

Original Research Article

Clinico-epidemiologic-profile and associated behaviour patterns of patients presenting to sexually transmitted infections clinic in tertiary care hospital in South Gujarat: an observational cross-sectional study

Priyanka Chandrakant Patil^{1*}, Dipak D. Umrigar²

¹Department of Dermatology, venereology and leprosy, Mumbai Port Trust Hospital, Mumbai, Maharashtra, India

²Department of Dermatology, venereology and leprosy, Parul Medical College, Vadodara, Gujarat, India

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*Correspondence:

Dr. Priyanka Chandrakant Patil,
E-mail: priyankapatil86@gmail.com

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ABSTRACT

Background: Sexually transmitted infections (STI)/reproductive tract infections (RTIs) constitute major public health problems in society since they increase the risk of HIV transmission. As the different regions in the country show variability in the clinical profile and high-risk behaviors of patients, it is important to study the trend in the particular region before formulating control measures. To study the clinico-epidemiologic profile of patients presenting to STI clinic along with the high-risk behaviors associated with transmission of STIs.

Methods: This was an observational cross-sectional retrospective study by data analysis of hospital records in STI clinic done from April 2012 to March 2013. The detailed history was taken into consideration with special emphasis on sexual history, sexual behaviours, specific exposures, socio-demographics and other high-risk markers.

Results: Females formed the majority of the affected population with marital status, illiteracy, migrant status of the population being the independent demographic factors. The important findings were that the high-risk behaviors were more common in married population and the inconsistent condom use in marital encounters were found to be the cause of increasing prevalence in the study population.

Conclusions: The spread of the STIs from high risk population to no risk general population is an alarming sign.

Keywords: Sexually transmitted diseases, Epidemiologic profile, High risk behaviours

INTRODUCTION

Sexually transmitted infections (STIs) have proven to be major public health problem not only because of its association with increased HIV transmission but also due to significant complications and sequelae adversely affecting the reproductive health of individuals. The social stigma associated with these diseases can act as a barrier to seeking timely treatment. In the state of Gujarat, though the prevalence of (STIs) has decreased from 0.48% (2004) to 0.37% (2009), the estimated prevalence

is more than the national prevalence. Feminization (39.3% women) of epidemic has been noted with HIV prevalence among STI clinic attendees in 2011-2012 (4.56 %).¹ Though significant progress is being made in preventing, diagnosing and treating STIs, the epidemic which was initially concentrated in high risk groups (HRG's) is gradually spreading into the general population. To devise any control measures or implementing strategies for prevention and control of STIs, it is important to know the clinical profile of the patients in that specific region as well as the knowledge

of the high-risk behaviours in the community. In the past, high risk behaviours have been scrutinised in HRG's such as commercial sex workers, men having sex with men, intravenous drug users.²⁻⁴ There are very few studies in the literature demonstrating the high risk behaviours in the population presenting to the STI clinic, but they were mainly focussed on the male population.^{5,6} However, the bridge population between the high risk core groups and the no risk general population as well as mixing of the population has been the culprit in increasing the prevalence of STIs and HIV in the community. Hence, this study was conducted to evaluate the trend of STIs and the associated high-risk behaviours in both sexes of the study population.

METHODS

A retrospective observational, cross-sectional study by data analysis from patient records in STI clinic was done over a period of one year from April 2012 to March 2013 at Dermatology Department in Government Medical College and New Civil Hospital, Surat in South Gujarat. Since, neither patient photographs were used nor could any patient be identified from any of the data given in this article, no ethical clearance was sought.

All the patients presenting to the dermatology outpatient department (OPD) with complaints relating to sexually transmitted infections (STIs) were included in the study. Pregnant females and those having medical illnesses such as diabetes, hypertension, tuberculosis, jaundice and terminally ill cases were excluded. Their detailed history was noted with special emphasis on sexual history, sexual behaviours, specific exposures, socio-demographics and other high-risk markers followed by proper clinical examination from the patient wise STI/reproductive tract infections (RTIs) records kept in the STI clinic. Serological tests including HIV antibody testing by enzyme-linked immunosorbent assay (ELISA) and rapid plasma reagin test (RPR) were done in all patients. Gram stain and KOH preparation for fungal element were done in those cases where it was applicable. STIs were categorized as different syndromes as depicted by National AIDS Control Organization (NACO) in the syndromic management of STIs. The syndromes described by NACO were urethral discharge, vaginal discharge, genital ulcer disease (herpetic and non-herpetic), lower abdominal pain, inguinal bubo and scrotal swelling. The STIs not included in the syndromic management were also identified by clinical features and relevant laboratory investigations.

