A study on Syphilis screening in Karnataka

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Abstract

Background: Syphilis is a common but curable STI especially among high-risk populations in India and FSW are at higher risk of acquiring STIs including syphilis. Limited access to medical care can reduce individual treatment thereby indirectly facilitating transmission within the population. There is increased risk of HIV acquisition and transmission of HIV because of ulcerative syphilis.

Objectives

- To know the sociodemographic characteristics, prevalence and treatment rate of syphilis among female sex workers attending KHPT clinics in Karnataka.

Method: The study data was collected from female sex workers attending 168 KHPT programme associated clinics and laboratories in Karnataka[12]. Out of 24,678 female sex workers, 3715 were selected for study and screened for syphilis. The female sex workers were screened for syphilis collecting blood samples by using Rapid Plasma Reagin (RPR) test. The sociodemographic characteristics were obtained using a predesigned questionnaire.

Results: Among FSWs 75.61% (2809) were illiterates and 19.36%(720) were literates. 1314(35.37%) were married, 289(7.77%) were Unmarried, 226(6.08%) were divorced and 598(16.09%) were widows. Majority of FSW 2563(68.99%) were soliciting in street/public place, 704(18.95%) were home based and small proportion (6.23%) belong to brothel and Lodge based. Overall, 3715 FSWs were tested for syphilis. Among them 393 (11.89%) were reactive for syphilis. Among the reactive 319(81.17%) were treated for syphilis. The prevalence of syphilis was 11.89% and treatment rate was 81.17% among female sex workers in Karnataka.

Conclusion: The prevalence of syphilis was high among female sex workers attending KHPT clinics in Karnataka and majority of them were treated for syphilis. Even though prevalence of syphilis is more, the treatment coverage was high in female sex workers. Achieving good treatment coverage therefore will help not only to reduce syphilis incidence but also HIV disease burden in the high risk population and general population since the relationship between syphilis and HIV is well established. This study has shown syphilis continues to be highly prevalent among female sex workers and targeted intervention programmes need to focus on curable STI like syphilis.

Keywords: Female sex workers, Syphilis, STI, RPR, Karnataka

Access this article online

Website:
www.innovativepublication.com

DOI:
10.5958/2394-6776.2016.00039.4

Background

Syphilis is caused by the bacterium Treponema pallidum. The organism enters the body via an abrasion during sexual contact, can also penetrate intact mucous membrane and the incubation period is about 3 weeks[1,2]. In the primary stage, the disease manifests as a painless single ulcer, often on the genitals or in the anal region. The symptoms are often missed, especially if it is internal (vaginal, anal or oral) since the ulcer is painless and single. Besides, the self-limiting nature of the ulcer does not draw enough attention for it to be reported as a symptom. In the absence of treatment the disease persists and progresses to the secondary (skin manifestations – rash) or tertiary stage (neurosyphilis or cardiovascular syphilis). Syphilis is a common but curable STI especially among high-risk populations in India. Female sex workers (FSW) are at higher risk of acquiring STIs including syphilis. There is increased risk of HIV acquisition and transmission of HIV because of ulcerative syphilis. In addition to risky sexual behaviour factors such as mobility, violence, stigma and alcohol abuse in FSW community increase their vulnerability to syphilis. Limited access to medical care can reduce individual treatment thereby indirectly facilitating transmission within the population.

