

# Sociobehavioural matrix and knowledge, attitude and practises regarding HIV/AIDS among female sex workers in an international border area of West Bengal, India

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## ABSTRACT

**Background:** HIV/AIDS is still a big public health challenge of India. Female Sex Workers (FSWs) belong to an important high risk group (HRG) in the transmission of HIV/AIDS. International borders have intermingling of population and also plenty of migrant population. Thus study on FSW s with relation to HIV/AIDS in an international border area is an important area of Research. **Aims:** The present study was planned with the objectives of: to determine the sociodemographic profile of the FSW under the study, to assess their knowledge and attitude towards HIV/AIDS and to find out their sexual practices. **Settings and Design:** It was a community based descriptive cross sectional study, done at the Indo-Bhutan border town of Jaigaon in Alipurduar District of West Bengal with the help of a Non-governmental organization (NGO) working on Targeted Interventions (TI) for FSW. **Methods and Material:** Total 90 FSWs were interviewed using predesigned pretested questionnaire. The questionnaires used were prior validated by National AIDS Control Organisation (NACO). **Statistical Analysis Used:** The data were analysed by SPSS 14.0. **Results and Conclusions:** The analysis revealed that 35 % of the study population were illiterate. It was also found that 81% of respondents had heard about HIV/AIDS; 76.7% had knowledge about its spread through vaginal sex, 67.8% had idea regarding its Mother to Child transmission. 92% felt PLHIV should not be kept away from others, 93% felt they shouldn't be deprived from property. Regarding sexual activity, 76.7% had sexual activity more than 3 times/week and 97.8% used condom persistently in last one year. Coordinated Efforts is required to be taken in this regard to tackle these problems.

**Keywords:** Condom, female sex worker, HIV/AIDS, KAP

## Introduction

The HIV/AIDS epidemic is one of the world's most serious public health and social problems. India, the third-largest economy in Asia and eleventh largest of the world,<sup>[1]</sup> houses the

second largest population around the globe<sup>[2]</sup> with more than one billion people, half of whom are adults in the sexually active age group. Government of India has taken interventions in this regard to reduce the infection in India in the past few decades.<sup>[3,4]</sup>

At present, India has the third-largest number of HIV and AIDS cases after South Africa and Nigeria. Sentinel surveillance

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conducted by the National AIDS Control Organisation (NACO) shows that in the general population HIV prevalence is low (0.25–0.43%) but among high-risk groups, HIV prevalence is much more. Commercial sex workers (CSW) and their clients are at the highest risk for HIV infection and transmission.<sup>[5,6]</sup>

HIV transmission in India occurs primarily through heterosexual contact,<sup>[7]</sup> with most of it driven by the male use of female sex work.<sup>[8,9]</sup> As in other Asian settings, the spread of HIV in India including the general population depends largely on the size of the female sex worker (FSW) and client populations and the rate of their unprotected sexual contact.<sup>[10]</sup>

Currently, around the globe, 17 million people were accessing antiretroviral therapy.<sup>[11]</sup> In India, there were 21.17 lakh (17.11 lakhs–26.49 lakhs) people living with HIV (PLHIV) as in 2015 and it was also estimated that approximately 13.45 lakh people were under antiretroviral therapy in 2015.<sup>[12]</sup>

Available evidence shows that the heterosexual route is the most common (88.2%) route of HIV transmission and one of the important primary drivers of the HIV epidemic in India is unprotected sex with FSW. It was estimated in National Integrated Biological and Behavioural Surveillance (IBBS) 2014–15, that HIV prevalence among the FSWs at national level was 2.2% (95% CI: 1.8–2.6) and highest HIV prevalence among FSWs was recorded in Maharashtra as 7.4% (95% CI: 4.5–11.9) during 2014–15.<sup>[13]</sup>

Except for the north-eastern states, HIV in India is mostly attributed to heterosexual transmission,<sup>[13]</sup> and significant efforts have been focused on FSW for prevention of transmission. Some research work suggested that sex worker interventions in India would stop the epidemic.<sup>[14]</sup> To reduce the transmission risk of HIV in any population effectively, it is of utmost importance to understand its sources and interventions strategies.<sup>[15]</sup> In India, for HIV prevention and control, strategies have been focused on health education, screening and treatment for sexually transmitted infections (STI), and condom promotion and distribution among FSWs.<sup>[16–18]</sup> However, there is increased consensus among the researchers that they must go beyond such measures to address the multiple contextual, historical and structural factors that perpetuate the vulnerability of FSW. International borders enable a mixture of populations and often increase in high-risk behaviour. Many people come to an international border for trade thus there is a flying population who are prone to do indulge in high-risk sexual behaviour. Thus, studying the sex worker population in an international border area is an interesting area of study.

