

Marked ethnic differences in HIV prevalence and risk behaviors among injection drug users in Dushanbe, Tajikistan, 2004

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Abstract

Objective: To examine differences by ethnicity of HIV prevalence and correlates among injection drug users (IDUs) in Dushanbe, Tajikistan.

Methods: The researchers enrolled 489 active adult IDUs in a cross-sectional risk factor study of HIV infection. Participants were provided HIV pre- and posttest counseling and risk reduction counseling and answered an interviewer-administered questionnaire. HIV-1 status was determined with rapid tests and confirmed with ELISA.

Results: Participants included four ethnicities: 204 Tajiks (49.1%), 145 Russians (29.7%), 58 Uzbeks (11.9%), and 46 participants of other nationalities (9.4%). Overall prevalence of HIV-1 infection was 12% and varied significantly by ethnicity: it was highest among ethnic Tajiks, at 19.2%; lowest among Russians and Uzbeks, at 3.4%; and 13% among other nationalities. Ethnic groups differed significantly in years injecting, receiving a needle from a needle exchange program (NEP), injecting in groups, having undergone drug treatment, reported condom use, and arrest history. Among Tajiks, HIV infection was significantly associated with daily injecting (OR 2.16); reporting that narcotics were very easy to obtain (OR 2.46); having undergone drug treatment (OR 2.75), and injecting “alone” (OR 3.12).

Conclusions: Ethnic differences were strongly associated with HIV prevalence and risk behaviors in this multiethnic study, and prevention efforts might need to be targeted by ethnicity.

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1. Introduction

Tajikistan is the poorest country of the former Soviet Union, with 60% of the population of 7 million living in poverty and per capita gross domestic product hovering around US\$ 178 (UNDP, 2000). The narcotics control literature suggests that up to 60% of the heroin and opium leaving Afghanistan is trafficked through Central Asia, with a substantial portion moving north from Afghan production zones into Tajikistan (Lubin et al., 2002). In the first 8 months of 2003, 4.4 metric tons of heroin were seized in Tajikistan, an amount that is estimated to be less than one-tenth of the total amount entering the country, and experts claim that between 30% and 50% of all economic activity in the country is connected with narcotics trafficking (Parfitt, 2003; Parshin, 2001). It has been shown in many other

settings that trafficking of heroin is the first in a series of epidemics that proceeds through heroin use, heroin injection, and then bloodborne pathogens, including HIV and HCV (Beyrer, 2002). Although the actual number of injection drug users (IDUs) in Tajikistan is unknown, estimates range from a low of 43 000 to more than 135 000 (Aceijas et al., 2004; Ghys et al., 2003).

A sharp rise in HIV has been documented in other countries of Central Asia, with 80–97% of infections related to injection drug use (Ghys et al., 2003). The United Nations Office on Drugs and Crime analyzed HIV surveillance data from Central Asian countries in 2004 and reported that, in Uzbekistan, Kazakhstan, Kyrgyzstan and Tajikistan combined, IDU transmission accounted for 88% of overall HIV infections by 2001 (UNODC, 2003). Even using the questionable case-finding system that remains from Soviet days, official estimates of HIV

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prevalence in Central Asia increased 62-fold from 88 in 1995 to 5458 in 2002 (UNAIDS/WHO, 2002).

The population of Tajikistan comprises several different nationalities, including the majority ethnic Tajiks (67%), Uzbeks (23%), Russians (3.5%), and other nationalities (Bureau of European and Eurasian Affairs, 2004). Since the dissolution of the Soviet Union in 1991, more than half of the ethnic Russians have left Tajikistan. Not counted in official census numbers are several thousand Afghan refugees, who fled fighting in Northern Afghanistan in 2000 and 2001, and who reside in Dushanbe, the country's capital city. Ethnic differences in drug-use practices and risks in ethnically diverse contexts have been reported in other Asian settings, including Thailand and China, and might be of importance in Tajikistan (Beyrer et al., 2000).

