Men who have sex with men and transgenders in Mumbai, India: An emerging risk group for STIs and HIV

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ABSTRACT

Background: Men who have sex with men and transgenders are an important risk group for sexually transmitted infections (STIs) and human immunodeficiency virus (HIV). They have risky sexual behaviors but low risk perception. Objectives: To assess the sexual behavior, STIs, HIV, and identify factors associated with HIV in men who have sex with men (MSM) and transgenders (TGs) in Mumbai. Methods: Participants were enrolled from two clinics in Mumbai. They completed an interviewer-administered questionnaire and were evaluated for STIs and HIV infection. Results: A total of 150 participants, 122 MSM and 28 TGs were evaluated; 17% of MSM and 68% of the TGs were HIV infected. HIV infection in MSM was associated with serological positivity for HSV2 IgG [adjusted odds ratio (aOR), 95% confidence interval (CI): 9.0 (2.2-36.9)], a positive Treponema pallidum hemagglutination assay (TPHA) [aOR (95% CI): 6.0 (1.5-24.0)], greater than five acts of receptive anal sex in the past six months [aOR (95% CI): 4.3 (1.2-15.0)] and per category increase in age (18-24 yrs; 25-29 yrs; 30 yrs) [aOR (95% CI): 3.1 (1.3-7.1)] in multivariate analysis. Consistent condom use during receptive anal sex in the past six months was low (27%). Many MSM were married (22%) or had sex with females and may act as a ‘bridge population’. HIV infection in TGs was associated with a positive TPHA [OR (95% CI): 9.8 (1.5-63.9)] and HSV 2 IgG [OR (95% CI): 6.7 (1.1-40.4)] in univariate analysis. Conclusion: Prior STIs were strongly associated with HIV infection in MSM and TGs. These groups should be the focus of intensive intervention programs aimed at STI screening and treatment, reduction of risky sexual behavior and promotion of HIV counseling and testing.

Key Words: HIV, Men who have sex with men, Risk behaviors, Sexually transmitted infections, Transgenders

INTRODUCTION

India has a significant human immunodeficiency virus (HIV) epidemic and the total number of HIV infections was estimated to be 5.21 million in 2005.[1] The primary route of transmission is sexual, accounting for 86% of all reported acquired immunodeficiency syndrome (AIDS) cases in the country.[2] High-risk groups - female sex workers, individuals with sexually transmitted infections (STIs) and injection drug users - were a part of surveillance and public health interventions relatively early in the epidemic.[3,4] The role of men in HIV transmission was often discussed in the context of married monogamous women,[5] female sex workers and migrant labor and relatively fewer studies discussed the sexual behavior and
prevalence of HIV among men who have sex with men (MSM).\textsuperscript{[6,7]} However, recently there has been an increased recognition of male-to-male transmission of STIs and HIV in the country and the National AIDS Control Organization, India has initiated HIV sentinel surveillance and behavioral surveillance in the MSM group.\textsuperscript{[8]} In Mumbai, in one of those surveillance sites, the annual estimate of HIV prevalence ranged from 10-23%.\textsuperscript{[9]}

Overall, in India, there is little acknowledgement of men whose primary sexual orientation is towards other men. This perception of “homosexuality” in the society is often reflected in the prevention and care of HIV and STI patients. In the absence of specific health programs, non-governmental organizations (NGOs) working with MSM have initiated peer outreach programs in various cities.\textsuperscript{[10-12]} A specific high-risk group targeted by some of these NGOs is that of male-female transgenders.\textsuperscript{[13,14]} Most of the transgenders are biological males who dress and socially behave as females. This group is often stigmatized and may sell sex for a living, thus putting them at a higher risk for acquiring STIs and HIV.

MSM as well as transgenders (TGs) are an important emerging risk group in India that requires extensive evaluation of sexual behavior and STIs and HIV infection. The information could be used to design relevant and effective intervention programs among MSMSMs, who although often invisible, are at risk for acquiring infections. Thus, the present pilot study was undertaken to assess the sexual behavior, STIs and HIV infection among a population of MSM and TGs in Mumbai and to identify the factors associated with HIV infection in these groups.

