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Stefan Baral ^a; Darya Kizub ^a; Nicole Franck Masenior ^a; Alena Peryskina ^b; Julie Stachowiak ^b; Mark Stibich ^c; Vladimir Moguilny ^b; Chris Beyrer ^a

^a Department of Epidemiology, Center for Public Health and Human Rights, Johns Hopkins School of Public Health, Baltimore, MD, USA ^b AIDS Infoshare, Moscow, Russian Federation ^c San Diego School of Medicine, University of California, San Diego, CA, USA

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Male sex workers in Moscow, Russia: a pilot study of demographics, substance use patterns, and prevalence of HIV-1 and sexually transmitted infections

Stefan Baral^a, Darya Kizub^a, Nicole Franck Masenior^a, Alena Peryskina^b, Julie Stachowiak^b, Mark Stibich^c, Vladimir Moguilny^b and Chris Beyrer^{a*}

^aDepartment of Epidemiology, Center for Public Health and Human Rights, Johns Hopkins School of Public Health, Baltimore, MD, USA; ^bAIDS Infoshare, Moscow, Russian Federation; ^cSan Diego School of Medicine, University of California, San Diego, CA, USA

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The Russian federation has been undergoing a concentrated epidemic of HIV-1 with high rates of infection among injecting drug users. Less is known about the relative risk and contribution to the country's HIV epidemic by other at-risk populations including sex workers and men who have sex with men. The goals of this project were to explore demographic characteristics, substance use patterns, and estimate the prevalence of sexually transmitted infections (STIs) and high-risk behaviors among male sex workers (MSW) in Moscow and to assess the feasibility of prospective cohort recruitment and retention among this population. Research design was a longitudinal study of 50 men with a six-month follow-up period. Participants were recruited through venue-based and snowball sampling methods. Results revealed an HIV prevalence at baseline of 16%; one MSW seroconverted during the follow-up period, yielding an incidence estimate of 4.8/100PY (95%CI 0.0–11.2). Twenty-four percentage were diagnosed with at least one STI: 12% had syphilis; 8% had Human Papilloma Virus (HPV); and 4% had Herpes Simplex Virus (HSV)-2. Three (6%) of the study participants had evidence of previous Hepatitis C Virus (HCV) exposure at baseline. Retention rates were poor with higher retention significantly associated with older men (OR: 13.1, 95% CI 3.3–52.5). This was the first study to evaluate baseline demographics, substance use patterns, and prevalence of infectious disease among MSW in Moscow. Identification and recruitment of this population appears to be feasible, but retention a challenge. While the sample size in the current study was small, the results also suggested that this is a population at considerable high risk for HIV. MSW in Moscow may be an important at-risk population in the Russian HIV epidemic and further research is urgently required to address their needs and explore prevention strategies.

Keywords: male sex worker; Moscow; Russia; MSM; HIV; STI

Introduction

The Russian federation has been undergoing a concentrated epidemic of HIV-1 with high rates of infection in injecting drug users (IDU) and variable rates reported among female sex workers (FSW), and men who have sex with men (MSM; Kelly & Amirkhanian, 2003). Since 1996, the year the first major outbreak of HIV was recorded among IDU, HIV prevalence has risen rapidly, reaching an estimated 1.1% (95% CI 0.7–1.8) of reproductive age adults across the Russian Federation in 2006 (UNAIDS, 2006). Although IDU comprise an estimated 70–85% of all HIV cases in Russia, the role of sexual transmission in the spread of the virus has been increasing, and accounted for approximately a third of all new HIV cases in 2006 (Bobkov et al., 2004; Rhodes et al., 2005). This is likely due to increased HIV transmission among FSW and MSM as well as among sexual contacts of IDU.

Several Russian studies have shown MSM to be at high risk for HIV and other sexually transmitted infections (STIs), due to a dearth in knowledge about HIV transmission, high rates of unprotected anal intercourse (UAI), and a high frequency and total number of both male and female sexual partners in this population (Amirkhanian et al., 2001, 2005a; Amirkhanian, Kelly, & McAuliffe, 2005b). A recent systematic review retrieved no peer-reviewed publications of HIV prevalence among MSM in Russia and recent government reports do not mention male sexual contact as a current risk factor for HIV, highlighting the relatively limited understanding of HIV risk in this population (Baral, Sifakis, Cleghorn, & Beyrer, 2007; Ladnaya, Pokrovsky, & Sokolova, 2008). In government reports, there has been significant variability in the HIV prevalence rates reported among MSM across Russia ranging from 0.3% in national estimates to 4.8% in Ekaterinburg

*Corresponding author. Email: cbeyrer@jhsph.edu

and 14.3% in Volgograd (EuroHIV, 2006; Russian Ministry of Health, 2005).

