



Published in final edited form as:

*AIDS Behav.* 2009 April ; 13(2): 310–317. doi:10.1007/s10461-008-9383-3.

## Correlates of Any Condom Use Among Russian Narcology Patients Reporting Recent Unprotected Sex

Anita Raj<sup>1</sup>, D. M. Cheng<sup>2,3</sup>, E. M. Krupitsky<sup>4</sup>, S. Coleman<sup>5</sup>, C. Bridden<sup>3</sup>, and J. H. Samet<sup>1,3</sup>

<sup>1</sup> Department of Social and Behavioral Sciences, Boston University School of Public Health, 715 Albany Street Talbot Building, Boston, MA 02118, USA

<sup>2</sup> Department of Biostatistics, Boston University School of Public Health, Boston, MA, USA

<sup>3</sup> Clinical Addiction Research and Education (CARE) Unit, Section of General Internal Medicine, Department of Medicine, Boston Medical Center, Boston University School of Medicine, Boston, MA, USA

<sup>4</sup> St. Petersburg State Pavlov Medical University, St. Petersburg, Russian Federation

<sup>5</sup> Data Coordinating Center, Boston University School of Public Health, Boston, MA, USA

### Abstract

The purpose of this study was to assess whether HIV/sexually transmitted infection (STI) risk factors: risky sex (multiple sex partners and sex trade involvement), past HIV or STI diagnosis and substance use (at risk drinking and injection drug use) are associated with the outcome any condom use in the past 6 months among Russian narcology hospital patients. Participants ( $N = 178$ ) included only those who reported unprotected sex in the past 6 months and were aged 18–55 years and 76% male. Any condom use in the past 6 months was reported by 55% of the sample. History of STIs was reported by 43% of participants; 15% were HIV-infected. Regression analyses adjusted for demographics demonstrated that those reporting multiple sex partners ( $OR_{adj} = 4.2$ , 95% CI = 2.0–8.7) and sex trade involvement ( $OR_{adj} = 2.4$ , 95% CI = 1.1–5.1) in the past 6 months had significantly higher odds of reporting any condom use in this same timeframe. HIV/STI and substance use were not associated with increased odds of condom use.

### Keywords

Condom use; HIV; Substance abuse

### Introduction

HIV infection was rare in Eastern Europe in the mid-1990s, but its prevalence has been increasing without effective prevention efforts in the past decade. The Russian Federation (heretofore referred to as Russia) currently has an adult HIV prevalence rate of 1.1%; this country also has the largest number of HIV-infected individuals in all of Europe, 370,000 as of 2006 (UNAIDS 2007). At the heart of the Russian epidemic is the large number of young injection drug users (IDUs), primarily in urban centers (UNAIDS 2007). Approximately 2.5% of the adult population in Russia is an IDU (UNAIDS 2006b); 66% of Russians infected with HIV in 2005 and 2006 acquired the virus via injection drug use (UNAIDS 2006a; UNAIDS 2007). Notably, however, growing numbers of individuals in Russia are becoming infected via sexual transmission—from less than 10% in 2000 to more than 40% in 2005 (UNAIDS

2006a). Recent clinical and epidemiologic data now indicate that sexual transmission of HIV may be the most rapidly increasing of all HIV infection transmission risk behaviors in the region (Aral et al. 2005).

Sexual transmission of HIV infection within Russia is assumed to result from HIV-infected IDUs engaging in unprotected sex, bridging the epidemic to non-IDU populations. Studies with IDUs recruited from urban centers within Russia have found that the majority reports recent sexual activity, multiple partners and non-condom use, particularly with steady sex partners (Rhodes et al. 2004; Somlai et al. 2002; Takacs et al. 2006). The epidemic has been propelled even further via the link between injection drug use and sex work, particularly for female IDUs. A substantial proportion of female IDUs (37%) report having engaged in sex work (Benotsch et al. 2004), and those engaging in sex work are more likely to report both risky injection drug use and a history of sexually transmitted infections (STIs), as compared with male IDUs or female IDUs reporting no history of sex work (Karapetyan et al. 2002; Platt et al. 2005). Nonetheless, awareness of HIV risk among IDUs is increasing (UNAIDS 2006b), and HIV risk perceptions among IDUs in Russia are actually greater than that seen in the United States (US) (Ksobiech et al. 2005).

