

# New Populations at High Risk of HIV/STIs in Low-income, Urban Coastal Peru

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**Abstract** The HIV epidemic in Peru is concentrated primarily among men who have sex with men. HIV interventions have focused exclusively on a narrowly defined group of MSM and FSW to the exclusion of other populations potentially at increased risk. Interventions targeting MSM and FSW are insufficient and there is evidence that focusing prevention efforts solely on these populations may ignore others that do not fall directly into these categories. This paper describes non-traditional, vulnerable populations within low-income neighborhoods. These populations were identified through the use of ethnographic and epidemiologic formative research methods and the results are reported in this publication. Although the traditional vulnerable groups are still in need of prevention efforts, this study provides evidence of previously unrecognized populations at increased risk that should also receive attention from HIV/STI prevention programs.

**Keywords** HIV epidemiology · MSM · Sexual behavior · Risk · Community intervention trial · Vulnerability

## Introduction

The increased availability of HIV antiretroviral treatment and the commitment to achieve universal access to comprehensive care globally are driving new attention to HIV prevention. A key element of an intensified HIV prevention response is an adequate understanding of the epidemic, which can guide the identification of appropriate interventions to be implemented (UNAIDS and WHO 2004). The HIV epidemic in Peru has long been recognized as concentrated in urban men who have sex with men (MSM) (UNAIDS 2004). More recently there has been an increase in the reported HIV/AIDS cases among the poor (Alarcon et al. 2003; Cáceres and Mendoza 2004; Calleja et al. 2002). Coupled with a decrease in the male to female case ratio from 17:1 in 1985 to 3:1 in 2000 (DGE 2006), this indicates an increase in heterosexual transmission of HIV to women. However, there is a lack of detail in the understanding of the mechanism behind this change and no high prevalence populations other than men who have sex with men have been identified. The identification of non-MSM populations at higher risk of HIV/STI infection would aid the implementation of effective HIV/STI prevention programs.

HIV prevalence among MSM is over 18% in Lima and 5% in other cities (Sanchez et al. 2007), while in the general population it remains under 1% (DGE 2006; UNAIDS 2004). In this context, rather than indicating a heterosexualization of transmission, the stabilization of the male to female case ratio at 3 to 1 reveals that the epidemic is still driven by men. Transmission from men to women is

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often due to a high frequency of bisexual behavior wherein men who have sex with men and women infect their female partners who are primarily monogamous (Caceres 2002; Konda et al. 2005; Tabet et al. 2002).

The need for a response to HIV/AIDS in Latin America led to the implementation of a variety of prevention interventions (Caceres 2004; Mouli 1994), although unfortunately only a few were based on research results, and even fewer were the focus of detailed monitoring and evaluation. National-level strategies in Peru relied, for the most part, on improved STI management with free antibiotic treatment. Additionally, for MSM and female sex workers, a peer-promotion program and periodic medical check-ups were instituted. The changing epidemic context, however, requires innovative approaches with the ability to address new, or previously unnoticed, contexts of risk and vulnerability in Peru. Such approaches, ideally informed by solid social theory, should be properly tested (Merson et al. 2000).

This paper describes the results of an epidemiologic study conducted in 2001–2002. This study was designed based on the results of a previous epidemiologic study conducted in 2001 and information gathered through a process of formative ethnographic between 2000 and 2002 (NIMH Collaborative HIV/STD Prevention Trial Group 2007b). Each of these studies were conducted in low-income neighborhoods of three cities of Peru as formative research for local implementation of the NIMH Collaborative HIV/STD Prevention Trial (NIMH Collaborative HIV/STD Prevention Trial Group 2007c). This is a five-country multi-site, phase III trial aiming to test the effectiveness of a community-level peer-based intervention to promote a change in social norms regarding sexual behavior among young adults (NIMH Collaborative HIV/STD Prevention Trial Group 2007a). It is based on social diffusion theory applications to the HIV prevention field (Kegeles et al. 1996; Kelly et al. 1991).

