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Prevalence and Risk Factors Associated with HIV Infection Among Men Having Sex with Men in Ho Chi Minh City, Vietnam

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Abstract

To learn more about risk behaviors among men who have sex with men (MSM) in Vietnam and their prevalence of HIV, we conducted a study among MSM in Ho Chi Minh City (HCMC) to determine HIV-1 prevalence and behaviors associated with infection. This consisted of formative (35 MSM) and cross-sectional (600 MSM) studies at 72 sites, including 75 transvestites, 55 bisexuals, 10 sex workers, and 460 other MSM. Only 5.3% cohabited with a wife/girlfriend, but 30% reported ever having sex with a female. Prevalence of HIV was 8%, ranging from 33% in sex workers to 7% among transvestites and other MSM. Injecting drugs, selling sex, being 20–40 years old, having less than 6 years of education, and having more than five male anal sex partners in the past month were associated with being HIV-infected. MSM are an HIV bridge group, and should be included in sentinel surveillance. Targeted interventions should be implemented.

Keywords

HIV; Men having sex with men (MSM); Vietnam; Injection drug users (IDUs); Commercial sex workers (CSWs)

Introduction

Men who have sex with men (MSM) constitute the largest HIV-infected group in the United States and other developed nations, but little is known about HIV infection among MSM in Vietnam. The epidemiology of the HIV epidemic in Vietnam differs from that in the developed world; injection drug users (IDUs) and commercial sex workers (CSWs) constitute the vast majority of known infected persons (Subcommittee for HIV/AIDS Surveillance 2003). Since the MSM group is thought to be relatively small, it was not included in the high-risk groups of the HIV/AIDS surveillance program in Vietnam. Furthermore, there have been no published reports of HIV prevalence among the MSM population in Vietnam. Key informants in Nha Trang reported that MSM in this region

usually had multiple sexual partners, rarely used condoms, and had poor knowledge about HIV transmission (Wilson and Cawthorne 1999). Only two of 97 male IDUs reported homosexual activity (Tran et al. 1998). In another study, two of 2774 HIV-positive patients (0.07%) were gay men (Lindan et al. 1997). However, the proportion of MSM in an IDU study conducted in Haiphong was 4% among IDUs who had married and 7% among IDUs who had not yet married (Nguyen et al. 2001). The current practices, sexual behaviors, and HIV prevalence among MSM in Vietnam remain largely unknown. The exclusion of MSM in the surveillance and public health prevention efforts leads to the assumption that MSM are not involved in the HIV epidemic in Vietnam (St. Pierre et al. 1997). Lack of data and HIV prevention efforts targeted to MSM may cause this population to have poor knowledge about HIV transmission and prevention, putting them at high risk for HIV infection. The absence of data, however, does not necessarily mean that MSM in Vietnam are at a lower risk for HIV than MSM in other parts of the world.

Ho Chi Minh City (HCMC), with some 6–7 million inhabitants, is the largest city in Vietnam and the commercial center of the country. The first HIV-positive case in Vietnam was detected in HCMC in 1990. Now, 16 years later, half of all known positive cases in Vietnam are in this city. The rise in reported HIV rates was ascribed to increased commercial sex, the high prevalence of injecting drug users, and better surveillance. The MSM population in HCMC has been estimated to be 40,000, a prevalence of about 2%. A study was conducted among MSM in HCMC about their sexual behaviors in 1997 (Colby 2003). The study reported that one-third of MSM had sex with women, half had sex with foreigners, half had never used condoms, and only 29% had used a condom during their last intercourse. Their general knowledge about HIV/AIDS was high, but they did not know how to protect themselves from HIV infection. The mean number of sexual partners was 3.3 in the previous month, and 14.8 in the previous year (Colby 2003). Among them, 32% had used condoms during their last intercourse; 40% had used them during their most recent anal intercourse. Drug use was rare.

The Vietnamese “World Security” newspaper (An ninh The gioi) published a report, “Male Commercial Sex in HCMC” (An Ninh The Gioi 2001), that not only described sexual activities among MSM, but also the existence of famous brothels for gays. The World Security newspaper also published a report, “Approach direct to gay”, which described commercial sex activities and finding sex partners on the Internet among Vietnamese and foreigners (An Ninh The Gioi 2002). A book entitled “*The men of Vietnam. Travel guide to gay Vietnam: an inside look at Ho Chi Minh City, Hanoi and beyond*” was published in English for gay tourists. Thus, HCMC is considered to be a major city in Vietnam for gay sex.

