

## EXAMINING HIV INFECTION AMONG MALE SEX WORKERS IN BANGKOK, THAILAND: A COMPARISON OF PARTICIPANTS RECRUITED AT ENTERTAINMENT AND STREET VENUES

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HIV prevalence and associated factors were examined among male sex workers (MSWs,  $N = 414$ ) in Bangkok, Thailand. Cross-sectional venue-day-time sampling was used to collect data in entertainment and street venues. Chi-square and logistic regression were used to identify HIV risk factors. HIV prevalence was 18.8% overall, but differences were found between MSW recruited in entertainment and street venues. Significant relationships were found between several demographic, behavioral, exposure to HIV prevention, and other characteristics, and recruitment location. In multivariate analyses, being sexually attracted to men was significantly associated with HIV infection among both groups of sex workers. In addition, among street-based sex workers, not having had sex with a woman in the past 3 months, having ever had a sexually transmitted disease symptom, and not having a friend to talk to about personal problems were significantly associated with HIV infection.

The first documented cases of AIDS in Thailand were in 1984 among men who have sex with men (MSM) (Thongchareon, Wasi, Louisirotchanakul, & Rojanapithayakorn, 1989). However, the primary focus of prevention efforts then was on reducing heterosexual and injecting drug use transmission of HIV (United Nations Develop-

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ment Programme [UNDP], 2004). Recent studies have documented an HIV epidemic among populations of MSM in Thailand (Centers for Disease Control and Prevention [CDC], 2006; de Lind van Wijngaarden, Brown, Girault, Sarkar, & van Griensven, 2009; van Griensven et al., 2005). Among these populations, male sex workers (MSWs) represent a group at high risk for contracting and transmitting HIV (CDC, 2006; de Lind van Wijngaarden et al., 2009; van Griensven et al., 2005).

In 2005 there were approximately 580,000 HIV-infected people living in Thailand (Joint United Nations Programme on HIV/AIDS [UNAIDS], 2006). The HIV prevalence for MSM in Bangkok was reported as 17.3% in 2003 and increased to 28.3% in 2005 (CDC, 2006). Among MSWs, an 18.9% HIV prevalence was reported in Bangkok, 11.4% in Chiang Mai, and 14.4% in Phuket (CDC, 2006). Although limited research exists that examines male sex work in Thailand, studies have explored the behavioral risks of this population.

### MALE SEX WORK IN THAILAND AND HIV RISK

Male sex work in Thailand involves sex or other erotic services in exchange for money or its equivalence. Male sex work venues can be found in larger cities including Bangkok, Chiang Mai, Pattaya, and Phuket. McCamish, Storer, and Carl (2000) noted that these venues take the form of male go-go bars, saunas, and gyms offering massage services, karaoke bars, male escort services, and clubs that offer a range of services, one of which may be commercial sex. Street-based sex work involves the solicitation of clients in public areas such as sidewalks and parks. In both these contexts, sex work is not limited to sexual intercourse in exchange for money, and may involve other types of arrangements. Similar to other parts of the world, sex work in Thailand varies greatly according to social context, including location and health-related risks (Harcourt & Donovan, 2005). However, these distinctions have not been previously examined in Thailand among MSWs.

There are many reasons why men in Thailand engage in sex work, but like the case of female sex workers, economics is a primary determinant (de Lind van Wijngaarden, 1999; McCamish, 2002). Many sex workers migrate from rural to urban areas (de Lind van Wijngaarden, 1999), and some engage in sex work during the off-season of farming (McCamish & Sittitrai, 1997; Sittitrai, Phanuphak, & Roddy, 1994). Others use sex work as an alternative source of income (McCamish et al., 2000). McCamish (2002) conducted interviews with MSWs in Pattaya who stated sex work in larger cities allowed them to earn higher wages than most other available jobs. A portion of their earnings was used to support their parents and siblings, and this enabled them to meet the financial expectations that are placed on children in rural households.

