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Associations between drug use and sexual risks among heterosexual men in the Philippines

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Abstract

The relationship between drug use and sexual risk behaviours among 2272 men in the southern Philippines was assessed. Over 20% of participants used drugs. Logistic regression analyses adjusted for age, marital status, income, occupation and geographic region revealed that compared to non-drug users, men who used drugs had earlier sexual debuts (adjusted odds ratio=1.73; 95% confidence interval=1.38–2.17), were more likely to report two or more recent sexual partners (adjusted odds ratio=2.22; 95% confidence interval=1.59–3.11), and were more likely to report ever having sex with a female sex worker (adjusted odds ratio=2.99; 95% confidence interval=2.25–4.00). Condom use was noted to be low overall among the men in this study; however, the odds of more frequent condom use with a regular partner were greater for men who used drugs compared to non-drug users (adjusted odds ratio=1.60; 95% confidence interval=1.26–2.02). There were no significant differences in condom use during last sex or frequency of condom use with a sex worker. While injection drug use was not common (1%), use of oral or inhaled substances was prevalent, and associated with increased sexual risk for acquisition and transmission of STI/HIV. Efforts to decrease STI/HIV transmission should specifically target non-injection drug use as a risk factor.

Keywords

Male clients of sex workers; non-injection drugs; HIV/AIDS; STI

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Conflict of interest

The authors declare no conflict of interest.

Introduction

An estimated 33.3 million people worldwide are infected with HIV.¹ Of those, approximately 4.1 million reside in South and South-East Asia.¹ In this region, female commercial sex workers (FCSWs), male clients of FCSWs, and injection drug users (IDUs) play unique roles in driving the epidemic such that HIV spreads initially among high-risk sex and/or drug network members and then to persons in the general population (i.e. bridging).²

Empirical examples of bridging of HIV transmission are found throughout the region. For example, Indonesia experienced a low incidence rate of HIV transmission at the beginning of the epidemic. With the steady increase of IDU, the HIV incidence rates increased steadily. The increase was first seen among the IDU population and then later observed in the commercial sex industry.² Finally, Indonesia's surveillance systems reported increasingly high rates of HIV in the general population.³ Parts of Myanmar,⁴ Vietnam,⁵ Cambodia,⁶ and Thailand^{7,8} have experienced similar trends, which indicate a potential burgeoning epidemic in countries with similar drug-use and commercial sex work patterns.

Despite previously slow transmission rates, the rate of HIV infection in the Philippines has doubled in the last 3 years.⁹ While it has been reported that the overall prevalence of HIV in the Philippines remains low at <1%,¹⁰ prevalence is slightly higher (1 to 2%) in some regions and among high-risk groups (e.g. sex workers, men who have sex with men, and STI patients).^{10,11} Additionally, the Philippines Department of Health (PDOH) reported that more than 9000 Filipinos are living with HIV but are unaware of their status.¹² Public health officials and researchers continue to be concerned that current low rates may only be the beginning of a potential epidemic if prevention efforts are not tailored for those most at risk.¹³

Recently, non-injection drug use (NIDU) has been associated with increased sexual risk taking and subsequently, increased risk for STI/HIV transmission. The use of non-injection drugs, stimulants in particular, has been associated with sexual risk-taking and STI/HIV transmission.^{14,15} One study reported similar HIV prevalence amongst male and female non-injection drug users (NIDUs) when compared to IDUs.¹⁶ The same study reported a higher prevalence of syphilis for NIDUs compared to IDUs.¹⁶ Additionally, Mimiaga and colleagues¹⁷ reported that of 197 Black men who have sex with men (MSM), roughly a third of the men in their study, reported recent use of stimulants during sex, concluding that frequent stimulant use is an important factor in HIV and STI sexual risk.