To date, estimates of HIV infection rates and risk behaviors have been little studied in the emerging epidemic in Tajikistan. Epidemiologic studies are an urgent priority for understanding HIV transmission risks in this multiethnic population and for identifying culturally appropriate prevention targets and strategies. We investigated HIV prevalence and risk behaviors among IDUs in Dushanbe, the capital city of Tajikistan, in 2004.

2. Methods

2.1. Recruitment

In this community-based study, participants were adults aged 17 and older, men and women, residents of Dushanbe, active IDUs, defined as reporting injection drug use within the previous month, Russian and/or Tajik speakers, and able to give informed consent. Five pairs of trained outreach workers who had experience working with local needle exchange programs (NEPs) recruited participants from the community. A 5-day course for study staff was conducted in Moscow by a nongovernmental organization, AIDS Infoshare, and Johns Hopkins University faculty. The course included pre- and post-HIV test counseling, research ethics, interviewing skills, informed consent procedures, outreach and recruitment strategies, and data management. Participants were seen at an urban polyclinic with a large and diverse patient population to minimize the risk of participant identification as IDUs. Upon arrival at the clinic, participants were taken through the informed-consent process and then underwent the interviewer-administered survey. The survey was followed by a session of HIV pretest counseling; blood was drawn and tested for HIV and syphilis while participants were provided additional HIV prevention materials and a light snack. Test results were given in a post-test counseling session, and treatment for syphilis was provided, if necessary. Only 60 people in the sample reported ever being tested for HIV, with one person reporting a positive result. Testing is not performed routinely at drug treatment centers, so it is likely that these people had sought testing on their own.

Participants were given the somoni equivalent of US\$ 10 to compensate them for their participation in the study. Ethical approval to conduct this study was granted by the Committee on Human Research at the Johns Hopkins Bloomberg School of Public Health and by the Institutional Review Board of the Ministry of Health of Tajikistan, which holds a Federalwide Assurance from the U.S. Office of Human Research Protection (FWA00005370).

2.2. Data collection

An interviewer-administered instrument, which lasted 30 to 45 minutes, was used to collect survey data. Interviews were conducted in Tajik or Russian by trained interviewers. The instrument was developed from instruments used among IDUs in other settings, using data from formative qualitative interviews conducted among IDUs in Dushanbe (data not presented here), and adapted after pretesting among 25 IDUs. Domains included demographics, drug-using and needle-sharing behaviors, drug treatment history, sexual risk behaviors, general health status, and knowledge of HIV and hepatitis C. The recall period for drug use and sexual risk behaviors was the past 6 months; participants also were asked about lifetime history of these behaviors.

2.3. HIV antibody testing

Whole blood specimens were obtained with finger stick using a specimen collection loop and were tested using the OraQuick Rapid HIV-1 Antibody Test (Abbott Laboratories, Abbott Park, IL, USA). OraQuick has demonstrated sensitivity of 99.6% and specificity of 100% in other studies (CDC, 2003). Specimens that tested positive were confirmed by a Russian-manufactured ELISA, CombiBest AntiHIV-1+2 (VektorBest Ltd., Novosibirsk, Russia), at the Federal Virology Laboratory of the Tajik Scientific and Research Institute of Prevention Medicine. In addition, 20 specimens were validated for HIV positivity using RNA-based assays at the Henry M. Jackson Foundation laboratory in Rockville, MD, USA.

2.4. Statistical analysis

Participants were stratified by ethnicity as Tajik, Russian, Uzbek, or other, and demographic characteristics and reported risk factors were reported by percentages. Chi-square tests were then used to ascertain whether the demographic characteristics and reported risk behaviors in the sample differed by ethnicity.

Logistic regression was conducted to examine correlates of HIV prevalence overall and by ethnicity to investigate subgroup differences that emerged during examination of the data. Univariate analysis of HIV prevalence by demographic characteristics and risk factors was performed within each stratum, using a two-sided Fisher's exact test of significance. Multivariate logistic analysis was used in each stratum to determine odds ratios for risk behaviors, while controlling for age and gender.