Some factors that place MSWs at risk for HIV infection include unprotected anal intercourse, multiple sex partners, sexually transmitted diseases (STD), and low condom use (CDC, 2006; McNicholl et al., 2007; de Lind van Wijngaarden et al., 2009). Studies have also found that most MSWs identify themselves as heterosexual and report having male and female sexual partners (Beyrer et al., 1997; Kunawarak et al., 1995). Many sex workers also report having both foreign and Thai male and female clients (McCamish, 2002). In addition to commercial sex, MSWs also engage in recreational sex and sexual relationships with male and female partners (Beyrer et al., 1997; de Lind van Wijngaarden, 1999).

This article examines differences between entertainment- and street-based MSWs in Bangkok and examines factors associated with HIV infection. Data for this article came from a study conducted in 2005 by the Thailand Ministry of Public Health—U.S. Centers for Disease Control Collaboration (CDC, 2006). As reported by van Griensven and colleagues (CDC, 2006), recruitment location was significantly correlated with HIV infection among MSW. Thus, the objective of the current analysis is to further examine MSW by comparing the characteristics of entertainment- and street-based sex workers, identifying factors associated with HIV infection in these groups, and discussing implications for prevention.

## METHODS

### PARTICIPANTS AND RECRUITMENT

A total of 414 participants were recruited in April and May 2005, from sex work venues in Bangkok using venue-day-time sampling (Mansergh et al., 2006; van Griensven et al., 2005). Through exploratory procedures including identification, mapping, and enumeration, 22 sex work venues were identified in Bangkok where men congregate to seek sex partners and/or clients. Recruitment locations included 15 entertainment venues (e.g., massage parlors and “go-go” bars) and seven streets and parks (hereafter grouped as street-based sex work). Mansergh and colleagues (2006) detailed the sampling and recruitment procedures for the project. The original assessment reported 350 MSWs recruited in Bangkok; however, this analysis includes an additional 64 participants recruited at sex work venues, categorized as “transgender” in the original report (CDC, 2006).

The inclusion criteria for the study were as follows: being of Thai nationality, male at birth, resident of the study area, aged 15 or older, and having had anal or oral sex with a man in the previous 6 months. Participation was voluntary and anonymous with verbal informed consent. The study was determined to be a surveillance activity by the CDC and therefore did not require an institutional review board review. The protocol of the assessment was reviewed and approved by the Ethical Review Committee of the Thailand Ministry of Public Health.

### MEASURES

This study included collection of oral fluid specimens to test for HIV infection and a hand held computer-assisted self-administered questionnaire to assess demographic, behavioral (drug use and sexual behavior), exposure to HIV prevention and other characteristics.

*HIV Infection.* Oral fluid specimens were collected using Orasure and tested at 1:2 dilution in single wells by an enzyme immunoassay (EIA) (CDC, 2006). Positive samples were retested in duplicate, and two or more positive wells were reported as oral-fluid anti-HIV positive. Oral HIV test results were available to participants who, if determined positive, were referred for confirmatory EIA serum testing and appropriate HIV treatment and care according to Thai national guidelines (Thailand Ministry of Public Health, 2004).

*Demographic Measures.* Demographic variables included age in years (grouped for analysis as 22 and younger, 23-28, and 29 and older); education (grouped for analysis as having completed lower secondary education or less [primary school and first

3 years of secondary school] and having completed upper secondary school or higher [second 3 years of secondary school, vocational school and university]); hometown (grouped for analysis as north, northeast, central/east, and south regions of Thailand); marital status (grouped for analysis as single [never married] and currently or previously married); sexual identity (grouped for analysis as heterosexual, bisexual, and homosexual/gay or transgender); and sexual attraction to men, women, and/or transgenders.