While studies have been conducted in an effort to elucidate the relationship between IDU, sexual behaviour and STI/HIV transmission, relatively few studies have addressed the prevalence and impact of NIDU and its association with sexual risk-taking in developing countries and with samples that are not exclusively MSM.^{18,19} Little is known about the associations between NIDU and sexual risk-taking among high-risk men in the Philippines. Because NIDU has the potential to drive the epidemic via reduced inhibitions that may result in greater sexual risk-taking,²⁰ it is equally important to describe the relationship that NIDU has on sexual risk-taking behaviours for bridge populations (FCSWs and/or clients of

FCSWs). This is particularly important in countries such as the Philippines, where increased HIV infection rates exist alongside of relatively low rates of IDU.

Therefore, the purpose of the present study was to (1) describe the prevalence of drug use among high-risk Filipino men recruited for an HIV/AIDS risk reduction intervention and (2) describe sexual risk behaviours associated with drug use by comparing the sexual risk behaviour among non-drug-using and drug-using men. The findings from this study may reinforce the significant role that drug use, including NIDU, has in the sexual transmission of STI/HIV.

Methods

Study design and participants

The present study is a secondary analysis of baseline data that were collected for a 3-year HIV/AIDS risk reduction study. Men from six different geographical regions in the Southern Philippines (Lapu-Lapu and Mandaue City in Metropolitan Cebu; Legaspi and Daraga in the Bicol Region of Luzon; and Cagayan de Oro City in Mindanao and Cavite City in the southern Tagalog Region of Luzon) were targeted for an intervention using participatory action research, the details of which have been described.^{21,22} During formative research for the parent study, FCSWs were asked who their regular clients were, and the following study populations emerged: (1) military, (2) police and firemen, (3) industry workers, (4) taxi drivers, (5) pedicabs (tricycle) drivers, and (6) *barangay* (community) residents near FCSW establishments. Men in these groups have been similarly identified in other research as important risk groups because of their engagement in sexual intercourse with FCSWs.^{23,24} Outreach workers approached men in the targeted population groups in the study areas, and all men from each organization approached were invited to participate. Because the formative research involved collaboration between City Health Officials, mayors, managers, and supervisors in the target populations, participation rates for each site were high with a refusal rate of <2%.²¹ Men who enrolled in the study completed face-to-face interviews conducted in English, Tagalog, or Cebuano by trained research coordinators. The institutional review boards at the University of California Los Angeles and the University of the Philippines approved the study.

Analytic sample

A total of 3118 men completed interviews for the parent study, which collected data on background demographic characteristics, history of recreational drug use, HIV knowledge, and sexual risk behaviours, including sexual experiences with FCSWs.^{21,22,25} There were 2321 men (74.44%) who reported being sexually active within the previous 6 months and were therefore eligible to be included in the current study. Upon examination, most missing data were due to the variable asking the respondent for their yearly income ($N=204$; 8.79%). All other variables were missing in less than 1% of responses. Missing responses on income were imputed with the mean income value. Therefore, this study uses data from 2272 men (98% of the eligible sample) for whom all other data were complete.

Measures

Demographics.—Background information such as age, years of education completed, marital status, and income was obtained from the respondents during the baseline interview. Data for all background variables were coded as continuous indicators except for marital status, which was coded “married”=1 and “not married”=0. Geographic region was recorded and due to some small cell sizes the regions were grouped into larger regional areas: (1) Legaspi, Daraga, and Cavite (Luzon), (2) Cayan de Oro (Mindanao), and (3) Lapu-Lapu and Mandaue (Cebu).

HIV knowledge index.—HIV knowledge was assessed by an HIV knowledge index, which presented the respondent with eight statements about possible HIV transmission routes. Respondents had to agree or disagree whether they thought HIV could be transmitted via: blood transfusion, sexual intercourse, drug needles, kissing, breathing air infected with HIV, mosquitoes, toilet seats, or from mother to baby. Correct responses were given a score of 1 where incorrect responses received a score of 0. The continuously coded scores for this index ranged from 0 to 8.