Table 1
Univariate analysis of demographic and HIV risk factors by ethnicity of IDUs in Dushanbe, Tajikistan
(*n* = 489)^a

Variable	Total (<i>n</i> = 489)	Tajik (<i>n</i> = 240)	Russian (<i>n</i> = 145)	Uzbek (<i>n</i> = 58)	Other (<i>n</i> = 46)	<i>p</i> -value
Gender						
Male	414 (84.7)	218 (90.8)	105 (72.4)	54 (93.1)	37 (80.4)	
Female	75 (15.3)	22 (9.2)	40 (27.6)	4 (6.9)	9 (19.6)	<0.001
Age						
<25	109 (22.5)	48 (20.2)	47 (32.9)	8 (13.8)	6 (13.1)	
25–34	184 (37.9)	100 (42.2)	42 (29.4)	24 (41.4)	18 (39.1)	
>34	191 (39.6)	89 (37.6)	54 (37.7)	26 (44.8)	22 (47.8)	0.010
Employed						
No	391 (80.0)	195 (81.3)	115 (79.3)	45 (77.6)	36 (78.3)	
Yes	98 (20.0)	45 (18.7)	30 (20.7)	13 (22.4)	10 (21.7)	0.902
Education						
≤10 years (secondary)	315 (64.2)	159 (66.3)	96 (66.2)	35 (60.3)	25 (54.4)	
Post secondary	174 (35.8)	81 (33.7)	49 (33.8)	23 (39.7)	21 (45.6)	0.390
Number of years since initiation of injection						
≤3	184 (39.0)	96 (41.0)	65 (46.8)	15 (27.8)	8 (17.8)	
>3	288 (61.0)	138 (59.0)	74 (52.2)	39 (72.2)	37 (82.2)	0.002
Ease of obtaining narcotics						
Somewhat/very hard	307 (64.0)	149 (62.9)	84 (59.2)	43 (75.4)	31 (68.9)	
Very easy	174 (36.0)	88 (37.1)	58 (40.8)	14 (24.6)	14 (31.1)	0.153
Reported frequency of using used needle in past 6 months						
Never	356 (74.6)	167 (71.7)	109 (76.2)	46 (79.3)	34 (77.3)	
Sometimes	122 (25.4)	66 (28.3)	34 (23.8)	12 (20.7)	10 (22.7)	0.555
Reported frequency of sterile/new needle use in past 6 months						
Always	310 (64.5)	147 (62.0)	94 (67.1)	38 (65.5)	31 (68.9)	
Not always	170 (35.5)	90 (38.0)	46 (32.9)	20 (34.5)	14 (31.1)	0.690
Ever received a needle from an NEP						
Yes	194 (40.0)	73 (30.7)	77 (53.5)	23 (40.3)	21 (45.6)	
No	291 (60.0)	165 (69.3)	67 (46.5)	34 (59.7)	25 (54.4)	0.001
Frequency of injection in past 6 months						
Less than every day	295 (60.1)	135 (56.7)	95 (66.0)	33 (56.9)	32 (69.6)	
Every day	191 (39.1)	103 (43.3)	49 (34.0)	25 (43.1)	14 (30.4)	0.377
Use in groups or alone in past 6 months						
Alone	265 (54.6)	131 (55.3)	67 (46.5)	40 (69.0)	27 (58.7)	
Groups	220 (45.4)	106 (44.7)	77 (53.5)	18 (31.0)	19 (41.3)	0.030
Ever gone through drug treatment						
No	303 (62.1)	127 (52.9)	110 (75.9)	30 (51.7)	36 (78.3)	
Yes	186 (37.9)	113 (47.1)	35 (24.1)	28 (48.3)	10 (21.7)	<0.001
Ever arrested						
No	264 (55.5)	149 (64.5)	73 (51.1)	27 (46.6)	15 (34.1)	
Yes	212 (45.5)	82 (35.5)	70 (48.9)	31 (53.4)	29 (65.9)	<0.001
Reported condom use with regular partners (of opposite sex) in past 6 months						
Never	259 (75.3)	137 (88.5)	69 (66.4)	33 (82.5)	20 (64.5)	
Sometimes	84 (24.7)	31 (18.5)	35 (33.6)	7 (17.5)	11 (35.5)	0.011

^a Numbers do not always total 489 because of missing data.