Partner notification and condom promotion was done. Detailed history regarding the high-risk behaviours including high risk practices such as having multiple sexual partners, visiting commercial sex worker, history of spouse having STI, history of premarital/extramarital contact was taken. Patients were also asked about the frequency of use and attitudes regarding condom usage in marital and extramarital encounters. All the data was

entered into a microsoft excel sheet and analyzed by using Epi-info 2.5.1.

RESULTS

Amongst the total patients visiting the STI clinic, 61% (2219/3638) patients were found to be suffering from syndromic STI/RTI requiring treatment.

Socio-demographic profile

The female to male ratio amongst the affected was 3.6:1 depicting female preponderance involving 78.19% of the female population. Majority of the patients belonged to the age group of 25-40 years comprising of 78.18% of the total population. Only 6.98% were in the age group comprising of adolescents and young adults. Such age distribution guides the health workers in designing the targeted interventions. A high proportion of STIs were seen in illiterate population in both males (19.47%) and females (26.76%). STIs were more common in married females (72.28%) while in males STIs were common in unmarried population (62.6%). Since females formed majority of the study population, housewives were found to be most susceptible to STIs (29.87%), while in males, skilled (12.7%) and unskilled labourers (12.97%) were affected.

The study population had higher percentage of migrant population 62.95% (1397/2219) as compared to the native non-migrant population. Majority of the population belonged to Bihar 387 (27.70%), Uttar Pradesh 319 (22.83%), followed by Maharashtra 235 (10.59%).

Sexual behaviours

The predominant mode of contact was heterosexual 90.04% (1998/2219) followed by bisexual 6.84% (152/2219) and homosexual 3.15% (70/2219).

Figure 1, shows the high-risk behaviours noted in the study population. History of spouse having STI was the commonest risk factor observed in 34.38% of the population. Having multiple sexual partners was noted in 19.06% of population. A history of unprotected sexual intercourse with a commercial sex worker (CSW) was elicited in 64.66% of the male patients. Premarital/Extramarital contact was reported by 17.71% of population. High risk behaviours were noted to be more common in migrants as compared to the native population.

The sources of information as noted in the population regarding their complaints and information regarding sexual health were friends and close relatives (37%), pornographic literature (16%), internet (14%), quacks or local hakims (10%), spouse (8%), others or not disclosed (15%). This may be due to the socio-cultural factors in India where discussing sexual practices is still a taboo. Also, there being lack of facilities for formal sex

education, most of the population turns to unreliable sources for further information developing misconceptions and myths.

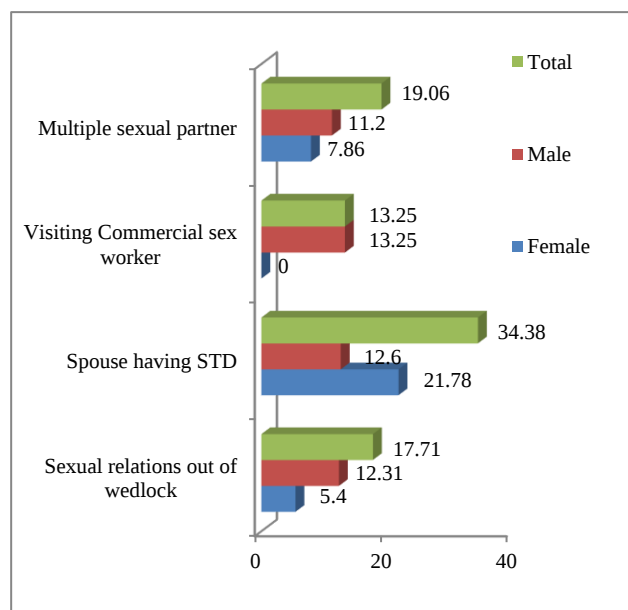


Figure 1: High risk practices noted in the study population.

Figure 2, shows that only 29.62% of STI patients had reported consistent use of condoms during their non-marital sexual encounters while in married population 26.72% reported of never and 32.2% of occasionally using condom. However, the use of condom in marital encounters was not done with the view of preventing STI transmission but as a method of contraception.