*Behavioral Measures.* Drug use at any time and in the past 3 months was assessed separately by substance (i.e., alcohol, methamphetamine, marijuana, ketamine, ecstasy, sedatives, poppers [inhaled nitrates], inhalants [glue, thinner], and other substance(s) [specified by participants]) and combined for analysis as dichotomous [whether the participant indicated use of any substance, excluding alcohol or not]. Self-reported history of STD symptoms at any time and in the past three months were assessed by specific symptoms (i.e., genital discharge, genital ulcer, anal ulcer, genital wart, and anal wart) and combined for analysis as dichotomous [whether the participant indicated having any symptoms or not].

Sexual behavior with men and women at any time and in the past 3 months and usual anal sexual role with men (i.e., top [insertive], bottom [receptive], both and no anal sex) were assessed. Also, sexual behavior in the past 3 months was assessed by types and gender of partners (i.e., casual, steady and exchange male, female and transgender partners). Casual and steady partners were excluded in the analysis presented in this article. Furthermore, exchange sexual partners (i.e., male, female and transgender individuals who paid for sex) were combined for analysis (grouped for analysis as no exchange sexual partners in the past 3 months; one partner; two to five partners; and six partners or more). In this study, exchange sexual partners only included those who paid to have anal and/or vaginal intercourse (i.e., it did not include partners who may have paid to have other forms of sexual interactions). Among those reporting exchange sexual partners, condom use was assessed (grouped for analysis as consistent [always] or inconsistent [not always]).

*Exposure to HIV Prevention and Other Characteristics.* Questions pertaining to exposure to HIV prevention and other characteristics (i.e., coercive sex, and having a family member or friend to talk to about problems) were also included. To assess exposure to HIV prevention in the past 12 months, a subset of participants ( $n = 350$ ) were asked questions regarding: being contacted by HIV prevention outreach workers; attending HIV prevention sessions; receiving an HIV prevention brochure; and seeing or hearing about HIV prevention for men on TV, radio, or the Internet. All participants were asked if they were carrying a condom at the time of recruitment in the study, and if they had been previously tested for HIV (yes or no). Regarding coercive sex, all participants were asked if they had ever been forced to have sex against their will. Also, two questions assessed whether or not participants felt they had a family member and/or a friend to confide in about personal problems.

#### DATA ANALYSES

To examine characteristics of entertainment- and street-based sex workers, descriptive statistics were computed. Chi-square analysis was conducted to test for associations between each independent variable and recruitment location. Significance levels were set at  $p < .05$ . Univariate logistic regression was conducted to predict HIV infection from each independent variable for the two groups independently.

TABLE 1. Comparison of HIV Infection, Demographic, Sexual Identity and Sexual Attraction Characteristics of Entertainment and Street-Based Male Sex Workers in Bangkok, Thailand, 2005 (N = 414)

Variable	Total	%	Entertainment (n = 233)	Street (n = 181)
HIV infection*				
Negative	336	81.2	197 (84.5)	139 (76.8)
Positive	78	18.8	36 (15.5)	42 (23.2)
Age				
≤ 22 years old	142	34.3	70 (30.0)	72 (39.8)
23-28 years old	187	45.2	113 (48.5)	74 (40.9)
≥ 29 years old	85	20.5	50 (21.5)	35 (19.3)
Education***				
Completed lower secondary or less	203	49.0	93 (39.9)	110 (60.8)
Completed upper secondary or higher	211	51.0	140 (60.1)	71 (39.2)
Hometown Region				
North	92	22.2	57 (24.5)	35 (19.3)
Northeast	137	33.1	70 (30.0)	67 (37.0)
Central/East	153	37.0	86 (36.9)	67 (37.0)
South	32	07.7	20 (08.6)	12 (06.6)
Marital status**				
Single – Never Married	359	86.7	210 (90.1)	149 (82.3)
Currently or Previously Married	55	13.3	23 (09.9)	32 (17.7)
Sexual identity***				
Bisexual	76	18.4	33 (14.2)	43 (23.8)
Heterosexual	150	36.2	69 (29.6)	81 (44.7)
Homosexual/Gay or Transgender	188	45.4	131 (56.2)	57 (31.5)
Sexual attraction to men***				
Yes	241	58.2	160 (68.7)	81 (44.8)
No	173	41.8	73 (31.3)	100 (55.2)
Sexual attraction to women***				
Yes	206	49.8	88 (37.8)	118 (65.2)
No	208	50.2	145 (62.2)	63 (34.8)
Sexual attraction to transgenders***				
Yes	41	09.9	11 (04.7)	30 (16.6)
No	373	90.1	222 (95.3)	151 (83.4)

