

PREVALENCE AND RISK FACTORS FOR HIV INFECTION AMONG MEN HAVING SEX WITH MEN IN METRO MANILA, PHILIPPINES

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Abstract. HIV incidence in the Philippines is increasing at an alarming rate. We conducted this study to understand the factors catalyzing the HIV epidemic among men having sex with men (MSM) in Metro Manila. From November 2009 to January 2010, an HIV testing booth was set up adjacent to bars and restaurants in Metro Manila frequented by MSM at night. Participants aged ≥ 18 years were interviewed using a structured questionnaire. Rapid HIV antibody screening was performed using SD Bioline HIV 1/2 3.0 (Standard Diagnostics). Of 406 MSM included in the study, the mean age was 26.2 years [standard deviation (SD) 5.4]; 96% believed condoms reduced HIV risk but only 3% reported consistent use. The leading reasons for not using condoms were belief that the partner was HIV negative (34.4%), diminished pleasure (32%), and unavailability (23.4%). The HIV prevalence using the rapid test was 11.8% [95% confidence interval (CI): 8.7- 15.0]. All 40 cases who had a confirmatory Western blot test were positive, of whom 24 were business process outsourcing employees (BPOEs). On multivariate analysis, work as a BPOE [adjusted OR (aOR): 3.37; $p=0.001$], preference for receptive anal sex (aOR: 5.26; $p=0.04$), and sex while under the influence of excessive alcohol (aOR: 2.71; $p=0.04$) were independently associated with HIV. The proportion of BPOEs who consistently use condoms when having insertive anal sex with a stranger was significantly lower compared to non-BPOEs (24.5% versus 38.2%; $p=0.02$). Urgent interventions are needed to address the HIV epidemic in the Philippines.

Keywords: HIV, risk factors, men having sex with men, AIDS, Philippines

INTRODUCTION

Since the first documented case of

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acquired immunodeficiency syndrome in the Philippines in 1984, the spread of HIV in the country has been described as "low and slow" with fewer than 350 newly reported cases per year until 2007 (National Epidemiology Center, 2012). However, a steep increase in the incidence of HIV was seen at the end of the last decade, especially among men having sex with men (MSM). Based on the UNAIDS Report on the Global AIDS Epidemic (2010), while other countries in Asia have a stable or declining number of new HIV cases, the

incidence in the Philippines increased by 25% between 2001 and 2009 (UNAIDS, 2010). HIV cases tripled between 2003 and 2008, with a 114% increase among bisexuals and a 214% increase among homosexual men (Parry, 2010). Cumulative data has shown that of the 9,964 HIV cases reported in the Philippines from 1984 to June 2012, 92% were infected through sexual contact; the majority (66%) through bisexual or homosexual intercourse (National Epidemiology Center, 2012).

The epidemiology of HIV among MSM in developed and other developing countries has been described extensively in the literature (Xia *et al*, 2006; Kumta *et al*, 2010; Chariyalertsak *et al*, 2011; Pathela *et al*, 2011). However, published data from the Philippines are limited. This study was conducted to better understand the factors associated with the HIV epidemic among MSM in Metro Manila.

MATERIALS AND METHODS

Questionnaire formulation and definition of terms

A questionnaire regarding health-seeking and sexual behavior was constructed, validated, and field tested with key informant interviews and three focused group discussions. The final version of the questionnaire was interviewer-administered. Trained HIV counselors and peer educators, convened to standardize the definitions and conduct of the interview.

MSM were men who have sex with other men, regardless of how they identify themselves (homosexual, bisexual, or heterosexual). Frequency of condom use under the influence of alcohol was divided into two categories: tipsy (some alcohol) and drunk/wasted (excessive alcohol). Tipsy was defined as having

alcoholic beverages with retained ability to perform activities of daily living independently. Drunk/wasted was defined as having alcoholic beverages with the need for assistance in performing activities of daily living, such as driving or ambulation. Inconsistent condom use was based on self-reported use less than 100% of the time.