Drug use.—Drug use was assessed by a question that asked respondents whether they had ever taken recreational drugs. Men who responded affirmatively were then asked whether they had taken specific drugs that are known to be common in the Philippines including: marijuana, *shabu* (inhaled methamphetamine/cafeine), cough syrup (stimulant), rugby (adhesive solvent inhalant), and cocaine. If men reported using “other” drugs, they were asked to specify what type of drug was used.

Sexual risk.—Sexual risk behaviour was assessed by several questions pertaining to past and present sexual behaviours. Several characteristics have been associated with increased STI/HIV risk among men including age at sexual debut,²⁶ number of partners,²⁷ and sex with commercial sex workers.²⁶ In the Philippines, the average age of sexual debut for men has been reported to be 17 years of age.⁹ Therefore, a dichotomous variable was created where a code of 1 was given for a sexual debut aged 16 or younger and 0 for ages 17 years or older. Men were asked to report the number of partners with whom they had sexual intercourse in the previous 6 months. While the number of partners ranged from 1 to 25, the majority of men (88%) in the study reported only one partner. Only approximately 5% of the men reported having three or more partners. Therefore, this variable was recoded into a dichotomous variable where a code of 1 was given for two or more partners, and a code of 0 was given for having only 1 partner. Finally, men were asked whether they ever had sex with an FCSW (1=yes and 0=no) and to describe the consistency of condom use with FCSW and regular partners (1=“never”, 2=“some of the time/occasionally”, 3=“very often/almost always”, and 4=“always”).

Data analysis.—Univariate analyses were used to describe the distribution of study variables, while bivariate *t*-tests or Pearson chi-square tests were used to compare differences in demographics. Finally, binary and ordinal logistic regression analyses were conducted to estimate the crude as well as adjusted odds ratios (AORs) and 95% confidence

intervals (CIs) for the different sexual risk behaviours associated with drug users compared to non-drug users. All analyses were conducted using STATA 11.1.²⁸

Results

Of the 2272 men included in the study, nearly 23% ($N=519$) reported use of recreational drugs. Table 1 compares the background demographic characteristics of non-drug users and drug users. On average, nondrug users were significantly older than drug users, ($M=37.87$; $SD=9.61$; and $M=31.04$; $SD=7.49$, $p<.001$, respectively). There was no significant difference in mean years of education between non-drug users ($M=10.85$; $SD=3.20$) and drug users ($M=10.77$; $SD=2.90$). Knowledge of HIV transmission was mid-range, with no significant difference between non-drug users and drug users ($M=5.47$; $SD=1.78$) and ($M=5.59$; $SD=1.57$), respectively. Non-drug-using men earned significantly more money (*pesos*) per year than drug-using men ($M=92,208.11$ *pesos*; $SD=56,327.86$; and $M=77,031.14$ *pesos*; $SD=56,327.86$, $p<.001$, respectively). There was a significant difference in marital status between the two groups of men ($p<.001$). While over 85% of non-drug-using men reported being married, only 65% of drug-using men reported being married. Compared to non-drug users, a higher proportion of drug-using men were from the *barangay*, or worked as taxi drivers or tricycle drivers ($\chi^2=160.90$, $p<.001$). There were differences in drug use by geographic location as well ($\chi^2=14.30$, $p<.001$). Compared to non-drug users, higher proportions of drug-using men were from Cagayan de Oro and Lapu-Lapu/Mandaue regions. Almost all drug use reported was attributed to noninjection drugs. Marijuana was the most commonly used substance, with approximately 80% of men reporting marijuana use. Over 1/3 of the men reported using *shabu*. Cough syrup was also reported by about 1/3 of drug users. Rugby was used by nearly 3%, and cocaine was reported by a little over 2%. Very few men in this sample reported using injectable substances. Only six (1.2%) men reported IDU.