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Significance levels were set at  $p < .05$ . For multivariate analysis, variables found to be significant in univariate analysis (i.e., with p-values less than or equal to .05) for each group, and variables considered theoretically relevant were entered into separate binary logistic regressions, using backward stepwise likelihood ratio. Questions examining exposure to HIV prevention were not asked of the entire sample and therefore were not included in multivariate analysis.

## RESULTS

### COMPARISON OF CHARACTERISTICS OF ENTERTAINMENT- AND STREET-BASED MSW

*HIV Infection and Demographic Characteristics.* The overall HIV prevalence for the sample was 18.8% (Table 1). There was a significant relationship between HIV infection and recruitment location ( $p < .05$ ); 15.5% of entertainment-based and 23.2% of street-based MSWs were found to be HIV-positive. Participants recruited at entertainment venues were more likely to have a higher level of education ( $p <$

TABLE 2. Comparison of Drug Use, Self-Reported Sexually Transmitted Diseases (STDs), and Sexual Behavior Characteristics of entertainment- and Street-Based Male Sex Workers in Bangkok, Thailand, 2005 (N = 414)

Variable	Total	%	Entertainment (n = 233)	Street (n = 181)
Drug use (ever)				
Yes	314	75.8	176 (75.5)	138 (76.2)
No	100	24.2	57 (24.5)	43 (23.8)
Drug use (past 3 MONTHS)				
Yes	199	48.1	114 (48.9)	85 (47.0)
No	215	51.9	119 (51.1)	96 (53.0)
Self-reported STD symptoms (ever)				
Yes	272	65.7	160 (68.7)	112 (61.9)
No	142	34.3	73 (31.3)	69 (38.1)
Self-reported STD symptoms (past 3 months)				
Yes	252	60.9	149 (63.9)	103 (56.9)
No	162	39.1	84 (36.1)	78 (43.1)
Anal sex with a man (ever)**				
Yes	382	92.3	224 (96.1)	158 (87.3)
No	32	07.7	9 (03.9)	23 (12.7)
Anal sex with a man (past 3 months)				
Yes	296	71.5	173 (74.2)	123 (68.0)
No	118	28.5	60 (25.8)	58 (32.0)
Sex with a woman (ever)**				
Yes	256	61.8	121 (51.9)	135 (74.6)
No	158	38.2	112 (48.1)	46 (25.4)
Sex with a woman (past 3 months)**				
Yes	160	38.6	63 (27.0)	97 (53.6)
No	254	61.4	170 (73.0)	84 (46.4)
Anal sexual role with men (usually)**				
Receptive	88	21.3	67 (28.8)	21 (11.6)
Insertive	194	46.9	93 (39.9)	101 (55.8)
Both	100	24.2	64 (27.5)	36 (19.9)
No Anal Sex	32	07.7	9 (03.9)	23 (12.7)
Number of exchange sexual partners <sup>a</sup> in the past 3 months**				
No partners	114	27.5	77 (33.0)	37 (20.4)
1-5 partners	130	31.4	77 (33.0)	53 (29.3)
6+ partners	170	41.1	79 (33.9)	91 (50.3)
Condom use with exchange partners in the past 3 months				
Always	245	81.7	127 (81.4)	118 (81.9)
Inconsistent	55	18.3	29 (18.6)	26 (18.1)

<sup>a</sup>Exchange sexual partners refer to those who paid to have intercourse. \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

.001), whereas those recruited at street-based locations were more likely to report being currently or previously married ( $p < .01$ ).

