

# Clinico-social profile of sexually transmitted infections and HIV at a tertiary care teaching hospital in India

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## ABSTRACT

**Background:** The prevalence of sexually transmitted infections (STI) varies widely from region to region in India. **Objective:** To study the pattern of STIs and the profile of STI patients with HIV co-infection. **Materials and Methods:** A retrospective record-based case study of patients attending STI clinic, JNMC, Aligarh, from May 2008 to May 2013 was carried out. **Results:** A total of 4876 patients attended the STI clinic, out of whom 2764 (56.7%) had proven STI. STIs were more common in men, with a male (2201): female (563) ratio of 3.90:1. Their age ranged from 16 years to 55 years (mean age = 26.38 years) with the maximum number of patients in the age group of 16-25 years. Genital scabies 1466 (53.0%) constituted the most common STI followed by genital warts with 588 (21.2%) of patients. Human Immunodeficiency Virus (HIV) infection was noted in 36 (1.3%) of all STI cases.

**Key words:** HIV, retrospective study, sexually transmitted infections

## INTRODUCTION

The older terminology of “venereal diseases” (VDs) has largely been superseded by “sexually transmitted diseases” (STDs) and more recently by “sexually transmitted infections” (STIs).<sup>[1]</sup> Sexually transmitted infections (STIs) are a loosely defined constellation of infections and syndromes that are epidemiologically heterogeneous, but all of which are almost always or at least often transmitted sexually.<sup>[2]</sup>

STIs/RTIs are increasing and constitute one of the major causes of ill health in our country as well as in the world.

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Estimates of STI burden are less reliable in countries with less socio-economic status because of lack of consistent survey and reporting methods.<sup>[1]</sup> This lack of good data and notification systems has often been overcome by prevalence studies. The WHO estimates indicate that approximately 340 million new cases of the 4 main curable STIs namely gonorrhoea, chlamydial infection, syphilis, and trichomoniasis occur every year; 75-85% of them in developing countries.<sup>[3]</sup> An estimated 3 crore episodes of STI/RTI occur every year in the country.<sup>[4]</sup>

About 6% of the adult population in India suffers from a STI/RTI. This accounts for about 40 million episodes every year. STIs/RTIs increase the risk of HIV transmission.<sup>[5]</sup> STIs/RTIs, if untreated, may cause serious complications such as infertility in men and women.

Unprotected sex with an infected partner is by far the most important risk factor for STI/HIV infection.<sup>[6,7]</sup> As per statistics released by NACO 2011-12, HIV prevalence rate in the general population in our country is 0.31% (2009) and STI clinic HIV prevalence is 2.46%.<sup>[4]</sup>

Considering the serious and preventable attributes of the problem, compounded with lack of a consistent database, the present study was conducted with the following key

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objective in mind i.e. to study the pattern of STIs and the profile of STI patients with HIV co-infection at Jawaharlal Nehru Medical College Hospital in Aligarh.

## MATERIALS AND METHODS

A retrospective case record study of patients who attended STI clinic of Department of Dermatology and Venereology, Jawaharlal Nehru Medical College, A.M.U., Aligarh, from May 2008 to May 2013 was done. All the patients who presented to STI clinic were included in study group. Data pertaining to age, gender, marital status, occupation, history of sexual contact whether premarital, marital or extramarital including exposure to multiple sexual partners, use of intra-venous drugs, blood transfusion, and immunization were analyzed. Information regarding use of barrier contraception was also elicited. All the patients were subjected to routine investigations like complete blood counts with special investigations like HIV antibody testing, VDRL, and hepatitis B and C. The diagnosis made was based on clinical history, examination, and relevant laboratory investigations. All those patients who were found to be suffering from STIs were given treatment as per syndromic approach defined by NACO. All the patients were subjected to pre-test and post-test counseling. HIV-positive patients after proper counseling were referred to the ART center.

## RESULTS

A total of 4876 patients attended the STI clinic of JNMCH between May 2008 and May 2013 and out of them, 2764 (56.7%) patients were found to have STI. The minimum age of patients included in the study was 16 years and the maximum age was 55 years with mean age of 26.38 years. Maximum number of patients belonged to 16-25 years age-group followed by 26-35 years age-group. Males outnumbered the females in numbers. Males comprised 2201 (79.63%) of patients, while females comprised 563 (20.37%) of patients, giving rise to overall male: female ratio of 3.90 : 1. Males outnumbered the females in each age-group [Table 1].

Table 2 shows socio-demographic profile of STI patients. Majority of patients with 1403 (63.7%) males and 313 (55.6%) females belonged to rural areas. With regard to education, it was noted that more than half (1168 (53%)) of males were educated upto high school and above, and 223 (10.1%) were illiterate. Most (192 (34.1%)) of females had primary education. One hundred and thirty-two (23.4%) of females had education upto high school and above, while 138 (24.5%) had no formal education. With regard to occupation, it was noted that 615 (27.9%) of males were either semi-skilled or skilled workers, which also included 203 long-distant truckers. Five hundred and fifty-four (25.2%) of males were either shop-owner, clerk, or farmers, while 181 (8.2%) were unemployed. Contrary to males, most of the females (273 (48.5%)) were house-wives followed by unskilled workers with 107 (19.0%) of which were laborers

while 23 (4.1%) were female sex workers (FSW). As per Modified Kuppaswamy socio-economic scale, 1266 (57.5%) of males belonged to middle class followed by lower class with 903 (41.1%) males. Contrary to males, most of the females belonged to lower class with 335 (59.5%) females, followed by middle class with 221 (39.2%) females.

