017-18 among different group of at risk population availing HIV testing and other STI services. Year-wise positivity and Syphilis prevalence were calculated and trend-analysis was performed using growth rate. Based on the current trend, HIV positivity and Syphilis positivity among the different high risk group population was calculated and projected for 2018-19 and 2019-20.

Results: The HIV-positivity was found to be highest among TG population followed by MSM and FSW but projected HIV positivity for 2018-19 and 2019-20 were found to be lower than 2017-18 for the respective subpopulation at risk. Similarly Syphilis prevalence was found to be highest among LDT population followed by ML and FSW but projected Syphilis prevalence for 2018-19 and 2019-20 were found to be lower than 2017-18 for all groups except TG where it predicted that Syphilis prevalence would further increase in coming future.

Conclusion: All the HIV preventive services should be continued as per program protocol but Syphilis detection and preventive services needs to be enforced in focussed manner in case of TG population.

KEYWORDS

HIV positivity, Syphilis prevalence, high risk groups, TG, FSW, LDT, MSM, ML, IDU

BACKGROUND:

So far as HIV epidemic is concerned, India bears the third highest burden of HIV infected individuals of the world. As per HIV estimate 2015 (1), the adult prevalence of HIV infection in India is 0.26%, among them 0.3% is the male prevalence and female prevalence is 0.22%. India's epidemic is concentrated among key populations including sex workers and men who have sex with men. Among key affected populations, female sex workers (FSW) and men who have sex with men (MSM) have experienced decline in HIV prevalence. In 2016, an estimated 2.2% of female sex workers in India were living with HIV. Around 4.3% of men who have sex with men in India are living with HIV, with just over a third aware of their status. NACO estimates HIV prevalence among this group to be 7.2%. The number of people who inject drugs 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. Research worldwide has linked migration to increases in HIV transmission. There are an estimated 7.2 million migrant workers in India, of whom 0.19% are living with HIV. A number of studies from India have reported high vulnerability of truckers to HIV transmission. NACO estimates that 2.59% of the two million truckers in India are living with HIV (2).

West Bengal is a low-prevalent state with high vulnerability for HIV. Female Sex Workers (FSW), Men having Sex with Men (MSM), Injecting Drug Users (IDU), Transgender (TG), Long Distance Truckers (LDT) and Migrant Labour(ML) constitute high risk population who are at risk to acquire HIV and other sexually transmitted infections (STIs) like Syphilis and transmit the same to others. There is hardly any study which predicts the future prevalence of HIV among the high risk group subpopulation. This study aims to determine the trend of HIV-positivity and Syphilis prevalence among different high risk population attending HIV Counselling and Testing Services (HCTS) over a period of three years and to project future HIV positivity based on ongoing trend.

MATERIALS AND METHODS:

- **Study type and design:** Retrospective record based study carried out through analysis of secondary programmatic data
- **Study period:** Three years (April'15 to March'18)
- **Study population:** All the individuals linelisted to have high risk behaviour to acquire HIV and sexually transmitted infections who were screened for HIV and Syphilis from 2015-16 to 2017-18 at HCTS facilities in West Bengal.
- **Data source:** Program data i.e. year wise data of key population wise testing figure, positive detection and individuals with Syphilis were retrieved from 31 indicators from Targeted Intervention program and were computed in year wise fashion.
- **Analysis tool:** The data was computed and compiled in excel sheet and growth rate was calculated and based on the growth rate projected prevalence was determined for 2018-19 and 2019-20.
- **Ethical consideration:** Shared confidentiality was maintained while collecting and analyzing the data. All HIV screening was done with prior consent of the client as per guideline of National AIDS Control Organization.
- **Operational Case definition:**
- **High Risk Group (HRG):** This is group of population who are at high risk to contract HIV infection. These are female Sex workers, Men having sex with men, Injection drug user, Transgender, Migrant labour, Long distance truckers.

RESULT:

So far as HIV testing is concerned, the testing figure has increased from 2015 to 2018 but HIV positivity has shown a declining trend over the years (Table-1). With available trend, growth rate for HIV testing and HIV positivity was calculated. The projected testing load and HIV positivity among the HRGs for 2019-20 is 43871 and 0.24% as opposed to 34974 and 0.39% respectively during 2017-18 (Table-2). The HIV-positivity was found to be highest among TG population followed by MSM and FSW but projected HIV positivity for 2018-19 and 2019-20 were found to be lower than 2017-18 for the respective subpopulation at risk. The rate of decline in HIV positivity is expected to be highest among ML and IDU in coming years. Regarding Syphilis testing and positivity, the testing figure has decreased from 2015 to 2018 but Syphilis positivity has shown a declining trend over the years

(Table-3). With available trend, growth rate for Syphilis testing and Syphilis positivity was calculated. The projected testing load and Syphilis positivity among the HRGs for 2019-20 is 85368 and 1.95% as opposed to 110238 and 2.91% respectively during 2017-18 (Table-4). The Syphilis prevalence was found to be the highest among LDT population followed by ML and FSW but projected Syphilis prevalence for 2018-19 and 2019-20 were found to be lower than 2017-18 for all groups except TG where it predicted that Syphilis prevalence would further increase in coming future.