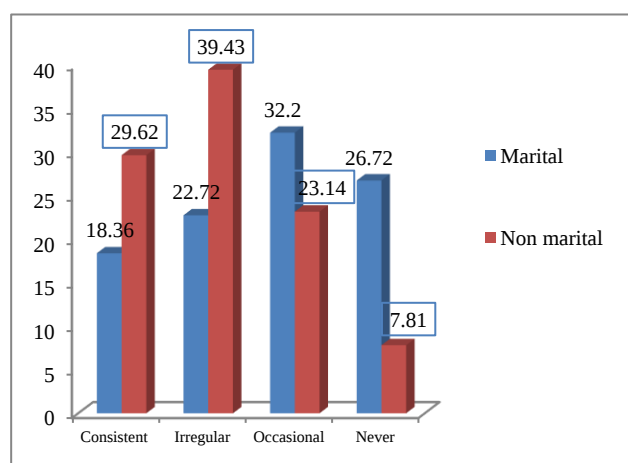


Figure 2: Use of condom.

Prevalence of STIs

Table 1, depicts the prevalence of syndromic STIs in the study population. The most common STI reported in the population was the genital discharge syndrome affecting 66.20% (1469/2219) patients comprising of 62.82%

(1394/2219) of females with vaginal/cervical discharge and 3.37% (75/2219) males with urethral discharge. Herpes genitalis 50.2% (243/484 patients) was the most common genital ulcerative STI in males as well as in females affecting 4.5% (63/1394). HIV seropositivity was observed amongst 2.90% (64/2219) patients. Majority of these cases were in the age group of 21-30 years (41.1%) with a male: female ratio of 1.9:1.

Table 2, shows HIV seroprevalence in syndromic STIs. HIV seropositivity was more common in patients who presented with ulcerative STIs than with non-ulcerative STIs.

Among patients with HIV seropositivity, the predominant mode of contact was heterosexual in 92.7% followed by bisexual in 4.34%, and homosexual in 2.89%. 72.09% (31/43) of the HIV positive men had a history of contact with a commercial sex workers (CSW). Increase in seroprevalence was noted with increased frequency of exposure as shown in Figure 3. Frequency of exposure was noted as the number of unprotected encounters in the past one year. HIV seropositivity among STI clients presenting for voluntary testing (asymptomatic at presentation) was 13.2% of the 268 partners tested 3.9% tested serologically positive for RPR and 5.22% for HIV.

Table 1: The syndromic STIs noted in the population.

Syndrome	No. of patients		Total (%)
	Males (%)	Females (%)	
Genital discharge syndrome	75 (3.38)	1098 (49.48)	1173 (52.86)
Genital ulcerative diseases			
Herpetic	112 (5.04)	53 (2.38)	165 (7.43)
Non herpetic	33 (1.48)	16 (0.72)	49 (2.20)
Lower abdominal pain	-	480 (21.63)	480 (21.63)
Inguinal bubo	14 (0.63)	7 (0.31)	21 (0.94)
Painful scrotal swelling	49 (2.20)	-	49 (2.20)
Genital warts	53 (2.39)	20 (0.9)	73 (3.29)
Other STIs	89 (4.01)	26 (1.17)	115 (5.18)
Genital molluscum contagiosum	6 (0.27)	17 (0.76)	23 (1.03)
Serologically positive syphilis	56 (2.52)	38 (1.71)	94 (4.23)

Table 2: Seroprevalence amongst STI patients.

Concomitant STI	No. of patients (%)	Total (%)
Genital ulcerative diseases		
Herpes progenitalis	21 (0.72)	
Chancroid	3 (0.13)	29 (1.30)
Donovanosis	2 (0.09)	
Primary syphilis	3 (0.13)	
Genital discharge syndrome	5 (0.27)	18 (0.81)
Urethral discharge		
Gonococcal urethritis	2 (0.09)	
Non gonococcal urethritis	3 (0.13)	
Vaginal discharge		
Vulvovaginal candidiasis	9 (0.40)	
Bacterial vaginosis	4 (0.18)	
Genital wart	6 (0.27)	6 (0.27)
Other STI's		
Molluscum contagiosum	2 (0.09)	3 (0.14)
Genital scabies	1 (0.05)	
Syphilis	13 (0.58)	
Latent	5 (0.23)	8 (0.36)
Secondary	3 (0.13)	
Inguinal bubo	2 (0.09)	2 (0.09)
Lower abdominal pain (only female)	3 (0.13)	3 (0.13)

DISCUSSION

This study provides an insight to the changing clinical profile of STIs in the region along with prevalent high-risk behaviours and their effect on each other. The commonest age group affected was 25-40 years which was consistent with studies by Devi, Saikia, Jain, Chandragupta and Kumarasamy et al.⁷⁻¹¹ This clustering of patients in the above age-group is mainly due to the high sexual activity at this age and longer span of sexually active life.⁵

