

# High Rates of Sex with Men among High-Risk, Heterosexually-Identified Men in Low-Income, Coastal Peru

Kelika Anne Konda · Andres G. Lescano · Elli Leontsini · Percy Fernandez · Jeffrey D. Klausner · Thomas J. Coates · Carlos F. Cáceres · NIMH Collaborative STD/HIV Prevention Trial

© Springer Science+Business Media, LLC 2007

**Abstract** In this paper we describe sex with men, including the frequency of sex and unprotected sex, among high-risk, heterosexually-identified men in urban, low-income, coastal Peru. During 2001–2002, a random community-based sample of these men was administered

---

Previously published abstract: Konda, K.A., Fernandez, P. Klausner, J.D., Lescano, A.G., Leon, S.R., Cáceres, C.F., and Coates, T.J. (2005). Heterosexually identified, socially marginalized men who report recent sex with men in Peru. In: Abstracts of the 16th biennial International Society for Sexually Transmitted Diseases Research (ISSTD) (Amsterdam, Netherlands), MP-172.

---

K. A. Konda · T. J. Coates  
Division of Infectious Diseases, David Geffen School of Medicine at UCLA, Los Angeles, CA, USA

A. G. Lescano  
US Naval Medical Research Center Detachment, Lima, Peru

A. G. Lescano · P. Fernandez · C. F. Cáceres  
Universidad Peruana Cayetano Heredia, Lima, Peru

E. Leontsini  
Department of International Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA

J. D. Klausner  
San Francisco Department of Public Health, San Francisco, CA, USA

J. D. Klausner  
University of California, San Francisco, CA, USA

NIMH Collaborative STD/HIV Prevention Trial  
NIMH Multisite International Group, Bethesda, MD, USA

K. A. Konda (✉)  
445 Av. Armendariz, Lima 18, Peru  
e-mail: kelika\_konda@hotmail.com

an epidemiologic survey collecting sexual risk behavior data. Among the 924 high-risk heterosexually-identified men, 131 (14.2%) reported at least one male partner in the past 6 months. Of these, 113 (86.3%) reported male and female partners and among those with partners of both sexes, 84.2% and 57.0% of sex acts with female and male partners, respectively, were unprotected, (RR 1.48, 95% CI = 1.31–1.68). We observed a high rate of recent bisexual behavior compared to past studies showing frequent, unprotected sex with male and female partners. This population has substantial potential to act as a bridge population between and their male and female partners and should be addressed by prevention programs.

**Keywords** Bisexual behavior · HIV bridge populations · MSM · condom use · Peru

## Introduction

In Peru, like most of Latin America, the HIV epidemic is concentrated among men who have sex with men (MSM), transmission is primarily sexual (Sánchez & Gotuzzo, 1995; UNAIDS, 2004), and approximately 80% of the accumulated AIDS cases are among men (OGE, 2006). However, the male to female ratio for HIV cases has greatly decreased over the last years from 15:1 in 1990 to 3:1 in 1999 (OGE, 2006), indicating an increase in heterosexual transmission of HIV from men to women (Alarcon et al., 2003). The transition from primarily homosexual to increased heterosexual transmission implies that some men act as a bridge for infection from MSM to women.

To understand how HIV/STI transmits through bridge populations, we need to identify populations with such potential and to study their behaviors (Rudolph & Hersey, 2000). Although studies have been done in the past looking at bisexual behavior in Peru, these have used sampling strategies focused on recruiting men who associate with gay venues, activities, organizations or through snowball referral from other participants, yielding a primarily homosexual/bisexual sample of individuals (Tabet et al., 2002).

By contrast, there are very few studies investigating MSM behavior among individuals self-identifying as heterosexual in Latin America. However, given the dynamic of the HIV epidemic in Peru (Bautista et al., 2004; Lama et al., 2006; Montano et al., 2005), the risk behavior of all men who have sex with men regardless of whether they identify as gay, bisexual or heterosexual is crucial in determining the course of the epidemic. Identifying the segments of MSM who self-identify as heterosexual is a major challenge.

The focus of this paper is to examine and characterize the frequency of MSM behavior and unprotected sex among high-risk men who self-identify as heterosexual in a low-income, urban setting in Peru.

## Methods

This paper presents data collected as part of an ongoing HIV/STI prevention trial in Peru that was conducted by *Cayetano Heredia University*, the University of California Los Angeles, and University of California San Francisco with funding from the US National Institute of Mental Health (NIMH). Subjects identified as being at potentially high-risk for HIV/STI through ethnographic studies were asked to participate in an epidemiological and behavioral sero-survey to determine their prevalence of high-risk sexual behaviors, STIs, and HIV. All of the activities took place in low-income barrios of three cities in coastal Peru (Lima, Trujillo and Chiclayo).

### Participants

The study population is best described by the term *esquineros* (“corner men”), from Peruvian street vernacular, referring to un- or under-employed young men who often engage in drug use and/or petty theft and have a low level of education. *Esquineros* are found primarily on street corners, in parks or soccer fields, and are also referred to as ‘*vagos*’ (bums). Although they were self and community identified as heterosexual, previous studies using ethnographic methods, including in-depth interviews, focus groups, and participant observation, found that some of

these men have sex with other men, often in exchange for clothes, food, or money (Salazar et al., 2005). Given these behavioral and socio-cultural characteristics, we considered the *esquineros* as at potentially high-risk for HIV/STI and decided to include them in the epidemiologic study described in this paper.