Recent evidence from Russia raises the possibility that HIV may be spreading beyond IDUs and sex workers and reaching those with problem alcohol behavior (Krupitsky et al. 2004; UNAIDS 2006a). Increased risk for HIV among Russians with unhealthy alcohol use would affect a substantial proportion of the Russian population, as Russia has one of the highest per capita use of alcohol in the world (Nemtsov 2000; World Health Organization 2004). Research with a representative sample of Russian adolescents and adults found that one-third of sexually active individuals used alcohol prior to their last sex (Vannappagari 2004); additional research from Russia documents pervasive perceptions of at risk episodic drinking prior to sex and unprotected sex as social norms (World Health Organization 2005). Although Russian studies have not examined whether drinking risky amounts of alcohol increases likelihood of risky sexual practices, this may be the case given study findings from the US documenting that those reporting drinking risky amounts of alcohol are more likely to report a history of STI, sex with multiple partners, sex trade involvement and unprotected sex (Kalichman et al. 2007; Markos 2005; Raj et al. 2007; Rasch et al. 2000; Weinhardt and Carey 2000).

In summary, current research indicates that IDUs and risky drinkers in Russia are experiencing notable rates of HIV/STI and report notable HIV risks, including multiple partners, sex trade involvement and unprotected sex (Benotsch et al. 2004; Krupitsky et al. 2004; Platt et al. 2005; Rhodes et al. 2004; Somlai et al. 2002; Takacs et al. 2006; Karapetyan et al. 2002). Such research has not, however, examined associations between HIV/STI risk histories and condom use. Condom use in Russia generally is uncommon and primarily for pregnancy prevention when it does occur (Bobrova et al. 2005; Vannappagari 2004; World Health Organization 2005); thus, increased likelihood of condom use among riskier Russian substance users cannot be assumed, although this has been shown to be the case among US substance users (Bogart et al. 2005; Kwiatkowski et al. 1999; Shlay et al. 2004). The current study seeks to build upon the growing body of work in the area of substance use and sexual risk in Russia by assessing whether history of HIV/STI and risky sexual and substance use behaviors are associated with increased likelihood of any condom use among Russian narcology patients reporting recent unprotected sex. Any versus proportion of condom use was examined to provide insight into which patients ever and never use condoms, among this sample of patients who have engaged in recent unprotected sex. Findings from this work can be used to inform the growing sexual prevention and intervention efforts in Eastern Europe and other regions in which substance use plays a central role in the HIV epidemic (UNAIDS 2006b).

## Methods

### Study Design & Subject Recruitment

Data for this research came from the Russian PREVENT (Partnership to Reduce the Epidemic Via Engagement in Narcology Treatment) study, a randomized controlled trial (RCT) of an HIV behavioral intervention in narcology hospital in-patients in Russia. The PREVENT study included alcohol and/or drug-dependent men and women recruited from two narcology hospitals in the vicinity of St. Petersburg, Russia: (a) the Leningrad Regional Center for Addictions (LRCA) and (b) the Medical Narcology Rehabilitation Center (MNRC). Narcology hospitals are a standard treatment setting for drug and alcohol dependent persons in Russia and Eastern Europe. Typically, the hospitalization is 3–4 weeks in length and involves patients undergoing detoxification and then receiving addiction treatment.

Participants for this study were recruited from October 2004 to April 2005. Trained physician research associates approached all patients after initial detoxification (3–7 days after program entry) and assessed them for study eligibility. Eligible participants were 18 years or older, reported unprotected vaginal or anal sex in the past 6 months, and had a primary diagnosis of alcohol or drug dependence. Additional study entry criteria were the following: abstinence from alcohol and other abusive substances for 48 h; willing to undergo HIV testing as per standard narcology hospital protocol if not known to be HIV-infected; willing and able to provide contact information for themselves as well as a relative or close friend through whom they could be contacted; residing within 150 km of St. Petersburg; and possessing a home telephone. Individuals who were not fluent in Russian or demonstrated severe cognitive impairment as assessed by the research associate's clinical judgment at recruitment were excluded from the study. Overall, 329 individuals were approached and screened for participation in this study. Of these, 129 were excluded due to not meeting eligibility criteria; 70 of these 129 ineligible participants reported no unprotected anal or vaginal sex in the last 6 months; breakdown of participants reporting abstinence versus those reporting consistent condom use were not available. Of the 200 eligible participants identified, 19 (9.5%) refused participation, yielding a final sample size of  $N = 181$ . All eligible and willing subjects provided written informed consent prior to study enrollment.

