

Predictors of HIV risk behavior among Russian men who have sex with men: an emerging epidemic

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Background: Russia is experiencing one of the sharpest increases in HIV incidence in the world. Almost no research has examined patterns of risk behavior among Russian men who have sex with men (MSM).

Design and methods: A total of 434 MSM were surveyed in all of St. Petersburg's gay-identified clubs during June 2000. Men completed questionnaires about their sexual practices, AIDS risk knowledge, safer sex attitudes, behavior change intentions, perceived safer sex norms, and fatalism.

Results: Most MSM were bisexual; 79% had female partners in their lives and 37% had female partners in the previous 3 months. Sexually transmitted disease treatment was reported by 32% of the men, 23% had sold sex to gain money, and knowledge about critical HIV risk-reduction steps was low. Of all men surveyed, 38% had unprotected anal sex in the previous 3 months, consistent condom use was reported by only 30% of men, and most recent anal intercourse occasions 37% of participants'. Regression analyses showed that high-risk behavior was predicted by poor safer sex attitudes, weak behavior change intentions, low knowledge about AIDS risk, perceived peer norms that did not support safer sex, and having a boyfriend.

Conclusion: To avert a widespread epidemic, HIV prevention interventions for Russian MSM are critically needed. Factors predicting risk were consistent with those found among MSM in other countries early in the HIV epidemic. However, unique cultural factors, including frequent bisexual behavior, the 'newness' of openly gay communities in Russia and lack of community experience in dealing with AIDS, require HIV prevention program tailoring.

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Introduction

Since 1996, the number of new HIV infections in Russia has doubled annually and 70 000 HIV cases have been documented [1,2]. This underestimates the

epidemic's true scope. Officially-recorded HIV cases probably reflect under 15% of the actual total [3]. HIV incidence is rising faster now in Russia and nearby countries than anywhere else in the world [4,5].

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The background against which HIV is spreading in Russia involves complex social, economic, and cultural factors. The Soviet system imposed tight authoritarian controls and limited personal freedoms. The collapse of the Soviet system, greater openness, increased western contact and values, and the emergence of democracy brought about advances in personal freedoms for the Russian people and a liberalization of cultural and social norms. However, this was followed by economic turmoil, unemployment, and limited public health resources [6]. A visible gay community in Russia emerged at the same time as HIV first occurred in the country.

Russia has seen an explosion in rates of sexually-transmitted diseases (STDs). Syphilis rates in Russia increased from 4.2 per 100 000 population in 1987 to 277 per 100 000 in 1997 [7], among the highest in any developed country. Sharp increases have also occurred in the rates of gonorrhoea, chlamydia, and trichomonas [8,9]. Among young people, 90- to 99-fold increases in STD rates have occurred since the late 1980s [7-9]. Drug use is prevalent among Russian youth [10,11].

The gay communities in Russia are young, sexually active, and lack the experience of their western counterparts of growing up in an era of AIDS awareness. Few HIV/AIDS prevention campaigns have been targeted toward Russian men who have sex with men (MSM). Patterns of same-sex activity among men who do not self-identify as gay, selling sex, large numbers of casual partners, and alcohol or other drug use are common [12,13]. We are aware of no prior studies of HIV risk behavior determinants among MSM in Russia.

Previous research has examined factors that influence levels of HIV sexual risk behavior among MSM in western countries [14-17]. We recruited a population-based sample from community venues where Russian MSM were known to congregate and could be accessed. In addition to determining levels of high-risk behavior, we examined factors associated with sexual risk behavior.

Methods

Settings and participants

The survey was conducted in St. Petersburg during June, 2000 in all five of the gay clubs within the city. A 10-event sampling frame was created by determining the peak attendance nights for the clubs and conducting anonymous surveys on two peak nights in each club. Men entering the clubs were asked to participate in the study by research field teams, reinforced by posters,

announcements, and small incentive gifts. Over 80% of men approached completed written questionnaires.

Demographic characteristics

Participants indicated their age, educational level, and type of employment.

Sexual risk behavior

Participants reported their number of lifetime male and female partners, their current relationship status, and sexual activity during the previous 3 months including number of partners, number of times, and number of men with whom they had anal intercourse. Participants reporting anal intercourse during the previous 3 months indicated the percentage of times when condoms were used, and reported whether a condom was used at the most recent anal intercourse.