As per the India HIV estimation 2015 report, adult (15–49 years) HIV prevalence was estimated at 0.26% (0.22–0.32%) in 2015. In 2015 adult HIV prevalence was estimated at 0.30% among males and 0.22% among females. India is estimated to have around 86 (56–129) thousand new HIV infections in 2015. Around 66% decline was observed in new infections from 2000 and a 32% decline from 2007. In recent years, newer pockets of high HIV

infection have emerged among different risk groups and the general population in some north and east Indian states that are known to have a low HIV prevalence.<sup>[19]</sup>

Meta-analysis study conducted by Owrang *et al.* revealed that the global prevalence of HIV/AIDS among FSW was 2.17.<sup>[20]</sup>

HIV/AIDS is one of the major public health challenges in India. This study deals on the evaluation of the primary healthcare programme implementation in HIV/AIDS in a very challenging area in an international border. The study site gives an additional insight into the primary care services regarding HIV/AIDS in an international border where there is a gross population intermixing thus increasing the vulnerability of this deadly disease.

National AIDS Control Programme (NACP) is one of the successful public health programmes which have been able to tackle the increasing challenge of this public health problem in India. The key to the success of NACP lies in the level of implementation of the programme in the primary care level. The targeted interventions must reach the high-risk group and bridge population properly so that this problem may not spread to the general population which would then pose a grave public health challenge. Thus, the proper evaluation of the level of implementation of the programme at the primary care level is perhaps one of the most important parts of the primary healthcare activity of the programme. This present study deals with the same.

## Materials and Methods

It was a community-based descriptive cross-sectional study conducted at Indo-Bhutan border town of Jaigaon in Alipurduar District of West Bengal, India. There was a nongovernmental organisation (NGO) working in targeted interventions (TIs) for high-risk groups (HRG) among FSW under the National AIDS Control Programme phase III (NACP-III). The service area of the NGO had 20 hotspots (cruising areas of FSWs for customers). Nearly 50%, constituting 10 hotspots were selected by simple random sampling (SRS) method for the present study. The FSWs in the selected hotspots who gave informed consent were considered as study participants. Thus, 90 FSWs were included and interviewed for this study. Information related to sociodemographics, knowledge, attitude and practise to prevent HIV transmission and their sexual behaviour were collected through a mixed-method (combined quantitative and qualitative) approach, namely structured interview and focused group discussion (FGD) using a predesigned and pretested schedule in local language developed by NACO and an FGD guide. After obtaining informed consent, the selected FSWs were interviewed in the presence of a peer member and outreach worker (ORW) after ensuring anonymity and confidentiality. The collected data were compiled and analysed by describing variables by mean, standard deviation and proportion as well as displaying data with tables and charts. The software package of the SPSS 20.0 version was utilised for data analysis. The evaluation was done

under the directive of West Bengal State AIDS Prevention and Control Society. The ethical clearance of the said Evaluation was taken from the ethical Committee of West Bengal State AIDS Control and Prevention Society and concurrence was taken from the Technical Advisory Group of National AIDS Control Organisation (NACO).

## Result

The pertinent sociodemographic findings of the study are as follows:

About 34.44% of the study population were illiterate, 23.3% have education status below class VIII, only 6.67% passed class XII. While considering income 18% of people of the study population had income below INR 1000, 70% people had income between INR 1001 to INR 3000 and 17.7% people had their income between INR 3001–5000. On the other hand, it was found that 45.57% of the study participants were married, 20% were unmarried and 24.67% were divorced. Around 32%, 48.89% and 18.89% of the respondents had their own house, were residents of rental flat and were staying as paying guest, respectively [Table 1].

Regarding knowledge of the study population 90% had heard the name of HIV/AIDS. Strikingly, 10% of the study population were unaware of HIV/AIDS. Regarding the mode of the spreading of HIV/AIDS, 76.67% knew that it infects through the vaginal route of sexual activity, nearly 94.4% knew about sharing of the needle and 67.78% knew about the mother-to-child transmission (MTCT). HIV can be transmitted through blood was known to 54.44% of the study population. Moreover, 6.67% of the study population had the idea that HIV can be spread by touch while 84.44% of the study population knew that HIV/AIDS can be tested [Table 2].

Next question was asked regarding regression of mechanism of harassment if any. Around 61% of the study population expressed that they face any harassment and 4% of them would go to a local club if they face harassment. Strikingly, 32% of the study population stated that they go to local goons if they face any harassment [Table 2].