Table 2 describes the prevalence of risk behaviours among non-drug-using and drug-using men in the study, and reports the results of the crude and adjusted odds of engaging in those risk behaviours. Adjusted for age, marital status, income, target population group, and geographic region, separate logistic regression models revealed that drug users compared to non-drug users began engaging in sexual intercourse at an earlier age ($AOR=1.73$; $95\%CI=1.38-2.17$), were more likely to report having two or more sexual partners during the previous 6 months ($AOR=2.22$; $95\%CI=1.59-3.11$), and were more likely to report ever having sex with an FCSW ($AOR=2.99$; $95\%CI=2.25-4.00$). There was no significant difference in condom use during last sexual intercourse between drug-using and non-drug-using participants. Compared to non-drug-using men, drug-using-men had higher odds of reporting more consistent condom use when having sex with a regular partner ($AOR=1.60$; $95\%CI=1.26-2.02$). Although among the men that endorsed sex with an FCSW, drug users had higher odds of reporting more frequent condom use when engaging in sex with FCSWs; this was not statistically significant in ordinal regression analyses.

Discussion

The findings from this study show that the prevalence of drug use among the Filipino men recruited for an HIV/AIDS prevention intervention was high with more than one out of four

men reporting the use of recreational drugs. Drug-using participants reported an earlier sexual debut, were more likely to have had two or more partners in the previous 6-month period, and were more likely to report vaginal sex with an FCSW than their non-drug-using peers. These are frequently reported risk factors associated with STI/HIV transmission.^{26,27} Contrary to expectations, drug-using men had higher odds of reporting more frequent condom use with regular sex partners. This may indicate a social desirability bias, or it may be that some men acknowledged their increased STI/HIV risk and used condoms to protect regular partners, as has been reported in other studies.²⁹ Qualitative studies may be able to further elucidate the condom use practices of men who engage in sex with FCSWs, providing a deeper understanding of social and contextual factors that may be associated with condom use with FCSWs and other partners. Overall, these findings suggest that men who used drugs were at elevated risk for STI/HIV acquisition related to higher engagement in the sexual risk behaviours discussed here. It was expected that analyses would show less condom use among drug-using men; however, analyses showed that there were no significant associations between drug use and the condom use with last sex, or frequency of condom use with FCWs among those who engaged in sex with FCSWs. The lack of significant associations with condom use could be due to the fact that condom use overall was very low among the men participating in this study. Of further interest is that while the proportion of non-drugusing men endorsing sex with FCSWs was lower than that of drug-using men, consistent condom use with FCSWs was low among non-drug users, also suggesting increased risk for bridging in this population as well. This sobering finding is consistent with other studies that address an overall low use of condoms among male clients of commercial sex workers in Asia.³⁰⁻³²

While the prevalence of drug use was high among study participants, there were very few users of injection drugs. The relatively low prevalence of IDU in the Philippines may potentially be associated with the country's low and slow increase of HIV/AIDS relative to other Southeast Asian countries. Although the prevalence of IDU was low in this study, participants' use of methamphetamines and other stimulants is of concern. Non-injection drugs have been credited with decreasing perceptions of threat and vulnerability that are associated with engagement in sexual risk behaviour, which places men at risk for STIs and HIV.^{33,34}

Of the drug-using men who reported sex with an FCSW, only a little over 25% reported "always" using condoms during sex with a sex worker. This is concerning because while the proportion of drug-using men reported having sex with a sex worker was relatively high (25%), only 2% of these men reported "always" using condoms with their regular sex partner. Because of the connection between drug use and increased STI/HIV risk, these findings suggest that drug-using men in this study may play an important role as potential bridges of STI/HIV to wives and regular sexual partners. Future research studies should include clinical evidence of STI within the context of a prospective study to examine these relationships further.