Married females outnumbered unmarried female patients, which is consistent with other studies.¹² As pointed out by Gangakhedkar et al since sexual contact with their husbands is the only risk factor for most married women, it is likely that such women most likely contract these infections from their husbands.¹³ Solomon et al who had presented an informative analysis about status of women in India had put forward how the lack of access to education about sexual health, the reproductive pressures as well as the domestic violence hampers the ability of women to negotiate for safer sexual practices.¹⁴ The findings in present study suggest that similar mechanisms might be responsible for increasing prevalence, however this requires further studies.

Illiteracy was found to be one of the factors influencing the prevalence of STIs in both males as well as females. Ghosh et al had found that shown that there was significant relation with prevalence of STIs with the level of the male partner's educational status and not the women in the population.¹⁵ This finding is also supported by Brahme et al who had reported educational status to be independently associated with high prevalence of STIs in male population.⁵ This not only highlights the need for improving educational status of the community but it is equally important while designing patient awareness campaigns to keep this fact in mind.

The prevalence of STIs was found to be common in migrants and those in skilled or unskilled labourers. Sagruti et al in his comprehensive analysis of migrant population and HIV infection had concluded that migrants have higher sexual risk behaviors than the non-migrants and that they are more likely to be infected with HIV.¹⁶ The study had further added that migration in itself cannot be considered as the sole risk factor but the conditions under which migrants travel and live at destination places and the conditions under which their left-behind wives live in their places of origin may increase the risk of acquiring HIV. The fact that their partners remained in their places of origin might be responsible for the sexual behavior at the places of destination leading to the high-risk behavior.

Majority of the male patients had preponderance of promiscuous behaviour as having multiple sexual partners and contact with CSWs within the last 12 months, suggesting that professional prostitution still remains the main source of STI among men having promiscuous behaviour.¹⁷ Extramarital relations and premarital contact was significantly more common in migrants as compared to non-migrant population.

The greater part of female population had reported their husband as their only sexual partner with history of having STI in the spouse. Newman and Sarin who had found similar findings had concluded that in India, culturally ingrained gender roles and expectations hinder women's ability to negotiate safer sex practices thus making them more susceptible to STIs.¹⁸ The statistics regarding condom usage are consistent with other studies.¹⁹ The low usage of consistent condom use in married population is significantly associated with disease prevalence.

In our study, genital discharge syndrome was reported in 52.86% of patients and GUS in 9.63%. This is a matter of concern in the context of HIV transmission as genital ulcer facilitates the transmission of and enhances susceptibility to HIV infection by sexual contact.^{20,21} while non-ulcerative STIs like gonorrhoea and chlamydia increase shedding of the HIV virus in the genital tract by recruiting HIV-infected inflammatory cells as part of normal host response.

Higher prevalence of viral STIs (1.08%) and lower prevalence of bacterial STIs could be implicated to increased usage of antibiotics and the persistent and recurrent nature of viral STIs.²² Also, a high incidence of HIV seropositivity (2.90%) in the study population indicates the close association of STI with HIV and the importance of early diagnosis of these curable diseases.

Key messages

High prevalence of STI in the housewives of reproductive age group. STIs higher in married individuals. Inconsistent and irregular condom usage in marital encounters might be responsible for the increase in prevalence. The spread of the epidemic from HRGs to the no risk general population is an alarming sign.

CONCLUSION

STIs being higher in married individuals further underlines the importance of contact tracing, counselling, and prompt management of the partners. Promoting consistent and regular condom use in marital encounters and patient education about the importance of not getting involved in unsafe sexual practices is crucial. Thus, this study highlights the importance of targeting not only the high-risk population or core groups but also targeting the subpopulations at community level periodically keeping in mind the phases of development of STI epidemic and the factors affecting them. Hence, epidemiological studies with respect to the health orientation, structure of sexual network, societal network as well as the mixing of the population are required before implementing preventive measures.