### Measures

The epidemiologic study was cross-sectional using a random sample of approximately 50 individuals identified as at elevated risk for HIV/STI per neighborhood out of 150 of such individuals identified through ethnographic methods at subgroup-specific community venues in each neighborhood. Two other groups were included in this study, but are not the focus of this paper (men who have sex only with men and women at high risk for HIV/STI). The study was conducted between 2001 and 2002 in 26 low-income neighborhoods in three coastal Peruvian cities; Lima, which is located in central Peru; and Chiclayo and Trujillo, which are located in the north. Study eligibility criteria included the expectation of staying in the area for the next 2 years, being 18 to 40 years of age, frequenting the sampling venue at least 3 times per week, and having had vaginal and/or anal sex in the past 6 months. The *esquineros* were recruited from venues such as soccer fields, parks, and street corners. Consenting participants answered a structured questionnaire, received pre- and post-test HIV/STI counseling, and provided whole blood and first catch urine samples. More detailed information regarding the methodology used is described in a prior publication (Konda et al., 2005). The structured questionnaire recorded the total number of sex partners in the past 6 months, capturing detailed information on the last five partners.

### Data Analyses

Statistical analyses were conducted at two levels: subject-level data and partner-level data. The main outcome used for subject level analysis was reporting or not reporting a male partner among the subject’s last five sex partners during the previous 6 months. Contingency tables and Chi-square tests were used to determine the association between the same-sex sexual behavior and covariates regarding demographic variables, sexual risk behaviors, and STIs and their signs and symptoms. Multivariate analysis was applied using standard logistic regression.

Two analyses were conducted with partner-level data. In the first analysis, we examined five behavioral variables of the *esquineros* with each of their last five sex partners in the past 6 months: (1) partner type (primary, girlfriend/boyfriend, casual, or sex worker); (2) duration of relationship; (3) number of sex acts per partner; (4) number of

unprotected sex acts per partner; and (5) the rate of unprotected sex. The numerator of the rate of unprotected sex was the number of unprotected sex acts and the denominator was the total number of sex acts. These five variables were compared across four groups defined by the self-reported, recent sexual behavior of *esquineros*: sex with women only, sex with men only and finally sex with women and men differentiating the female and male partners of this third group of *esquineros*. Three specific comparisons were explored: (1) *esquineros*' sexual behavior with their female partners among those reporting sex with men and women vs. sexual behavior with their female partners among those *esquineros* reporting sex with women only; (2) *esquineros*' sexual behavior with their male partners among those *esquineros* reporting sex with men and women vs. their sexual behavior with their male partners among *esquineros* reporting sex with men only; and (3) within the *esquineros* reporting sex with men and women, female partners versus male partners. Mann Whitney tests were used to compare continuous variables, Chi-square tests were used for partner type, and log-link, binomial generalized linear models were used to determine the rates of unprotected sex. This model used a variable denominator to account for the differences in the number of sex acts with each partner, and assessed statistical significance with likelihood ratio tests.

The second partner-level analysis focused on the rate of unprotected sex and assessed the independent effect of participant behavior (those reporting sex with men and women versus sex with men only/sex with women only), partner type, duration of relationship and partner gender using multivariate regression. This analysis also used generalized linear models as described above, using a nested approach to determine the order of importance of each variable in the model.

Individuals with missing data were excluded only from the affected analyses. Continuous variables were categorized in quartiles as required. All confidence intervals were calculated at the 95% level.

The study was approved by the Committee of Human Research of the University of California, San Francisco; University of California, Los Angeles; Cayetano Heredia University, Peru, and the Naval Medical Research Center Institutional Review Board, in compliance with all federal regulations regarding the protection of human subjects. All participants provided written informed consent to participate in the study.

## Results

Socio-demographic, behavioral and serologic data were collected from 924 *esquineros* out of 1,048 randomly se-

lected, eligible individuals, yielding an acceptance rate of 88.2%. A total of 131 of the 924 *esquineros* or 14.2% (95% CI: 12.0–16.6%), reported a male sex partner among their last five partners during the previous 6 months. Of these, 113 (86.3%) reported both male and female partners. The subset of *esquineros* reporting a recent male sex partner differed from the remaining *esquineros* in each category shown in Table 1, except the STIs. Demographically, those reporting a recent male partner were younger, less educated and less likely to live with a primary partner or to have stable work. Behaviorally, they had earlier sexual debuts, more partners in the past 6 months, were more likely to use alcohol and drugs prior to sex, and had exchanged sex for clothes, alcohol or money more often than other *esquineros*. The participants reporting recent male partners were also more likely to report a genital ulcer in the past 6 months. The prevalence of HSV-2, chlamydia, and gonorrhea were numerically higher in those reporting recent male partners in comparison with the remaining participants, although none of these differences were statistically significant (see Table 1). No association was found between having a recent male partner and HIV serostatus, as only two participants were HIV positive and neither reported recent male-male sex.

After multivariate regression, having a recent male partner was associated with not having a primary partner and a lack of stable work. Having a recent male sex partner was also associated with having unprotected sex with a non-primary partner, an increased number of sex partners, drug and/or alcohol use prior to sex, exchanging sex for clothes, alcohol, or money, and reporting a genital ulcer (see Table 2).