**METHODS**

We conducted a cross-sectional study at two STI clinics in Mumbai: the STI clinic at the Department of Dermatology of Lokmanya Tilak Municipal General Hospital (LTMG), a public hospital and the HIV Testing Center at Humsafar Trust, a non-governmental organization serving gay-identified men, male-to-female transgenders and other men who have sex with men. Community outreach workers from Humsafar Trust visited sites where men commonly met other men and specific sites where TGs met their sexual partners or clients. They provided information on HIV, STIs and services available at the clinics. Participants, who subsequently presented at either of the clinical sites requesting services were enrolled if they were 18 years or older, reported a history of same sex behavior, and consented to participate in the study, over a period of six months. The ethical committee at the LTM Medical College and the Institutional Review Board of the University of California, San Francisco approved the study protocol. All the participants provided written informed consent for the study.

A structured interviewer-administered questionnaire was designed and pretested (the pretest interviews were not a part of the final sample). It was administered by trained personnel in a private space and was completed in about 15-20 min. It included questions on demographics (age, gender, marital status, native place), socio-economic conditions (job, income, living conditions) and health-seeking behaviors (type of healthcare professional preferred, reasons for preference, type of services provided). There were questions on lifetime sexual behavior (first partner, age at first sexual exposure, lifetime partners), behavior in the past six months (number of partners; type of sexual activity-oral, anal, vaginal or other forms; condom use during the sexual acts, on a 4-point scale-always to never; venue for sex; sex in exchange for money), sexual behavior in the past one month, sex with female sex workers and with spouse, attitude towards condoms (4-point scale-strongly disagree to strongly agree) and knowledge about HIV/AIDS.

Trained physicians examined participants for the presence of STIs. Blood was collected for VDRL testing (VDRL, Tulip diagnostics\textsuperscript{®}), *Treponema pallidum* hemagglutination assay (TPHA, Omega Diagnostics\textsuperscript{®}), hepatitis B surface antigen (Hepanostika\textsuperscript{®} organon Teknika), HSV2 IgG (MRL Diagnostics\textsuperscript{®}, Focus Technologies) and HIV tests (one enzyme-linked immunosorbsent assay and two rapid tests. Urethral discharge, if present, was evaluated with Gram stain to identify white blood cells and the presence of gram-
negative intracellular diplococci. Patients with genital ulcers were treated clinically for syphilis, chancroid or herpes. Patients with symptoms of proctitis underwent anoscopy. Study participants consented separately for HIV testing and received pretest counseling by trained personnel. Subjects were asked to return in one week to collect test results and receive HIV posttest counseling. Clinicians evaluated patient response to therapy and modifications to treatment were made based on the response and laboratory results.

Data were entered in Epi info (Version 6) on site and converted to Stata (version 8.2) for further analysis. Distribution of responses was calculated using means, medians and proportions. The distribution of the continuous variables was also visualized with histograms. Pearson’s chi-square tests and Fisher’s exact test (low expected cell counts) were used to evaluate the association of categorical estimates with HIV. We calculated the odds ratios (OR) and 95% confidence intervals (CIs) as a measure of association. We used a logistic regression model for multivariate analysis to identify the variables associated with HIV infection.

**RESULTS**

A total of 150 consecutive consenting individuals, 122 MSM and 28 transgenders, were enrolled. About 17% of the MSM and 68% of the transgenders were HIV infected; the proportion increased with age in MSM [Figure 1].

**Characteristics of MSM**

The mean age (± SD) of MSM was 23.6 (5.1) years. Most of them were either skilled (34%) or unskilled laborers (22%). In the past six months, MSM had a median of five male partners. About 94% of MSM had anal sex (insertive and/or receptive) and 82% had sex with a casual partner in the past six months. Some sexual practices such as fingering/fisting (7%) and group sex (5%) were relatively uncommon. About 44% of the MSM reported having visited female sex workers in their lifetime.