To obtain more information about this population, we conducted a cross-sectional study in HCMC to determine the HIV-1 prevalence and the high-risk sexual behaviors associated with HIV transmission. The information from this study will be useful for designing and implementing effective intervention strategies directed at the MSM population.

Methods

Participants

A cross-sectional study of MSM was conducted in HCMC April–May 2004. Initially, informal discussions were held with MSM peers, after which we conducted formative research through four focus group discussions (FGDs) with MSM who sold sex, had medium income, or were transvestites who had high income. The potential members of the focus groups were selected by the MSM peers. Thirty-five in-depth interviews were conducted soliciting information about societal attitudes and stigmatization as perceived by

gay men. The networks of MSM in the city, information about types, sites, risk behaviours, and how to reach them were also solicited.

Peers of MSM were invited to discuss the locations where MSM congregate and meet each other in HCMC. About 85 locations were identified, and mappers and peers visited those locations. During each visit, the mapper asked for referrals to other locations. All the locations were noted and compared with those already identified. If the venue was not yet listed, it was added. We continued this procedure until no new locations were found. At the end of the mapping phase, some of the locations were no longer valid (e.g., closed). The final list contained 72 active locations for inclusion in the study. The sites included entertainment areas, dancing bars, coffee bars, sauna/massage parlors, secluded areas of public parks, restrooms of large new supermarkets, and theatres. At the time when the interviewer visited a site, he estimated the number of men who were present, and randomly selected three to interview.

Measures of HIV Infection

Two test kits, Hema-Strip™ for detection of HIV antibody (Saliva Diagnostic System, Inc.) and OraQuick tests (Orasure Technologies, Inc.), were used for HIV testing. If a sample was positive with both tests, it was considered HIV-positive, otherwise, the participant was considered HIV-negative.

Data Analysis

Data were entered using the EPI-INFO 6.12 program (<http://www.cdc.gov/epo/epi/epiinfo.htm>). Univariate associations were evaluated using the chi-square test for categorized variables and the Student *t*-test for continuous variables, and the two-sided test to estimate the level of significance. To determine which variables were independently associated with outcomes, logistic regression was performed. Selection of variables into the logistic model was based on prior knowledge and the magnitude of the risk ratios (OR > 1.0) in univariate analysis. For highly correlated variables, only one representative variable was selected. The selected variables were entered in the regression model using the logistic model of PC-SAS to determine level of significance.

The study offered full protection for the rights of participants and confidentiality of the information elicited. An informed consent was administered before participants were enrolled. Participation was anonymous, so no identifying information was collected. The men were informed that they could receive free HIV testing at one of five voluntary counseling and testing centers in HCMC.

Results

A total of 600 MSM were recruited. No refusals were reported by the interviewers, perhaps reflecting that the study was anonymous and the participants were provided with \$10 US compensation for their time. For the social mapping phase, the MSM population was divided into four distinct groups: transvestites (who dress like women, known as “bong lo”) (75 men), “non-transvestites (wear male attire, known as “bong kin”) (460 men), bisexuals who had both male and female partners (known as “da he”) (55 men), and sex workers (heterosexuals selling sex to men to earn money) (10 men), based on the responses of the interviewees.

Socio-demographic Characteristics

The participants had a mean age of 27 years (range, 15–69 years). The mean education level was secondary school attendance (46.5%). Very few had studied at the college or university

level (5.6%). Some of the participants were illiterate (4.9%). The majority of participants were not married and did not live with a woman (94.7%) (Table 1).

Risk—Sexual Behaviors

The mean age of first oral sex (18 years old; range, 8–43 years) was significantly lower than the mean age of first anal sex (20 years old; range, 8–43 years) ($P < 0.05$). About one-third of participants had ever bought sex from other men (28.9%). A higher proportion of participants had ever sold sex (37%). The mean age of first selling sex (19 years; range, 10–32 years) was significantly less than the mean age of first buying sex (21 years, range, 10–43 years) ($P < 0.05$).

Most participants (84.0%) reported having oral sex with another man in the past month, with an average of 4.1 sex partners (range, 0–50). More than half (54.3%) of participants reported having anal sex with a man in the past month; the mean number of anal sex partners among them was 2.7 (range 0–60). Among those who had anal sex in the past month, the proportions having one, two–three, or more than three sexual partners were 20.4%, 36.1%, and 43.5%, respectively.