## Partner Characteristics

*Esquineros* reported an average of 2.8 [standard deviation (SD) = 3.4] sex partners during the previous 6 months. Among their last five sex partners in the previous 6 months, 8.2% of them were men. The last five partners were mainly casual (38.6%) or a girlfriend/boyfriend (33.4%) (see Table 3). The mean number of sex acts and unprotected sex acts was 13.9 (SD = 26.4) and 11.9 (SD = 24.6), respectively, yielding an overall rate of unprotected sex among *esquineros* of 85.9%.

## Sexual Behavior

*Esquineros* reporting sex with both men and women behaved slightly differently with their female partners than those reporting sex exclusively with women. Compared to those reporting sex only with women, *esquineros* reporting

**Table 1** Characteristics of esquineros reporting male-male sex in the past 6 months compared to those not reporting this behavior

| Variable <sup>a</sup>  | <i>Esquineros</i> with no male-male sexual behavior ( <i>n</i> = 792) |      | <i>Esquineros</i> w/male-male sexual behavior ( <i>n</i> = 131) |       | $\chi^2$                      |
|--|---|------|---|-------|-------------------------------|
|  | <i>N</i>  | %    | <i>N</i>  | %     |                               |
| Age  |   |      |   |       |                               |
| 18–19  | 199   | 25.1 | 50  | 38.7  | (3, <i>N</i> = 923) = 12.19** |
| 20–21  | 190   | 24.0 | 33  | 25.2  |                               |
| 22–24  | 189   | 23.9 | 20  | 15.3  |                               |
| 25+  | 214   | 27.0 | 28  | 21.4  |                               |
| Completed high school  |   |      |   |       |                               |
| No   | 408   | 51.5 | 86  | 65.6  | (1, <i>N</i> = 923) = 9.03**  |
| Yes  | 384   | 48.5 | 45  | 34.4  |                               |
| Occupation   |   |      |   |       |                               |
| Stable work  | 169   | 21.6 | 16  | 12.3  | (2, <i>N</i> = 911) = 6.14*   |
| Occasional work  | 466   | 59.7 | 85  | 65.4  |                               |
| Support of family or friends                                       | 146   | 18.7 | 29  | 22.3* |                               |
| Relationship status  |   |      |   |       |                               |
| Lives w/partner  | 210   | 26.5 | 18  | 13.7  | (2, <i>N</i> = 923) = 9.45**  |
| Previously married   | 47  | 5.9  | 10  | 7.6   |                               |
| Single   | 535   | 67.6 | 103   | 78.6  |                               |
| No. unprotected sex acts with a non-primary partner, last 3 months |   |      |   |       |                               |
| 0  | 577   | 73.2 | 47  | 35.9  | (1, <i>N</i> = 923) = 71.88** |
| 1+   | 211   | 26.8 | 84  | 64.1  |                               |
| Genital ulcer, last 6 months                                       |   |      |   |       |                               |
| No   | 703   | 88.8 | 99  | 75.6  | (1, <i>N</i> = 923) = 17.17** |
| Yes  | 89  | 11.2 | 32  | 24.4  |                               |
| Sex for money, clothes, etc., last 3 months                        |   |      |   |       |                               |
| No   | 689   | 87.0 | 95  | 72.5  | (1, <i>N</i> = 923) = 18.41** |
| Yes  | 103   | 13.0 | 36  | 27.5  |                               |
| Drank prior to sex, last five partners                             |   |      |   |       |                               |
| No   | 258   | 32.6 | 16  | 12.2  | (1, <i>N</i> = 923) = 22.34** |
| Yes  | 534   | 67.4 | 115   | 87.8  |                               |
| Illegal drug use prior to sex, last five partners                  |   |      |   |       |                               |
| No   | 641   | 80.9 | 81  | 61.8  | (1, <i>N</i> = 923) = 24.08** |
| Yes  | 151   | 19.1 | 50  | 38.2  |                               |
| Sexual debut (years)   |   |      |   |       |                               |
| 6–13   | 124   | 15.7 | 31  | 23.9  | (3, <i>N</i> = 920) = 10.30*  |
| 14–15  | 264   | 33.4 | 51  | 39.2  |                               |
| 16–17  | 283   | 35.8 | 36  | 27.7  |                               |
| 18–24  | 119   | 15.1 | 12  | 9.2   |                               |
| No. partners, last 6 months  |   |      |   |       |                               |
| 1  | 377   | 47.6 | 14  | 10.7  | (2, <i>N</i> = 923) = 74.93** |
| 2–3  | 268   | 33.8 | 58  | 44.3  |                               |
| 4+   | 147   | 18.6 | 59  | 45.0  |                               |
| HSV-2  |   |      |   |       |                               |
| No   | 630   | 80.1 | 99  | 75.6  | (1, <i>N</i> = 918) = 1.38    |
| Yes  | 157   | 19.9 | 32  | 24.4  |                               |
| Syphilis   |   |      |   |       |                               |
| No   | 773   | 98.5 | 130   | 99.2  | (1, <i>N</i> = 916) = .47     |
| Yes  | 12  | 1.5  | 1   | .8    |                               |