Limitations

Some limitations to the interpretation of this study should be addressed. Although this study was conducted in different geographic regions of the Philippines, the men in this study were specifically targeted for an HIV risk reduction intervention because their locations and occupations were sources of clientele for sex workers. Therefore, the study participants may not be generalizable to all potential male clients of sex workers in the Philippines nor to all regions within the country. In addition, the men in the sample were asked about lifetime rather than recent drug use. Therefore, the study may not represent an accurate description of drug use, by either prevalence or type of drug use across the Philippines. Additionally, although relatively few men endorsed multiple partnerships, we have no information on the types of sexual partners (gender, risk status) these men may have had. Recent evidence, however, supports that these findings are consistent with the current situation concerning drug use and risk behaviours in the Philippines.^{10,35} Finally, participants were asked about risk behaviours that may have occurred at different times or in the distant past, making it difficult to disentangle the temporal order of risk behaviours. Therefore, an association between drug use and sexual risk rather than assertion of a causal relationship can be reported here. Despite these limitations, findings are largely consistent with the current literature and as this is one of a very few studies that has reported on the association between NIDU and sexual risk behaviour in the Philippines, the findings serve as a valuable contribution.

Conclusion

The current HIV/AIDS prevalence in the Philippines has been steady at less than 1% and can be described as “low and slow”.^{1,36} Low prevalence of IDU, as well as institutional changes within the sex work industry that promote condom use,³⁷ may be associated with lower HIV/AIDS prevalence in the Philippines. Nevertheless, STI prevalence remains high and consistent condom use remains low,¹⁰ which are important statistics because the presence of STIs increases the risk of HIV acquisition.^{38,39} Few studies explore the association between NIDU and STI/HIV risk behaviours and current trends in research suggest a need for prevention interventions that aim to reduce risk among IDUs. Moving forward, prevention efforts should address NIDU as a risk factor for STI/HIV as well. Specifically, interventions should target individuals who use stimulant drugs (e.g. Shabu), which may impede decision-making, negatively impacting one’s choice to use condoms.⁴⁰ In addition to focusing on strategies to increase condom use among women working as commercial sex workers in the Philippines,^{25,41} risk reduction interventions that specifically address NIDU and sexual risk-taking should be made a priority when developing interventions for those at risk.