Although by 2000 there was evidence indicating increased risk among the urban poor (Alarcon et al. 2003), the earlier epidemiological study, conducted in a household probability sample of 18–30 year olds, showed a low prevalence of unprotected sex with occasional partners, and low STI prevalence (NIMH Collaborative HIV/STD Prevention Trial Group 2007c). This study indicated that despite the evidence of increased risk among the poor in other studies, this risk was not sufficient for the implementation of the planned trial. The formative ethnography conducted in the same time period, provided evidence for sexual risk behaviors and sexual risk networks among these communities. This evidence was used to identify specific sub-populations potentially at increased risk of HIV/STI infection due to their sexual risk behaviors which differentiated them from the general population in these neighborhoods (Rosasco et al. 2004; Salazar et al. 2005).

The combined evidence from the previous ethnographic and epidemiologic studies provided the basis for the targeted sampling scheme and the specific sub-populations of interest. This paper describes the subsequent epidemiologic study which used venue-based sampling to recruit members of the specific sub-populations of interest who were not, for the most part, members of traditional ‘high-risk groups’ (i.e. MSM and female sex workers). The study findings showed behavioral and biological risk in the newly defined sub-populations. These populations were deemed suitable for the implementation of the proposed HIV/STI prevention trial. Additional implications for prevention programs are also considered.

## Methods

### Study Setting

This study took place in 24 low-income communities in three coastal cities in Peru: Lima, Trujillo, and Chiclayo. Within these cities, the target populations were found in neighborhoods (*barrios*). Each *barrio* has a name and identifiable boundaries known to their residents. Within each *barrio*, micro-venues are the stages of an active social life, especially of the sub-populations of interest (e.g. bars, pool halls, hair salons, street corners, parks, soup kitchens and sports fields). *Barrios* and their micro-venues were identified through a rapid ethnographic assessment of potential study locations prior to conducting this study.

### Study Population

Previous ethnographic work, (Rosasco et al. 2004; Salazar et al. 2005) helped to identify three high-risk groups found in the *barrios*, members of these three sub-populations spent time and interacted in the micro-venues. From the information collected regarding their sexual risk behaviors, it was hypothesized that their risk for HIV/STI infection would be higher than that of the general population in these *barrios*. Ethnographic information was collected between 2000 and 2002 and included in-depth interviews, focus groups and participant observation and aimed to understand sexual behavior and HIV/STI risk factors, perceptions of sexual risk, protective practices, and community dynamics around issues of sex and sexual behavior. It also described interaction patterns among social networks in the micro-venues.

Given the results of the ethnographic studies, these populations were targeted for recruitment into the epidemiologic study described in this paper:

*Esquineros* (“street corner men”) are single, unemployed men, with limited access to education, jobs and social mobility. Financially supported by their families, they frequently engage in petty theft, gang activity, alcohol and illegal drug use and dealing, and transactional sex with *homosexuales*.

*Movidas* (“active women”) are women who spend time, drink alcohol and have sex with the *esquineros*. Some of the *movidas* may engage in transactional sex in the *barrio* or formal commercial sex work outside of the *barrio*. Many are single mothers.

Finally, *homosexuales* are men self-identified as gay, homosexual, and/or transvestites. Some work in hair salons and some are involved in commercial sex work outside the *barrio*. Within the *barrio*, they frequently have sex with *esquineros* often compensating the *esquinero* for sex. While *esquineros* often had sex with *homosexuales*, they neither self-identified nor were identified by other residents of the *barrio* as gay or bisexual (Salazar et al. 2005).

*Homosexuales* would be typically classified as “MSM” by health workers and therefore considered a traditional high-risk group. In contrast, both *esquineros* and *movidas* would be identified as part of the general population and virtually ignored by existing HIV/STI prevention programs.