**Table 1** continued

| Variable <sup>a</sup> | <i>Esquineros</i> with no male-male sexual behavior ( <i>n</i> = 792) |      | <i>Esquineros</i> w/male-male sexual behavior ( <i>n</i> = 131) |      | $\chi^2$                   |
|-----------------------|---|------|---|------|----------------------------|
|                       | <i>N</i>  | %    | <i>N</i>  | %    |                            |
| Gonorrhea             |   |      |   |      |                            |
| No                    | 786   | 99.5 | 129   | 98.5 | (1, <i>N</i> = 921) = 1.81 |
| Yes                   | 4   | .5   | 2   | 1.5  |                            |
| Chlamydia             |   |      |   |      |                            |
| No                    | 743   | 94.0 | 121   | 92.4 | (1, <i>N</i> = 921) = .55  |
| Yes                   | 47  | 6.0  | 10  | 7.6  |                            |

<sup>a</sup> Some variables have different counts due to missing data

\* *P*-value < .05, \*\* *P*-value < .01, calculated using Chi-square with fishers exact when needed

partners of both sexes had on average significantly shorter relationships, with an average .5 years (*SD* = .08) versus 1.0 years (*SD* = .05), *t* (1809) = -3.27, *P* < .01 with, and more casual relationships  $\chi^2$  (3, *N* = 1,811) = 9.48, *P* < .05. Similar patterns of behavior were also observed in

the comparison between the behavior of *esquineros* with their male partners among those reporting sex with men and women and *esquineros* reporting sex exclusively with men. Compared to those reporting sex only with men, the *esquineros* who had sex with men and women had shorter

**Table 2** Associations of characteristics and risk behaviors with recent male–male sex

|  | OR <sup>a</sup> | 95% CI       | Adjusted OR <sup>b</sup> | 95% CI      |
|--|-----------------|--------------|--------------------------|-------------|
| Relationship status  |                 |              |                          |             |
| Lives w/partner  | Ref             |              | Ref                      | –           |
| Previously married or single                                       | 2.27**          | (1.34–3.82)  | 2.57**                   | (1.45–4.58) |
| Occupation   |                 |              |                          |             |
| Stable work  | Ref             |              | Ref                      | –           |
| Occasional work or support from family or friends                  | 1.97*           | (1.13–3.41)  | 1.89*                    | (1.05–3.42) |
| No. partners, last 6 months  |                 |              |                          |             |
| 1  | Ref             |              | Ref                      | –           |
| 2–3  | 5.83**          | (3.18–10.66) | 3.41**                   | (1.78–6.50) |
| 4+   | 10.81**         | (5.85–19.95) | 4.27**                   | (2.11–8.62) |
| No. unprotected sex acts with a non-primary partner, last 3 months |                 |              |                          |             |
| 0  | Ref             |              | Ref                      | –           |
| 1+   | 4.89**          | (3.31–7.22)  | 2.67**                   | (1.70–4.18) |
| Anal-genital ulcer, last 6 months                                  |                 |              |                          |             |
| No   | Ref             |              | Ref                      | –           |
| Yes  | 2.55**          | (1.62–4.03)  | 3.23**                   | (1.90–5.47) |
| Sex for money, clothes, etc., last 3 months                        |                 |              |                          |             |
| No   | Ref             |              | Ref                      | –           |
| Yes  | 2.53**          | (1.64–3.92)  | 1.86*                    | (1.14–3.04) |
| Drank prior to sex, last five partners                             |                 |              |                          |             |
| No   | Ref             |              | Ref                      | –           |
| Yes  | 3.47**          | (2.02–5.98)  | 1.89*                    | (1.02–3.49) |
| Use drugs prior to sex, last five partners                         |                 |              |                          |             |
| No   | Ref             |              | Ref                      | –           |
| Yes  | 2.62**          | (1.77–3.89)  | 1.62*                    | (1.02–2.55) |

<sup>a</sup> All *P*-values were calculated using likelihood ratio tests

<sup>b</sup> Adjusted for other covariates in the table

\* *P*-value < .05, \*\* *P*-value < .01

**Table 3** Characteristics and sexual behavior with the last five sex partners in the past 6 months by participant sexual behavior

| Variables                                    | Total              | Sex with men only | Sex with men and women |                  | Sex with women only | Z statistic/P-value <sup>b</sup>      |
|--|--------------------|-------------------|------------------------|------------------|---------------------|---------------------------------------|
|  |                    |                   | Male                   | Female           |                     |                                       |
| Total no. of partners (%)                    | 1973               | 32 (1.6)          | 130 (6.6)              | 215 (10.9)       | 1596 (80.9)         | -4.51**, 3.47**, 3.81**               |
| No. acts/partner (mean ± SD <sup>a</sup> )   | 13.9 ± 26.4        | 7.4 ± 14.9        | 3.9 ± 5.6              | 11.7 ± 19.3      | 15.1 ± 28.1         | .65 NS, -5.51**, .12 NS               |
| No. unprotected sex acts/partner (mean ± SD) | 11.9 ± 24.6        | 5.0 ± 14.7        | 2.2 ± 5.3              | 9.9 ± 18.9       | 13.2 ± 26.2         | .09 NS, -6.73**, .87 NS               |
| Rate of unprotected sex acts                 | 23569/27434 (85.9) | 160/235 (68.0)    | 287/504 (56.9)         | 2127/2526 (84.2) | 20995/24169 (86.9)  | -2.87**, 13.25**, 3.73**              |
| Duration of relationship (yrs) (mean ± SD)   | .8 ± 1.9           | .6 ± 1.0          | .3 ± .9                | .5 ± 1.2         | 1.0 ± 2.0           | 2.02**, -2.00**, -3.27**              |
| Type of partner                              |                    |                   |                        |                  |                     | 5.91 NS, 65.63**, 9.48** <sup>c</sup> |
| Lives w/partner or wife                      | 273 (13.8)         | 0 (.0)            | 1 (.8)                 | 21 (9.8)         | 251 (15.7)          |                                       |
| Girlfriend/boyfriend                         | 659 (33.4)         | 6 (18.8)          | 8 (6.2)                | 69 (32.1)        | 576 (36.1)          |                                       |
| Casual                                       | 761 (38.6)         | 25 (78.1)         | 111 (85.4)             | 90 (41.9)        | 535 (33.5)          |                                       |
| Sex worker                                   | 280 (14.2)         | 1 (3.1)           | 10 (7.7)               | 35 (16.3)        | 234 (14.7)          |                                       |