### Procedure

Subsequent to recruitment and eligibility assessment, all participants provided written informed consent and received their baseline survey, which assessed demographics, HIV risk behaviors, substance use behaviors and other key health indicators. At baseline, while subjects were in the narcology hospitals, survey data were collected in two ways: (a) a face-to-face interview with a staff trained in survey administration and not providing care to the participant and (b) a computerized survey—Audio Computer-Assisted Self Interviewing (ACASI) system. ACASI removes the interviewer and, therefore, allows additional privacy, minimizes literacy issues, encourages truth telling, and provides an identical recording of each question; using this system has been shown to enhance the quality of self-report behavioral assessments, to maintain confidentiality, and to provide an acceptable method for collecting self-reports of HIV risk behavior (Newman et al. 2002). All interviews were conducted in Russian, and participants were compensated US\$5 for the baseline assessment. The current analyses include data collected at the baseline assessment. Given the focus of the current study on condom use in the past 3–6 months, female participants reporting exclusively female sex partners ( $n = 3$ ) were excluded from analyses, yielding a final sample size of 178 subjects.

## Measures

### Independent Variables

The six main independent variables for this study were risky sexual behaviors (multiple sex partners and sex trade involvement), substance use behaviors (at risk drinking and injection drug use), history of STI, and HIV serostatus.

Risky sexual behaviors were assessed via survey items from the Risk Assessment Battery (Navaline et al. 1994); the RAB was chosen based on its previously demonstrated validity with Russian narcology patients (Krupitsky 2005). A single item asked participants the number of sex partners in the past 6 months; participants were defined as having multiple sex partners if they reported two or more partners in this time frame. Two additional RAB items were used to assess buying sex with money or drugs (buying sex) and selling sex for money or drugs (selling sex) in the past 6 months. Sex trade involvement was defined as either buying or selling sex within the past 6 months.

Alcohol consumption in the past 30 days was collected using a Timeline Followback (TLFB) approach (Dillon et al. 2005; Midanik et al. 1998; Vinson et al. 2003; Weinhardt et al. 1998), in which participants noted the number of drinks they had in each of the past 30 days prior to hospitalization. At Risk Drinking was defined as having five or more drinks per day for men and 4 or more for women, in the past 30 days, based on an NIAAA definition of at risk drinking (NIAAA 2005). Two RAB items assessed recent injection drug use. The first item asked whether the participant engaged in injection drug use in the past 6 months; the second asked, for those reporting yes on item one, whether they had shared needles or works when injecting drugs in the past 6 months. IDU was defined as engaging in any injection drug use in the past 6 months. Additional data collected included substance use diagnosis based on the narcology hospital record; staff psychiatrists provided diagnoses at intake as part of clinical care. Diagnoses were based on ICD-X criteria (the standard Russian diagnostic manual).

STI diagnosis was collected via self-report. Participants were asked via survey whether they had ever been diagnosed with syphilis, gonorrhea, chlamydia, genital warts, genital herpes, other STIs (defined to exclude HIV) or pelvic inflammatory disease (women only); history of STI was defined as having any STI diagnosis ever. HIV serostatus was determined by HIV test results documented in the narcology hospital record. All narcology hospital patients are tested for HIV at program entry unless they are already known to be HIV-infected; patient HIV serostatus was then noted in the patient's medical record.

### Outcomes

The primary outcome of interest was any condom use (yes vs. no), among all partners; this was assessed via a single RAB item on frequency of condom use in the past 6 months. Secondary outcomes were any condom use with main partners (past 3 months) and any condom use with casual partners (past 3 months). A series of questions examined condom use with main partners and casual partners: the number of times engaged in vaginal or anal sex and condom protected vaginal or anal sex, with each type of partner in the past 3 months. A main sex partner was defined as "the person you have sex with most often and regularly and/or the person with whom you feel most attached," and casual partners were defined as "people you have sex with less frequently and with whom you do not consider yourself in a steady relationship."

### Confounders

Demographic data collected included age, gender, marital status, sex of partners, education and employment, assessed via single survey items. The potential confounding factors included

in regression analyses were: age, gender, and marital status (currently married vs. single, divorced, or widowed).