Syphilis seropositivity was 10.1% in female sex workers in twin cities of India[3]**.** N Kumaraswamy study in India showed syphilis prevalence of 11% in women, 8% in men[4]**.** A study in the year 2000 from a red-light area in Surat, Gujarat in India showed prevalence of syphilis 22.7%[5]. Syphilis prevalence in the IBBA-1 (Integrated Biological Behavioural Assessment survey) ranged from 4.7% (street-based FSWs, Thane, Maharashtra, India) to 51% (Yavatmal, Maharashtra, India)[3]. STI prevalence studies using multiple diagnostic methods in community and clinic-based settings among FSWs in India from 2000 to 2009 have shown widely varying range of syphilis prevalence

from 1.2–51% across the country[3,4,5,6,7]. A study in Turkey showed that prevalence of syphilis among female sex workers varies between 8.7% and 31.6%[8]. Prevalence recorded for syphilis among female sex workers in Pakistan is 3.6% (Karachi) and 16.0% in (Lahore)[9]. The tests i.e. the Rapid Plasma Reagin (RPR) and Venereal Disease Research Laboratory (VDRL), Treponema pallidum haemagglutination assay (TPHA) and Fluorescent Treponemal Antibody Absorption (FTA-ABS) are helpful in the detection of syphilis[10]. The Karnataka Health Promotion Trust (KHPT) implements Sankalp project for female sex workers and Men having sex with Men(MSM)/TG(Transgenders) in Karnataka funded by Bill and Melinda Gates Foundation called as AVAHAN initiative[11]. Since the study on syphilis screening among female sex workers are scanty in Karnataka, the present was undertaken. The objective of the study was to know the sociodemographic characteristics, prevalence and treatment rate of syphilis in female sex workers attending KHPT clinics in Karnataka.

Method

This study was approved by Institutional ethical committee.

Study design-Cross sectional study

Study Period- January 2010 – April 2011.

The study data was collected from female sex workers attending 168 KHPT programme associated clinics and laboratories in Karnataka[12]. Out of 24,678 female sex workers, 3715 were selected for study and screened for syphilis. 5ml of venous blood sample was taken and serum was separated for testing from all consenting FSWs ensuring strict aseptic precautions. Syphilis screening was conducted using Rapid Plasma Reagin (RPR) test. The titre of 1:2 and or above was considered as reactive (Positive). All the positive samples and 10% negative samples were sent for quality control at reference lab of St. Johns Medical college, Bangalore.

The sociodemographic information was obtained from the CMIS (Computerized Management Information System) data using a predesigned structured format which is routinely collected under the Sankalp programme of KHPT. This data was transferred into centralized CMIS and used for analysis. All the cases within the programme data were used and hence no sampling procedure was adopted.

Inclusion criteria

- All consenting female sex workers attending Programme associated clinics of KHPT during the study period.

Exclusion criteria

- Female sex workers not willing to be part of study.
- Female sex workers coming for repeat syphilis testing during the study period.

Data Analysis- Stata/SE (version – 10.0)

Results

Table 1: Sociodemographic Profile of female sex workers attending KHPT clinics in Karnataka

	Number (N-3715)	Percentage
Literacy Status		
1 – 4th Standard	388	10.44%
5th – 7th Standard	187	5.03%
8th -10th Standard	101	2.71%
11th Standard(College) & above	44	1.18 %
Illiterates	2809	75.61%
Missing	185	5%
Duration of sex work		
2 - 4 yrs	283	7.61%
5 yrs & Above	3080	82.90%
Missing	352	9.47%
Client Volume		
< 5 per Week	1720	46.29%
5 – 9 per week	809	21.77%
> 10 per week	924	24.87%
Missing*	262	7.05%
Mean Age (in yrs) 35		

*Data -Incomplete and missing data

The Table 1 shows that 75.61% (2809) were illiterates and 19.36% (720) of FSWs were literates and only 1.18% (44) entered into college (11th Standard and above). In client volume majority 1720 (46.29%) of female sex workers had less than 5 clients in the week prior to screening, 809(21.77%) had 5-9 clients and 924(24.87%) had more than 10 clients in last week. The mean age of FSWs was 35 years.

Among FSW, 1314(35.37%) were married, 289(7.77%) were Unmarried, 226(6.08%) were divorced and 598(16.09%) were widows (Fig. 1). In typology of sex work, majority of FSW 2563(68.99%) were soliciting in Street/public place, 704 (18.95%) were home-based sex workers and small proportion (6.23%) solicited at brothels and Lodges.