A multiple logistic regression model for Tajiks only was constructed using a stepwise selection method with an upper *p*-value limit of 0.2 to select variables for inclusion. STATA SE (Version 8) software was used for data analysis.

3. Results

A total of 489 IDUs participated in the study; 59 were HIV-positive, an overall prevalence of 12.0%. Participants were from four major ethnic groups, including 204 Tajiks (49.1%), 145 Russians (29.7%), 58 Uzbeks (11.9%), and 46 of other nationalities (9.4%). The median age in our sample was 31 years (interquartile range 26–39 years). The majority of participants (85%) were male, although ages and gender proportions varied significantly by ethnic group (Table 1). The ethnic Russians enrolled had the highest proportion of women IDUs (27.6%); Tajiks and Uzbeks the lowest, at less than 10% (Table 1).

In univariate analysis, there were no significant differences among ethnic groups in terms of employment status, education, or other potential risk factors for HIV infection, such as ease of obtaining drugs, reported nonsterile needle use, frequency of injection, and number of sexual partners in the past 6 months. The majority (80.0%) were unemployed, and 64.2% had received only secondary schooling (Table 1).

Overall, approximately two-thirds of IDUs reported a greater than 3-year injection history. Ethnic groups differed significantly from one another in terms of number of years since initiating injection, proportion receiving a needle from an NEP, proportion reporting IDU with other people,

having undergone drug treatment, and arrest history, both in univariate analysis and after adjusting for age and gender (Tables 1 and 2).

Fifty-three percent of Russians reported ever receiving a needle from an NEP, the highest proportion of all groups. Tajiks were the least likely to report attending an NEP and less than half as likely as Russians, whereas those of other nationalities were almost as likely as Russians to report accessing an NEP. In univariate analysis of all of the groups combined, ever obtaining a needle from an NEP was significantly shown to reduce the likelihood of HIV infection by half (OR 0.52, 95%CI: 0.29–0.96) (data not shown).

Use of condoms also differed significantly by ethnic group. Overall condom use rates with regular partners in the previous 6 months were low, at about 25%, but were substantially higher for Russian IDUs, at 33.6%.

HIV prevalence among the groups varied significantly, with HIV prevalence highest among ethnic Tajiks, at 19.2%; lowest among Russians and Uzbeks, at 3.4%; and 13% among other nationalities (Table 3). Comparing Tajiks to Russians yielded an odds ratio of 6.71 (95%CI: 2.60–17.32) for Tajik ethnicity as a risk factor for prevalent HIV infection. To further elucidate this finding, we conducted a multiple logistic regression analysis on the ethnic Tajik IDUs alone for risks of HIV infection (Table 4). In this subsample, HIV infection was significantly associated with IDU at least once a day in the past 6 months (OR 2.16); reporting that narcotics were very easy to obtain (OR 2.46); having undergone drug treatment (OR 2.75); and injecting “alone” (OR 3.12).

Table 2
Odds ratios of risk behaviors by ethnicity, controlling for gender and age