## Data Analysis

Descriptive statistics were used to characterize the study subjects at baseline. Logistic regression analyses adjusting for potential confounders were conducted to assess associations between risky sexual behaviors (multiple sex partners and sex trade involvement), substance use behaviors (at risk drinking and injection drug use), and STI/HIV diagnoses with the outcome any condom use. Separate models were fit for each potential predictor. Independent variables that were significant at an alpha level of 0.05 were included together in a final multivariable model that also adjusted for potential confounding factors. Analyses of the secondary outcomes any condom use by main partner were conducted in the subset of subjects reporting a main partner and any condom use by casual sex partners were conducted only in the subset reporting a casual partner. The secondary outcomes were analyzed using the same approach as that described for the primary outcome. To minimize the potential for collinearity, we assessed correlation between pairs of independent variables and verified that no pair of variables included in the same regression model was highly correlated (i.e.,  $r > 0.40$ ). Analyses were performed using SAS software (version 9.1; SAS Institute, Cary, NC).

## Results

### Sample Characteristics

Participants were aged 18–55 years (mean age 33.2 years) and predominantly male (75.8%). Half (50.6%) were unemployed; 6.2% had less than a high school education (Table 1). One-third of the sample (33.1%) was married, and 75.3% had a main sex partner. Nearly everyone (96.1%) identified as heterosexual; involvement with same sex partners was reported by 7.9% of participants.

### Condom Use, STI/HIV Diagnosis, and Risky Sex and Substance Use Behaviors

Condom use in the past 6 months was reported by 55.1% of the participants. Notably, although those screened into the study were required to have engaged in at least one unprotected sex episode in the past 6 months, 2.8% of survey participants reported no unprotected sex in the past 6 months during the baseline assessment. Among those reporting sex with main partners ( $n = 125$ ), 33.6% reported condom use with these partners, with only 5.6% reporting that it was consistent condom use. Similarly, among those reporting sex with casual partners ( $n = 107$ ), 50.5% reported condom use with these partners, with 13.1% reporting that it was consistent condom use.

Almost half the sample (42.9%) reported a history of STI diagnosis, and 14.6% of the sample was HIV-infected. The majority of the sample (69.1%) reported multiple sex partners in the past 6 months, with 26.4% of the sample reporting 4 or more sex partners in this timeframe. (Table 1) More than a quarter of the sample (27.0%) reported sex trade involvement, with 11.2% reporting selling of sex and 18.5% reporting purchase of sex.

Almost three-quarters of the sample (71.9%) reported alcohol use in the past 30 days; 64.0% reported at risk drinking in this same period. Past 6 months injection drug use was reported by 39.5% of the sample, with 77.1% of these IDUs reporting needle or works sharing in this same timeframe. These findings are consistent with subjects' clinical diagnoses, which indicate that 60.1% of this sample is alcohol-dependent, 31.5% heroin dependent, and 8.4% both alcohol and heroin dependent.

## Associations of HIV/STI, Risky Sex and Substance Use Behaviors with Condom Use

In models adjusted for age, gender, and marital status, participants reporting multiple sex partners ( $OR_{adj} = 4.2$ , 95% CI = 2.0–8.7) and sex trade involvement ( $OR_{adj} = 2.4$ , 95% CI = 1.1–5.1) had a higher odds of reporting any condom use in the past 6 months. (Table 2.) In the final regression model including relevant demographics and both multiple sex partners and sex trade involvement, only multiple sex partners remained significantly associated with condom use ( $OR_{adj} = 3.6$ , 95% CI = 1.7–7.9).

Secondary analyses conducted to assess variables associated with condom use by type of sex partner, main or casual revealed that among those with a main sex partner, having multiple sex partners was significantly associated with condom use with the main partner ( $OR_{adj} 2.5$ , 95% CI = 1.0–6.0,  $P = .04$ ). (Table 3.) Among those with a casual partner, the effect of having multiple sex partners could not be evaluated as only 3 of 107 (2.8%) subjects reported no multiple sex partners.

## Discussion

Despite very high HIV/STI risk in this sample—43% with an STI history and 15% HIV-infected, almost half of the participants from this study of in-treatment substance users reported no condom use. Such findings are not indicative of Russian narcology patients as a whole, as the sample excluded those sexually abstaining and those using condoms consistently in the past 6 months, but the findings do indicate that among those patients engaging unprotected sex, many are not using condoms at all. Findings from the current study support previous research from non-substance using Russian samples which indicate low condom use in this population (Bobrova et al. 2005; Vannappagari 2004; World Health Organization 2005), but do indicate greater condom use among substance users. Nonetheless, greater efforts remain needed to promote condom use in Russia, particularly among at risk populations such as those in substance use treatment.

