

PREVALENCE AND AWARENESS ABOUT SEXUALLY TRANSMITTED INFECTIONS AMONG MALES IN URBAN SLUMS OF DELHI

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ABSTRACT

BACKGROUND: India is at present facing an emergence of sexually transmitted infections (STIs) and human immunodeficiency virus. Community-based studies on the prevalence of STIs among males are scanty. **AIM:** (i) To study the prevalence of STIs and (ii) to assess the level of awareness about STIs among males belonging to the reproductive age group residing in an urban slum. **SETTING AND DESIGN:** This is a cross-sectional study conducted in selected areas of Delhi, using a camp approach. **MATERIALS AND METHODS:** One hundred ninety-six males in the reproductive age group were interviewed regarding their awareness about STIs, past history and present complaints of any symptoms suggestive of an STI. This was followed by a clinical examination. Required samples were also collected for microbiological tests. **STATISTICAL TESTS:** Simple proportions and Chi-square test. **RESULTS AND CONCLUSIONS:** As many as 70% of the study participants were unable to mention even one symptom of an STI. About 73.4% of the study participants stated that staying in a monogamous relationship could help prevent STI, while only 39.2% were aware that condoms could afford protection against an STI. As many as 8.7% complained of urethral discharge, while 5.6% complained of itching, 2.5% reported presence of genital ulcer and 1.0% complained of groin swelling. We found a seroprevalence rate of 1.5% for trichomoniasis and 3.6% for syphilis. Thus the overall awareness level about STIs and their prevention was rather low. Poor treatment-seeking behavior was also observed. The actual prevalence rate in the general population might be higher due to the likelihood of presence of an asymptomatic infection. The present study calls for a multipronged approach which also includes targeted interventions and strategies to be adopted in the reproductive health programs for males who have been neglected by the program managers so far.

Key words: Awareness, human immunodeficiency virus/acquired immunodeficiency syndrome, prevalence, sexually transmitted infections, treatment

The emergence of concern about the human immunodeficiency virus (HIV)/acquired

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immunodeficiency syndrome (AIDS) epidemic in the last decade has witnessed a growing international recognition of the scope and significance of reproductive morbidity in developing countries.^[1,2] India is at present facing an emergence of sexually transmitted infections (STIs) and HIV. The annual incidence of STIs in India is estimated to be 5%, or

40 million new infections every year.^[3] This may be attributed to various factors such as a vulnerable population (with young people less than 15 years of age accounting for more than 36% of the population),^[4] lifestyle and behavioral changes.^[5] This is also fuelled by lack of awareness amongst the general public, lack of skills and training among health professionals and absence of an effective national system for STD prevention.^[6] World Bank estimates on disease burden in 1990 showed that approximately 1.9 million disability-adjusted life years (DALYs) were lost due to STIs in males.^[7] Underlying these problems are the sociocultural taboos against frank and open discussion of sexuality in our society.^[8]

In developing countries, STIs and their complications are amongst the top five disease categories for which adults seek health care.^[9] For most STIs, the overall morbidity rate is higher for men than for women. Also, the presence of an untreated STI (ulcerative or non-ulcerative) enhances HIV transmission amongst carriers and increases the risk of acquiring and transmitting HIV almost ten times.^[10] An STI is not only a biological problem but is also embedded in a web of psychological, economic, political and social factors that foster spread. These issues, along with economic costs, must be addressed if STIs are to be brought under control.^[11]

A review of the epidemiological studies conducted on STIs and HIV/AIDS highlights that the data on STI prevalence in men in the general population is scanty; while majority of the health facilities and community-based studies have focused on the STI rates in women.^[12] A MEDLINE search on combining the

search terms 'sexually transmitted infections' and 'India' has also shown that community-based data is less as compared to information obtained from hospital-based research and studies conducted amongst the high-risk groups.^[13] With the above background in mind, the present study was conducted with the following objectives (i) to study the prevalence of STIs among males (ii) to assess the level of awareness about STIs among males belonging to the reproductive age group residing in an urban slum of Delhi.

MATERIALS AND METHODS

This was a cross-sectional study conducted under the aegis of the National AIDS Control Organization (NACO) and Delhi State AIDS Control Society (DSACS) and was a part of a nationwide community-based study on prevalence of STIs. The following areas of Delhi were selected for the study: Bawana, Sanjay Amar Colony, Tilak Nagar Colony and Lal Bagh. All the houses in the selected area were enlisted and numbered. These were then divided by 100 to obtain a sampling interval. The digit so obtained was taken as a starting point of the survey; and thereafter, every fifth household was selected for inclusion in the survey. In each area, 50 houses were identified and then visited by trained health workers. From each house, a male belonging to the age group of 15-49 years was randomly selected and interviewed after obtaining a written consent. In case the house did not have a male member belonging to the specified age group or if nobody was available, the health workers would then approach the neighboring house. Those who were illiterate gave their consent by means of a right thumb