Risk factor/behavior	Russian	Tajik		Uzbek		Other		<i>p</i> for model
		OR (95% CI)	<i>p</i>	OR (95% CI)	<i>p</i>	OR (95% CI)	<i>p</i>	
More than 3 years since initiation of injection	1.00	1.06 (0.66–1.70)	0.814	1.76 (0.84–3.66)	0.134	3.37 (1.39–8.13)	0.007	<0.001
Reported narcotics “very easy” to obtain	1.00	0.81 (0.52–1.26)	0.344	0.45 (0.22–0.91)	0.025	0.62 (0.30–1.28)	0.199	0.423
Reported using used needle in past 6 months	1.00	1.12 (0.68–1.84)	0.663	0.74 (0.35–1.58)	0.434	0.88 (0.39–1.98)	0.750	0.486
Ever received a needle from an NEP	1.00	0.46 (0.29–0.71)	0.001	0.75 (0.40–1.43)	0.390	0.90 (0.45–1.78)	0.758	<0.001
Reported injecting drugs at least once a day for past 6 months	1.00	1.59 (1.01–2.50)	0.046	1.65 (0.86–3.16)	0.128	0.93 (0.45–1.92)	0.836	0.028
Reported injecting in groups in past 6 months	1.00	0.85 (0.54–1.32)	0.470	0.50 (0.25–0.97)	0.042	0.76 (0.38–1.53)	0.444	<0.001
Ever gone through drug treatment	1.00	2.58 (1.60–4.15)	<0.001	2.66 (1.38–5.14)	0.004	0.79 (0.35–1.77)	0.565	<0.001
Reported having been arrested	1.00	0.53 (0.34–0.84)	0.006	1.06 (0.56–1.99)	0.862	1.80 (0.88–3.70)	0.107	<0.001
Reported never using condom with regular partners (of opposite sex) in past 6 months	1.00	0.52 (0.28–0.96)	0.037	0.59 (0.23–1.54)	0.284	1.33 (0.55–3.19)	0.530	<0.001

Table 3
HIV prevalence and demographic/risk factors stratified by ethnicity^a

Variable	Tajik (n = 240)		Russian (n = 145)		Uzbek (n = 58)		Other (n = 46)	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Total HIV +	46	(19.2)	5	(3.4)	2	(3.4)	6	(13.0)
Gender								
Male	41	(19.0)	4	(3.8)	2	(3.8)	4	(10.8)
Female	5	(22.7)	1	(2.2)	0		2	(22.2)
Age								
<25	7	(14.9)	0		0		1	(16.7)
25–34	25	(25.3)	3	(7.14)	2	(8.3)	2	(11.1)
>34	14	(15.7)	2	(3.7)	0		3	(13.6)
Employed								
Yes	5	(11.4)	3	(2.6)	0		1	(10.0)
No	41	(21.1)	2	(6.7)	2	(4.4)	5	(13.9)
Education								
≤10 years (secondary)	36	(22.8)	3	(3.1)	2	(5.9)	4	(16.0)
Post secondary	10	(12.5)	2	(4.1)	0		2	(9.5)
Number of years since initiation of injection								
≤3	22	(23.4)	1	(1.5)	0		1	(12.5)
>3	24	(17.4)	4	(5.4)	2	(5.3)	4	(10.8)
Ease of obtaining narcotics								
3–10 (somewhat/very hard)	22	(14.9)*	3	(3.6)	1	(7.1)	2	(6.5)
1–2 (very easy)	23	(26.4)	2	(3.5)	1	(2.4)	4	(28.6)
Reported frequency of using used needle in past 6 months								
Never	29	(17.6)	2	(1.8)	1	(2.2)	6	(17.7)
Sometimes	16	(24.2)	3	(8.8)	1	(9.1)	0	
Reported frequency of sterile/new needle use in past 6 months								
Always	27	(18.5)	1	(1.1)	1	(2.6)	5	(16.1)
Not always	21	(20.4)	3	(6.5)	1	(5.3)	1	(7.1)
Ever received a needle from an NEP								
Yes	11	(15.3)	1	(1.3)	1	(4.6)	3	(14.3)
No	35	(21.3)	4	(6.0)	1	(2.9)	3	(12.0)
Frequency of injection in past 6 months								
Less than every day	17	(12.7)**	2	(2.1)	1	(3.1)	2	(6.3)
Every day	28	(27.5)	3	(6.1)	1	(4.0)	4	(28.6)
Use in groups or alone in past 6 months								
Alone	28	(21.5)	2	(3.0)	1	(2.5)	6	(22.2)*
Groups	27	(16.2)	3	(3.9)	1	(5.9)	0	
Ever gone through drug treatment								
No	13	(10.4)**	2	(1.8)	0		2	(5.6)*
Yes	33	(29.2)	3	(8.6)	2	(7.1)	4	(40.0)
Ever arrested								
No	26	(17.7)	3	(4.1)	1	(3.7)	1	(6.7)
Yes	18	(22.0)	2	(2.9)	1	(3.3)	4	(13.8)
Reported condom use with regular partners (of opposite sex) in past 6 months								
Never	30	(22.1)	3	(4.4)	1	(3.0)	4	(20.0)
Sometimes	3	(10.0)	0		0		0	