Anecdotal discussions suggested HIV prevalence among MSM working as business process outsourcing employees (BPOEs) in the Philippines is high. BPOEs work in call centers as customer service representatives (assisting local and foreign clients on banking inquiries, travel bookings, etc) or as telemarketers. In the current study, a participant was considered a BPOE if he had ever worked in a company that provided services through inbound or outbound telephone calls.

Participant recruitment

From November 2009 to January 2010, twelve HIV testing sessions were conducted on the weekends from 10:00 PM to 6:00 AM. A tinted HIV testing van and an HIV testing booth were set up adjacent to bars and restaurants in Metro Manila known to be frequented by MSM. One HIV testing session was conducted at a business process outsourcing office/call center in Quezon City, located within the National Capital Region. A sign stating, "Free Rapid HIV Testing" was displayed. Research assistants also gave out flyers to people at adjacent establishments to inform them about the free HIV testing. HIV screening was offered and provided to all adults aged ≥ 18 years, but only participants who identified themselves as MSM, not known to be HIV positive, and with their first anal/oral sex more than six months prior to recruitment were included in the analysis.

HIV counseling and testing

After informed consent, participants were interviewed using a structured questionnaire and underwent one-on-one pre-test counseling. The SD Bioline HIV 1/2 3.0 test (Standard Diagnostics, Kyonggi, South Korea) was used for rapid HIV antibody screening. Finger-prick blood was obtained by a registered medical technologist. Rapid test results were available within fifteen minutes. Participants were given one-on-one post-test counselling and six condoms which they could accept or decline. HIV information brochures were also provided.

Participants who were HIV positive with the rapid test were encouraged to have a Western blot confirmatory test. Five milliliters of blood was collected from all participants who consented to the Western blot test and sent to the Philippine General Hospital (PGH) where an enzyme-linked immunosorbent assay (ELISA) was conducted. All HIV-positive samples by ELISA were confirmed by Western blot at the STD-AIDS Cooperative Central Laboratory, the National Reference Laboratory for HIV and AIDS.

Participants were informed the Western blot results would be available within one to two weeks. The telephone number of the principal investigator and the HIV clinic at PGH were provided to the subject if psychosocial or medical assistance related to the study were needed. No confirmatory results were divulged by telephone. All post-test counseling sessions and Western blot results were given by a trained HIV counselor at PGH. Treatment options were offered and discussed, including access to care at PGH, a tertiary care government hospital with an HIV clinic that provides free HIV counseling and testing, medical consultation, and

antiretroviral therapy.

Hypotheses and sample size calculation

The main objectives of the study were to identify the prevalence of HIV infection in Metro Manila and to identify risk factors associated with HIV positivity. The sample size was determined using the formula: $N = [p(1-p)/(0.05)^2]1.96^2$, where p is the proportion of HIV-positive individuals among MSM. Because the most recent research conducted prior to our study showed a 0% prevalence (van Griensven *et al*, 2009), the value of p was assumed to be 0.50 (or a 50.0% prevalence) to yield the maximum sample size. Because some participants did not disclose certain demographic information necessary for logistic regression analysis (such as age or occupation), additional participants were recruited to have at least 385 participants with complete data for each risk factor being investigated. The final sample size was 406 subjects.

Statistical analyses

Univariate logistic regression analyses were conducted to identify variables associated with HIV infection. Factors significant on univariate analysis were included in multivariate logistic regression analysis. Chi-square test and Wilcoxon rank-sum test were used to compare baseline characteristics of BPOEs and non-BPOEs. The level of significance was set at $p < 0.05$. STATA IC 12.0 (College Station, TX) was used to conduct the evaluations.

Institutional and ethical approval were obtained from the Research Implementation and Development Office of the University of the Philippines Manila. All procedures and data management adhered to the Philippine AIDS Prevention and Control Act of 1998 (Republic Act 8504).

RESULTS

Participant characteristics and HIV prevalence

A total of 406 MSM were recruited. The median number of participants per night was 30 (quartile 1: 26; quartile 3: 36). The mean age of participants was 26.2 years (SD: 5.4). The majority of participants (97.3%) had at least a college level of education. Median lifetime number of male partners was 30 (quartile 1: 10; quartile 3: 70). Of 385 who disclosed their occupation, 130 (33.8%) were BPOEs (Table 1). No significant differences in socio-demographic characteristics were seen between BPOEs and non-BPOEs.