impression. The interviewer, i.e., the health worker, used a questionnaire which covered various aspects such as the study participant's level of awareness about STIs; past history and present complaints of symptoms suggestive of an STI, if any. All the information so collected was kept strictly confidential. They were then invited to participate in a camp organized at the local health center in these areas. For the purpose of verification, they were administered a green card depicting their name, age and house number. The camp was intensively publicized through health workers and group meetings. The local leaders were also involved in organizing the camp. The camp was projected as a general health checkup with a special emphasis on reproductive health problems. The selected houses were revisited by the health workers one day prior to, and also on the morning of, the camp in order to ensure mobilization and full participation. The camp was held over a period of 3 days for duration of 8 h for the benefit of those who were working. A total of 196 (98%) males out of the 200 who had been invited attended the camp. The camp was also attended by men who had not been invited, but they were not included in the study. The participants were clinically examined and treated by a skin and venereal disease specialist. Blood, urine, urethral swabs were taken from the participants for microbiological tests. For patients with genital ulcer, a swab of ulcer exudates was taken for chancroid and herpes simplex 2. Urethral swab was taken from symptomatic males and placed in a transport medium for culture of trichomoniasis, gonorrhea and chlamydia. Blood serum was collected for VDRL and TPHA test for syphilis and ELISA for herpes 2. Samples collected for VDRL and TPHA were also tested for HIV

as unlinked anonymous. The samples were sent to the laboratory at the Department of Microbiology of the study institution. All the men consented for clinical examination as well as lab investigation. Confidentiality was maintained at all stages of the study period. The data obtained from the 196 males who attended the camp was entered using SPSS statistical package; and appropriate statistical tests, which included simple proportions and Chi-square test, were applied.

RESULTS

Baseline characteristics of the study participants [Table 1]

Out of the 196 participants, 72 (37%) men belonged to the age group 25-34 years, 63 (32%) were illiterate and 76 (38.7%) were unskilled workers. Majority 142 (72.4%) of

Table 1: Baseline characteristics of the study population

Age group (Years)	No (n=196)	Percent
15-19	21	10.7
20-24	29	14.8
25-29	36	18.4
30-34	36	18.4
35-39	33	16.8
40-44	20	10.2
45-49	21	10.7
Literacy status		
Illiterate	63	32.1
Just literate	17	8.7
Primary	48	24.5
Secondary	40	20.4
Higher secondary	16	8.2
Graduate	12	6.1
Occupation		
Farmer	3	1.5
Unskilled	76	38.7
Skilled	29	14.8
Business	27	13.8
Professional	5	2.6
Service	18	9.2
Unemployed	19	9.7
Others	19	9.7
Marital status		
Married, staying with spouse	142	72.4
Unmarried	39	19.9
Married, not staying with spouse	15	7.7

the males were married and living with their spouses.

Awareness about symptoms of STI

Only 59 (30.1%) of the study participants had awareness about at least one or more than one symptoms of STI [Table 2]. It was observed that 26.0% of them could mention genital ulcer as a symptom of an STI in the male, while 12.7% named urethral discharge.

Knowledge about mode of transmission of STIs

While 130 (66.3%) said that an STI could be contracted only by having sex with a partner outside marriage, only 32 (16.3%) said that it could also result from having sex with one's spouse. The remainder (17.4%) was not aware about the mode of transmission. We did not find any statistically significant relationship between literacy status and knowledge of symptoms and mode of transmission ($P = 0.526$).

Previous history of STI and its treatment

Only 18 participants (9.2%) gave a history

Table 2: Awareness about symptoms of sexually transmitted infection among study subjects

Symptoms	No (n=196)	Percent
No STI symptom	137	69.8
One symptom	39	19.8
Two symptoms	18	9.3
More than two symptoms	2	1.1
Knowledge of specific symptoms		
	No *(n=196)	Percent
Urethral discharge	25	12.7
Dyspareunia	4	2.0
Dysuria	15	7.6
Pelvic pain	6	3.1
Infertility	5	2.5
Painful scrotal swelling	10	5.1
Inguinal swelling	9	4.6
Genital ulcer	51	26.0

*Includes multiple responses

of having suffered from an STI over the past 1 year. Out of them, 8 reported to have had urethral discharge as one of the symptoms, 12 had a genital ulcer while 5 had experienced itching as one of the symptoms. Only 6 (33.3%) of them had sought treatment: 4 (66.6%) from a Government health facility and 2 (33.4%) from a chemist. Out of them, only 1 person had sought treatment for his partner. The reasons for nontreatment as cited by the remaining 12 participants were as follows: (i) ignorance of symptoms: 5 (41.7%), (ii) non-availability of treatment facilities: 3 (25%), (iii) lack of time for treatment: 4 (33.3%).