Importantly, those participants with a history of HIV/STI diagnosis were no more likely to report condom use. Such findings may be a consequence of low HIV risk perceptions related to sexual behaviors, as they correspond to other Russian research indicating low HIV risk perceptions among STI clinic patients (Benotsch et al. 2004). Those reporting recent injection drug use, which for the majority involved sharing of needles, also were no more likely to use condoms. This finding was particularly striking given high rates of HIV among IDUs. A recent study from St. Petersburg, the site of this study, indicates that 30% of IDUs in the city are HIV-infected (Shaboltas et al. 2006); further, cross-national research has found higher HIV risk perceptions with regard to injection drug use and yet greater use of needle sharing among Russian compared to US IDUs (Ksobiech et al. 2005). Overall, these findings suggest that HIV risk among Russian substance users may be affecting injection drug use but not sexual behaviors. Greater focus on sexual risk and risk reduction among IDUs is likely needed to address the HIV epidemic in Russia, given recent findings from St. Petersburg IDUs that document higher rates of HIV among those reporting a greater number of partners as well as among females reporting sex trade involvement (Kozlov et al. 2006).

Condom use was found to be linked with other sexual practices in this study; specifically, multiple sex partners in the past year and sex trade involvement. These findings are consistent with those seen with US substance using samples (Bogart et al. 2005; Kwiatkowski et al. 1999; Shlay et al. 2004). Given previous evidence of condom use in Russia primarily being used for pregnancy rather than STI prevention (Bobrova et al. 2005; Vannappagari 2004), motivation for use in these contexts is unclear. Regardless, exploratory analyses further indicate that the association between multiple sex partners and condom use holds true for main partners.

Although, this association may also be the case for casual relationships, it could not be established in the current study due to too few participants reporting only one casual sex partner.

While the current findings contribute to our growing understanding of the HIV epidemic in Russia, this study has several limitations. The cross-sectional design reflecting a single point in time limits the ability to establish causality. Reliance on self-report for behavioral risk variables potentially results in social desirability and recall biases. Recall bias was minimized by using short timeframes for behavior assessment (i.e., past 1–6 months prior to hospitalization). Social desirability bias was mitigated by use of the ACASI technology to assess risk behavior; such a bias typically results in an underestimate rather than overestimate of risk behavior and STI prevalence (Newman et al. 2002).

## Conclusion and Implications

Among substance dependent patients in Russia, condom use is low and does not appear to be associated with some of the important risk factors for HIV infection. The fact that condom use behaviors are affected in the context of steady relationships when the substance-using individual has multiple other sex partners, suggests that some sexual risk reduction education is reaching this population and could be further reinforced with proper intervention. Further, this study demonstrates that narcology treatment settings are an important venue in which HIV intervention could occur. Overall, this study demonstrates that sexual risk among alcohol and drug dependent patients in Russia specifically is an important HIV prevention issue meriting research and clinical attention.

## Acknowledgements

We would like to thank the interventionists and research associates at the Russian narcology hospitals for their contributions to the study. These individuals received compensation from the NIH grant for their contributions. Grant support for this study came from the National Institute on Alcohol Abuse and Alcoholism (NIAAA), NIH: R21-AA014821 (HIV Prevention Partnership in Russian Alcohol Treatment) and K24-AA015674 (Impact of Alcohol Use on HIV Infection—In US and Russia).

## References

- Aral SO, St Lawrence JS, Dyatlov R, Kozlov A. Commercial sex work, drug use, and sexually transmitted infections in St. Petersburg, Russia. *Social Science and Medicine* 2005;60:2181–2190. [PubMed: 15748667]
- Benotsch EG, Somlai AM, Pinkerton SD, Kelly JA, Ostrovski D, Gore-Felton C, Kozlov AP. Drug use and sexual risk behaviours among female Russian IDUs who exchange sex for money or drugs. *International Journal of STD and AIDS* 2004;15:343–347. [PubMed: 15117506]
- Bobrova N, Sergeev O, Grechukhina T, Kapiga S. Social-cognitive predictors of consistent condom use among young people in Moscow. *Perspectives on Sexual and Reproductive Health* 2005;37:174–178. [PubMed: 16380362]
- Bogart LM, Kral AH, Scott A, Anderson R, Flynn N, Gilbert ML, Bluthenthal RN. Sexual risk among injection drug users recruited from syringe exchange programs in California. *Sexually Transmitted Diseases* 2005;32:27–34. [PubMed: 15614118]
- Dillon FR, Turner CW, Robbins MS, Szapocznik J. Concordance among biological, interview, and self-report measures of drug use among African American and Hispanic adolescents referred for drug abuse treatment. *Psychology of Addictive Behaviors* 2005;19:404–413. [PubMed: 16366812]
- Kalichman SC, Simbayi LC, Jooste S, Cain D. Frequency, quantity, and contextual use of alcohol among sexually transmitted infection clinic patients in Cape Town, South Africa. *American Journal of Drug and Alcohol Abuse* 2007;33:687–698. [PubMed: 17891661]
- Karapetyan AF, Sokolovsky YV, Araviyskaya ER, Zvartau EE, Ostrovsky DV, Hagan H. Syphilis among intravenous drug-using population: Epidemiological situation in St Petersburg, Russia. *International Journal of STD and AIDS* 2002;13:618–623. [PubMed: 12230926]