## Study Procedures

In the neighborhoods, study staff visited micro-venues where the ethnography had determined that the three sub-populations of interest gathered. At these locations (4–6 per *barrio*), they conducted an exhaustive census of the three sub-populations. The inclusion criteria for the census included being 18–40 year old, frequenting the micro-venue at least twice a week, planning to remain in their neighborhood for the next 2 years, and the ability to provide informed consent. As the population was being surveyed to determine their appropriateness for the planned trial, these inclusion criteria were identical to the inclusion criteria of the trial. Each micro-venue typically yielded 30–50 potential participants and the ethnographers continued the census until they could no longer identify individuals meeting the eligibility criteria. Within each *barrio*, 160–200 individuals were identified in the census and fifty per *barrio* were randomly selected to participate in the epidemiologic study and were invited to attend a temporary study office in the neighborhood.

After coming to the study’s temporary office and completing the approved informed consent, participants answered a study questionnaire. CAPI (computer assisted personal interviewing) was used for the survey. An

interviewer was present to help participants understand the questions and the interviewer entered the responses into a computer. The survey was privately conducted in Spanish and took approximately 30 min to complete. The study survey collected data on the participants’ demographics, health status, substance use, and sexual risk behavior.

Then participants received HIV/STI pre-test counseling and provided blood, urine (men) and self-collected vaginal specimens (women) to test for HIV, herpes simplex-2 virus (HSV-2), syphilis, *Trichomonas vaginalis* (women only), gonorrhea, and Chlamydia. Specimens were tested in the U.S. Naval Medical Research Center Detachment (NMRCDD) laboratory following standardized laboratory protocols developed by a team of STI and laboratory experts assisting the trial. HIV testing was performed using two approved HIV EIA kits with Western blot confirmation. HSV-2 testing was performed using an EIA for detecting IgG antibodies (Focus Technologies, HerpeSelect 2 ELISA IgG, USA). Syphilis testing was performed by Rapid Plasma Reagin (RPR) with *Treponema pallidum* Particle Agglutination (TPPA) confirmation. Vaginal swabs were cultured for *Trichomonas vaginalis* using the InPouch TV 20 test kit (Biomed, San Jose, CA, USA). Urine and vaginal swabs were tested for Chlamydia and gonorrhea DNA using Amplicor CT/NG PCR (Roche, Branchburg, NJ, USA). Participants received post-test counseling and their HIV/STI test results within four weeks of the initial visit. STI positive participants were managed according to CDC STD Treatment Guidelines (CDC 2002) and HIV positive participants were referred to existing local clinics. A more detailed description of the study procedures is available in another publication (Konda et al. 2005).

## Data Analysis

The demographic and behavioral characteristics of the three study populations are described including: gender, marital/relationship status, unprotected sex with a non-primary partner in last 3 months, prevalence of each STI, and prevalence of any non-viral, any viral, or any STI. Given the substantial differences between the three study populations, statistical analyses were only conducted within a sub-population and not between the sub-populations. In addition, the prevalence of unprotected sex with a non-primary partner in last 3 months was analyzed compared with other demographic and risk behavior characteristics. Primary partner was defined as a spouse, a live-in partner, or a boyfriend/girlfriend. Illegal drug use was assessed for the use of marijuana, cocaine, and cocaine base. Given the high prevalence of unprotected sex in the previous 3 months with a non-primary partner, for multivariate analysis we chose Poisson regression with a robust

estimator in order to avoid the overestimation of odds ratios that can occur with regular logistic regression (Barros and Hirakata 2003). The multivariate analyses therefore report prevalence ratios. All data analysis was conducted using Stata 9.0 (College Station, TX).