^a Using two-sided Fisher's exact test for significance * $p < 0.05$; ** $p < 0.001$.

Table 4
Factors associated with HIV among Tajik IDUs: results of a multiple logistic regression analysis ($n = 207$)

Variable	Adjusted OR (95% CI)	<i>p</i>
Reported injecting drugs at least once a day for past 6 months	2.16 (1.00–4.66)	0.049
Less than 3 years since initiation of injection	1.76 (0.83–3.71)	0.140
Reported narcotics “very easy” to obtain	2.46 (1.13–5.32)	0.023
Reported using a used needle in past 6 months	2.45 (0.88–6.82)	0.087
Ever experienced drug treatment	2.75 (1.22–6.22)	0.015
Reported injecting “alone”	3.12 (1.12–8.75)	0.030

It is notable that none of the 41 men in our sample who reported having sex with other men were infected with HIV, and neither paying for sex nor receiving payment or drugs for sex was significantly associated with HIV (data not shown).

4. Discussion

Our study of IDUs in Dushanbe, Tajikistan, identified an ethnically diverse sample of Tajiks, Russians, Uzbeks, and IDUs of other nationalities that differed significantly in terms of HIV prevalence and associated risk factors. In particular, nearly one-fifth of Tajik IDUs were HIV-infected, which suggests that the HIV epidemic has already been established in this population and can be characterized as concentrated in IDUs. A recent study among 701 IDUs in Tashkent, Uzbekistan, conducted by Sanchez and others (reported in the next article in this supplement), presents a level of 29.8% HIV infection among that sample. It is interesting to note that the study sample in Tashkent was also ethnically diverse, comprising 40.8% Russians, 26.1% Uzbeks, and 30.4% IDUs from other countries. Although our sample of IDUs of other nationalities was small, 13% were HIV-infected, which is also of grave concern. Our findings have important implications for developing future policy and programs in Tajikistan to address HIV prevention, which should be tailored to be most appropriate for the various ethnic groups in the country.

While a much higher percentage of Tajiks and other ethnicities in our sample were HIV-infected compared with Russian and Uzbek participants, these differences did not appear to be explained by risky drug-use behavior because these groups did not differ significantly in reported use of nonsterile syringes or daily frequency of injection. However, there were notable differences in drug-use patterns by ethnic subgroup. Russian and Tajik IDUs had transitioned to IDU relatively recently compared with those of other nationalities, who were more than three times as likely to report IDU for more than 3 years.

In the Tajik group, the recent initiates were more than twice as likely to be infected with HIV as the more experienced IDUs. Other studies have shown that newer

injectors engage in much riskier behavior, such as needle sharing, backloading, and indirect sharing of cookers, cotton, and rinse water (Becker Buxton et al., 2004). This finding also is evidence that the HIV epidemic in Tajikistan is still fairly young, as has been shown in an earlier study in Russia. Drug use had been present for a long time, but the HIV epidemic among IDUs was new, as evidenced by recent seroconversion in repeat HIV tests of experienced IDUs (Rhodes et al., 2002). This finding is supported by the fact that Tajiks who reported using a nonsterile needle in the past 6 months were more than twice as likely to be infected with HIV, even when controlling for duration of injection behavior and other risk factors. This fact implies that HIV prevention programs aimed at discouraging transition to injection should be designed and implemented, perhaps specifically targeting newer IDUs and those who smoke or “snort” heroin and opium.