The sex workers had lived for a shorter duration in HCMC (18.4 years) than the other groups (22.2 years) ($P < 0.0005$), had a lower mean age of first anal sex (19.4 years) than those who did not sell sex (20.5 years) ($P < 0.02$), and had a higher mean number (4.0) of anal sex partners in the past month than those not selling sex (1.9 partners) ($P < 0.00001$).

Table 2 presents the proportion in each group engaging in either insertive or receptive anal intercourse during the past month and the use of condoms consistently. A higher proportion of transvestites and MSM were receptive than insertive. The proportion was lower for receptive than for insertive among sex workers.

About one-third (30.3%) of the participants (excluding bisexuals and heterosexual sex workers) reported ever having had sex with a female. The mean age of having first sex with a female partner among them was 18 years (range 8–32 years). A “general woman” was defined as wife, lover, or girlfriend. The proportions having sex with general women or CSWs in the last 6 months were 16.6% and 1.5%, respectively. The mean numbers of general women sex partners and CSWs in the last 6 months were 1.5 (range 0–6) and 0.8 (range 0–18), respectively.

Lubricant and Condom Use

The proportion using lubricants for anal sex was 78.6% (Table 3). The most frequently used lubricants were saliva (53%), antibiotic ointment (26.5%), lubricant not dissolving in water (21.5%), skin lotion (21.5%), and lubricants dissolving in water (20.5%). Less than half (44%) had always used lubricant during anal sex in the last 6 months. The main reasons for not using lubricants during last anal sex were “did not like to use” (34.9%) and “could not find lubricant” (26%). Those who knew where to get lubricant mainly bought it at pharmacies (82.5%).

The proportion of MSM using condoms when having sex ranged from 0% to 80%, but was generally lower than 65% among the four types of MSM studied, even among men selling sex (Table 2). The proportion of condom use during last sex act with a general woman (40%) was much lower than that with a CSW (84.4%). The proportion of consistent condom use during the last 6 months with general women (26.3%) was much lower than with CSWs (68.8%).

Drug Use

The proportion of men ever having used drugs was 6.0%: 1.4% of transvestites, 4.9% of non-transvestites, 20.8% of bisexuals, and 11.1% of heterosexual men selling sex. Amongst the 6% who admitted to drug use, 66% had used heroin, 4% had used opium, 4% had used amphetamines, and 25% had used tranquilizers. About 11% of the MSM selling sex reported drug use, but 100% of those using drugs injected. The proportion of all participants injecting drugs in the last 12 months was 1.5%.

Voluntary Counseling and Testing

Among all the men interviewed, about one-fifth (19.5%) had ever been tested for HIV. The proportions receiving voluntary testing, pre-test counseling, and post-test counseling were 15.1%, 6.8%, and 5.8%, respectively. Only a total of 5.2% of all participants had received complete pre- and post-test counseling and results.

Knowledge and Beliefs about HIV/AIDS

Almost all of the participants had heard about HIV/AIDS (98.0%). Many knew a person living with HIV/AIDS (PLWHA) or someone who had died from AIDS (76.0%). A high proportion of participants (95%) believed that HIV infection could be prevented, but only 74.0% of those believed that HIV transmission could be prevented by abstaining from anal sex. The proportion of persons who believed HIV transmission could be prevented if they always use condom for every anal sex encounter was 78%. The proportion believing that HIV can be transmitted through mosquito bites was 30%. Almost all (93%) of the MSM knew that HIV infection could be transmitted through sharing syringes and needles.

HIV Prevalence and Risk Factors for HIV Infection

All of the men were tested for HIV, regardless of whether they had been tested previously. The HIV prevalence was 8% (47/599). There was one person who underwent the first test, which was positive, but did not take the confirmatory test. HIV prevalence was 6.8% among transvestites, 7.0% among non-transvestites, 13.5% among bisexuals, and 33.3% among sex workers. Only 15.6% of them had been previously tested, of whom only 71% knew their HIV status.

Results of univariate and multivariate logistic regression analyses are presented in Tables 4 and 5, respectively. The following factors were associated with HIV infection by univariate analysis: being 20–40 years old (OR = 4.72; 95% CI, 1.67–13.4), less than 6 years of education (OR = 2.98; 95% CI, 1.60–5.53), only selling sex (OR = 6.12; 95% CI, 1.48–25.33), injecting drugs in the past 12 months (OR = 33.52; 95% CI, 8.33–134.85), and having more than five male anal sex partners in the past month (OR = 2.55; 95% CI, 1.31–4.98).