## Results

The study recruited 1,347 individuals and 1,205 of those (89%) participated. The participation rate varied slightly by sub-population: 87.7% of the *esquineros*, 86.9% of the *homosexuales*, and 94.0% of the *movidas* participated. The majority of the participants (90.9%) were male, with 924 *esquineros*, 172 *homosexuales*, and 108 *movidas*. The majority of the participants had not finished high school (48.3%); this is in contrast to the general education rate in Peru where approximately 70% of the population graduates from high school (UNESCO 2004). Among both the *esquineros* and *homosexuales* the majority of the populations were single, whereas the majority of the *movidas* reported having a primary partner (see Table 1).

Their prevalence of unprotected casual sex in last 3 months was 58% (in contrast with 2.4% found in the general population sample (NIMH Collaborative HIV/STD Prevention Trial Group 2007c). Their prevalences of HIV, HSV-2 and syphilis infection were 1.5%, 29.9% and 5.5% respectively (see Table 2), contrasting with 0.1%, 15.1% and 1.0%, respectively, found in a household probability sample from the same neighborhoods (NIMH Collaborative HIV/STD Prevention Trial Group 2007c).

In Table 2, risk behavior characteristics are described for each of the sub-populations. The majority of *esquineros* and *movidas* reported only one partner in the past 3 months, while the *homosexuales* reported 2–3 or 4 or more in almost equal proportions. The majority of each of the three sub-populations reported having unprotected sex in the past 3 months. The *esquineros* reported substantially

more illegal drug use than the other sub-populations. All three sub-populations report substantial experiences of being forced to have sex in the past 6 months and exchanging sex for money or other goods in the past 3 months. Exchanging money for sex was most prevalent among the *homosexuales* followed by the *esquineros*. While being forced to have sex was most frequently reported by the *homosexuales* and the *movidas*, these figures are difficult to interpret as the question may have been understood differently by different participants. The majority of *homosexuales* reported being previously tested for HIV while the rate of HIV testing among the *esquineros* and *movidas* was much lower.

The prevalence of unprotected sex with a non-primary partner varied substantially by sub-population group: 32.2% in *esquineros*, 48.0% in *homosexuales* and 15.9% in *movidas*. This was also associated with different demographic characteristics and risk behaviors. Among the *esquineros*, in bivariate analysis, unprotected sex was associated with not having graduated from high school, an increased number of sexually active years, an increased number of sex partners in the past 3 months, exchanging money for sex in the past 3 months, and using illegal drugs in the past month. In the multivariate analysis only an increased number of sexually active years and an increased number of sex partners in the past 3 months remained significant. Among the *homosexuales*, in bivariate analysis unprotected sex with a non-primary partner was statistically associated with an increased number of sex partners in the past 3 months, exchanging money for sex in the past 3 months, and not having regular work. In the multivariate analysis, only the effects of an increased number of sex partners and exchanging sex for money remained significant. Among the *movidas*, in both bivariate and multivariate analysis unprotected sex with a non-primary partner was inversely associated with having a primary partner and positively associated with exchanging money for sex in the past 3 months (see Tables 3 and 4).

**Table 1** Socio-demographics among the *esquineros*, *homosexuales*, and *movidas*, 2001–2003 urban, coastal Peru

	Esquineros (n = 922)	Homosexuales (n = 171)	Movidas (n = 108)
<i>Demographics</i>			
<i>Age (years)</i>			
Median (IQR) <sup>a</sup>	21 (19–25)	26 (23–30)	24.5 (21–30)
<i>Relationship status</i>			
Single	636/922 69.0%	154/170 90.6%	31/108 28.7%
Formerly married	57/922 6.2%	5/170 2.9%	16/108 14.8%
Primary partner	229/922 24.8%	11/170 6.5%	61/108 56.5%
Graduated high school	430/922 46.5%	109/171 63.7%	42/108 38.9%
Had a child/children	278/922 30.1%	6/171 3.5%	84/108 78.5%
Has regular work	835/922 90.6%	146/171 85.4%	69/108 63.9%
Visited a doctor, past 6 months	322/921 35.0%	88/171 51.5%	60/108 55.6%