AIDS risk behavior knowledge

Participants responded to seven statements that assessed practical knowledge about HIV transmission risk behavior and risk reduction steps.

STD treatment history and HIV sero-status knowledge

Participants were asked how often they had been treated for any STD, whether they ever had an HIV test, and its result.

Risk-reduction behavior change intentions

Using three-point response scales, participants indicated their level of agreement with five statements describing the strength of safer sex behavior intentions (Sample: 'I will tell my next sexual partner to use a condom').

Condom and safer sex attitudes

A seven-item scale measured condom and safer sex attitudes. Respondents used three-point scale options to indicate agreement with attitude statements such as 'using condoms can be very pleasurable'.

Condom and safer sex perceived norms

Participants responded to five statements about the extent to which safer sex practices were a well-accepted norm (Sample: 'Safer sex is accepted by my friends and sexual partners').

Fatalism

Five statements measured fatalistic beliefs toward the future (Sample: 'I will have happy and good love relationships in the future').

Commercial sex bought or sold

Respondents were asked whether they had given someone money or valuables to gain sex, or ever were paid by someone for sex.

Results

Participant characteristics

The 434 men (mean age = 25.9 years) reporting same-sex partners constitutes the MSM sample: 37% attended school, 40% had completed their university education, and 80% worked. Most participants worked in culture and science, public service, and business and administration. Approximately 70% of respondents had an HIV test, and 1.4% reported a positive result. Participants knew a median of no persons with HIV/AIDS.

Descriptive findings

Sexual risk behavior levels

Study participants had a lifetime mean of 61.9 male (median = 10) and 8.9 female partners (median = 3). Approximately 8% of respondents reported one male partner, 54.4% had under 19, and 37.1% reported 20 or more partners. Of all respondents, 79% had past female sexual partners; 54% had up to 19, and 12.5% over 19 lifetime female partners. During the previous 3 months 33% of participants had one and 53.2% had multiple male partners (mean = 3.3). Furthermore, 37% of MSM also had sex with female partners and 20% had multiple female partners.

Approximately 34% of respondents reported being in a relationship with another man. The mean length of these partnerships was 21.4 months (median = 10). However, 33% of men in primary relationships had outside male partners and 45% had extra-relationship female partners in the previous 3 months.

Approximately 81% of respondents reported that they had anal sex with men. These participants had an average 2.5 male anal sex partners in previous 3 months (median = 1) and a mean of 7.9 anal intercourse occasions (median = 3). Of respondents who had anal sex in the previous 3 months, 21% never used condoms, 11% used condoms from 10 to 30% of the time, 26% used condoms from 40 to 90% of the time, and 43% always used condoms. However, 37% of participants did not use a condom at their last anal intercourse.

STD treatment history was reported by 31.7% of participants, with 14% reporting multiple episodes. Relatively large proportions of MSM in the sample reported patterns of commercial sex: 21% paid someone to gain sex and 23% gave sex in exchange for money or valuables.

HIV risk behavior knowledge

Participants correctly answered only 63.5% of the risk knowledge questions. More than 51% of participants believed that condoms can be lubricated with oils, 49% did not know it is important to follow safer sex guidelines with partners who report being HIV-nega-

tive, 46% believed that washing carefully after sex protects against HIV, and 33% did not know that unprotected anal sex carries greater risk than oral sex. More than 31% of participants believed that one can tell HIV status from appearance, over 28% did not know that mutual masturbation is very safe, and almost 15% of respondents did not know that anal intercourse without a condom creates great HIV risk.

Univariate comparisons of high- and low-risk men

Univariate analyses first compared men who did or did not engage in any unprotected anal intercourse in the previous 3 months, with the group at greatest risk defined as respondents who reported anal intercourse and also reported less than 100% condom use. High-risk men scored lower in AIDS risk behavior knowledge ($P = 0.03$); had weaker risk-reduction behavior intentions ($P < 0.001$); perceived safer sex as a less accepted social norm ($P = 0.006$); and held more negative attitudes toward condoms and safer sex ($P = 0.001$). Comparing men who did or did not use condom during their last anal intercourse, AIDS risk behavior knowledge, behavioral intentions, safer sex norms and safer sex attitudes differentiated groups ($P = 0.006$ or lower).