To determine the independent correlates of HIV infection, a multiple logistic regression stepwise analysis was conducted (Table 5). The results indicated that injecting drugs in the last 12 months (OR = 30.35; 95% CI, 6.49–141.90), selling sex (OR = 8.61; 95% CI, 1.20–61.69), being 20–40 years old (OR = 4.43, 95% CI, 1.45–13.59), having less than 6 years of education (OR = 2.60; 95% CI, 1.32–5.13), and having more than five male anal sex partners in the past month (OR = 2.43; 95% CI, 1.14–5.17) were independently associated with HIV infection.

Discussion

The MSM population in HCMC has become more open. There are now well-known places for men to meet, including parks, theaters, swimming pools, saunas, coffee bars, restaurants,

clubs, gymnastic clubs, etc. This provides increased opportunities to meet new partners and to have multiple partners. As the number of different partners increases and sexual mixing becomes more frequent, the conditions for transmission of HIV become more favorable.

Being a homosexual man in HCMC is still, however, not acceptable. Therefore, many older MSM marry, and some men have sex with both men and women, increasing the likelihood of transmission beyond the network of MSM. Over 30% of the men in this study reported having sex with both men and women, and 8% of the sample considered themselves to be bisexual. Thus, these MSM are acting as bridges for sexually transmitted diseases between themselves and the majority heterosexual population.

This study indicated a number of factors that need to be considered in developing effective strategies for slowing the epidemic among MSM, and from them to their heterosexual contacts. Many of the men had a low level of education, indicating that there is a need to deliver intervention messages in simple, easily understood language. Less than 20% of the men had been tested for HIV, and the proportion among them who had received adequate counseling was low. Thus, there is a need to expand and improve the facilities for voluntary testing and counseling. In some situations, referring infected men to group counseling targeting MSM may be an alternative, especially as an individual who learns that s/he is HIV-infected is unlikely to absorb additional information immediately upon hearing that they are infected.

Selling sex is clearly a risk factor for transmission of HIV in this group. The proportion of men selling sex who were HIV-infected was 33.3% (3/9), twice as high as among transvestites, which was the next highest group, and over three times higher than among the other two groups. Part of the problem may be that men who admit to selling sex appear not to understand that their risk of being infected is greater when they are the receptive partner; therefore, the need for using condoms when receptive is even greater.

There continues to be a need for education about the need for condoms with all partners, and to assure that condoms are easily available when needed.

Given the high prevalence of HIV infection among MSM and the high proportion of them who report having sex with women, MSM should be included among the groups evaluated through sentinel surveillance. Further, the need for intervention among them needs to be recognized, and intervention strategies culturally appropriate for Vietnamese MSM implemented.

The high proportion of MSM who have sex with women and the probable under-representation of married MSM in this study suggests that stigma remains a barrier to successfully accessing all MSM, in particular those MSM who are most likely to be acting as bridges between the MSM and heterosexual populations. Thus, there is a need to introduce programs to reduce the stigma associated with being an MSM (as well as being a member of other risk groups and being infected).

Although the risk of HIV transmission via sexual intercourse is clearly great in this population (OR = 2.43 for >5 partners), the risk from injecting and presumably sharing of needles is even greater, as reflected by this factor having the highest odds ratio (OR = 30.3) of any of the factors associated with HIV infection. This probably reflects that the rate of HIV infection is still highest in Vietnam among IDUs, many of whom are also sex workers (Nguyen et al. 2001; Tran et al. 2004).

There are some limitations with generalizing the results of this study to the MSM population as a whole in HCMC. The participants were primarily recruited through MSM

organizations. Thus, the men in the study are more likely to be acknowledged MSM. This is suggested by the low proportion of the men in the study who were married, although a significant proportion reported having sex with women. The MSM population not acknowledging their sexual orientation may be even more important bridges between the MSM and majority heterosexual populations. Second, this is a cross-sectional study, and thus does not provide information about trends. Finally, as always, when dealing with sensitive topics, there may be significant under-reporting due to social desirability bias; however, participants were recruited through known MSM organizations and through MSM friends and colleagues, which should have reduced the level of social desirability bias.