Regarding sexual identity, street-based sex workers (44.7%) most commonly identified as heterosexual, while the majority (56.2%) of entertainment-based sex workers identified as homosexual/gay or transgender ( $p < .001$ ). A similar pattern emerged when focusing on sexual attraction: street-based sex workers were less likely to report sexual attraction to men ( $p < .001$ ), and more likely to report sexual attraction to women and transgenders ( $p < .001$ ).

*Behavioral Characteristics.* There was a significant relationship between ever having anal sex with a man and recruitment location ( $p < .001$ ) but not when examining anal sex with a man in the past 3 months (Table 2). In comparison, participants recruited at street-based locations were more likely to report ever having sex with a woman ( $p < .001$ ), including in the past 3 months ( $p < .001$ ). Street-based participants were also more likely to report usually being the “top” or insertive partner, and less likely

TABLE 3. Comparison of Exposure to HIV Prevention and Other Characteristics of Entertainment- and Street-Based Male Sex Workers in Bangkok, Thailand, 2005 (N = 414)

Variable	Total	%	Entertainment (n = 233)	Street (n = 181)
Contacted by HIV prevention outreach workers in the past 12 months*** (n = 350)				
Yes	124	35.4	88 (48.4)	36 (21.4)
No	226	64.6	94 (51.6)	132 (78.6)
Attended HIV prevention sessions in the past 12 months*** (n = 350)				
Yes	94	26.9	71 (39.0)	23 (13.7)
No	256	73.1	111 (61.0)	145 (86.3)
Received HIV prevention brochure in the past 12 months*** (n = 350)				
Yes	168	48.0	111 (61.0)	57 (33.9)
No	182	52.0	71 (39.0)	111 (66.1)
Seen or heard about HIV prevention on TV, radio, or internet in the past 12 months** (n = 350)				
Yes	272	77.7	153 (84.1)	119 (70.8)
No	78	22.3	29 (15.9)	49 (29.2)
Carrying Condom***				
Yes	242	58.5	177 (76.0)	65 (35.9)
No	172	41.5	56 (24.0)	116 (64.1)
Previously tested for HIV				
Yes	231	55.8	133 (57.1)	98 (54.1)
No	183	44.2	100 (42.9)	83 (45.9)
Coercive Sex				
Yes	62	15.0	30 (12.9)	32 (17.7)
No	352	85.0	203 (87.1)	149 (82.3)
Family to talk to***				
Yes	274	66.2	173 (74.2)	101 (55.8)
No	140	33.8	60 (25.8)	80 (44.2)
Friend to talk to*				
Yes	316	76.3	187 (80.3)	129 (71.3)
No	98	23.7	46 (19.7)	52 (28.7)

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

to report usually being the “bottom” or receptive sexual partner ( $p < .001$ ). There was also a significant relationship found between the number of exchange sexual partners in the past 3 months and recruitment location ( $p < .01$ ); more street-based participants reported six or more of these types of partners during this time.

*Exposure to HIV Prevention and Other Characteristics.* Of those asked about exposure to HIV prevention in the past 12 months, significant associations were found between all four questions and recruitment location (Table 3). Entertainment-based sex workers were more likely to report being contacted by outreach workers (48.4% vs. 21.4%;  $p < .001$ ), attending HIV prevention sessions (39.0% vs. 13.7%;  $p < .001$ ), receiving an HIV prevention brochure (61.0% vs. 33.9%;  $p < .001$ ), and having seen or heard about HIV prevention in the media (84.1% vs. 70.8%;  $p < .01$ ). Entertainment-based workers were also more likely to report carrying a condom ( $p < .001$ ) and more likely to report having a family member ( $p < .001$ ) or friend ( $p < .05$ ) to talk to about problems.