Out of 2201 males, only 617 (28%) were married, while majority 439 (78%) of all females were married. With regard to sexual exposure, premarital sexual encounter was noticed predominantly in males with 837 (38%) gave history of premarital sex. A history of unprotected sexual intercourse with a female sex worker (FSW) was elicited in 102 males who consented to the premarital sex. Marital sexual exposure was more common in females with as many as 298 (52.9%) of all females had history of marital sexual encounter. Extramarital sex was again common in males with 242 (10.9%) of males consenting to it as against only 6 (1.0%) of females [Table 3]. Out of 242 males who had extramarital sex, 35 had sex with female sex worker (FSW).

**Table 1: Age and gender distribution of STI patients**

Age-group (Years)	Male (%)	Female (%)	TOTAL (%)
16-25	824 (37.4)	271 (48.1)	1095 (39.6)
26-35	734 (33.4)	194 (34.5)	928 (33.6)
36-45	396 (17.8)	57 (10.1)	453 (16.4)
46-55	247 (11.2)	41 (7.2)	288 (10.4)
Total	2201 (79.63)	563 (20.37)	2764 (100)

**Table 2: Socio-demographic profile of STI patients**

Residence	Males (%)	Females (%)
Urban	1403 (63.7)	313 (55.6)
Rural	798 (36.3)	250 (44.4)
Total	2201	563
Education		
Illiterate	223 (10.1)	138 (24.5)
Primary	504 (22.9)	192 (34.1)
Middle	306 (13.9)	101 (17.9)
High school	615 (27.9)	69 (12.3)
Secondary and above	553 (25.1)	63 (11.1)
Total	2201	563
Occupation		
Unemployed	181 (8.2)	273 (48.5)
Unskilled	532 (24.2)	107 (19.0)
Semi-skilled and skilled	615 (27.9)	82 (14.6)
Clerical/shop owner/Farmer	554 (25.2)	83 (14.7)
Semi-prof./Prof.	319 (14.5)	18 (3.2)
Total	2201	563
Socio-economic class*		
I (upper)	32 (1.5)	7 (1.2)
II (upper-middle)	433 (19.7)	39 (6.9)
III (lower-middle)	833 (37.8)	182 (32.3)
IV (upper-lower)	602 (27.4)	232 (41.2)
V (lower)	301 (13.7)	103 (18.3)
Total	2201	563

\*As per Modified Kuppaswamy's socio-economic status scale

Out of 1519 males, who gave history of any prior sexual exposure, 188 males also gave history of multiple sexual partners (more than one sexual partner) within last 6 months of attending STI clinic. Seventeen out of 188 males gave history of having sex with male during last 6 months. Out of 188 males, 54 (28.7%) consistently used condom during sexual exposure. Of the 327 females, who gave a history of past sexual exposure, only 4 females had multiple sexual partners during last 6 months of attending the STI clinic. However, none of the females reported consistent use of barrier contraception during sexual encounter.

Genital scabies was the most common STI noted in 1140 (51.8%) males and 326 (57.9%) females, followed by genital warts noted in 458 (20.8%) of males and 130 (23.0%) of females. Genital molloscum followed next with 194 (8.8%) of males and 63 (11.1%) of females. The least common among the STIs observed was Anorectal discharge, present only in 11 (0.5%) of males, while none of females was diagnosed with the same. Genital scabies, genital warts, and genital molloscum were more common in females, whereas the rest of the STIs were more common in males [Table 4].

HIV testing was done in all patients suffering from STI. HIV seropositivity was noted in 36 (1.3%) of all patients with 21 males and 15 females. The trend in HIV seropositivity is shown in Figure 1, showing maximum (14) cases of HIV in year 2011 followed by year 2010 and 2012 with 7 cases each. None of the STI cases was noted to be positive for HIV or VDRL in the year 2013.

Figure 2 depicts the gender-wise distribution of STI patients treated at the STI clinic from May 2008 to May 2013. It is apparent that there was an increasing trend in number of STI patients including both males and females over the last 5 years. However, males outnumbered females in each year, except in 2012 when more number of female patients sought medical care.