While assessing the attitude about HIV/AIDS in the study population, 82.2% of them were worried about infected with HIV, 32.2% of the study population surprisingly said that people with HIV/AIDS were of improper characters. Around 92% of the participants in this study believed that patients with HIV should not be isolated while 93.3% of the participants believed that people with HIV/AIDS should not be deprived of their property but contrarily 6.67% thought that patients with HIV/AIDS should be deprived of their property [Table 3].

While assessing the practise of the study population regarding sexual activity, 98.89% of the participants in this study had practised vaginal sex and 73.56% had practised oral sex in the last

**Table 1: Sociodemographic profile of the respondents (n=90)**

Sociodemographics	Number	Percentage
Marital Status		
Married	41	45.56
Unmarried	18	20.00
Divorced	24	26.67
Separated	7	7.78
Types of residence		
Own residence	29	32.22
Rental flat	44	48.89
Paying guest	17	18.89
Educational Status		
Illiterate	31	34.44
Vocational training	9	10.00
Below class VIII	21	23.33
Class VII passed	13	14.44
Class X passed	10	11.11
Class XII passed	6	6.67
Per capita monthly income (INR)		
<1000	18	20.00
1001-3000	65	72.22
3001-5000	7	7.78

**Table 2: Distribution of the participants according to knowledge about HIV (n=90)**

Knowledge	Number	Percentage
Heard about HIV		
Yes	81	90
No	9	10
Mode of HIV spread (in multiple responses)		
Vaginal sex	69	76.67
Sharing of needle	85	94.44
Mother to child	61	67.78
Blood	49	54.44
From infected syringe	29	32.22
Opinion about AIDS		
1 <sup>st</sup> stage HIV	63	70
A killer disease	13	14
Do not know	14	16
You can get HIV and AIDS if you touch PLHIV		
Yes	6	6.67
No	84	93.33
Do you know HIV and AIDS can be tested		
Yes	76	84.44
No	14	15.56
Do you know where you have to go if you face any harassment		
Police station	55	61.11
Club	6	6.67
Local muscle men/others	29	32.22

3 months. Multiple responses have been found while assessing the condom use in last 1 year. Nearly, 97.78% used condom persistently in the last 1 year. While assessing the sexual activity frequency in the last 3 months, it has been found that 76.67% of the study population had sexual activity greater than thrice a week. Around 21.11% had sexual activity 1–2 times a week in the last 3 months [Table 4].

**Table 3: Distribution of the participants according to Attitude about HIV-AIDS (n=90)**

Attitude about HIV-AIDS	Number	Percentage
Worrying about infected with HIV		
Yes	74	82.22
No	16	17.78
PLHIV are of loose character		
Yes	29	32.22
No	61	67.78
HIV patients should be made to live away from others		
Yes	8	8.89
No	82	91.1
PLHIV should be deprived of their property		
Yes	6	6.67
No	84	93.33
You can get HIV and AIDS if you touch PLHIV		
Yes	7	7.78
No	83	92.22

**Table 4: Distribution of participants according to sexual practice (n=90)**

Practice about HIV-AIDS	Number	Percentage
Sexual activity practised in the last 3 months ( multiple responses)		
Vaginal sex	89	98.89
Oral Sex	68	75.56
Persistent condom use during the last 1 year		
Yes	88	97.78
No	2	2.22
Sexual activity frequency in the last 3 months		
> 3/week	69	76.67
1-2 times/week	19	21.11
1/month	2	2.22

## Discussion

The present study revealed 34.44% of the study subjects were illiterate. In another study conducted in Mumbai, Giri *et al.* reported a more than double proportion (72.8%) of the illiterate study population.<sup>[14]</sup> The present study revealed that 72.2% of the study population were in the income group of INR from 1001 to 3000. In the study done by Giri *et al.*, 43.8% of the study population were in the lower-middle-class group (BG Prasad scale). Similar kind of observation was made by Joge *et al.*<sup>[13]</sup> while working on CSW in Maharashtra and Joshi *et al.* in Western Nepal.<sup>[11]</sup>

In a study carried out in Andhra Pradesh by Hemlatha *et al.* (2011) roughly two-thirds of the FSW population was illiterate.<sup>[17]</sup> Around one-fourth (24%) of the FSW, the population were divorced in the present study and around 42.8% as reported by Hemlatha *et al.* (2011) in their study conducted in Andhra Pradesh. Similar kind of work has been carried out in Nepal (2007) while working on FSW population in Indo-Nepal Border.<sup>[19]</sup>

In the present study, 10% of the study population was not aware of HIV/AIDS. The majority knew about the major routes of transmissions of HIV/AIDS. The sexual route was mentioned by 76.67% of the study subjects and MTCT was known to be 67.78%.