<sup>a</sup> SD: Standard deviation

<sup>b</sup> 3 comparisons: 1) sex with men only vs. male partners of *esquineros* reporting sex with both sexes; 2) male vs. female partners of *esquineros* reporting sex with both sexes; and 3) female partners of *esquineros* reporting sex with both sexes vs. sex with women only

<sup>c</sup> Test statistic =  $\chi^2$

\*  $P$ -value < .05, \*\*  $P$ -value < .01

relationships with their male partners, with an average of .3 years (SD = .08) versus .6 years (SD = .18),  $t(160) = 2.02$ ,  $P < .05$ . The smaller sample size of the group reporting sex only with men, however, did not allow for a proper assessment of the statistical significance of comparatively more casual relationships, less sex, and less unprotected sex observed among *esquineros* reporting sex with both men and women (see Table 3).

In the third set of comparisons among *esquineros* reporting sex with both men and women, showed that these men behaved differently with their male partners versus their female partners. These men reported a greater number of female partners and more sex acts with them, with 11.7 (SD = 1.3) vs. 3.9 (SD = .5) mean acts compared to their male sex partners,  $t(343) = -4.54$ ,  $P < .01$ . Additionally these men had higher rates of unprotected sex, with 9.9 (SD = 1.3) versus 2.2 (SD = .5) unprotected sex acts,  $t(343) = -4.53$ ,  $P < .01$ , and longer relationships with their female partners on average, with .5 (SD = .08) versus .3 (SD = .08) mean years,  $t(343) = -2.00$ ,  $P < .05$ . However, the average number of sex acts with male partners (3.9) did not suggest short-term contact and unprotected sex was common even with male partners (56.9%). Casual relationships were the norm among *esquineros* who had sex with men and women, although these were more frequent with their male partners (see Table 3).

In multivariate analysis, the rate of unprotected sex differed significantly and independently by partner type, duration of relationship, partner gender, and participant behavior. Multivariate-regression reversed the effects of participant behavior; *esquineros* who had sex with both men and women in comparison with those who had sex only with men or only with women had lower rates of unprotected sex in bivariate analysis (OR = .60,  $P < .01$ ), but showed higher rates in multivariate regression (OR = 1.14,  $P < .01$ ). This change in direction of the association between sex with both men and women and unprotected sex is most likely due to adjustment for the confounding present in the bivariate analysis. The partners of *esquineros* who had sex with men and women are more likely to be men than the partners of other *esquineros* (37.7% vs. 2.0%) and sex with male partners is more often protected. In addition, *esquineros* reporting male and female partners engage more often in casual or transactional sex that is also more commonly protected. Therefore, adjustment by partner gender and partner type in multivariate analysis showed that *esquineros* who had both female and male sex partners actually engaged in more risky sexual behaviors than other *esquineros*. This analysis also suggests that unprotected sex was most influenced by partner type followed by duration of time with partner, partner gender and having sex with both men and women,



as deduced from likelihood ratio tests in nested regression models (see Table 4).

## Discussion

Past studies of the general male population in Peru have shown that 10–15% of men have had sex with another man at some point during his lifetime, and 6–8% within the last year (Caceres, 1999; Johnson et al., 2003; Sanchez et al., 1996). In our study *esquineros* exhibited substantial high-risk sexual behaviors including high rates of recent sex with men (14.2% reported a male partner among their last five partners in the past 6 months) and high rates of bisexuality among those who have sex with men. The *esquineros*, therefore, are a group with substantially more male-male sex and bisexual behavior, which could allow them to act as an active bridging population between other MSM and their female partners.

The behavioral data shown reflect the casual nature of the majority of the relationships between *esquineros* and their male partners among those reporting sex with both men and women. Even those *esquineros* reporting only male partners in the last 6 months identified themselves as heterosexual during the ethnographic recruitment and the vast majority of the *esquineros* reporting male sex partners in the previous 6 months also reported female sex partners. Additionally, the characteristics associated with recent male-male sex indicate a higher sexual risk profile among the *esquineros* with this behavior including exchanging sex for money and the use of drugs or alcohol prior to sex.