Male sex workers (MSW) are a subset of MSM who are likely at especially high risk for HIV as has been reported in St. Petersburg (Koblin et al., 2006). While few studies have followed cohorts of MSW, a recent study found that nearly a quarter of a 422-person cohort of St. Petersburg MSM have reported exchanging sex for money, drugs, or valuables (Kelly et al., 2002). Characteristics associated with selling sex among MSM included being younger, less educated, and having more male and female sex partners in the last three months (Kelly et al., 2001). While MSW are an important population to characterize, they are a challenging group to identify and follow in the Russian context, explaining, at least in part, the scarcity of targeted research.

Here, we describe a pilot prospective cohort study among 50 MSW recruited in Moscow, Russia in 2005–2006 and present the first HIV and STI prevalence levels in this population. The city of Moscow was chosen due to its economic and demographic importance, high influx of migrant workers from both Russia and other Former Soviet Union (FSU) countries, and the existence of a prominent yet understudied population of MSW noted by Kelly et al. in 2001. This study was part of a larger National Institutes of Health (NIH)-supported effort to characterize HIV and STI risks among women working in the Moscow sex industry (Stachowiak et al., 2005). The project was a collaboration between AIDS Infoshare Russia, a long-standing Russian AIDS service organization which has extensive experience in outreach and recruitment of hard-to-reach populations in Moscow, and research partners at the Johns Hopkins University and the University of California, San Diego. This study was approved by Institutional Review Boards in Baltimore, MD and Moscow, Russia.

Methods

Study purpose and procedures

Following a formative phase of qualitative key informant interviews, this pilot study sought to assess the feasibility of cohort recruitment and retention, to estimate the baseline prevalence of HIV and selected STI, and to assess risk behaviors. In addition, this pilot was conducted to assess the feasibility of prospective cohort recruitment and retention among MSW in Moscow, Russia, and to inform HIV preventive intervention research among these men. Inclusion criteria included being a male over 17 years of age, intending to stay in Moscow for at least one year, and current engagement in sex work with men

in Moscow. Sex work was defined as receiving money, drugs, or other valuables in exchange for sex. Moscow residency papers (*propiska*), which are required for free access to medical and social services within the city, or other identifying documents, were not required to participate in the study. The study consisted of one baseline visit and three follow-up visits that took place over the course of six months. Trained outreach workers from AIDS Infoshare did the initial study outreach, provided information to potential participants, and then obtained informed consent from those potential study participants who met the inclusion criteria and agreed to participate. Potential participants were informed of the prospective nature of the study and were asked if they were willing to provide detailed contact information for themselves and at least two other contacts who would likely know their whereabouts over the coming six months. In addition, participants were asked to take part in the study only if they were willing to commit to the follow-up visits scheduled six months later. Because all of the participants had personal cell phones, cell phone calls and text messages were the most effective way to trace the participants.

Study recruitment

MSW were recruited using two methods. In the first method, printed advertisements were placed in saunas and other areas known to be frequented by MSW in the *Kitai-Gorod* district of Moscow. In addition, AIDS Infoshare employed experienced outreach workers who were, in many cases, former sex workers (SW), to directly recruit from saunas that serve as operation bases for MSW. Sauna administrators were paid 10 USD for each MSW who attended information sessions about the study. This method resulted in the recruitment of nine study participants. The other 41 were recruited from the *Kitai-Gorod* district using snowball sampling and employing aspects of respondent driven sampling (RDS) to assess the feasibility of this sampling methodology among these men (Heckathorn, 1997). Coupons initially administered to the nine seeds were retrieved with later participants allowing study staff to track which participants were recruited by which seeds. Outreach workers recruited the first round of participants who then were asked to recruit future subjects from among their acquaintances. Each study participant was paid 10 USD for referring a person who met the inclusion criteria and attended the information session about the study. Study participants were given free vouchers which included a “green light” no wait pass at the SANAM clinic, a well known non-governmental clinic providing services to SW and others, and the base of our

female SW study. SANAM has a waiver allowing for anonymous STI and HIV testing and is one of only a few clinics in Moscow, which can provide testing for SW without reporting results by name to the Federal AIDS Center, hence this was a highly valued incentive.