DISCUSSION:

As per the result, it is evident that HIV epidemic in West Bengal for all high risk group sub population is in declining mode but it is still higher than HIV adult prevalence i.e. 0.21% as per NACO (National AIDS Control Organization) HIV estimate 2015. Even with current interventions, the projected prevalence of HIV for 2019-20, will still remain to be higher than adult HIV prevalence which is also expected to come down with time from 2015 figure. Therefore, in order to bring it down further to equivalent to adult HIV prevalence, preventive strategies need to be upscaled further and innovative approaches need to be put in places for better outcome. The program data with which the study was conducted differs from HIV Sentinel Surveillance data (HSS) for 2016-17 in respect to the HIV prevalence for each of the typology of key population. The HSS 2016-17 data show HIV prevalence for IDU-10.76%, MSM-2.34%, FSW-1.25%, LDT-2.8% and ML-0.8% (3) as compared to 0.17%, 0.70%, 0.51%, 0.49% and 0.69% respectively as evident from program data. Regarding syphilis positivity, the trend also shows a downhill pattern for almost all types of HRG subpopulation except TG.

There are very few studies which dealt with trend of HIV epidemic. There is one study on overview of HIV epidemic in India (4) which states that targeted HIV prevention strategy in recent years is strongly associated with a fall in infection rate in both low- and high-risk groups. The trend of HIV epidemic and drivers of epidemic vary from one state to other in India but there is hardly any study which dealt with state specific epidemic trend with specific focus on high risk group population. Therefore, this study is unique in this regard. Moreover, through this study, necessary projection has been made for future HIV and syphilis prevalence.

There are a few studies in the international arena which dealt with trend of HIV epidemic. One of them was conducted in Japan (5) and other in China (6). Regarding trend of HIV epidemic in high risk group population, most of the studies have been made for MSM population. In one Norway based study, the proportion of MSM, presenting with either AIDS or HIV illness, decreased over time, while asymptomatic and acute HIV illness increased. An overall increase of syphilis co-infected cases was also observed (7). There is another study in China conducted on MSM population for STI prevalence, which showed slight increase in prevalence of STIs among MSH from 2004 to 2006. This apparent rise was accompanied by an increase in syphilis and self-reported history of sexually transmitted diseases (STDs), high prevalence of multiple sex partners, and low consistent condom use(8).

CONCLUSION:

Though HIV and syphilis prevalence among the high risk group population is gradually coming down, yet it is important to accelerate the rate of decline further. Therefore, newer strategies need to be adopted in conjunction with targeted intervention to achieve faster rate of decline.

Table-1: Year wise trend in HIV screening and positivity among HRGs

Typology	Tested for HIV			positive for HIV			HIV prevalence %		
	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18
FSW	14679	17205	19405	76	88	82	0.52	0.51	0.42
MSM	1616	1708	1823	14	12	14	0.87	0.70	0.77
TG	366	292	343	5	1	4	1.37	0.34	1.17
IDU	826	1175	1368	6	2	2	0.73	0.17	0.15
Truckers	4184	5255	6267	37	26	25	0.88	0.49	0.40
Migrants	6111	5812	5768	39	40	9	0.64	0.69	0.16
Total	**27782**	**31447**	**34974**	**177**	**169**	**136**	**0.64**	**0.54**	**0.39**

Table-2: Projected load of HIV testing and positivity among HRGs

Typology	Using growth rate							
	Tested for HIV			Positive HIV			HIV prevalence %	
	Growth Rate	2018-19	2019-2020	Growth Rate	2018-19	2019-2020	2018-19	2019-2020
FSW	0.15	22316	25663	0.04	85	89	0.38	0.35
MSM	0.06	1932	2048	0	14	14	0.72	0.68
TG	-0.03	333	323	-0.11	4	3	1.2	0.93
IDU	0.29	1765	2276	-0.42	1	1	0.06	0.04
Truckers	0.22	7646	9328	-0.18	21	17	0.27	0.18
Migrants	-0.03	5595	5427	-0.52	4	2	0.07	0.04
Total	0.12	39171	43871	-0.12	120	105	0.31	0.24

Table-3: Year wise trend in Syphilis screening and positivity among HRGs

Typology									
	Tested for Syphilis			positive for Syphilis			Syphilis prevalence %		
	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18
FSW	78223	64059	55230	2108	1872	1335	2.69	2.92	2.42
MSM	2498	3399	3102	193	185	55	7.73	5.44	1.77
TG	752	790	791	8	5	11	1.06	0.63	1.39
IDU	2916	3594	3218	27	0	0	0.93	0.00	0.00
Truckers	43086	43750	37463	2759	2200	1430	6.40	5.03	3.82
Migrants	13520	13578	10434	1132	709	373	8.37	5.22	3.57
Total	140995	129170	110238	6227	4971	3204	4.42	3.85	2.91

Table-4: Projected load of Syphilis testing and positivity among HRGs

Typology	Using growth rate							
	Tested for Syphilis			Positive Syphilis			Syphilis prevalence %	
	Growth Rate	2018-19	2019-2020	Growth Rate	2018-19	2019-2020	2018-19	2019-2020
FSW	-0.16	46393	38970	-0.2	1068	854	2.3	2.19
MSM	0.11	3443	3822	-0.47	29	15	0.84	0.39
TG	0.03	815	839	0.17	13	15	1.6	1.79
IDU	0.05	3379	3548	-1	0	0	0	0

Truckers	-0.07	34841	32402	-0.28	1030	741	2.96	2.29
Migrants	-0.12	9182	8080	-0.43	213	121	2.32	1.5
Total	-0.12	97009	85368	-0.28	2307	1661	2.38	1.95

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