<sup>a</sup> Interquartile range

**Table 2** Risk behavior characteristics among the *esquineros*, *homosexuales*, and *movidas*, 2001–2003 urban, coastal Peru

	Esquineros ( <i>n</i> = 922)		Homosexuales ( <i>n</i> = 171)		Movidas ( <i>n</i> = 108)	
<i>Risk behaviors</i>						
<i>No. partners, last 3 months</i>						
0	85/921	9.2%	8/171	4.7%	6/106	6.6%
1	467/921	50.6%	47/171	27.5%	80/106	74.5%
2–3	282/921	30.6%	55/171	32.2%	15/106	14.2%
4+	89/921	9.6%	61/171	35.7%	5/106	4.7%
Had unprotected sex, last 3 months	703/917	76.5%	118/171	69.0%	95/107	88.8%
Had unprotected sex w/ non-stable partner(s), last 3 months	295/917	32.2%	82/171	48.0%	17/107	15.9%
<i>Sexually active years</i>						
Median (IQR) <sup>a</sup>	6 (4–10)		12 (8–17)		9 (4–13.5)	
Money, etc in exchange for sex, past 3 months	139/921	15.1%	44/171	25.7%	10/108	9.3%
Used illegal drugs, past 30 days	293/922	31.7%	15/171	8.8%	2/108	1.9%
Previously tested for HIV	108/922	11.7%	105/171	61.4%	17/108	15.7%
<i>STI/HIV</i>						
HIV	2/917	0.2%	16/166	9.6%	0/107	0.0%
Herpes	190/917	20.7%	120/166	72.3%	46/107	43.0%
Syphilis	13/915	1.4%	48/166	28.9%	5/107	4.7%
Gonorrhea	6/920	0.7%	0/168	0.0%	3/107	2.8%
Chlamydia	57/920	6.2%	4/168	2.4%	20/107	18.7%
Trichomonas	–	–	–	–	7/107	6.5%
Any non-viral STI	71/917	7.7%	52/166	30.4%	28/107	25.9%
Any viral STI	190/917	20.6%	121/166	70.8%	46/107	43.0%
Any STI	246/917	26.7%	126/166	73.7%	62/107	57.4%

<sup>a</sup> Interquartile range

## Discussion

This study describes the process of identifying three high risk sub-populations in low-income *barrios* in urban, coastal Peru who were found adequate for the implementation of an HIV/STI prevention trial. Additionally, two of the three sub-populations identified through this study had not been previously characterized. In Peru and in most settings with concentrated epidemics, high-risk groups have generally been limited to female sex workers or to special male groups (e.g. gay men, truck drivers, migrants, inmates) (Bronfman et al. 2002; Gysels et al. 2001; Homaifar and Wasik 2005; Kyrychenko and Polonets 2005; Mills et al. 2001; Simooya et al. 2001). In this study, two non-traditional high-risk groups, the *esquineros* and *movidas* were characterized after their identification through formative ethnographic work (Rosasco et al. 2004; Salazar et al. 2005). Without this formative work, these pockets of higher risk would not have been identified.

While the main goal of the ethnography had been to determine the best way to implement a social diffusion theory-based HIV prevention model in Peruvian low-income communities, it resulted in identifying population segments at much higher risk than the average community

residents, with whom the trial could be implemented. Given the increase in reported AIDS cases among women in Peru it was thought that risk would be sufficiently generalized among the population of low-income *barrios* to warrant a HIV/STD prevention trial among the general population; however, the first epidemiologic study disproved this assumption, suggesting that a household probability sample would include very few high-risk individuals. The ethnographic data was then re-analyzed in light of quantitative information yielded in the first epidemiologic study, in order to define the subpopulations within these communities where the risk was concentrated. Consequently, the study population was redefined using a micro-venue-centered approach focusing on three associated subpopulations that were consistently present in those *micro-venues* as observed in the ethnography.