*Esquineros* reporting sex with men and women reported high rates of unprotected sex and frequent casual partners, and HIV/STD risk behaviors. The rate of unprotected sex

among these *esquineros* with their female partners was high and comparable to that of *esquineros* reporting sex only with women. The lack of increased condom use with female partners by *esquineros* with both male and female partners suggests a limited understanding among *esquineros* of their increased risk for STIs. The reasons behind this impaired recognition of increased risk among the *esquineros* are unknown and deserve more detailed study. Additionally, studies of the *esquineros*' female partners are warranted as the lack of protective behavior could indicate a lack of awareness of their partner's behavior or an inability to negotiate condom use even if they are aware of their partner's behavior and separate interventions would most likely be required to address the distinct needs of these two groups.

These data provide a comparison between *esquineros* reporting and not reporting sex with men among their past five partners during the previous 6 months. Therefore, misclassification occurred among *esquineros* who either had recent sex with a man, but not in the previous 6 months and/or did not have a male partner among their last five partners. Participants may also have underreported male-male sex due to the stigma associated with this behavior. The number of individuals in this population who have ever had sex with a man would therefore be higher than 14%, although how much higher cannot be determined. Additionally, the associations of recent sex with men and variables indicating risk may be diminished by this misclassification.

Heterosexual sex was by far the dominant form of sexual behavior in this group. However, given the epidemiologic characteristics of the MSM population in Peru (Bautista et al., 2004; Lama et al., 2006; Tabet, S et al., 2002), the sex with men among the *esquineros* could lead

**Table 4** Rate of unprotected sexual acts by partner characteristics

|                                   | Unprotected acts/total acts | Rate (%) | OR     | 95% CI      | Adjusted OR <sup>a</sup> | 95% CI        |
|-----------------------------------|-----------------------------|----------|--------|-------------|--------------------------|---------------|
| <b>Participant behavior</b>       |                             |          |        |             |                          |               |
| Only male or only female partners | 21155/24404                 | 86.7     | Ref    | –           | Ref                      | –             |
| Behaviorally bisexual             | 2414/3030                   | 79.7     | .60**  | .55–.66     | 1.14*                    | (1.02–1.27)   |
| <b>Sex of partner</b>             |                             |          |        |             |                          |               |
| Male                              | 447/739                     | 60.5     | Ref    | –           | Ref                      | –             |
| Female                            | 23122/26695                 | 86.6     | 4.23** | 3.63 - 4.92 | 2.13**                   | (1.79 - 2.52) |
| <b>Type of partner</b>            |                             |          |        |             |                          |               |
| Lives w/partner                   | 12003/12487                 | 96.1     | Ref    | –           | Ref                      | –             |
| Girlfriend or Boyfriend           | 7834/9529                   | 82.2     | .19**  | .17–.21     | .18**                    | (.17–.21)     |
| Causal Partner                    | 3370/4635                   | 72.7     | .11**  | .10–.12     | .12**                    | (.10–.13)     |
| Sex worker                        | 362/783                     | 46.2     | .03**  | .03–.04     | .04**                    | (.03–.04)     |

<sup>a</sup> Adjusted for all of the variables in the table

\**P*-value < .05, \*\* < .01

to substantial risk. Notably, the prevalence of herpes and gonorrhea in the *esquineros* was significantly higher than that of general population men from the same barrios. The prevalence of herpes type 2 infection was 7.1% in the general population and 20.7% among the *esquineros* ( $P < .01$ ) and the prevalence of gonorrhea was .7% among the *esquineros* and .0% among the general population ( $P < .05$ ) (Cáceres et al., 2004; Konda et al., 2005). *Esquineros* reporting recent male–male sex did have more symptoms of STIs than the remaining *esquineros*, which remained highly significant after multivariate analysis. The STI prevalences were not significantly higher in the *esquineros* with recent male partners although the odds ratios suggest increased risk for HSV-2, gonorrhea, and Chlamydia (data not shown). In past studies in Peru, reporting ever having sex with a man has been associated with higher STI prevalence (Konda et al., 2005). In addition, misclassification could mask the *esquineros*' risk of STIs due to sex with men.

The groups described are similar in many ways to other populations with bisexual behavior, but heterosexual identities, found both in Latin America (Cáceres & Rosasco, 2000; Finlinson, Colon, Robles, & Soto, 2006; Juarez-Figueroa et al., 1997; Kerr-Pontes, Gondim, Mota, Martins, & Wypij, 1999; Tabet et al., 2002; Tabet et al., 1996) and in the United States (Chu, Peterman, Doll, Buehler, & Curran, 1992; Diaz, 1998; Juarez-Figueroa et al., 1997; Kerr-Pontes et al., 1999; Tabet et al., 2002; Tabet et al., 1996). The *esquineros* also report substantial rates of compensated sex, which from previous ethnographic work appears to occur primarily with men (Salazar et al., 2005) likening some of the men in this population to “hustlers” described in the United States (Rietmeijer, Wolitski, Fishbein, Corby, & Cohn, 1998; Simon, Morse, Balson, Osofsky, & Gaumer, 1993; Sullivan, 1996). Although concentrated groups of high-risk male populations with bisexual behavior and heterosexual identity have not been identified in many cultures and communities, they are known to exist. Examples of these are often the populations described as being “on the down low” in US culture (Miller, Serner, & Wagner, 2005; Millett, Malebranche, Mason, & Spikes, 2005), and while being “on the down low” does not necessarily equate to a marginalized population, the lack of bisexual identification and the compartmentalization and separation of their homosexual behavior from their heterosexual behavior is reminiscent of the *esquineros*' behaviors. Other work in Latino populations in the United States and in other Latin American countries also reflects this type of population, even though specific pockets of these groups have not been described. The characterization of these populations may be generalizable or at least of interest to those working with HIV prevention among Latinos both in Latin America and in the

United States. Most existing studies have relied on convenience samples and do not have a similar degree of detailed information regarding sexual behavior with male and female partners. This study design and analysis may be helpful for researchers and public health professionals working with Latino men both in the United States and in Latin America.