- Koslov AP, Shaboltas AV, Toussova OV, Verevokhin SV, Masse BR, Purdue T, Beauchamp H, Sheldon W, Miller WC, Heimer R, Ryder RW, Hoffman IF. HIV incidence and factors associated with HIV acquisition among injection drug users in St. Petersburg, Russia. *AIDS* 2006;20(6):901–906. [PubMed: 16549975]
- Krupitsky EM. Risk assessment battery: Validation of the instrument in Russia. *Uchenye Zapiski S.-Peterburgskogo Gosudarstvennogo Universiteta im. Pavlova. Proceedings of St. Petersburg Pavlov State Medical University* 2005;10(Suppl 2):46–55.
- Krupitsky EM, Zvartau E, Karandashova G, Horton NJ, Schoolwerth KR, Bryant K, Samet JH. The onset of HIV infection in the Leningrad region of Russia: a focus on drug and alcohol dependence. *HIV Medicine* 2004;5:30–33. [PubMed: 14731167]
- Ksobiech K, Somlai AM, Kelly JA, Gore-Felton C, Benotsch E, McAuliffe T, Hackl K, Ostrovski D, Kozlov AP. Demographic characteristics, treatment history, drug risk behaviors, and condom use attitudes for U.S. and Russian injection drug users: the need for targeted sexual risk behavior interventions. *AIDS and Behavior* 2005;9:111–120. [PubMed: 15812618]
- Kwiatkowski CF, Stober DR, Booth RE, Zhang Y. Predictors of increased condom use following HIV intervention with heterosexually active drug users. *Drug and Alcohol Dependence* 1999;54:57–62. [PubMed: 10101617]
- Markos AR. Alcohol and sexual behaviour. *International Journal of STD and AIDS* 2005;16:123–127. [PubMed: 15807939]
- Midanik LT, Hines AM, Barrett DC, Paul JP, Crosby GM, Stall RD. Self-reports of alcohol use, drug use and sexual behavior: Expanding the timeline follow-back technique. *Journal of Studies in Alcohol* 1998;59:681–689.
- Navaline HA, Snider EC, Petro CJ, Tobin D, Metzger D, Alterman AI, Woody GE. Preparations for AIDS vaccine trials. An automated version of the Risk Assessment Battery (RAB): Enhancing the assessment of risk behaviors. *AIDS Research and Human Retroviruses* 1994;10(Suppl 2):S281–S283. [PubMed: 7865319]
- Nemtsov AV. Estimates of total alcohol consumption in Russia, 1980–1994. *Drug and Alcohol Dependence* 2000;58:133–42. [PubMed: 10669064]
- Newman JC, Des Jarlais DC, Turner CF, Gribble J, Cooley P, Paone D. The differential effects of face-to-face and computer interview modes. *American Journal of Public Health* 2002;92:294–297. [PubMed: 11818309]
- NIAAA. Helping patients who drink too much: A clinician's guide. 2005. Updated 2005 Edition: Retrieved December 13 2007, from <http://pubs.niaaa.nih.gov/publications/Practitioner/CliniciansGuide2005/guide.pdf>
- Platt L, Rhodes T, Lowndes CM, Madden P, Sarang A, Mikhailova L, Renton A, Pevzner Y, Sullivan K, Khutorskoy M. Impact of gender and sex work on sexual and injecting risk behaviors and their association with HIV positivity among injecting drug users in an HIV epidemic in Togliatti City, Russian Federation. *Sexually Transmitted Diseases* 2005;32:605–612. [PubMed: 16205301]
- Raj A, Saitz R, Cheng DM, Winter M, Samet JH. Associations between alcohol, heroin, and cocaine use and high risk sexual behaviors among detoxification patients. *American Journal of Drug and Alcohol Abuse* 2007;33:169–178. [PubMed: 17366258]
- Rasch RF, Weisen CA, MacDonald B, Wechsberg WM, Perritt R, Dennis ML. Patterns of HIV risk and alcohol use among African-American crack abusers. *Drug and Alcohol Dependence* 2000;58:259–266. [PubMed: 10759036]
- Rhodes T, Judd A, Mikhailova L, Sarang A, Khutorskoy M, Platt L, Lowndes CM, Renton A. Injecting equipment sharing among injecting drug users in Togliatti City, Russian Federation: Maximizing the protective effects of syringe distribution. *Journal of the Acquired Immune Deficiency Syndrome* 2004;35:293–300.
- Shaboltas AV, Toussova OV, Hoffman IF, Heimer R, Verevokhin SV, Ryder RW, Khoshnood K, Purdue T, Masse BR, Koslov AP. HIV prevalence, sociodemographic, and behavioral correlates and recruitment methods among injection drug users in St. Petersburg, Russia. *Journal of the Acquired Immune Deficiency Syndrome* 2006;41(5):657–663.