*Factors Associated With HIV Infection.* Table 4 shows the odds ratios (OR) from analyses for predicting HIV infection from various characteristics for each group; variables found to not be significant for either recruitment location were excluded from the table. Among entertainment-based sex workers, those sexually attracted to men, and those not sexually attracted to women, had approximately three times the odds to be HIV infected. Those reporting that they had been contacted by HIV

TABLE 4. Univariate and Multivariate Logistic Regression Predicting HIV Prevalence Among Entertainment- and Street-Based Male Sex Workers in Bangkok, Thailand, 2005

	Entertainment				Street							
	HIV Prevalence n/N	%	Univariate OR (95%CI)	p	Multivariate OR (95% CI)	p	HIV Prevalence n/N	%	Univariate OR (95%CI)	p	Multivariate OR (95% CI)	p
Sexual identity												
Bisexual	5/33	15.2		ns		ns	6/43	14.0	Ref.			ns
Heterosexual	7/69	10.1					15/81	18.5	1.40 (0.50-3.92)	.521		
Homosexual/gay or Transgender	24/131	18.3					18/49	36.7	3.60(1.30-9.94)	.014		
Sexual attraction to men												
No	5/73	6.8	Ref.		Ref.		15/100	15.0	Ref.		Ref.	
Yes	31/160	19.4	3.27 (1.22-8.79)	.019	3.34 (1.25-9.09)	.018	27/81	33.3	2.83 (1.38-5.80)	.004	3.65 (1.39-9.58)	.009
Sexual attraction to women												
Yes	7/88	8.0	Ref.			ns	25/118	21.2	Ref.			ns
No	29/145	20.0	2.89(1.21-6.92)	.017			17/63	27.0	1.38 (0.68-2.80)			
Sex with a woman (past 3 months)												
Yes	7/63	11.1	Ref.			ns	14/97	14.4	Ref.		Ref.	
No	29/170	17.1	1.65 (0.68-3.97)				28/84	33.3	2.96 (1.43-6.12)	.003	3.13 (1.29-7.59)	.011
Self-reported STD symptoms (ever)												
No	7/73	9.6	Ref.			ns	10/69	14.5	Ref.		Ref.	
Yes	29/160	18.1	2.09 (0.87-5.02)				32/112	28.6	2.36 (1.08-5.18)	.032	2.49 (1.07-5.77)	.034
Self-reported STD symptoms (past 3 months) <sup>a</sup>												
No	9/84	10.7	Ref.			ns	10/78	12.8	Ref.			
Yes	27/149	18.1	1.84 (0.82-4.14)				32/103	31.1	3.07 (1.40-6.71)	.005		
Drug use (ever)												
No	6/57	10.5	Ref.			ns	5/43	11.6	Ref.			ns
Yes	30/176	17.0	1.75 (0.69-4.44)				37/138	26.8	2.78 (1.02-7.61)	.046		
Contacted by HIV prevention outreach workers in the past 12 months <sup>b</sup>												
No	8/94	8.5	Ref.			—	29/132	22.0	Ref.			ns
Yes	20/88	22.7	3.16 (1.32-7.62)	.010			9/36	25.0	0.85 (0.36-2.00)			—

Received HIV prevention brochure in the past 12 months <sup>b</sup>									
No	5/71	07.0	Ref.		20/111	18.0	Ref.		—
Yes	23/111	20.7	3.45 (1.25-9.55)	.017	18/57	31.6	2.10 (1.00-4.40)	.049	
Coercive sex									
No	34/203	16.7	2.82 (0.64-12.38)		30/149	20.1	Ref.		
Yes	2/30	06.7	Ref.	ns	12/32	37.5	2.38 (1.05-5.40)	.038	ns
Family to talk to									
Yes	30/173	17.3	1.89 (0.74-4.79)	ns	18/101	17.8	Ref.	ns	ns
No	6/60	10.0	Ref.		24/80	30.0	1.98 (0.98-3.97)		
Friend to talk to									
Yes	32/187	17.1	2.17 (0.73-6.47)	ns	25/129	19.4	Ref.	ns	Ref.
No	4/46	08.7	Ref.		17/52	32.7	2.02 (0.98-4.17)		2.47 (1.11-5.34)