Multivariate predictions of risk behavior

Table 1 shows results of multivariate logistic regression predicting whether or not participants had engaged in any unprotected anal intercourse in the past three months. Increased condom and safer sex attitudes and behavior change intentions were independent risk predictors. The model correctly predicted 65% of MSM with respect to having engaged in any unprotected anal intercourse in the previous 3 months ($P = 0.0002$).

A logistic regression model predicted condom use during last anal intercourse. Increased condom and safer sex attitudes and risk-reduction behavior change intentions independently predicted not using a condom; increased perceived safer sex social norms marginally predicted using condoms at last anal intercourse. Being in a sexual boyfriend relationship predicted not using a condom. The model correctly predicted 74% of MSM with respect to condom use during last anal intercourse ($P = 0.0001$).

Finally, a multiple linear regression analysis predicted the percentage of time when condoms were used during anal sex in the previous 3 months (Table 2). Increased HIV risk knowledge, safer sex perceived social norms, condom and safer sex attitudes, behavioral change intentions, and not being in a boyfriend relationship each had independent associations with greater condom use.

Table 1. Logistic regression models predicting presence or absence of high-risk behavior.

| Variables | Logistic regression model to predict any unprotected anal intercourse in previous 3 months ^a | | | Logistic regression model to predict whether a condom was not used during the last anal intercourse ^b | | | | |
|----------------------------------------------|---------------------------------------------------------------------------------------------------------|--------|-----------------|------------------------------------------------------------------------------------------------------------------|------------------|--------|-----------------|--------------|
| | Coefficient (SE) | Exp(B) | Wald's χ^2 | Significance | Coefficient (SE) | Exp(B) | Wald's χ^2 | Significance |
| Demographics | | | | | | | | |
| Age (years) | 0.003 (0.019) | 1.00 | 0.03 | NS | 0.022 (0.023) | 1.02 | 0.93 | NS |
| Study now (1 = yes, 2 = no) | 0.254 (0.275) | 1.295 | 0.85 | NS | -0.219 (0.344) | 0.80 | 0.41 | NS |
| Work now (1 = yes, 2 = no) | -0.169 (0.313) | 0.84 | 0.29 | NS | -0.073 (0.391) | 0.93 | 0.03 | NS |
| Education level category (lowest to highest) | -0.020 (0.120) | 0.98 | 0.03 | NS | 0.196 (0.150) | 1.22 | 1.72 | NS |
| Scales | | | | | | | | |
| Knowledge test | -0.115 (0.085) | 0.89 | 1.82 | NS | -0.175 (0.106) | 0.84 | 2.74 | 0.10 |
| Fatalism scale | -0.025 (0.063) | 0.98 | 0.15 | NS | -0.005 (0.078) | 1.00 | 0.00 | NS |
| Safer sex norms scale | 0.012 (0.055) | 1.01 | 0.04 | NS | -0.118 (0.066) | 0.89 | 3.18 | 0.07 |
| Condom use attitudes scale | -0.114 (0.053) | 0.89 | 4.61 | 0.03 | -0.152 (0.065) | 0.86 | 5.43 | 0.02 |
| Intentions scale | -0.246 (0.070) | 0.78 | 12.36 | 0.0004 | -0.326 (0.088) | 0.72 | 13.83 | 0.0002 |
| Boyfriend relationship: (1 = yes, 2 = no) | -0.200 (0.252) | 0.82 | 0.635 | NS | -0.752 (0.309) | 0.47 | 5.90 | 0.02 |
| No. of HIV+ persons known | -0.002 (0.007) | 1.00 | 0.10 | NS | 0.054 (0.053) | 1.06 | 1.04 | NS |

^aModel significance ($\chi^2 = 36.0$; d.f. = 11; $P = 0.0002$); model goodness-of-fit (Hosmer-Lemeshow $\chi^2 = 10.4$; d.f. = 8; $P = 0.24$); number of cases used in the analysis = 336;

^bModel significance ($\chi^2 = 61.1$; d.f. = 11; $P = 0.0001$); model goodness-of-fit (Hosmer-Lemeshow $\chi^2 = 4.90$; d.f. = 8; $P = 0.77$); number of cases used in the analysis = 267.