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References

1. UNAIDS/WHO. UNAIDS Report on the global AIDS epidemic. Annex 1 HIV and AIDS estimates and data, 2004 to 2010, http://www.unaids.org/documents/20101123_GlobalReport_Annexes1_em.pdf (accessed 1 December 2010).
2. Ruxrungtham K, Brown T and Phanuphak P. HIV/AIDS in Asia. *Lancet* 2004; 364: 69–82. [PubMed: 15234860]
3. WHO Regional Office for South-East Asia Indonesia Ministry of Health. Review of the Health Sector Response to HIV/AIDS in Indonesia 2007 Available at: http://www.ino.searo.who.int/LinkFiles/HIV-AIDS_and_sexually_transmitted_infections_Publications_REVIEW_HIV_AIDS_Indonesia_2007.pdf (accessed 1 March 2011).
4. Talikowski L and Gillieatt S. Female sex work in Yangon, Myanmar. *Sex Health* 2005; 2: 193–202. [PubMed: 16335547]
5. Des Jarlais D, Johnston P, Friedmann P, et al. Patterns of HIV prevalence among injecting drug users in the crossborder area of Lang Son Province, Vietnam, and Ning Ming County, Guangxi Province, China. *BMC Public Health* 2005; 5: 89. [PubMed: 16120225]
6. Mills E, Singh S, Orbinski J, et al. The HIV/AIDS epidemic in Cambodia. *Lancet* 2005; 5: 596–597. [PubMed: 16183512]
7. Hanenberg R, Sokal D, Rojanapithayakorn W, et al. Impact of Thailand's HIV-control programme as indicated by the decline of sexually transmitted diseases. *Lancet* 1994; 344: 243–245. [PubMed: 7913163]
8. Maticka-Tyndale E, Elkins D, Haswell-Elkins M, et al. Contexts and patterns of men's commercial sexual partnerships in northeastern Thailand: implications for AIDS prevention. *Soc Sci Med* 1997; 44: 199–213. [PubMed: 9015873]
9. Philippines National AIDS Council. Philippine National AIDS Report: Country Report of the Philippines January 2008 to December 2009. UNAIDS/WHO Available at: http://www.unaids.org/en/dataanalysis/monitoringcountryprogress/2010progressreportsubmittedbycountries/philippines_2010_country_progress_report_en.pdf; 2010.
10. Mateo R, Jr, Sarol JN, Jr and Poblete R. HIV/AIDS in the Philippines. *AIDS Educ Prev* 2004; 16: 43–52. [PubMed: 15262564]
11. Ghys P, Jenkins C and Pisani E. HIV surveillance among female sex workers. *AIDS* 2001; 15: S33–S40. [PubMed: 11421180]
12. World Health Organization-Western Pacific Region. Consensus report of STI, HIV and AIDS epidemiology: Philippines 2002; http://www.wpro.who.int/NR/ronlyres/A55D2615-A178-40AF-9D2D-F52CA3C367FD/0/Consensus_Report_PHL_2002.pdf (accessed March 2011).
13. Wi T, Ramos E, Steen R, et al. STI declines among sex workers and clients following outreach, one time presumptive treatment, and regular screening of sex workers in the Philippines. *Sex Transm Infect* 2006; 82: 386–391. [PubMed: 17012514]
14. Molitor F, Truax SR, Ruiz JD, et al. Association of methamphetamine use during sex with risky sexual behaviors and HIV infection among non-injection drug users. *Western J Med* 1998; 168: 93–97.
15. Shoptaw S, Reback C, Peck J, et al. Behavioral treatment approaches for methamphetamine dependence and HIV-related sexual risk behaviors among urban gay and bisexual men. *Drug Alcohol Depend* 2005; 78: 125–134. [PubMed: 15845315]
16. Strathdee SA and Sherman SG. The role of sexual transmission of HIV infection among injection and non-injection drug users. *J Urban Health* 2003; 80: iii7–iii14. [PubMed: 14713667]
17. Mimiaga M, Reisner S, Fontaine Y, et al. Walking the line: stimulant use during sex and HIV risk behavior among Black urban MSM. *Drug Alcohol Depend* 2010; 110: 30–37. [PubMed: 20334986]