## DISCUSSION

A majority of the patients with an STI were in the age-group of 16-25 years. This is the most sexually active group and

at a high risk of being behaviorally more vulnerable to STI acquisition, as they generally have higher number of sexual partners. Besides, more concurrent partnerships and change of partners more often than older age groups all the more enhances their susceptibility. Findings similar to the present study were also noted by other coworkers.<sup>[8,9]</sup>

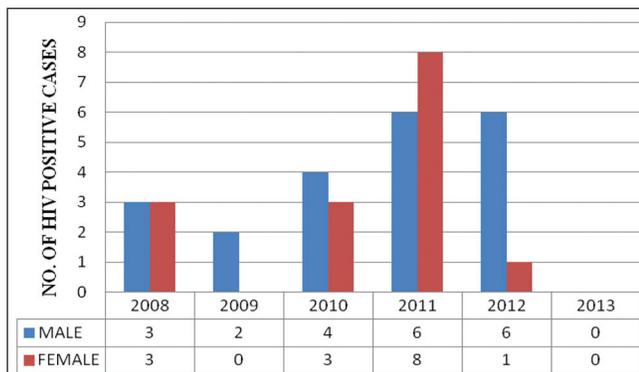
In our study, males outnumbered females among all STI cases. This is in corroboration with findings of other studies.<sup>[10,11]</sup> Only 28% of males were married as against 78% of females. Majority of the patients had education upto primary or above. This was also noted by Choudhry *et al.*<sup>[12]</sup> Premarital and extramarital sexual relation were significant risk factors noted in males, while marital sexual exposure was a significant cause of infection in females. This is in corroboration with findings of Narayan B<sup>[13]</sup> who noted similar profile of patients. History of sexual encounter with Female Sex Worker (FSW) was noted in

**Table 3: Marital status and sexual exposure in STI patients**

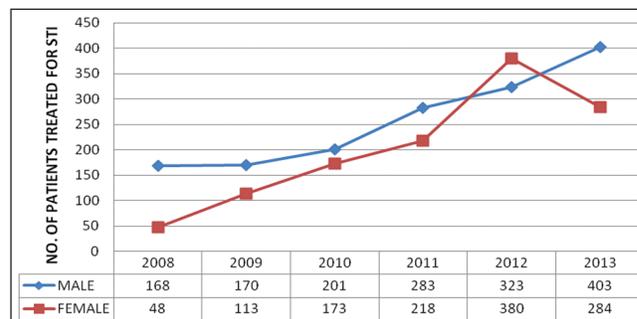
	Male (%)	Female (%)
<b>Marital status</b>		
Married	617 (28)	439 (78)
Unmarried	1584 (72)	124 (22)
Total	2201	563
<b>Sexual exposure</b>		
Premarital	837 (38)	23 (4)
Marital	440 (19.9)	298 (52.9)
Extramarital	242 (10.9)	6 (1.0)
Total	1519 (68.8)	327 (57.9)

**Table 4: Distribution of STI syndrome with gender**

Name of std	Males (%)	Females (%)	Total (%)
Genital scabies	1140 (51.8)	326 (57.9)	1466 (53.0)
Genital warts	458 (20.8)	130 (23.0)	588 (21.2)
Genital molloscum	194 (8.8)	63 (11.1)	257 (9.3)
Genital ulcer-non herpetic	159 (7.2)	33 (5.9)	192 (7.0)
Genital ulcer-herpetic	113 (5.1)	8 (1.4)	121 (4.4)
Urethral discharge	67 (3.0)	2 (0.4)	69 (2.5)
Painful scrotal swelling	37 (1.7)	—	37 (1.3)
Inguinal bubo	22 (1.0)	1 (0.2)	23 (0.8)
Ano-rectal discharge	11 (0.5)	0	11 (0.4)
Total	2201	563	2764 (100)



**Figure 1: Trend of HIV seropositivity in STI patients**



**Figure 2: Trend of STI patients treated at STI clinic**

6.2% males unlike Devi<sup>[14]</sup> where 69.7% of patients had history of sex with FSW.

Genital scabies was the most common STI noted in present study unlike a similar study by Sarkar<sup>[15]</sup> where genital scabies constituted only 4.1% of cases and genital ulcers was the most the common STI noted. Genital warts was the second most common STI noted in the present study, which was also the most common non-ulcerative STI as noted by Vora *et al.*<sup>[16]</sup> in their study.

In the present study, HIV seropositivity was noted in 1.3% of all STI patients, which is less than the estimates of the National Aids Control Organization (NACO) (2.5%). This is however similar to two of other hospital based studies where the HIV prevalence rates among STI patients were reported to be 2.48% and 4.2% respectively.<sup>[15,16]</sup>

A gradual increase in the number of STI patients at our centre was observed during the last 5 years. This increase could be due to increase in the number of STI cases among the relatively more populous younger population in our country. This increase may also be attributed to the growing awareness among patients who previously were unaware of their disease or did not know the right destination to seek medical care.

## CONCLUSION

Males in the reproductive age group were maximally afflicted with STIs and HIV. Genital scabies was the most frequently encountered STI. Although a low seropositivity (1.3%) was noted in the current study, yet this is a conjectural issue given the 'dubious' number of symptomatic patients being actually tested for HIV, and also the number being treated for the same when found positive. A case is thus to be made to particularly create an ambience in the STI clinics such that the inherent social stigma is minimized. Also, syndromic approach towards diagnosis and management of STIs emerged a cost effective and easy tool, also contributing effectively to the pathetically poor database. Health education regarding safe sex, barrier contraception and personal hygiene is another indispensable instrument towards STI management. The authors take this opportunity to recommend the presence of a full time professionally trained STI counselor in each of the STI clinics to address these needs.

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