Discussion

Organized, visible, and legal gay community venues have only appeared in Russia during the past decade, and have had little experience in dealing with HIV/AIDS. Most participants knew no one living with HIV/AIDS. AIDS is probably seen by many Russian gay or bisexual men as a hypothetical problem rather than personal and local threat.

High-risk behavior patterns were common in this community sample. In the previous 3 months alone, 64% of men had engaged in anal intercourse and only 43% of them reported consistent condom use. Furthermore, 37% of men reported that their most recent occurrences of anal intercourse were unprotected. Men averaged more than three male partners in the previous 3 months, 20% had over five partners in this same time period, and almost one-quarter reported that they had sold sex to get money or valuables. A very large number of men were bisexual in behavior. The high prevalence of bisexuality is a pattern that must be taken into account in HIV prevention interventions.

Negative attitudes toward condoms and safer sex, weak intentions to practice safer sex, and having a boyfriend were independent predictors of unsafe sex. The same variables, but accompanied by low-risk behavior knowledge level and perceptions that peer group social norms did not support safer sex, predicted levels of condom use. Lower rates of condom use during sex with a partner considered to be one's boyfriend may reflect the belief that safer sex is less important, but the brevity and non-exclusivity of most boyfriend relationships indicates that risk levels are high. Only a small percentage of men said they were HIV-positive. In the context of increasing HIV incidence in the country, self-reports based on testing at some past point undoubtedly underestimate current HIV prevalence, especially when sexual risk behavior levels remain high.

Constructs of behavioral science theory predicted high-risk behavior [18–21]. However, prevention programs in Russia will take place in a cultural and social context which is very different from that found in many western countries. The disease is threatening a gay community which was hidden earlier and which still has a few organizational structures. The country's economic upheavals, widespread unemployment, and problems of alcohol and drug abuse are contextual factors that contribute to HIV risk in all populations, including MSM. Finally, scepticism of official campaigns is a legacy remaining from the Soviet era. Comprehensive models for community prevention programs in Russia are needed to curtail the HIV epidemic [22–24].

Table 2. Multiple linear regression model to predict percentage of the time that a condom was not used during anal intercourse in the previous 3 months.

| Variables | Coefficient ^a (SE) | Standardized coefficient | F-statistic | Significance |
|----------------------------------------------|-------------------------------|--------------------------|-------------|--------------|
| Demographics | | | | |
| Age (years) | -0.29 (0.37) | -0.052 | 0.59 | NS |
| Study now (1 = yes, 2 = no) | 2.53 (5.57) | 0.028 | 0.21 | NS |
| Work now (1 = yes, 2 = no) | 2.26 (6.32) | 0.022 | 0.13 | NS |
| Education level category (lowest to highest) | -0.50 (2.40) | -0.014 | 0.04 | NS |
| Scales | | | | |
| Knowledge test | 3.90 (1.67) | 0.138 | 5.44 | 0.02 |
| Fatalism scale | 0.28 (1.24) | 0.013 | 0.05 | NS |
| Safer sex norms scale | 2.47 (1.09) | 0.144 | 5.12 | 0.03 |
| Condom use attitudes scale | 4.47 (1.07) | 0.288 | 17.6 | 0.0001 |
| Intentions scale | 4.08 (1.40) | 0.188 | 8.51 | 0.004 |
| Boyfriend relationship: (1 = yes, 2 = no) | 12.55 (5.05) | 0.143 | 6.18 | 0.02 |
| No. of HIV+ persons known | -0.13 (0.97) | -0.008 | 0.02 | NS |

^aModel significance (F -statistic = 8.47; d.f. = 11 and 222; $P = 0.0001$); model $R^2 = 0.30$; variability predicted = 30%. Residual standard error = 35.7; number of cases in analysis = 234.

This research has certain limitations. All participants were recruited in gay-identified community venues. The same patterns might not be found among other MSM. The study relied on self-report methods that have been shown to be valid in earlier research [25,26]. However, we cannot rule out the possibility of self-report bias.

The risk situation of MSM in Russia now is ominously similar to the circumstances that were present in gay communities of large cities in western countries in the early 1980s. However, there is also a window of opportunity for HIV prevention programs to avert large numbers of HIV infections. Without these steps, the HIV epidemic is likely to spread very quickly among MSM in Russia.

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