Giri *et al.* (2012) showed that the sexual route of transmission was known to be 69% and MTCT was reported by 14% of the study participants.<sup>[14]</sup> As per the present study, 6.67% of respondents thought that HIV/AIDS spreads by touch. However, this figure was quite high i.e. 34% in the study conducted by Giri *et al.* (2012).<sup>[14]</sup>

Eight out of every ten participants (84%) of the FSW understudy reportedly knew about the facilities where HIV/AIDS can be diagnosed. More than half (61%) of the FSW understudy believed that they would approach police station in case of any harassment. Strikingly, 29% was of opinion that they would approach local goons in case of harassment if any. More than three-fourths (82.2%) of the study subjects were worried about being infected with HIV/AIDS. Two-thirds (68.8%) of the respondents did believe that people with HIV/AIDS have nothing wrong with their character. However, 8.9% and 6.7% of FSWs believe that PLHIV should live away from the others and they should be deprived of their property.

As per the present study, 98.9% of the study subjects had practised vaginal sex and 75.6% practised oral sex during the last 3 months. Three-fourths (76.7%) of them had sexual activity more than thrice per week in the last 3 months. On the other hand, the study of Giri *et al.* (2012) revealed that 46.6% of the study subjects had engaged in vaginal sex.<sup>[14]</sup> Average age of initiation of sexual activity of the study subjects of the present study was  $15.56 \pm 2.1$  (mean  $\pm$  SD) years but a study conducted by Hemlatha *et al.* (2011) revealed the mean age of sexual initiation to be 23.6 years.<sup>[17]</sup> One-fifth (20%) of the participants experienced sexual violence in the last 1 year. Studies from Africa and India have found that older FSWs were more vulnerable to HIV infection owing to their involvement in sex work for longer durations, practise of high-risk behaviour in the face of decreasing client load due to advancing age and due to their exposure to a larger numbers of clients over time as compared to younger FSWs.<sup>[21]</sup> Although varied, anal intercourse among FSW is generally common, inconsistently protected with condoms and practised sufficiently frequently to contribute substantially to HIV acquisition in this risk group.<sup>[22]</sup>

Persistent condom use was observed in 97.8% of the study subjects which was as per the study by Giri *et al.* (96%).<sup>[14]</sup> However, the study of Hemlatha *et al.* (2011) showed consistent use of a condom by only 70.8%.<sup>[17]</sup> Nine out of ten (90%) participants stated that they get help from health workers when needed. The majority (74%) of the respondents received condoms from NGO workers supported by TI division of West Bengal State AIDS Prevention and Control Society (WBSAPCS).

## Conclusion

The study findings revealed that the majority (45.56%) of the study population were married and the majority (31%) of them were illiterate and they had their income between INR 1001 to INR 3000. Moreover, only 29% had their residence. The majority (81%) heard about HIV/AIDS. Regarding the mode of spread majority (69%) knew about vaginal sex, 61% knew about MTCT. Surprisingly, 6.67% of them had the idea that HIV/AIDS



can be spread by touch. Alarming, 15.56% of them did not know where HIV/AIDS could be tested. The majority (61.1%) preferred to approach police if they faced any harassment. Regarding attitude towards people with HIV alarmingly majority (93.3%) felt PLHIV should not be kept away from others and quite a few (32.2%) of them felt that PLHIV are loose. The majority (93%) felt they should not be deprived of property. Regarding sexual activity, the majority (76.7%) had sexual activity more than 3 times/week and persistent condom use in the last one year was 97.78%. Vaginal sex was the predominant (98.9%) sexual activity performed.

## Recommendation

Awareness generation on HIV/AIDS among the female sex workers in a focussed way needs to be done. Many knowledge gaps in them need to be fulfilled by evidence-based activities. The false notion about PLHIV regarding many arenas should be made clear to the female sex workers. Literacy drive initiative among them needs to be done. The government should take the initiative that the female sex workers for their harassment approach the police only not to local goons. Condom use should be stressed among all the female sex workers in all their sexual encounters. A holistic approach to create awareness in this regard may be done. Involvement of local NGOs and CBOs should be stressed along with the government's initiatives. Skill development drives so that they can shift to other professions should be undertaken both by government agencies and nongovernmental organisations.

## Patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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## Conflicts of interest

There are no conflicts of interest.