18. Koblin B, Murrill C, Camacho M, et al. Amphetamine use and sexual risk among men who have sex with men: results from the National HIV Behavioral Surveillance study-New York City. *Subs Use Misuse* 2007; 42: 1613–1628.
19. Patterson TL, Semple SJ, Staines H, et al. Prevalence and correlates of HIV infection among female sex workers in two Mexico-US border cities. *J Infect Dis* 2008; 197: 728–732. [PubMed: 18260766]
20. Hoffman J, Klein H, Eber M, et al. Frequency and intensity of crack use as predictors of women's involvement in HIV-related sexual risk behaviors. *Drug Alcohol Depend* 2000; 58: 227–236. [PubMed: 10759033]
21. Morisky DE, Ang A, Coly A, et al. A model HIV/AIDS risk reduction programme in the Philippines: a comprehensive community-based approach through participatory action research. *Health Promot Int* 2004; 19: 69–76. [PubMed: 14976174]
22. Morisky DE, Nguyen C, Ang A, et al. HIV/AIDS prevention among the male population: results of a peer education program for taxicab and tricycle drivers in the Philippines. *Health Educ & Behav* 2005; 32: 57–68.
23. Gorbach PM, Sopheab H, Phalla T, et al. Sexual bridging by Cambodian men: potential importance for general population spread of STD and HIV epidemics. *Sex Transm Dis* 2000; 27: 320–326. [PubMed: 10907906]
24. Roy T, Anderson C, Evans C, et al. Sexual risk behaviour of rural-to-urban migrant taxi drivers in Dhaka, Bangladesh: a cross-sectional behavioural survey. *Public Health* 2010; 124(11): 648–658. [PubMed: 20832832]
25. Morisky DE and Tiglaio TV. Educational and structural interventions and their impact on condom use and STI/HIV prevention for Filipina women and male customers. *Asia Pac J Public Health* 2010; 22: 151S–158S. [PubMed: 20566548]
26. Xu JJ, Wang N, Lu L, et al. HIV and STIs in clients and female sex workers in mining regions of Gejiu City, China. *Sex Transm Dis* 2008; 35: 558–565. [PubMed: 18354344]
27. Aral SO. Behavioral aspects of sexually transmitted diseases: core groups and bridge populations. *Sex Transm Dis* 2000; 27: 327–328. [PubMed: 10907907]
28. StataCorp. Stata Statistical Software: Release 10. College Station, TX: StataCorp LP, 2010.
29. Mbizvo M, Ray S, Bassett M, et al. Condom use and the risk of HIV infection: who is being protected? *Central Afr J Med* 1994; 40: 294–299.
30. Fajans P, Ford K and Wirawan DN. AIDS knowledge and risk behaviors among domestic clients of female sex workers in Bali, Indonesia. *Soc Sci Med* 1995; 41: 409–417. [PubMed: 7481934]
31. Hor LB, Detels R, Heng S, et al. The role of sex worker clients in transmission of HIV in Cambodia. *Int J STD AIDS* 2005; 16: 170–174. [PubMed: 15807948]
32. Qian ZH, Vermund SH and Wang N. Risk of HIV/AIDS in China: subpopulations of special importance. *Sexually Transmitted Infections* 2005; 81: 442–447. [PubMed: 16326842]
33. Neaigus A, Miller M, Friedman SR, et al. Sexual transmission risk among noninjecting heroin users infected with human immunodeficiency virus or hepatitis C virus. *J Infect Dis* 2001; 184: 359–363. [PubMed: 11443564]
34. Kelly JA. Changing HIV risk behavior: practical strategies. New York, NY: The Guilford Press, 1995.
35. Mesquita F, Jacka D, Ricard D, et al. Accelerating harm reduction interventions to confront the HIV epidemic in the Western Pacific and Asia: the role of WHO (WPRO). *Harm Reduct J* 2008; 5(1): 26. [PubMed: 18680604]
36. Aceijas C, Stimson GV, Hickman M, et al. Global overview of injecting drug use and HIV infection among injecting drug users. *AIDS* 2004; 18: 2295–2303. [PubMed: 15577542]
37. Withers M, Dornig K and Morisky DE. Predictors of workplace sexual health policy at sex work establishments in the Philippines. *AIDS Care* 2007; 19: 1020–1025. [PubMed: 17851999]
38. Fleming DT and Wasserheit JN. From epidemiological synergy to public health policy and practice: the contribution of other sexually transmitted diseases to sexual transmission of HIV infection. *Br Med J* 1999; 75: 3–17.
39. Plummer FA, Simonsen JN, Cameron DW, et al. Cofactors in male-female sexual transmission of human immunodeficiency virus type 1. *J Infect Dis* 1991; 163: 233–239. [PubMed: 1988508]

40. Gorodetzky H, Sahakian B, Robbins T, et al. Differences in self-reported decision-making styles in stimulant-dependent and opiate-dependent individuals. *Psychiatry Res* 2011; 186: 437–440. [PubMed: 20797802]
41. Urada LA, Morisky DE, Hernandez LI, et al. Social and structural factors associated with consistent condom use among female entertainment workers trading sex in the Philippines. *AIDS Behav* 2012; 17: 523–535.

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Table 1.

Background characteristics and drug use among Filipino men ($N=2272$).