Note. ns – not significant; STD – sexually transmitted disease. <sup>a</sup>Variable not included in multivariate analysis; self-reported STD symptoms (ever) included. <sup>b</sup>Variable not included in multivariate analysis; not asked of all participants.

prevention outreach workers in the past 12 months and those who received an HIV prevention brochure were also more likely to be HIV infected.

Among the street-based group, similar to entertainment-based sex workers, being sexually attracted to men was also significantly associated with HIV infection, as was having received an HIV prevention brochure in the past 12 months. In addition, those who identified as homosexual/gay or transgender, those who reported not having sex with a woman in the past 3 months, a history of STD symptoms in the past 3 months, ever using drugs, and being coerced into having sex were also significantly more likely to be HIV infected. Not having a family member and not having a friend to talk to about problems approached statistical significance among this group at .056 and .057 levels, respectively (data not shown).

In multivariate analysis (see Table 4), being sexually attracted to men was significantly associated with HIV infection among both groups. In addition, among street-based sex workers, not having had sex with a woman in the past 3 months, having ever had an STD symptom, and not having a friend to talk to about personal problems, were significantly associated with HIV infection.

## DISCUSSION

The analysis presented in this article shows that MSWs in Bangkok are at high risk for HIV infection. This study found an overall HIV prevalence of 18.8%; 15.5% among entertainment- and 23.2% among street-based sex workers. This study also found that these two groups of MSWs have distinct demographic and behavioral differences, as well as differences in reported exposure to HIV prevention. Previous studies have identified that MSWs are more likely to identify as heterosexual and or bisexual, rather than homosexual and/or gay (Allyn, 1991; de Lind van Wijngaarden, 1999; Kunawararak et al., 1995). Here, this was only found among street-based sex workers, where 68.5% identified as heterosexual or bisexual. Among those working in entertainment venues, the majority of participants (56.2%) identified as homosexual/gay or transgender. This difference was also evident in examining sexual attraction, with street-based sex workers more likely to feel sexually attracted to women than entertainment-based sex workers. These differences in sexual characteristics persisted when comparing the behavior of the two groups, with street-based sex workers less likely to report having sex with men, especially in a receptive role, and more likely to report sex with women. These findings are similar to those previously reported that MSWs in Thailand tend to continue to have sex with women while engaging in sex work with male clients (CDC, 2006; Kunawararak et al., 1995).

Despite the differences noted above, sexual attraction to men was associated with HIV infection among both groups in multivariate analysis. In addition, among street-based sex workers, not having sex with a woman in the past 3 months, a history of symptoms of sexually transmitted infections, and not having a friend to talk to about problems were all significant factors associated with HIV infection. These factors are similar to those previously identified in the literature, with the exception of not having a friend to talk to about problems. This finding points to social isolation and may indicate the mental health needs of this group.

Number of exchange sexual partners and condom use with those partners were not significantly associated with HIV infection in this study. This finding should not be interpreted to underestimate the HIV prevention needs of these men. Most participants in the study reported having at least six sexual partners in the last 3 months

who paid them to have sexual intercourse. This number does not include private steady or casual sexual partners. With an overall HIV prevalence of almost 19%, prevention of HIV transmission is of importance both to workers and clients. Furthermore, although reported consistent condom use was relatively high among both groups, only 36% of the street-based sample was carrying a condom at the time they were recruited, suggesting there may have been an overreporting of condom use. As previously noted, there are different factors mitigating the consistent use of condoms by MSW (de Lind van Wijngaarden, 1995; McCamish, 1999).