## References

1. International Monetary Fund, World Economic Outlook Database, April 2012.
2. Census of India, 2001. Available from: <http://www.censusindia.gov.in/>. [Last accessed 2007 Dec 21].
3. NACO. HIV sentinel surveillance and HIV estimation in India 2007: A technical brief. Social morbidity of AIDS in high prevalence districts of Andhra Pradesh. New Delhi: Ministry of Health and Family Welfare; 2007.
4. National AIDS Control Organization: National Baseline High Risk and Bridge Population Behavioural Surveillance survey-2001 Part-I: Female Sex Workers and their clients; New Delhi; 2004. Available from: <http://www.nacoonline.org/publication/41.pdf>. [Last accessed on 2006 Apr 15].
5. International Institute of Population of Sciences and Macro International. National Family Health Survey (2005-2006) (NFHS-3), Vol. I. Mumbai: IIPS; 2007.
6. Venkataramana CB, Sarada PV. Extent and speed of spread of HIV infection in India through the commercial sex networks: A perspective. *Tropical Medicine Int Health* 2001;6:1040-61.
7. National AIDS Control Organisation. Annual Report 2006. New Delhi: Ministry of Health and Family Welfare, Government of India; 2007.
8. Kumar R, Jha P, Arora P, Dhingra N, Rao S. HIV-1 trends, risk factors and growth in India. In: Rao S, editor. National Commission on Macroeconomics and Health Background Papers: Burden of Disease in India. New Delhi: Ministry of Health and Family Welfare, Government of India; 2005.
9. Nagelkerke NJD, Jha P, de Vlas SJ, Korenromp EL, Moses S, Blanchard JF, *et al.* Modelling HIV/AIDS epidemics in Botswana and India: Impact of interventions to prevent transmission. *Bull World Health Organ* 2002;80:89-96.
10. Ruxrungtham K, Brown T, Phanuphak P. HIV/AIDS in Asia. *Lancet* 2004;364:6982.
11. Joshi HS, Das R, Agnihotri AK. Clinico epidemiological Profile of HIV/AIDS patients in Western Nepal- A study from a Teaching Hospital. *Indian J Prev Soc Med* 2004;35:69-76.
12. Nepal B. Population mobility and spread of HIV across the Indo-Nepal border. *J Health Popul Nutr* 2007;25:267-77.
13. Joge US, Deo DS, Lakde RN, Choudhari SG, Malkar VR, Ughade HH. Sociodemographic and clinical profile of HIV/AIDS patients visiting to ART Centre at a rural tertiary care hospital in Maharashtra state of India. *Int J Biol Med Res* 2012;3:1568-72.
14. Giri PA, Hiremath RC, Kasbe AM. Sexual behaviour, knowledge, attitude and practices regarding HIV/AIDS amongst female sex workers (FSWs) in red light area of Mumbai city. *Int J Med Sci Public Health* 2012;1:132-7.
15. Hesketh T, Zhang J, Qiang DJ. HIV knowledge and risk behaviour of female sex workers in Yunnan Province, China: Potential as bridging groups to the general population. *AIDS Care* 2005;17:958-66.
16. Barrientos JE, Bozon M, Ortiz E, Arredondo A. HIV prevalence, AIDS knowledge, and condom use among female sex workers in Santiago, Chile. *Cad. Saúde Pública* 2007;23:1777-84.
17. Hemalatha R, Hari Kumar R, Venkaiah K, Srinivasan K, Brahmam GNV. Prevalence of and knowledge, attitude and practices towards HIV and sexually transmitted infections (STIs) among female sex workers (FSWs) in Andhra Pradesh. *Indian J Med Res* 2011;134:470-5.
18. Nyagero J, Wangila S, Kutai V, Olango S. Behaviour change and associated factors among female sex workers in Kenya. *Pan Afr Med J* 2012;13(Suppl 1):1-6.
19. National AIDS Control Organization. NACO Annual Report 2016-17. New Delhi: NACO; 2017.
20. Eilami O, Ali Nazari, Dousti M, Sayehmiri F, Ghasemi M. Investigation of HIV/AIDS prevalence and associated risk factors among female sex workers from 2010 to 2017: A Meta-Analysis study. *HIV AIDS (Auckl)* 2019;11:105-17.
21. Ouedraogo H, Ky-Zerbo O, Baguiya A, Grosso A, Goodman S, Samadoulougou BC, *et al.* HIV among FSWs in five cities in Burkina Faso: A cross-sectional baseline survey to inform HIV/AIDS programs. *AIDS Res Treat* 2017;2017:1-11.
22. Owen BN, Baggaley RF, Elmes J, Harvey A, Shubber Z, Butler AR, *et al.* What proportion of female sex workers practise anal intercourse and how frequently? A systematic review and metaanalysis. *AIDS Behav* 2020;24:697-713.