The *esquineros* are a population that has not been studied previously. Additionally, this is the first study we know of in Peru to identify a population with high MSM behavior who are both reachable and heterosexually self-defined. Given their sexual risk behavior including unprotected bisexual sex and a large number of sex partners, and importantly their potential to act as a bridge population for HIV/STI between their male and female partners, further studies and specific interventions are necessary to address the needs of *esquineros* and to protect them from HIV and STI infection.

**Acknowledgments** This study was funded by NIH/NIMH grant number U10 MH61536 which is a 5-country Cooperative Agreement being conducted in China, India, Peru, Russia, and Zimbabwe. Each site has selected a different venue and population with which to implement the prevention program entitled Community Public Opinion Leader (C-POL) Intervention. This article is based on a pre-baseline study conducted in all the sites to prepare for initiation of the intervention. This study was partially supported by LP-CRADA NM-04-1787. Disclaimer: The views expressed in this article are those of the author and do not necessarily reflect the official policy or position or the Department of the Navy, Department of Defense, nor the U.S. Government. Mr. Andres Lescano is a civilian employee of the U.S. Government working at the US Navy Medical Research Center Detachment in Lima, Peru. This work was prepared as part of his official duties. Title 17 U.S.C. § 105 provides that ‘Copyright protection under this title is not available for any work of the United States Government’. Title 17 U.S.C. § 101 defines a U.S. Government work as a work prepared by a military service member or employee of the U.S. Government as part of that person’s official duties.

## References

- Alarcon, J., Johnson, K., Courtois, B., Rodriguez, C., Sanchez, J., Watts, D., & Holmes, K. (2003). Determinants and prevalence of HIV infection in pregnant Peruvian women. *Aids*, 17, 613–618.
- Bautista, C. T., Sanchez, J. L., Montano, S. M., Laguna-Torres, V. A., Lama, J. R., Kusunoki, L., Manrique, H., Acosta, J., Montoya, O., Tambare, A. M., Avila, M. M., Vinales, J., Aguayo, N., Olson, J. G., & Carr, J. K. (2004a). Seroprevalence of and risk factors for HIV-1 infection among South American men who have sex with men. *Sexually Transmitted Infections*, 80, 498–504.
- Caceres, C. F. (1999). *La (re)configuracion del universo sexual: Cultura(s) sexual(es) y salud sexual entre los jovenes de Lima a vuelta de milenio*. Lima, Peru: Redess Jovenes.
- Cáceres, C. F., & Rosasco, A. M. (2000). *Secreto a voces. Homoerotismo masculino en Lima: Culturas, Identidades y Salud Sexual*. Lima: Redess Jóvenes.
- Cáceres, C. F., Salazar, X., Rosasco, A. M., Mendoza, W., Leon, S. R., Kegeles, S., Maiorana, A., Lescano, A. G., Klausner, J. D., &