- Shlay JC, McClung MW, Patnaik JL, Douglas JM Jr. Comparison of sexually transmitted disease prevalence by reported condom use: Errors among consistent condom users seen at an urban sexually transmitted disease clinic. *Sexually Transmitted Diseases* 2004;31:526–532. [PubMed: 15480113]
- Somlai AM, Kelly JA, Benotsch E, Gore-Felton C, Ostrovski D, McAuliffe T, Kozlov AP. Characteristics and predictors of HIV risk behaviors among injection-drug-using men and women in St. Petersburg, Russia. *AIDS Education and Prevention* 2002;14:295–305. [PubMed: 12212716]
- Takacs J, Amirkhanian YA, Kelly JA, Kirsanova AV, Khoursine RA, Mocsonaki L. Condoms are reliable but I am not<sup>2</sup>: A qualitative analysis of AIDS-related beliefs and attitudes of young heterosexual adults in Budapest, Hungary, and St. Petersburg, Russia. *Central European Journal of Public Health* 2006;14:59–66. [PubMed: 16830606]
- UNAIDS. 2006 Report on the Global AIDS Epidemic. 2006a [Retrieved December 13 2007]. from [http://www.unaids.org/en/HIV\\_data/2006GlobalReport/default.asp](http://www.unaids.org/en/HIV_data/2006GlobalReport/default.asp)
- UNAIDS. Country report of the Russian Federation on the Implications of the Declaration of Commitment on HIV/AIDS Adopted at the 26th Special Session of the United Nations General Assembly, June 2001. Reporting period January–December 2005. 2006b [Retrieved December 13 2007]. [http://data.unaids.org/pub/Report/2006/2006\\_country\\_progress\\_report\\_russianfederation\\_en.pdf](http://data.unaids.org/pub/Report/2006/2006_country_progress_report_russianfederation_en.pdf)
- UNAIDS. AIDS epidemic update. 2007 [Retrieved December 13 2007]. from [http://data.unaids.org/pub/EPISlides/2007/2007\\_epiupdate\\_en.pdf](http://data.unaids.org/pub/EPISlides/2007/2007_epiupdate_en.pdf)
- Vannappagari, V. Monitoring sexual behavior in the Russian Federation: the Russia longitudinal monitoring survey 1992–2003. Report submitted to the US Agency for International Development. 2004 [Retrieved August 31 2007]. from [http://www.cpc.unc.edu/projects/rfms/papers/sex\\_03.pdf](http://www.cpc.unc.edu/projects/rfms/papers/sex_03.pdf)
- Vinson DC, Reidinger C, Wilcosky T. Factors affecting the validity of a timeline follow-back interview. *Journal of Studies in Alcohol* 2003;64:733–740.
- Weinhardt LS, Carey MP. Does alcohol lead to sexual risk behavior? Findings from event-level research. *Annual Review of Sex Research* 2000;11:125–157.
- Weinhardt LS, Carey MP, Maisto SA, Carey KB, Cohen MM, Wickramasinghe SM. Reliability of the timeline follow-back sexual behavior interview. *Annals of Behavioral Medicine* 1998;20:25–30. [PubMed: 9755348]
- World Health Organization (WHO). Global Status Report on Alcohol 2004. 2004 [Retrieved April 13 2006]. from [http://www.who.int/substance\\_abuse/publications/alcohol/en/](http://www.who.int/substance_abuse/publications/alcohol/en/)
- World Health Organization (WHO). Alcohol use and sexual risk behaviors: A cross-cultural study of eight countries. 2005 [Retrieved April 13 2006]. from [http://www.who.int/substance\\_abuse/publications/alcohol\\_sexual\\_risk\\_crosscultural.pdf](http://www.who.int/substance_abuse/publications/alcohol_sexual_risk_crosscultural.pdf)