	Non-drug users $N=1753$ (77.16%)		Drug users $N=519$ (22.84%)		(χ^2) P
	M	(SD)	M	(SD)	
Age range 15–77	37.87	(9.61)	31.04	(7.49)	$t=14.90$.001
Education range 1–22	10.85	(3.20)	10.77	(2.90)	$t=0.49$ NS
HIV Knowledge Index range 0–8	5.47	(1.78)	5.59	(1.57)	$t=-1.38$ NS
Annual income (<i>Pesos</i>)	92,208.11	(56,327.86)	77,031.14	(56,327.86)	$t=5.58$.001
Marital status	n	(%)	n	(%)	$\chi^2=97.78$.001
Married	1491	(85.05)	340	(65.51)	
Not married	262	(14.95)	179	(34.49)	
Target population type					$\chi^2=160.90<.001$
Barangay	295	(16.83)	164	(31.60)	
Industry	541	(30.86)	131	(25.24)	
Taxi driver	233	(13.29)	113	(21.77)	
Tricycle driver	186	(10.61)	80	(15.41)	
Police/Fireman	161	(9.18)	10	(1.93)	
Military	337	(19.22)	21	(4.05)	
Region					$\chi^2=14.30<.001$
Cavite, Legaspi, Daraga	359	(20.48)	71	(13.68)	
Cagayan	323	(18.43)	119	(22.93)	
Lapu-Lapu, Mandaue	1071	(61.10)	329	(63.39)	
Drugs used ^a					
Marijuana			424	(81.70)	
Shabu			187	(36.03)	
Cough syrup			162	(31.21)	
Rugby			14	(2.70)	
Cocaine			12	(2.31)	
Injectables			6	(1.15)	
Pills/tranquilizers			5	(.96)	

Percentages add up to more than 100 due to use of multiple drugs._g

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Table 2.

Descriptive patterns of risk behaviours comparing non-drug-using men to drug-using men in the Philippines ($N=2272$).

	Non-drug users=0 $N=1753$		Drug users=1 $N=519$		Crude OR	95% CI	Adjusted OR ^a	95% CI
	n	(%)	n	(%)				
Age at first sexual intercourse								
>16 years=0	1309	(74.67)	315	(60.69)	1.91	1.55–2.35	1.73	1.38–2.17
16 years=1	444	(25.33)	204	(39.31)				
Number of sex partners previous 6 months								
1 only=0	1598	(91.16)	411	(79.19)	2.71	2.07–3.54	2.22	1.59–3.11
2 or more=1	155	(8.84)	108	(20.81)				
Ever vaginal sex with commercial sex worker								
No=0	1543	(88.02)	390	(75.14)	2.43	1.90–3.11	2.99	2.25–4.00
Yes=1	210	(11.98)	129	(24.86)				
Condom used with last sex								
No=0	1635	(93.27)	470	(90.56)	1.44	1.02–2.05	1.13	0.76–1.69
Yes=1	118	(6.73)	49	(9.44)				
Condom use with regular partner								
Never=1	1246	(71.08)	357	(68.79)	1.11	.90–1.38	1.60	1.26–2.02
Sometimes/Occasionally=2	459	(26.18)	147	(28.32)				
Very often=3	26	(1.48)	15	(0.96)				
Always=4	22	(1.25)	10	(1.93)				
Condom use with commercial sex worker ($N=339$)								
Never=1	66	(32.86)	46	(35.66)	1.19	.80–1.78	1.55	0.96–2.51
Sometimes/Occasionally=2	76	(36.19)	30	(23.26)				
Very often=3	25	(11.90)	19	(17.73)				
Always=4	40	(19.05)	34	(26.36)				

^aFor each risk outcome, the model is adjusted for age, income, marital status, target population type, and region. For ordinal outcomes, the OR should be interpreted as an increase in odds for a one-unit increase in condom use category.