The three sub-populations included in this study have higher rates of STIs than the Peruvian general population. The rates of Chlamydia in two general population samples were 4.9% and 4.2% in men vs. 6.2% among *esquineros* and 6.4% and 7.3% among women vs. 18.7% among the *movidas*. The rates of gonorrhea were 0.4% and 0.3% in men vs. 0.7% among *esquineros* and 1.4% and 0.8% among women vs. 2.8% among the *movidas* (Carcamo

**Table 3** Prevalence of unprotected sex with a non-primary partner in the past 3 months with any of the past five partners, 2001–2003 urban, coastal Peru

	Esquineros		Homosexuales		Movidas	
	n/N	%	n/N	%	n/N	%
Unprotected sex, past 3 months with a non-primary partner	295/917	32.2	82/171	48.0	17/107	15.9
<i>Demographics</i>						
<i>Relationship status</i>						
Single	211/633	33.3	75/154	48.7	7/30	23.3
Formerly married	23/57	40.4	2/5	40.0	7/16	43.8
Primary partner	21/227	26.9	4/11	36.4	3/61	4.9 <sup>a</sup>
<i>Graduated high school</i>						
No	29/82	35.4	30/62	48.4	12/66	18.2
Yes	121/425	28.5 <sup>b</sup>	52/109	47.7	5/41	12.2
<i>Risk behaviors</i>						
<i>No. partners, last 3 months</i>						
0	0/85	0.0	0/8	0.0	0/6	0.0
1	79/462	17.1	11/47	23.4	5/79	6.3
2–3	155/282	55.0	29/55	52.7	7/15	46.7
4+	56/87	64.4 <sup>a</sup>	41/61	67.2 <sup>a</sup>	3/5	60.0 <sup>a</sup>
<i>Money, etc in exchange for sex, past 3 months</i>						
No	233/779	29.9	53/127	41.7	10/97	10.3
Yes	62/138	44.9 <sup>a</sup>	29/44	65.9 <sup>a</sup>	7/10	70.0 <sup>a</sup>
<i>Used illegal drugs, past 30 days</i>						
No	189/628	30.1	73/156	46.8	16/105	15.2
Yes	106/289	36.7 <sup>b</sup>	9/15	60.0	1/2	50.0

<sup>a</sup> *p*-value < 0.01,<sup>b</sup> *p*-value < 0.05, chi-squared tests using exact method where needed**Table 4** Unadjusted and adjusted prevalence ratios for factors significantly associated with unprotected sex in the past 3 months with a non-primary partner, 2001–2003 urban, coastal Peru