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Table 1

Social-demographic characteristics ($n = 600$)

Characteristics	Number	Proportion (%)
Marital status	529	
Married and currently living with the family	9	1.7
Married but did not living with any women	9	1.7
Not yet married but currently live with girlfriend	10	1.9
Not yet married and not living with any girlfriend	501	94.7
Education	594	
Illiterate	29	4.9
Primary school (grades 1–5)	117	19.6
Secondary school attendance any level (grades 6–9)	276	46.5
High school (grades 10–12)	139	23.4
College or university	33	5.6
Self-reported type of sexual identity	595	
Only selling sex	74	12.5
“Da he” (bisexuals)	456	76.6
“Bong kin” (non-transvestites)	55	9.2
“Bong lo” (transvestites)	10	1.7

Table 2

Anal sex with male partners and condom use in the past month

Type of sexual partner in the past month	Proportion (%)		Tr ^a (N = 72)		Non-Tr ^a (N = 441)		Bis ^a (N = 47)		SW ^a (N = 8)		Total (N = 568)	
	I ^b	R ^b	I ^b	R ^b	I ^b	R ^b	I ^b	R ^b	I ^b	R ^b	I ^b	R ^b
Casual partner												
Anal intercourse	15.6	25.0	34.2	23.5	40.9	18.2	37.5	37.5	32.2	23.2		
Consistent condom use	80.0	62.5	48.2	39.8	61.1	50.0	61.1	33.3	50.9	43.0		
Regular partner												
Anal intercourse	21.9	30.7	40.2	38.3	61.4	50.0	25.0	50.0	38.8	39.3		
Consistent condom use	41.7	47.8	31.7	31.5	48.2	57.1	0.0	25.0	34.2	35.7		
Male sex worker												
Anal intercourse	0.0	2.9	8.1	8.6	9.1	10.6	0.0	0.0	7.0	7.8		
Consistent condom use	–	100	60.6	48.7	25.0	40.0	–	–	57.9	50.0		
Foreign partners												
Anal intercourse	5.6	8.3	6.1	5.0	6.4	2.1	0.0	11.1	6.1	5.2		
Consistent condom use	33.3	33.3	62.5	63.2	66.7	0.0	–	0.0	58.1	51.9		

^aTr, transvestites; Non-Tr, non-transvestites; Bis, bisexuals; SW, sex workers

^bI: insertive, R: receptive

Table 3

Lubricant use

Characteristics	Number	Proportion (%)
Lubricant use for male anal sex	485	100
Frequent lubricant use ^a	381	44.4
Lubricants that dissolve in water	78	20.5
Lubricants that do not dissolve in water	82	21.5
Skin lotion	82	21.5
Vaginal lubricant	46	12.1
Saliva	202	53.0
Antibiotic ointment	101	26.5
Others	10	2.6
Consistent lubricant use in the last six months	381	78.6
Reasons for not using lubricants ^a	149	30.7
Partner objected	29	19.5
Afraid to use	21	14.1
Could not find lubricants	39	26.2
Did not want to use	52	34.9
Others	32	21.5

^a Probed question with more than one answer possible

Table 4

Univariate analysis for risks of HIV infection among MSM

Characteristics	OR	(95% CI)
19 < age < 41	4.72	1.67–13.4*
Education level < 6 years	2.98	1.60–5.53*
Identity		
“Bong lo” (transvestites)	0.82	0.31–2.15
“Bong kin” (non-transvestites)	0.63	0.33–1.21
“Da he” (bisexuals)	1.94	0.82–4.59
Only selling sex	6.12	1.48–25.33**
Ever injected drugs in the last 12 months	33.52	8.33–134.85*
Ever bought sex	0.92	0.48–1.81
Ever sold sex	1.74	0.96–3.17
Had oral sex with another man in the past month	1.09	0.47–2.51
Had more than five male partners for anal sex in the past month	2.55	1.31–4.98*
Consistent condom use when being insertive partner		
Regular partner	0.79	0.29–2.17
Casual partner	0.84	0.29–2.43
Foreigner	0.69	0.08–5.64
Consistent condom use when being receptive partner		
Regular partner	1.18	0.48–2.88
Casual partner	1.04	0.36–2.99
Foreigner	0.42	0.03–5.32
Reported an STD in the last 12 months	3.1	0.99–9.68

* $P < 0.01$,

** $P < 0.05$

Table 5

Multivariate analysis of logistic regression on the risk factors of HIV infection among MSM in HCMC

Characteristics	OR (95% CI)
19 < age < 41	4.43 (1.45–13.59) *
Education level < 6 years	2.60 (1.32–5.13) *
Selling sex	8.61(1.20–61.69) *
Injected drugs in the past 12 months	30.35 (6.49–141.90) **
Having more than five male sex partners in the past month	2.43 (1.14–5.17) *

* $P < 0.5$,

** $P < .0002$