Study visits

Participants who agreed to attend an initial study visit were given vouchers for free clinic visits at the SANAM Clinic. During the initial visit, a physician recorded the participant's medical history and administered a complete physical and genital exam. Two tubes of venous blood, and a urine sample were collected to be tested for HIV and STIs. An enzyme-linked immunosorbant assay (ELISA) test, Determine HIV 1/2 (Abbott Laboratories) was used to screen samples for HIV antibodies. If results were positive or equivocal, the HIV test was repeated in order to be able to report the result to the participant during the post-test counseling session. In accordance with Russian law, all samples which were positive for HIV using the ELISA were sent to the Moscow AIDS Center (stripped of all identifiers) for confirmatory Western Blot (Vektor) testing. Participants were urged to return in 10 days for final results of the Western Blot and further counseling. Antibodies were detected for syphilis Rapid Plasma Reagin (RPR), HCV (anti-HCV), and HSV-2. *Chlamydia trachomatis* and *Neisseria gonorrhoeae* were assessed using a urine-based assay (Shakarishvili et al., 2005). Each of the visits included a confidential and structured survey led by a trained outreach worker. The survey instrument had been adapted from a survey used previously to study FSW in Moscow and consisted of questions about demographic information and medical history, including history of STIs and history of injection drug use and its health consequences (Stachowiak et al., 2005). Other questions assessed the prevalence of high-risk sexual behaviors, including sexual practices with clients and non-commercial partners, as well as history of sex work initiation and continuation. The survey also probed at other variables that had the potential to affect health status and vulnerability to HIV and STIs, including alcohol and non-injection drug use, client behavior, interactions with police and medical staff, history of violence, and mental health status.

Study participants were given 20 USD for each visit to compensate for transportation and miscellaneous expenses. Other incentives to participate in the study included free psychological counseling, peer education seminars, and medical treatment of STIs diagnosed during the study.

Results

Recruitment and retention

The recruitment process took only one week to complete; none of the people who attended the information sessions refused participation. Though the study was capped at 50 participants because of a priori protocol requirements, many more information session attendees expressed desire to join the study. The retention rate at one month was 84% (42/50), 74% (31/42) at three months, and 55% (17/31) at six months giving an overall retention of 34%. The only statistically significant predictor of retention calculated from multivariate logistic stepwise regression was being older in a model that included HIV status, level of education, drug and alcohol use, number of clients, and time in Moscow. When dichotomizing age as older than mean age of 23 years compared to those less than and equal to 23 years, in a multivariate model including HIV status, level of education, drug and alcohol use, number of clients, and time in Moscow, there was an adjusted OR of 13.14 (95% CI 3.29–52.47) for retention in the study. No other measured covariate was significantly associated with retention either in univariate or multivariate analyses (data not shown).

Study demographics

Participants were generally young with the majority being under the age of 26 years (Table 1). Only seven (14%) of the participants were originally from

Table 1. Demographics among male sex workers in Moscow ($n = 50$).

Characteristic	No.	Percentage (%)
Originally from Russia	31	62
Originally from Moscow	8	16
Age		
17–20	18	36
21–26	17	34
Over 26	15	30
Education		
Middle school	17	34
High school	12	24
College	19	38
Currently a student	9	18
Time in Moscow		
< one year	7	14
1–2 years	11	22
2–5 years	13	26
5–10 years	7	14
> 10 years	12	24

Moscow. Over a half of the participants were originally from Russia, while others originated from countries within the former Eastern Bloc, including the Ukraine, Belarus, Moldova, Tajikistan, Kazakhstan, and Uzbekistan. Thirty-two (62%) of the study participants were satisfied with their living situation; 11 (23%) lacked Moscow residency papers.