We have described certain demographic characteristics, sexual behaviors, STIs and their association with HIV in Table 1. Although marital status was associated with HIV, it was confounded by age. The adjusted OR was 1.1 (95% CI: 0.3-4.0). In the multivariate model, per category increase in age (18-24 yrs, 25-29 yrs, > 30 yrs) [aOR (95% CI) 3.1 (1.3-7.1)], HSV2 IgG [aOR (95% CI): 9.0 (2.2-36.9)], TPHA [aOR (95% CI): 6.0 (1.5-24.0)] and greater than five acts of receptive anal sex in past six months [aOR (95% CI): 4.3 (1.2-15.0)] were significantly associated with HIV infection.

Seventy-six per cent of the men sought medical care at a private clinic and 3% at a pharmacist. Only 18% of the men knew about STIs and the main source of information in this subgroup was television (33%) and doctors’ clinics (33%). Sixteen per cent (19/122) of the men had previously tested for HIV infection and 24% (5/19) of these men were HIV infected. Eighty-three per cent of the men believed that it was not at all likely that they might be infected with HIV and 20% of these men were HIV infected.

Fifty-nine percent of the MSM had rarely/never used a condom during anal sex. The OR for not using a condom during anal sex was 3.2 (95% CI: 1.0-9.4) among MSM who agreed that condoms should only be used with prostitutes compared with those who did not. Similarly, the OR for not using condom was 2.0 (95% CI: 0.6-7.3) among MSM who agreed that condoms should not be used with men who seemed healthy and clean compared with those who did not.
Certain characteristics of condom use in MSM are presented in Table 2.

At the time of evaluation, about 20% of the MSM (25) were diagnosed with a clinical STI. There were seven cases of genital ulcers (syphilis, chanroid and herpes), seven cases of urethritis (gonococcal and non-gonococcal), four cases of proctitis, three cases of genital warts and two cases each of genital molluscum and scabies.

Characteristics of transgenders
The mean (± SD) age of the TGs was 25.3 (4.6) years. All the TGs had migrated from other states of India to Mumbai and most of them (93%) lived with their friends. The median number of male partners in the past six months was 50 among TGs. About 54% of the TGs had rarely/never used a condom during anal sex. About 50% of the TGs agreed that condoms should not be used with men who appeared healthy. The majority (96%) of the TGs had had sex in exchange for money in the past six months. Three TGs had a clinical STI, namely primary syphilis, genital herpes and proctitis. We have described certain demographic characters, behaviors, STIs and their association with HIV among TGs in Table 3. One sexual practice of placing the partner's penis between their thighs (non-penetrative form) was commonly reported by TGs.
MSM and transgenders in Mumbai

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prevention strategies in TGs would include regular STI screening and treatment, information about risk behavior, reduction in the number of partners and condom negotiation skills with prospective clients.

One of the limitations of our study was its sampling—it was a clinic-based convenience sample. Hence, the findings do not necessarily represent the amount of sexual activity or infection among MSM in the population and a population-based study would be preferred to assess the risk behavior and HIV/STI prevalence among men reporting same sex behavior.

A recent population based study in Southern India, reported that 6% of the men had same sex behavior and were more likely to have STIs including HIV compared with men who did not report same sex behavior.[24] Since our data were collected in clinical settings, men would be more likely to report the socially desirable behavior of condom use and low risk sexual practices and hence we might have underestimated these measures.

In spite of the above limitations, our study does provide useful information for intervention strategies. Effective STI services to detect, treat and control STIs, particularly syphilis and herpes, would be important to reduce the transmission of HIV in the population. Sexuality and same sex behavior are relatively new topics in the STI care facilities in Mumbai and physicians should be adequately trained to discuss same sex behavior with their patients in a sensitive manner. Intervention programs should be culturally sensitive and should aim to improve the knowledge and awareness about HIV and STIs in MSM and TGs. They should discuss the risks