Forty-eight subjects (11.8%) were HIV positive by rapid test (95% confidence interval (CI): 8.7-15.0). Eight did not consent to have the Western blot test performed and were lost to follow-up. In the remaining 40 subjects who had the Western blot test performed, all of them were confirmed to have HIV; 39 were HIV-1 positive and one participant was both HIV-1 and HIV-2 positive. Twenty-six BPOEs tested positive on the HIV rapid test, 24 gave consent and were positive on the Western blot test (two BPOEs did not give consent for the Western blot). Forty-five percent of HIV-negative participants ($n=161$) had unprotected sex during three months prior to the rapid HIV test.

Sexual risk-taking and condom use

Ninety-six percent believed condoms could reduce the risk of HIV transmission. However, only 3% used condoms consistently. Oil-based lubricants were used by 30.5%. The leading causes for not using condoms were from belief the partner was HIV negative (34.4%), diminished pleasure (32.0%), and unavailability (23.4%). Nearly half of participants (45.8%) had at

least one female sexual partner and 20.4% consistently use condoms when having sex with a female.

Investigating condom use during specific sexual situations, the proportion of BPOEs who consistently use condoms when having insertive anal sex with a stranger was significantly lower than the non-BPOEs (24.5% vs 38.2%, $p=0.02$). The proportion of BPOEs who consistently used condoms during other sexual situations was generally lower but did not reach statistical significance; these were as follows: receptive anal sex with a stranger (22.7% in BPOEs vs 34.1% in non-BPOEs $p=0.06$); insertive anal sex with a regular partner (18.3% vs 26.7%, $p=0.10$); receptive anal sex with a regular partner (17.3% vs 6.9%, $p=0.09$); receptive or insertive sex under the influence of some alcohol (18.0% vs 20.3%, $p=0.64$); and receptive or insertive sex under the influence of excessive alcohol (15.7% vs 19.8%, $p=0.43$).

Risk factors associated with HIV

On univariate analysis, work as a BPOE [odds ratio (OR): 3.35; 95% CI: 1.70-6.58], preference for receptive anal sex (OR: 4.70; 95% CI: 1.04-21.30), and sex under the influence of excessive alcohol (OR: 2.93; 95% CI: 1.19-7.19) were significantly associated with HIV. Other factors that did not reach significance ($p>0.10$) were age (<24 years old, 25 to 29 years old, >34 years old and when analyzed as continuous variables), lifetime number of male partners, age of first man to man sexual contact, and having knowledge that condoms reduced the risk of HIV transmission (yes/no).

On the final multivariate logistic regression analysis (Table 2), work as a BPOE [adjusted OR (aOR): 3.37; $p=0.001$], preference for receptive anal sex (aOR: 5.26; $p=0.04$) and sex under the influence

Table 1
Socio-demographic characteristics of men having sex with men in Metro Manila.

	Participants ^a No. (%)	HIV positive No. (%/row)
Age (years)		
18-24	178 (43.8)	22 (12.4)
25-29	138 (34.0)	18 (13.0)
30-34	55 (13.5)	5 (9.1)
35-39	17 (4.2)	1 (5.9)
≥40	13 (3.2)	2 (15.4)
Undisclosed	5 (1.2)	0
Occupation		
Business process outsourcing employee	130 (32.0)	26 (20.0)
Health care worker	23 (5.7)	1 (4.3)
Seafarer	3 (0.7)	0
Student	47 (11.6)	4 (8.5)
Employed (others)	162 (39.9)	14 (8.6)
Unemployed	20 (4.9)	3 (15.0)
Undisclosed	21 (5.2)	0
Preferred sexual role		
Insertive anal	74 (18.2)	6 (8.1)
Receptive anal	28 (6.9)	5 (17.9)
Versatile (both insertive and receptive)	291 (71.7)	37 (12.7)
Oral sex only	7 (1.7)	0
Undisclosed	6 (1.5)	0
Age of first man to man sexual contact		
<10 years old	60 (14.8)	6 (10.0)
10 to 15 years old	76 (18.7)	13 (17.1)
>15 years old	267 (65.8)	29 (10.9)
Undisclosed	3 (0.7)	0
Knew condoms reduced HIV transmission	390 (96)	45 (13.0)
Ever participated in group sex	166 (40.9)	26 (15.7)
Received blood transfusion	19 (4.7)	1 (5.3)
Engaged in sex under the influence of excessive alcohol	273 (67.2)	40 (14.7)
Current or past sexual contact with females	186 (45.8)	25 (13.4)