- Coates, T. J. (2004). *Where the Needs are: Identifying those at higher risk for HIV to implement a prevention trial in lower-income communities in Peru: Implications for public health programming*. Paper presented at the XV International AIDS Conference, Bangkok, Thailand.
- Chu, S. Y., Peterman, T. A., Doll, L. S., Buehler, J. W., & Curran, J. W. (1992). AIDS in bisexual men in the United States: epidemiology and transmission to women. *American Journal of Public Health, 82*, 220–224.
- Diaz, R. (1998). *Latino gay men and HIV: Culture, sexuality, and risk behavior*. New York: Routledge.
- Finlinson, H. A., Colon, H. M., Robles, R. R., & Soto, M. (2006). Sexual identity formation and AIDS prevention: an exploratory study of non-gay-identified Puerto Rican MSM from working class neighborhoods. *AIDS and Behavior, 10*, 531–539.
- Johnson, K. M., Alarcon, J., Watts, D. M., Rodriguez, C., Velasquez, C., Sanchez, J., Lockhart, D., Stoner, B. P., & Holmes, K. K. (2003). Sexual networks of pregnant women with and without HIV infection. *Aids, 17*, 605–612.
- Juarez-Figueroa, L. A., Uribe-Salas, F. J., Conde-Glez, C. J., Hernandez-Avila, M., Hernandez-Navarez, P., Uribe-Zuniga, P., & del Rio-Chiriboga, C. (1997). Hepatitis B markers in men seeking human immunodeficiency virus antibody testing in Mexico City. *Sexually Transmitted Diseases, 24*, 211–217.
- Kerr-Pontes, L. R., Gondim, R., Mota, R. S., Martins, T. A., & Wypij, D. (1999). Self-reported sexual behaviour and HIV risk taking among men who have sex with men in Fortaleza, Brazil. *Aids, 13*, 709–717.
- Konda, K. A., Klausner, J. D., Lescano, A. G., Leon, S., Jones, F. R., Pajuelo, J., Cáceres, C. F., & Coates, T. J. (2005). The Epidemiology of herpes simplex virus type 2 infection in low-income urban populations in Coastal Peru. *Sexually Transmitted Diseases, 32*, 534–541.
- Lama, J. R., Lucchetti, A., Suarez, L., Laguna-Torres, V. A., Guanira, J. V., Pun, M., Montano, S. M., Celum, C. L., Carr, J. K., Sanchez, J., Bautista, C. T., & Sanchez, J. L. (2006). Association of Herpes Simplex Virus Type 2 infection and syphilis with human immunodeficiency virus infection among men who have sex with men in Peru. *Journal of Infectious Diseases, 194*, 1459–1466.
- Miller, M., Serner, M., & Wagner, M. (2005). Sexual diversity among black men who have sex with men in an inner-city community. *Journal of Urban Health, 82*, S26–34.
- Millett, G., Malebranche, D., Mason, B., & Spikes, P. (2005). Focusing “down low”: Bisexual black men, HIV risk and heterosexual transmission. *Journal of the National Medical Association, 97*, 52S–59S.
- Montano, S. M., Sanchez, J. L., Laguna-Torres, A., Cuchi, P., Avila, M. M., Weissenbacher, M., Serra, M., Vinales, J., Russi, J. C., Aguayo, N., Galeano, A. H., Gianella, A., Andrade, R., Arredondo, A., Ramirez, E., Acosta, M. E., Alava, A., Montoya, O., Guevara, A., Manrique, H., Lama, J. R., de la Hoz, F., Sanchez, G. I., Ayala, C., Pacheco, M. E., Carrion, G., Chauca, G., Perez, J. J., Negrete, M., Russell, K. L., Bautista, C. T., Olson, J. G., Watts, D. M., Bix, D. L., & Carr, J. K. (2005). Prevalences, genotypes, and risk factors for HIV transmission in South America. *Journal of Acquired Immune Deficiency Syndromes and Human Retrovirology, 40*, 57–64.
- OGE. (2006). Situación Epidemiológica del VIH/SIDA en el Perú. Boletín Epidemiológico Mensual Enero 2006. Available at <http://www.oge.sld.pe/vih/Boletin%202006/Enero.pdf>. Retrieved Accessed 03–17–06, 2006.
- Rietmeijer, C. A., Wolitski, R. J., Fishbein, M., Corby, N. H., & Cohn, D. L. (1998). Sex hustling, injection drug use, and non-gay identification by men who have sex with men. Associations with high-risk sexual behaviors and condom use. *Sexually Transmitted Diseases, 25*, 353–360.
- Rudolph, M., & Hersey, S. (2000). *Sexual behavior, STIs and HIV among men who have sex with men in Phnom Penh, Cambodia 2000*. Durham: Family Health International.
- Salazar, X., Cáceres, C. F., Rosasco, A. M., Kegeles, S., Maiorana, A., Gárate, M., & Coates, T. J. (2005). Vulnerability and sexual risks: vagos and vaguitas in a low income town in Peru. *Culture, Health and Sexuality, 7*, 375–387.
- Sánchez, J., & Gotuzzo, E. (1995). Epidemiología del SIDA en el Perú. In J. Sánchez, G. Mazzoti, L. Cuellar, P. Campos, & E. Gotuzzo (Eds.), *SIDA epidemiología, diagnóstico, tratamiento y control de la infección VIH/SIDA* (pp. 25–32). Lima, Peru: PROPACB.
- Sanchez, J., Gotuzzo, E., Escamilla, J., Carrillo, C., Phillips, I. A., Barrios, C., Stamm, W. E., Ashley, R. L., Kreiss, J. K., & Holmes, K. K. (1996). Gender differences in sexual practices and sexually transmitted infections among adults in Lima, Peru. *American Journal of Public Health, 86*, 1098–1107.
- Simon, P. M., Morse, E. V., Balson, P. M., Osofsky, H. J., & Gaumer, H. R. (1993). Barriers to human immunodeficiency virus related risk reduction among male street prostitutes. *Health Education Quarterly, 20*, 261–273.
- Sullivan, T. R. (1996). The challenge of HIV prevention among high-risk adolescents. *Health and Social Work, 21*, 58–65.
- Tabet, S., Sanchez, J., Lama, J., Goicochea, P., Campos, P., Rouillon, M., Cairo, J. L., Ueda, L., Watts, D., Celum, C., & Holmes, K. K. (2002). HIV, syphilis and heterosexual bridging among Peruvian men who have sex with men. *Aids, 16*, 1271–1277.
- Tabet, S. R., de Moya, E. A., Holmes, K. K., Krone, M. R., de Quinones, M. R., de Lister, M. B., Garris, I., Thorman, M., Castellanos, C., Swenson, P. D., Dallabeta, G. A., & Ryan, C. A. (1996). Sexual behaviors and risk factors for HIV infection among men who have sex with men in the Dominican Republic. *Aids, 10*, 201–206.
- UNAIDS. (2004). Peru, epidemiological fact sheets on HIV and sexually transmitted infections, 2004 update. Geneva: UNAIDS.