<table>
<thead>
<tr>
<th>Categories</th>
<th>Total [n (%)]</th>
<th>HIV [n (%)]</th>
<th>Odds ratios (95 % CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>28 (100)</td>
<td>19 (68)</td>
<td>1.0 (reference)</td>
</tr>
<tr>
<td>Non-castrated</td>
<td>15 (54)</td>
<td>9 (60)</td>
<td>2.2 (0.4-11.6)</td>
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<tr>
<td>Castrated</td>
<td>13 (46)</td>
<td>10 (77)</td>
<td>1.0 (reference)</td>
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<tr>
<td><strong>Age groups</strong></td>
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<tr>
<td>18-24 years</td>
<td>12 (43)</td>
<td>7 (58)</td>
<td>1.0 (reference)</td>
</tr>
<tr>
<td>25-29 years</td>
<td>11 (39)</td>
<td>9 (82)</td>
<td>3.2 (0.5-21.8)</td>
</tr>
<tr>
<td>30 years and above</td>
<td>5 (18)</td>
<td>3 (60)</td>
<td>1.1 (0.1-9.0)</td>
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<tr>
<td><strong>Education</strong></td>
<td></td>
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<tr>
<td>None 9th grade</td>
<td>22 (79)</td>
<td>14 (64)</td>
<td>1.0 (reference)</td>
</tr>
<tr>
<td>10th any college</td>
<td>6 (21)</td>
<td>5 (83)</td>
<td>2.9 (0.3-29.0)</td>
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<tr>
<td><strong>Income</strong></td>
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<tr>
<td>Upto Rs. 2000</td>
<td>17 (61)</td>
<td>10 (59)</td>
<td>1.0 (reference)</td>
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<tr>
<td>Rs. 2001 and above</td>
<td>11 (39)</td>
<td>9 (82)</td>
<td>3.2 (0.5-19.3)</td>
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<td><strong>Sexual behaviors</strong></td>
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<tr>
<td>Last six months</td>
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<tr>
<td>No. of male partners ≤ 50</td>
<td>16 (57)</td>
<td>10 (63)</td>
<td>1.0 (reference)</td>
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<tr>
<td>&gt; 50</td>
<td>12 (43)</td>
<td>9 (75)</td>
<td>1.8 (0.3-9.4)</td>
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<tr>
<td>No. of receptive anal sex acts &lt; 30</td>
<td>18 (64)</td>
<td>11 (61)</td>
<td>1.0 (reference)</td>
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<tr>
<td>&gt; 30</td>
<td>10 (36)</td>
<td>8 (80)</td>
<td>2.5 (0.4-15.7)</td>
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<td>Last 1 month</td>
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<tr>
<td>No. of male partners &lt; 10</td>
<td>17 (61)</td>
<td>10 (59)</td>
<td>1.0 (reference)</td>
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<td>&gt; 10</td>
<td>11 (39)</td>
<td>9 (82)</td>
<td>3.2 (0.5-19.3)</td>
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<td>No. of receptive anal sex acts &lt; 5</td>
<td>12 (44)</td>
<td>8 (67)</td>
<td>1.0 (reference)</td>
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<td>&gt; 5</td>
<td>15 (56)</td>
<td>11 (73)</td>
<td>1.4 (0.3-7.2)</td>
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<td><strong>STIs</strong></td>
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<tr>
<td>TPHA</td>
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<tr>
<td>Negative</td>
<td>12 (43)</td>
<td>5 (42)</td>
<td>1.0 (reference)</td>
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<tr>
<td>Positive</td>
<td>16 (57)</td>
<td>14 (88)*</td>
<td>9.8 (1.5-63.9)</td>
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<td>HSV 2 IgG</td>
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<tr>
<td>Negative</td>
<td>8 (29)</td>
<td>3 (38)</td>
<td>1.0 (reference)</td>
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<tr>
<td>Positive</td>
<td>20 (71)</td>
<td>16 (80)*</td>
<td>6.7 (1.1-40.4)</td>
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<td>Hepatitis B surface antigen</td>
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<tr>
<td>Negative</td>
<td>22 (79)</td>
<td>17 (77)</td>
<td>1.0 (reference)</td>
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<tr>
<td>Positive</td>
<td>6 (21)</td>
<td>2 (33)*</td>
<td>0.2 (0.1-1.1)</td>
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* = p < 0.05, † = 0.05 < p < 0.10. The columns may not add up to 28 due to missing data, TPHA = Treponema pallidum hemagglutination assay, HIV = Human immunodeficiency virus.
related to sexual acts, specifically anal sex, and address misconceptions related to condom use with men.

ACKNOWLEDGMENTS

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