^aTotal number of HIV positive was 48 out of 406 participants (11.8%).

of excessive alcohol (aOR: 2.71; $p=0.04$) were independently associated with HIV. Odds ratios were computed by excluding participants who did not give consent for the Western blot test. Similar results were found when data was analyzed assuming the participants who refused the Western blot were HIV positive.

DISCUSSION

HIV infection among MSM in Metro Manila has increased considerably from previous reports; in 2005, 500 MSM at similar locations in Manila and Baguio City were examined and none were HIV positive (van Griensven *et al*, 2009). In

Table 2
Multivariate logistic regression analysis of factors associated with HIV infection.

Factors	Odds ratio	95% Confidence interval	p-value
Worked as a business process outsourcing employee	3.37	1.69-6.70	0.001*
Preferred sexual role			
Insertive anal	Ref	Ref	Ref
Receptive anal	5.26	1.10-25.16	0.04*
Both insertive and receptive	2.46	0.71-8.60	0.16
Sex under the influence of excessive alcohol	2.71	1.04-7.10	0.04*

*Statistically significant

the current study, 11.8% were positive by rapid test and all who gave consent for the Western blot test were confirmed to have HIV. Other Asian countries have reported similar HIV infection rates. In India, of 831 MSM attending Voluntary Counseling and Testing (VCT) clinics from January to December 2004, 12.5% were HIV positive (Kumta *et al*, 2010). In Northern Thailand, 12.9% of 551 MSM attending VCT clinics from April 2008 to December 2009 tested positive for HIV (Chariyalertsak *et al*, 2011). In Indonesia in 2007, 8.0% of MSM in Jakarta tested positive for HIV (Morineau *et al*, 2011). Prevalence data from various countries, however, should be compared with caution because of methodological and sampling differences.

The HIV epidemic in the Philippines is catalyzed by persistently low condom use and high risk-taking behavior. In the current study, knowledge about HIV prevention was high but consistent condom use was low. The primary reasons for not using condoms were from the belief the partner was HIV negative, diminished pleasure and unavailability. The stigma associated with purchasing condoms was a major deterrent described in a previous study (Hernandez and Imperial, 2009).

Nearly half our participants had at least one female sexual encounter and only 20.4% use condoms consistently during penile to vaginal sex, placing female partners at risk for HIV infection.

Aside from inconsistent condom use, sex under the influence of excessive alcohol was identified to be significantly associated with increased HIV risk. Similarly, previous studies have also found that alcohol intake was associated with increased intentions to engage in unsafe sex (Tho le *et al*, 2007; Rehm *et al*, 2012).

On multivariate logistic regression analysis, working as a BPOE was associated with HIV infection, a population not previously reported in the literature. Previous studies have identified illiteracy (Kumta *et al*, 2010), lower level of education (Xia *et al*, 2006), and lower monthly income (Li *et al*, 2008) as factors associated with greater practice of unprotected anal intercourse and higher HIV risk. In contrast, BPOEs are generally at least high school graduates and receive a minimum prevailing wage or higher. The significantly lower proportion of BPOEs who consistently use condoms when having sex with strangers and the general trend toward less condom use during other

sexual situations could partly explain the higher HIV prevalence in this group.

This study was limited by its focus on participants who go to bars and entertainment areas in Metro Manila. MSM who were not open about their sexuality may not have been adequately represented. Further research is necessary to fully explain the association between increased HIV infection among BPOEs.

In conclusion, the prevalence of HIV among MSM in Metro Manila is increasing at an alarming rate. This is primarily driven by high risk behavior and inconsistent condom use. Interventions to address the HIV epidemic in the Philippines are urgently needed but must be implemented with caution to avoid further stigmatization of vulnerable groups.

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