The number of younger males who gave history of having suffered from an STI was significantly higher compared to the corresponding number of older males - 13 (72.2%) males in the age group 15-29 years gave history of having suffered from an STI, which was significantly higher compared to the corresponding number of males in the other age groups ($X^2 = 31.495$, d.f =18, $P = 0.025$). No significant relation between literacy status, occupation, income levels, marital status, substance abuse and previous history of STI was observed.

Knowledge about methods of STI prevention

About 73.4% of the study participants stated that staying in a monogamous relationship could help prevent an STI, while 39.2% were aware that condoms could afford protection against an STI. As many as 21.4% said that prompt treatment of an STI could prevent a further attack of an STI, while 16.3% stated that treating one's partner was imperative for prevention.

Present complaints about symptoms suggestive of STI and findings of clinical examination [Table 3]

Out of the 196 males, 22 (11.2%) gave a present history of suffering from symptoms suggestive of an STI. Only 8.7% complained of urethral discharge, while 5.6% complained of itching.

The number of older males who complained of symptoms suggestive of an STI was significantly higher compared to the corresponding number of younger males - 14 (63.4%) males from the age group 30-49 years complained of symptoms suggestive of an STI, which was significantly higher compared to the corresponding number of males in the other age groups ($X^2 = 14.45$, d.f = 6, $P = 0.025$).

Also, 18 (82%) males with symptoms of STI were substance abusers, although this relation was not statistically significant ($P = 0.086$). Most [13 (59%)] of the males who reported symptoms were illiterate, but this was not statistically significant ($P = 0.092$). No significant relation was observed between occupation, income levels, marital status and the number of males with present complaints

Table 3: Present complaints about symptoms suggestive of sexually transmitted infections and clinical findings among study subjects

Complaints (n=196)	No*	Prevalence
Urethral discharge	17	8.7
Genital ulcer	5	2.5
Swelling in the groin	2	1.0
Itching	11	5.6
Clinical findings		
Genital ulcer	4	2.0
Urethral discharge	13	6.6
Scrotal swelling or tenderness	3	1.5

*Multiple responses

suggestive of STI.

History of sexual contact before and after symptoms

Out of the 22 study participants who complained of symptoms, 10 of them gave history of contact with a commercial sex worker (CSW) before the onset of symptoms. Seventeen of the 22 men confessed to having contact with a CSW even after the onset of symptoms.

Results of laboratory investigations

Out of the 22 samples that were collected for investigations, the 3 urethral swabs were positive for trichomoniasis, suggesting a prevalence rate of 1.5%. Seven samples of the blood sera were reactive for VDRL as well as TPHA, which gives a prevalence rate of 3.6% for syphilis. All the ulcer swabs tested negative for chancroid and herpes infection. Also the blood sera tests for herpes 2 infection and HIV were found to be negative.

DISCUSSION

In the present study, we observed a low level of awareness about STIs - as many as 70% of the study participants were unable to mention even one symptom of an STI. Evidence from the RCH-RHS-II Survey shows a similar finding, wherein only 24% of the males were aware about the symptoms of an STI.^[14] However, unlike the observation in the survey, there was no statistically significant relationship between literacy status and knowledge of symptoms in our study. A low level of awareness about STIs has also been reported among males belonging to three villages in rural Haryana and also among young men belonging to the

slum areas of Lucknow.^[15,16] In our study, 130 (66.3%) said that an STI could be contracted only by having sex with a partner outside marriage. This is in agreement with the findings of RCH-RHS-II survey, wherein two-thirds of the males gave a similar response. None of the participants mentioned homosexuality as a mode of transmission. Very little is known about the practice of homosexuality in contemporary India, and an open discussion is not well accepted.^[17] It has been estimated that there are over 50 million homosexual males in India.^[18] The RCH survey findings indicate that only 10.5% males reported homosexuality as a mode of transmission. Therefore, the findings in our study suggest the need to highlight this aspect during health education through home visits, counseling and community health talks. Such a strategy was found to be effective among the males belonging to rural Haryana.^[15] Only 39.2% of the men were aware that condoms could afford protection against an STI. This is analogous with the observation in certain studies in which as many as 55-80% of the men who engaged in nonmarital sexual activity never used condoms.^[19-21]

Only 18 (9.2%) participants gave a history of having suffered from an STI over the past 1 year, and only 6 (33.3%) of them had sought treatment. The reasons for nontreatment, as cited, included ignorance towards symptoms, lack of availability and time for treatment. Out of the 6, only 4 had sought treatment from a Government health facility. A research on the health-seeking behavior of STI patients attending a clinic in Baroda found that almost one-third of them had assumed that their symptoms would subside on their own.^[22] In the present study, only one of the respondents with

a past history of STI had sought treatment for his partner. Various studies have shown that advice on partner notification and treatment is hardly given at STI clinics.^[23-25]