**Table 1**  
Demographics, HIV/STI history, risky sexual and substance use behaviors among  
narcology hospital patients in St. Petersburg, Russia ( $N = 178$ )

Characteristic	% For total sample	% Reporting any condom use by characteristic	Chi-square (df), <i>P</i> -value
<i>Sex</i>			
Male	75.8	54.1	.22 (1), .64
Female	24.2	58.1	
<i>Employment status</i>			
Employed	49.4	46.6	5.04 (1), .02
Unemployed	50.6	63.3	
<i>Level of education</i>			
<High school education	6.2	54.6	.001 (1), .97
≥High school education	93.8	55.1	
<i>Marital status</i>			
Married	33.1	49.2	1.24 (1), .26
Single/divorced/widowed	66.9	58.0	
<i>Sexual orientation</i>			
Heterosexual/straight	96.1	54.4	.79 (1), .37
Gay/lesbian/bisexual	3.9	71.4	
<i>HIV/STI history</i>			
<i>STI history</i>			
Yes	42.7	51.3	.75 (1), .39
No	57.3	57.8	
<i>HIV-serostatus</i>			
Positive	14.6	61.5	.52 (1), .47
Negative	85.4	54.0	
<i>Risky sexual behavior</i>			
<i>Multiple sex partners</i>			
Yes	69.1	65.0	16.04 (1), <.0001
No	30.9	32.7	
<i>Sex trade</i>			
Yes	27.0	72.9	8.47 (1), .004
No	73.0	48.5	
<i>Substance use</i>			
<i>At risk alcohol use</i>			
Yes	64.0	49.0	3.13 (1), .08
No	36.0	62.2	
<i>Injection drug use</i>			
Yes	39.5	64.3	3.73 (1), .05
No	60.5	49.5	

**Table 2**

Adjusted<sup>a</sup> logistic regression analyses to assess the associations between risky sex and substance use behaviors and STI/HIV diagnosis with any condom use in the past 6 months among narcology hospital patients in St. Petersburg, Russia ( $N = 178$ )

	<b>OR<sub>adj</sub> (95% CI)</b>
Multiple sex partners	4.2 (2.0–8.7)
Yes	
No	
Sex trade	2.4 (1.1–5.1)
Yes	
No	
STI history	0.6 (0.3–1.1)
Yes	
No	
HIV-infected	0.9 (0.4–2.2)
Yes	
No	
At risk alcohol use	0.7 (0.3–1.7)
Yes	
No	
IDU history	1.0 (0.5–2.3)
Yes	
No	

<sup>a</sup> Adjusted analyses control for age, gender and marital status

**Table 3**

Adjusted<sup>a</sup> logistic regression analyses to assess the associations between risky sex and substance use behaviors and STI/HIV diagnosis with main sex partner condom use ( $n = 125$ ) and with casual sex partner condom use ( $n = 107$ ) in the past 3 months, among narcology hospital patients in St. Petersburg, Russia

	Any condom use with main partner (%)	OR <sub>adj</sub> (95% CI)	Any condom use with casual partner (%)	OR <sub>adj</sub> (95% CI)
Multiple sex partners		2.5 (1.0–6.0)		N/A <sup>b</sup>
Yes	41.0		51.9	
No	21.3		0	
Sex trade		1.2 (0.5–3.1)		1.1 (0.5–2.6)
Yes	42.9		55.8	
No	30.9		46.9	
STI history		1.7 (0.8–3.9)		0.5 (0.2–1.1)
Yes	42.9		45.8	
No	26.1		54.2	
HIV-infected		1.0 (0.3–3.2)		0.4 (0.1–1.5)
Yes	42.9		46.7	
No	32.4		51.1	
At risk alcohol use		0.4 (0.1–1.2)		1.6 (0.5–4.6)
Yes	22.0		44.4	
No	43.9		59.1	
IDU history		1.3 (0.5–3.2)		0.7 (0.3–2.0)
Yes	43.1		57.5	
No	27.4		47.0	

<sup>a</sup>Adjusted analyses control for age, gender and marital status

<sup>b</sup>Analysis not conducted, as only 2.8% (3/107) of those reporting sex with casual sex partners in the past 3 months reported no multiple sex partners