During the study period 3715 FSW were tested for syphilis. Among them 393 (11.89%) were reactive for Syphilis. Among the reactive 319(81.17%) of FSWs were treated for syphilis (Table 2).

Table 2: Prevalence and Treatment rate of Syphilis among female sex workers in Karnataka

FSW	Screened	Reactive	Non-Reactive	Prevalence	Treatment provided	Treatment Coverage(%)
	3715	393	3304	11.89%	319	81.17

Discussion

The prevalence of syphilis was 11.89% among female sex workers attending KHPT clinics in Karnataka State in southern India. The treatment coverage was high at 81.17%. This study has shown syphilis continues to be highly prevalent among female sex workers and targeted interventions need to focus on curable STI like syphilis. Our study findings is similar with study of in female sex workers in twin cities of India with a prevalence of 10.1%[3] and N Kumaraswamy study in India showed syphilis prevalence of 11% in women[4]. 15.7% were infected with syphilis in a study among sex workers of china[13]. A low prevalence (8%) of syphilis infection among female sex workers was documented in Colombia[14]. The prevalence of syphilis among FSW have been reported in other regions like Veitnam (10.7%)[15] China (9.5%)[16] and Thailand (9%)[17]. Our study results were based on RPR test with a sensitivity of 99.8% and specificity 98.4% and were done using the national protocol.

Mobilizing sex workers regularly for STI clinics is a challenge because of accessibility, timings and stigma. The KHPT Sankalp project was able to screen large number of FSW for syphilis with a well-planned and implemented outreach strategy, importance of good health seeking behavior with regular monthly clinic visits. Periodic screening of syphilis among FSW`s is essential to understand the prevalence trend. Periodic testing identifies asymptomatic syphilis infections. Considering the high risk and incubation period of syphilis the testing should be conducted at 3 months interval but because of practical feasibility the testing must be conducted atleast once in 6 months for FSW. Identification and treatment of sex partners prevents re-infection and breaks the chain of disease transmission in the community. Effective treatment is available and timely intervention prevents complications. The treatment rates can be increased provided the results are obtained on the same day of testing. Rapid syphilis tests, by providing immediate results and enabling onsite treatment, show promise in the scale-up of syphilis screening programs in resource-limited settings[18]. Syphilis seroreactivity is the proxy indicator of STI disease burden in the community[19]. Addressing risk behaviour and treatment to achieve good syphilis control therefore should help not only to reduce syphilis incidence but also HIV infection, among FSWs, their clients and the general population in India[20]. The relationship between syphilis and HIV is well established[20,21] and the reduction of syphilis will help to reduce the HIV disease burden in the high risk and general population. Since is syphilis is highly prevalent among female sex workers and they should be screened biannually for syphilis along with HIV in ICTC (Integrated Testing and Counseling Centres) in India.

Conclusion

The prevalence of syphilis was high among female sex workers attending KHPT clinics in Karnataka and majority of them were treated for syphilis. Even though prevalence of syphilis is more, the treatment coverage was high in female sex workers. Achieving good treatment coverage therefore will help not only to reduce syphilis incidence but also HIV disease burden in the high risk population and general population since the relationship between syphilis and HIV is well established. This study has shown syphilis continues to be highly prevalent among female sex workers and targeted intervention programmes need to focus on curable STI like syphilis. Syphilis screening, testing and treatment is an important public health strategy for prevention and control of syphilis in female sex workers. Female sex workers should be screened biannually for syphilis along with HIV in ICTC (Integrated Testing and Counseling Centres) in India.

Acknowledgements

Karnataka Health Promotion Trust(KHPT) and NGO networks for their support in conduction of Study. Management and staff of Dept. of Community Medicine of Shridevi Institute of Medical sciences and research centre, Tumkur for the encouragement in publication of article.

Conflicts of Interest

None declared

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