Our study did not show any significant relation between past history or present complaints of STI and substance abuse, although an investigation conducted in Mumbai showed that men who drink alcohol when visiting CSWs are more likely to engage in riskier behavior and are more likely to have HIV and STIs compared to those who do not drink during visits to CSWs.^[26] We also found no significant relation between past history or present complaints of STI and occupation, which is in contrast to a case control study in Ahmedabad wherein majority of the cases of STIs belonged to unskilled occupations.^[27] The number of men who gave past history or present complaints of STI in our study were very few.

The number of younger males who gave history of having suffered from an STI was significantly higher compared to the corresponding number of older males; as many as 13 (72.2%) males in the age group 15-29 years gave history of having suffered from an STI. This shows that risky sexual behavior starts from a young age. A Pune study conducted amongst men attending two STD clinics observed that although younger men engaged in high-risk behavior, they reported more frequent condom usage, since they were more educated.^[28]

About 8.7% of men complained of urethral discharge, while 5.6% complained of itching, 2.5% reported presence of a genital ulcer and 1.0% complained of swelling in the groin. In the RCH-RHS II survey, 3.0% of the males from

urban areas complained of urethral discharge, 1.9% complained of genital sore, 4.7% had dysuria and 1.8% reported swelling in the testes. A clinical examination confirmed that 6.6% had urethral discharge, 2% had genital swelling and 1.5% had scrotal swelling in the present study. Similarly, urethral discharge was seen to be the commonest clinical finding among males attending a health camp in rural West Bengal;^[29] while 17 men complained of urethral discharge, only 13 had clinical evidence of discharge. This could be due to misreporting of urethral discharge.

Our study showed a seroprevalence rate of 1.5% for trichomoniasis and 3.6% for syphilis. Regarding syphilis, different studies have shown variable findings. For example, in a study which was done among males belonging to rural and urban areas of Delhi, seroprevalence of syphilis was seen to be 10.11%;^[30] while a community-based study in Tamil Nadu has shown the prevalence of syphilis to be 0.3%.^[31] Our study showed the prevalence of trichomoniasis to be 1.5%; a higher seroprevalence (5.6%) was observed among males belonging to Gadchiroli in Maharashtra.^[32] This epidemiological diversity could be attributed to (i) differential characteristics of the diverse population, such as urban, rural or tribal; sociocultural aspects; differences in high-risk behavior and use of protective measures against STIs and variations in the distribution of high-risk groups in the populations studied (ii) lack of standardization in laboratory criteria: sampling methods or laboratory diagnostic tests may differ in the studies reported; for example, in case of syphilis, some studies report all rapid plasma reagin (RPR) positive cases, while other studies report only those confirmed by

the Treponema pallidum hemagglutination assay (TPHA). None of the patients in our study were found to be HIV positive; neither did we encounter any case of genital chlamydia or herpes simplex. This is in contrast to a study which was conducted in urban Chennai wherein herpes simplex type 2 was the commonest detected STI with a prevalence rate of 13.2% in the general population.^[33] Also majority (68.8%) of the chlamydial infections were found to be asymptomatic in a population-based study conducted in Tamil Nadu.^[34] Yet another community-based study which was carried out in Tamil Nadu amongst 824 men found the prevalence rate of HIV to be 1.8%.^[35]

We would like to underscore the fact that the STI prevalence figures in the general population might actually be higher due to the likelihood of presence of an asymptomatic infection.

Our study therefore showed a poor level of awareness with regard to knowledge about the symptoms of STI and usage of the condom as a protective measure against STIs. Very few of the men had sought treatment for their symptoms, and partner referral was almost nonexistent. The prevalence rate was higher in the younger age group. These observations imply that strengthening awareness and health/preventive education is very vital. This would also include behavior change communication, social marketing of condoms and peer education. Addressing the cultural as well as medical concerns would serve to enhance the acceptability of community STI education. Training of primary health care medical and paramedical personnel in syndromic management and counseling the patient on preventive measures and

partner referral are of paramount importance. Screening of asymptomatic persons, especially sexual contacts of the patients, should be advocated in confidential settings. However, this aspect poses a challenge since except for infections causing urethral discharge in men and genital ulcers in both sexes, STIs (including HIV) cannot be easily and inexpensively diagnosed and treated. Exploring and designing innovative strategies to involve men in the reproductive health programs are of equal concern. Concerted efforts are called for, not only by the program and policy makers but also by the NGOs, community-based organizations and opinion leaders.

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