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Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. NACO annual report 2013-14. Available at: (http://www.naco.gov.in/upload/2014%20mslms/NA CO_English%202013-14.pdf). Accessed on 20th June 2014.
2. Ramesh BM, Beattie TS, Shajy I, Washington R, Jagannathan L, Paul RS, et al. Changes in risk behaviours and prevalence of sexually transmitted infections following HIV preventive interventions among female sex workers in five districts in Karnataka state, south India. Sexually transmitted infections. 2010;86(1):17-24.
3. Dandona L, Dandona R, Gutierrez JP, Kumar GA, Pherson MS, Bertozzi SM. Ascii FPP Study Team. Sex behaviour of men who have sex with men and risk of HIV in Andhra Pradesh, India. Aids. 2005;19(6):611-9.
4. Mahanta J, Medhi GK, Paranjape RS, Roy N, Kohli A, Dzuvichu B, et al. IBBA study team. Injecting and sexual risk behaviours, sexually transmitted infections and HIV prevalence in injecting drug users in three states in India. Aids. 2008;22:59-68
5. Brahme RG, Sahay S, Kohli RM, Divekar AD, Gangakhedkar RR, Parkhe AP, et al. High-risk behaviour in young men attending sexually transmitted disease clinics in Pune, India. AIDS Care. 2005;17(3):377-85.
6. Decker MR, Miller E, Raj A, Saggurti N, Donta B, Silverman JG. Indian men's use of commercial sex workers: prevalence, condom use, and related gender attitudes. J of acquired immune deficiency syndromes (1999). 2010;53(2):240.
7. Devi SA, Vetrichevvel TP, Pise GA, Thappa DM. Pattern of sexually transmitted infections in a tertiary care centre at Puducherry. Indian J Dermatol. 2009;54:347-9.
8. Saikia L, Nath R, Deuri T, Mahanta J. Sexually transmitted diseases in Assam: An experience in a tertiary care referral hospital. Indian J Dermatol Venereol Leprol. 2009;75:329.
9. Jain VK, Dayal S, Aggarwal K, Jain S. Changing trends of sexually transmitted diseases at Rohtak. Indian J Sex Transm Dis. 2008;29:23-5.
10. Chandragupta TS, Badri SR, Murty SV, Swarnakumari G, Prakash B. Changing trends of sexually transmitted diseases at Kakinada. Indian J Sex Transm Dis. 2007;28:6-9.
11. Kumarasamy N, Balakrishnan P, Venkatesh KK, Srikrishnan AK, Cecelia AJ, Thamburaj E, et al. Prevalence and Incidence of Sexually Transmitted Infections among South Indians at Increased Risk of HIV Infection. AIDS Patient Care STDS. 2008;22:677-82.
12. Kannan C. Prevalence of reproductive tract infections among recently married women in Veerapandi Panchayat union of Salem district, Tamil Nadu. Indian J Community Medicine. 2007;32.2:144.
13. Gangakhedkar R, Bentley M. Spread of HIV infection in married monogamous women in India. J Am Med Assoc. 1997;278:2090-2.
14. Solomon S, Buck J, Chaguturu SK, Ganesh AK, Kumarasamy N. Stopping HIV before it begins: issues faced by women in India. Nature Immunology. 2003;4(8):719.
15. Ghosh P, Arah OA, Talukdar A, Sur D, Babu GR, Sengupta P, et al. Factors associated with HIV infection among Indian women. Int J of STD and AIDS. 2011;22(3):140-5.
16. Saggurti N, Mahapatra B, Swain SN, Battala M, Chawla U, Narang A. "Migration and HIV in India: Study of select districts." New Delhi: UNDP, NACO, and Population Council; 2011.
17. Choudhry S, Ramachandran VG, Das S, Bhattacharya SN, Mogha NS. Pattern of sexually transmitted infections and performance of syndromic management against etiological diagnosis in patients attending the sexually transmitted

- infection clinic of a tertiary care hospital. *Indian J Sex Transm Dis*. 2010; 31:104-8.
18. Newmann S, Sarin P, Kumarasamy N, Amalraj E, Rogers M, Madhivanan P, et al. Marriage, monogamy and HIV: a profile of HIV-infected women in south India. *Int J of STD and AIDS*. 2000;11(4):250-3.
 19. Hawkes, Sarah, Santhya KG. Diverse realities: sexually transmitted infections and HIV in India. *Sexually Transmitted Infections*. 2002;78(1):31-39.
 20. Sulak PJ. Sexually transmitted diseases. *Semin Reprod Med*. 2003;21:399-413.
 21. Wald A, Corey L. How does herpes simplex virus type 2 influence human immunodeficiency virus infection and pathogenesis. *J Infect Dis*. 2003;187:1509-12.
 22. Narayanan B. A retrospective study of the pattern of sexually transmitted diseases during a ten-year period. *Indian J Dermatol Venereol Leprol*. 2005;71:333-7.

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