	Esquineros			Homosexuales			Movidas		
	PR	aPR <sup>a</sup>	95% CI	PR	aPR <sup>a</sup>	95% CI	PR	aPR <sup>a</sup>	95% CI
Age	0.99	0.94 <sup>d</sup>	(0.90–0.97)	0.98	0.96	(0.90–1.02)	1.01	0.99	(0.75–1.31)
<i>Relationship status<sup>b</sup></i>									
Primary partner	0.81	0.80	(0.58–1.10)	0.75	0.80	(0.35–1.84)	0.21 <sup>c</sup>	0.22 <sup>c</sup>	(0.06–0.81)
Formerly married	1.21	1.11	(0.75–1.64)	0.82	1.21	(0.47–3.08)	1.88	1.79	(0.51–6.31)
Graduated high school	0.81 <sup>e</sup>	0.84	(0.69–1.03)	0.99	1.05	(0.76–1.46)	0.67	1.10	(0.26–4.65)
Had a child	0.96	1.08	(0.81–1.44)	0.69	0.51	(0.10–2.73)	0.90	1.00	(0.28–3.52)
Has regular work	0.92	0.99	(0.72–1.37)	1.42 <sup>e</sup>	1.37	(0.97–1.93)	0.95	0.87	(0.85–2.15)
Visited a doctor, past 6 months	1.01	1.05	(0.86–1.27)	1.21	1.15	(0.83–1.60)	0.55	0.62	(0.20–1.88)
No. partners, last 3 months <sup>c</sup>	1.11 <sup>d</sup>	1.1 <sup>d</sup>	(1.06–1.14)	1.01 <sup>d</sup>	1.01 <sup>d</sup>	(1.00–1.01)	1.01	0.96	(0.90–1.02)
Sexually active years <sup>c</sup>	1.02 <sup>e</sup>	1.06 <sup>d</sup>	(1.03–1.09)	0.99	1.03	(0.98–1.09)	1.02	0.99	(0.74–1.33)
Money, etc in exchange for sex, past 3 months	1.50 <sup>d</sup>	1.20	(0.95–1.52)	1.58 <sup>d</sup>	1.45 <sup>e</sup>	(1.05–1.98)	6.79 <sup>d</sup>	8.53 <sup>d</sup>	(2.39–30.50)
Used illegal drugs, past 30 days	1.22 <sup>e</sup>	1.07	(0.86–1.30)	1.28	1.47	(0.96–2.26)	3.28	2.61	(0.57–11.86)
Previously tested for HIV	1.09	1.08	(0.82–1.44)	1.03	0.89	(0.62–1.26)	0.71	0.46	(0.14–1.55)

<sup>a</sup> Adjusted for all other variables in the model<sup>b</sup> Single = Reference category<sup>c</sup> No. of partners, past 3 months and No. of sexually active years were included as continuous variables<sup>d</sup> *p*-value < 0.05<sup>e</sup> *p*-value < 0.01

et al. 2003; NIMH Collaborative HIV/STD Prevention Trial Group 2007c). Herpes infection was also substantially higher among the *esquineros* and *movidas* compared to general population men and women; 20.7% in *esquineros* vs. 7.1% among general population men and 43.0% among *movidas* vs. 20.1% among general population women (Konda et al. 2005). However, the increased risk for HIV and syphilis infection remained primarily among the sub-population of *homosexuales*. The continued and substantial increased risk shown among these sub-populations indicates that government-led prevention programs focused on MSM have not succeeded. Additional programs are needed to more effectively address the needs of this population and ethnography can help to provide the in-depth information needed to design improved prevention strategies.

Although the prevalence of HIV and syphilis infection in both the *esquineros* and *movidas* was not elevated in comparison with the general population, their prevalence of other STI infections was increased and their patterns of sexual risk behavior were markedly different. The most telling example of this difference is the rates of unprotected sex with a non-primary partner in the past 3 months, which were 4.2% and 1.3% among general population men and women, respectively (Konda et al. 2005) in comparison to 32.2% among the *esquineros* and 15.9% among *movidas*. Additionally, in multivariate analysis unprotected sex with a non-primary partner was associated with exchanging money for sex in two of the three sub-populations, a risk factor that represents high vulnerability. These differences not only identify pockets of substantial STI prevalence that were previously unrecognized, but suggest that the sexual risk behavior, prevalence of STIs, and sexual network connections to the group of *homosexuales* make HIV dissemination likely when and if HIV is introduced into these sexual networks. HIV and STI prevention efforts should not ignore these populations.

These findings not only point to the need for substantial formative research prior to initiating epidemiological studies, but also have implications for prevention efforts in countries with concentrated epidemics in the third decade of the epidemic and beyond. Prevention programs should understand and deal with the complexity of people's real-life sexual networks and practices, refrain from assuming that the general population is a collective with a common risk level, and see vulnerability not as a fixed characteristic of traditional risk groups, but as a changing condition resulting from a variety of epidemiological, social, economic and cultural factors. Universal access to HIV/STI prevention and care will not be achieved if new sub-populations with specific needs are not offered context-appropriate services and if in the long term societies fail to address these conditions, generating and sustaining their vulnerabilities.

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