Forty-two (84%) of the participants had never worked in the sex business before arriving in Moscow, and all of these individuals had also organized the job after arriving in Moscow rather than coming to Moscow for this reason (Table 2). Nearly half of the sample found work at their own initiative through acquaintances in the industry. None reported being

trafficked to Moscow to work in the sex business, but 15 (30%) worked under a pimp (*Seutemyorhin*). Of the 50 study participants, 28 (56%) work more than five days per week, though 37 (74%) considered sex work to be seasonal, with summer being the busiest season. Thirty (60%) of the participants reported having more than four clients per week, and 38 (76%) said that they keep over 60% of their earnings. Although, about a third reported having another job, sex work was their primary source of income and financial reasons or lack of better work opportunities were cited as the primary reason for their entry into sex work. Finally, 14 (28%) of the study participants reported violence from clients in the last 12 months. Among these men, the mean number of incidents of client violence in the last 12 months was 1.7; none of the participants who reported violence consulted either a physician or the police about these injuries. Approximately, a third of the sample did not always use condoms with clients either because the client refused, or the MSW themselves were unwilling (Table 2).

Table 2. Characteristics of male sex workers in Moscow ($n = 50$).

Characteristic	No.	Percentage (%)
Aware of entry into SW	45	90
Entry into SW by own initiative	21	42
Reasons for entry into SW		
Financial	36	67
Lack of better options	11	20
Work enjoyment	7	12
Previous involvement in SW before coming to Moscow	8	16
Total time in SW		
Under one year	12	24
1–2 years	16	32
3–4 years	10	20
Over four years	12	24
Have job other than SW	18	36
Earnings		
Less than expected	15	34
As expected	17	39
More than expected	12	27
Always use condoms with		
Vaginal intercourse	18	62
Anal intercourse with irregular male clients	35	71
Anal intercourse with regular male clients	26	59
Use of rectal gels with clients	12	24
Reason for not wearing condom during vaginal intercourse		
Lack of desire	11	25
Client refusal	24	55
Lack of condom availability	4	9
Forgot	5	11
Reason for not wearing condom during anal intercourse with men		
Lack of desire	15	19
Client refusal	31	40
Forgot	5	6

Substance use

Substance use was common: 92% of men reported regular alcohol use and 70% reported drinking with clients. Self-reported use of illicit drugs was much less common; of the 50 study participants, six (12%) had ever used 3,4-methylenedioxymethamphetamine (MDMA), also known as Ecstasy, amphetamines, or other stimulants, and eight (16%) had ever used cocaine (Table 3). Of the four study participants (8%) who reported ever injecting illegal drugs, one had ever injected opium, heroin, and ephedrine, while the other three had injected ephedrine only.

Table 3. Prevalence of sexually transmitted infections, blood-borne viruses, and drug use among male sex workers in Moscow ($n = 50$).

Characteristic	No.	Percentage (%)
HIV	9	18
Syphilis	6	12
HPV	4	8
HSV-2	2	4
HCV exposure	4	8
Sought medical care for STI	12	75
Use of injected illegal drugs	4	8
Use of MDMA, amphetamines, or other stimulants	6	12
Cocaine use	8	16
Regular alcohol use	46	92
Participant had ever experienced violence from clients	14	28

Serologic testing

Baseline serologic testing showed that eight (16%) of the MSW were HIV positive. Twelve (24%) were diagnosed with STIs (95% CI 13–38) of whom six (12%) had syphilis, four (8%) had HPV, and two (4%) had HSV-2. Four (6%) of the study participants had evidence of previous HCV exposure at baseline (Table 3). Among the 42 HIV seronegative men at baseline, one became infected in the prospective phase. Using a person time intent-to-treat analysis and a simple mid-point assumption for infection time, this gives an incidence density of 4.8/100PY (95% CI 0.0–11.2), albeit with very wide confidence intervals. Thus, the final HIV prevalence was calculated to be 18% (95% CI 9.8–30.8). HIV and STI diagnoses were not significantly associated with either the amount of time a study participant has been involved in sex work, length of stay in Moscow, the reported frequency of condom use with clients, or access to medical services (Table 4). The highest magnitude association with HIV infection among the MSW was irregular condom use with male sexual clients, though this did not reach statistical significance (OR: 4.9; 95% CI 0.3–100.0).