Exposure to HIV prevention was an important area of inquiry for this study. In general, street-based sex workers were less likely than entertainment-based sex workers to have been exposed to HIV prevention efforts. Furthermore, exposure to HIV prevention was significantly associated with HIV infection among both groups in univariate analysis. Although exposure to HIV prevention was not included in the multivariate model, the findings in univariate analysis suggest further investigation is warranted to assess its effects on HIV infection. Because this was a cross-sectional study, it may be that those at higher risk, or those who are aware of their HIV infection, are more likely to recall or more prone to be exposed to HIV prevention efforts. It may also indicate that HIV prevention education efforts have successfully targeted and accessed those at the highest risk. More research is needed that examines current HIV prevention efforts targeting MSW and determines their impact on HIV infection.

Although some organizations have made an effort to address MSM health issues in Thailand, sustainability of these programs has been difficult (McCamish et al., 2000). Data from this study emphasize the importance of addressing the HIV prevention needs of MSW in Bangkok. Furthermore, given the significant differences found between the characteristics of entertainment and street-based groups, HIV prevention messages should be tailored to address these distinctions. For example, messages that target "gay-identified" MSWs may not reach sex workers who identify as heterosexual, despite the fact that they may be engaging in risky sexual behaviors with male clients. Nevertheless, this study also indicates that similarities exist between the groups in the factors associated with HIV infection, and these findings emphasize the need to address common factors of HIV risk among MSWs.

Overall, findings from this study highlight the importance of location/environment in examining male sex work in Thailand. Although previously examined as a monolithic group, findings from this study emphasize the differences between male sex work in entertainment and street locations. Although primarily focusing on female sex work, Harcourt and Donovan's (2005) review, highlights how sex work varies greatly by social context and how these differences have consequences pertaining to risk and health outcomes. The public health implications of different types of sex work vary greatly, including those for HIV prevention. Greater research is needed that further examines these distinctions, in order to develop and implement comprehensive HIV prevention programs for MSWs. In addition, more ethnographic research is needed to better understand male sex work in Thailand. Future studies should consider the inclusion of ethnographic/qualitative tools to help better understand the personal and social context of male sex work. Findings from this study, as well as studies that have explored male sex work in other contexts, may help to guide areas of inquiry for future research.

### LIMITATIONS

The findings presented in this article have several limitations. First, participants for this study were recruited from venues where men go to meet other men, specifically, from establishments known as locations where men exchange sex for money. Hence, MSWs who do not attend venues, such as freelancers in regular entertainment venues or on the Internet are not included. Thus, our sample is unlikely to be representative of all MSWs in Bangkok. In addition, although all venues included here were sex work establishments, not all those recruited for participation in the study had reported engaging in sex for money. Some of these men may have not yet initiated (or been relatively new to) sex work, and others may engage in sex work on special occasions or for certain clients. This particularly applies to dancers, impersonators, and other personnel (i.e., bartenders or management staff). In addition, our assessment was cross-sectional, limiting our ability to make causal inferences from study data. Finally, the analyses presented are limited in sample size. Although the overall sample for this analysis was 414, there were limitations in examining factors associated with HIV infection in each group. Nevertheless, significant findings were found with important implications for prevention.

In summary, this study highlights the high HIV infection rate among MSWs in Bangkok. Significant relationships were found between several demographics, behavioral, exposure to HIV prevention and other characteristics, and recruitment location. Nevertheless, entertainment- and street-based sex workers appear more similar when examining factors associated with HIV infection. Exposure to HIV prevention was an important area of inquiry for this study and overall, street-based sex workers were far less likely to have been exposed to HIV prevention efforts than entertainment-based workers. Key strategies that are specific to MSWs can be developed and incorporated into existing health services. Findings such as the ones presented in this article may help guide the development of solid and sustainable interventions. Future research should continue to examine MSWs in order to monitor risk behavior and assess the impact of HIV prevention programs as they are being implemented.

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