Discussion

The main objective of the study was to assess the feasibility of recruiting and retaining a sample of MSW. The study team reached their recruitment goal and could have surpassed it if the study was not already capped at 50 participants. Using outreach workers and relying on participants to recruit acquaintances, friends, and strangers in one week proved to be both effective and efficient. While the retention rate was poor, these data indicate that successful retention was highly associated with older MSW, irrespective of the other demographics evaluated. Although detailed contact information was collected, and proved valuable for contacting men continuing as active SW, outreach workers reported

that a substantial proportion of men lost to follow-up had either left the city altogether, or had left sex work. In both situations, men reported that they did not want to be contacted. The personal histories of these men show repeated starts and stops in sex work, and longer term follow-up might have identified those men returning after our short study time. The incentives for retention, particularly free and anonymous STI and HIV testing in Moscow, appear to have been most relevant for men staying in Moscow and staying in sex work. Interventions with short (less than three months) intervals may be required for this highly transitory population. These data also highlight the need to better understand why younger MSW were more likely to drop out of the study and to develop methods to increase retention among these men. Much of the risk of HIV seroconversion is likely frontloaded after initiation of sex work or even anal intercourse. To maximize efficacy, HIV prevention campaigns must be able to consistently access and adequately retain this younger population of MSW.

There are several limitations to this study. The study samples are convenience samples generated by use of chain-referral techniques rather than population-based samples, which limit the generalizability of the results to the wider population of MSM and even MSW in the Russian Federation. Though there was a strong association between age and retention rates, the confidence interval was wide likely secondary to the small sample size of 50 in this study. Furthermore, as this is a cross-sectional study, the evaluation of the associations of variables with HIV does not imply causality. Larger, and likely prospective, studies using methodologically sound venue-based or RDS methodologies should be completed to allow for a more definitive characterization of this relatively hidden population. MSM tend to congregate in urban areas, which is why recruitment took place in Moscow; again, this may limit generalizability.

Though the sample size was small, HIV prevalence was high at 18% (95% CI 9.8–30.8), and the frequency of past and newly diagnosed syphilis

Table 4. Univariate associations with prevalent and incident HIV infections among male sex workers in Moscow ($n = 50$).

Characteristic	Higher risk		Lower risk		OR (95% CI)
	HIV +	HIV –	HIV +	HIV –	
Syphilis	2	4	7	37	2.6 (0.4–17.3)
Age group (>23 compared to ≤23)	7	23	2	18	2.5 (0.5–14.3)
Russian descent	7	24	2	17	2.5 (0.5–14.3)
Having had ≥2 years history of sex work	5	15	4	26	2.2 (0.5–9.33)
IDU history	1	3	8	38	1.6 (0.2–17.2)
Irregular use of condoms with male clients	1	1	8	39	4.9 (0.3–100.0)
Irregular use of condoms with female partners	1	4	5	28	1.4 (0.13–14.3)

provides further evidence of the high risk status of these men. There were no statistically significant predictors of HIV, though this is likely due to the small sample size of this pilot study and highlights the need for more definitive work among MSW in Russia. These findings parallel conclusions reached by previous studies which associate increased population mixing in Russia with the spread of the HIV epidemic and attribute the recent increase in commercial sex work to unemployment and migration to more populous cities like Moscow (Aral, St Lawrence, Dyatlov, & Kozlov, 2005; Shakarishvili et al., 2005). Also important to highlight is the relative autonomy of MSW as compared with their female counterparts, who are more often under the protection of a pimp, which have implications for the design of prevention programs (Stachowiak et al., 2005). Condom use tended to be low suggesting that these men had a low self-perceived risk for HIV/STIs; this may serve as a target of an intervention.

In this study, 8% of men reported ever injecting illegal drugs, though many more had used MDMA, cocaine, or other amphetamines. MSM-IDUs have been shown to be at higher risk for infection with blood-borne viruses such as HIV and hepatitis due to an increased chance of both sexual and parenteral virus transmission (Ferreira, Caiaffa, Bastos, & Mingoti, 2006). Decreasing the use of these substances may therefore constitute another valid target of HIV/STI prevention interventions aimed at this population.

This was the first study to evaluate baseline demographics, substance use patterns, and prevalence of infectious disease among MSW in Moscow. The findings suggest that this is a population at risk for HIV and STI due to current employment as MSW, and to their status as MSM and migrants. Larger prospective observational studies could serve to further characterize MSM and their risk status for HIV infection by exploring their access to medical services, frequency of injection drug use and use of cocaine and amphetamines, knowledge and risk perception, and the ability and willingness to negotiate condom use with clients and partners. Data reported here suggest that retention rates for prospective studies will be better with older men; however, there is also a need to better explain the poor retention among younger men, who will be a major target population for HIV prevention programming. Larger studies should be completed to better inform prevention strategies to avoid a similar rapid expansion of the HIV epidemic among MSM, including MSW, as was seen with injecting drug users in Russia.

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