Approximately one-third of all participants reported that narcotics are easy for them to obtain, which is hardly surprising given Tajikistan’s geographic position along major heroin trafficking routes. HIV prevalence is much higher among Tajiks and other ethnicities who reported that narcotics are easily obtained. This high prevalence could be a result of having more frequent contact with a larger number of drug users or drug dealers with whom they inject.

Given the cultural emphasis on group, family, and communal life in Central Asia, we were initially surprised by the finding that Tajiks, Uzbeks, and those of other nationalities were less likely to report injection in groups than Russian IDUs. Moreover, Tajiks and participants of other nationalities who reported injecting “alone” were significantly more likely to be infected with HIV than those injecting in groups, with the risk increasing threefold in the case of the Tajiks. Two possible explanations exist. Russian IDUs might be using drugs in small, closed groups that are kept highly secret due to fear, especially because they are almost twice as likely to report having been arrested as Tajiks and the nature of the small groups prevents new members from entering, thereby limiting exposure to HIV from outsiders. The other, perhaps more likely, explanation lies in the wording of the question itself, “Do you usually inject alone?” “Alone” in this case might have been interpreted to mean not with friends or close

acquaintances, but in a setting such as a shooting gallery with a crowd of strangers. This finding, as well as many of the behavior differences among the various ethnicities, illustrates the need to investigate social network influences in this setting, looking not only at how IDUs interact within their own ethnic groups but also at the interplay and overlap between the groups.

Another surprising finding was the difference in the proportions of people of the various ethnic groups who reported undergoing drug treatment, and the connection between drug treatment and HIV. Tajiks and Uzbeks were more than twice as likely to have experienced drug treatment as Russians, and other nationalities were only 80% as likely as Russians. HIV prevalence was much higher among the IDUs who had undergone drug treatment, almost threefold higher in the case of the Tajiks. This observation could be interpreted in a number of ways. One possibility is that drug users who receive drug treatment in Dushanbe tend to be placed there by their families after they have “hit bottom”, which could mean that this subgroup of IDUs is especially engaged in risky behaviors. The current approach to drug treatment in Tajikistan can best be described as institutionalized “cold turkey” detoxification. This circumstance, combined with the fact that drug treatment is involuntary for most IDUs, might lead IDUs to continue to inject covertly while in drug treatment. Since 89% of respondents reporting experience with drug treatment said that they were in some form of in-patient treatment, they would have limited access to their own sterile syringes during this time and might be more likely to engage in needle sharing. It is also quite probable that receiving drug treatment is a surrogate marker for treatment-seeking behavior and might be more common among IDUs who are at highest risk of HIV infection. All of these scenarios illustrate the great need for opiate agonist therapy, such as methadone maintenance treatment programs or provision of sublingual buprenorphine. Despite the lack of clinically effective humane forms of drug treatment in Tajikistan, there is still support and desire for drug addiction treatment.

It is interesting that the two groups most likely to report ever receiving sterile syringes at a NEP are the Russians and other nationalities, in a country where they are clearly the minority and share very few characteristics with one another. The fact that Tajiks are half as likely to visit NEPs yet have a risk for HIV almost sevenfold that of the Russians needs to be examined carefully in subsequent studies. It should be noted that during mid- and late 2004 the authors identified only one functioning NEP in Dushanbe.

The study has several limitations. It is important to recognize the well-known limitations of cross-sectional studies and self-reported data. Although both the 6-month period and self-reports of behavior have been shown to be valid in other studies, it is difficult to assume the accuracy of self-reports and consistency of behavior and environment in a place as politically, socially, and economically unstable as Tajikistan (Samuels et al., 1992; Schutz et al., 1994). Our

analysis was also limited by the relatively small numbers of Russians, Uzbeks, and participants of other nationalities, which limited our ability to examine independent correlates of HIV infection within each group. It is possible that some selection bias was introduced because outreach workers who had experience working with NEPs recruited participants from known gathering places and by word of mouth; the outreach workers might have been unaware of or unable to contact more marginalized or geographically scattered IDUs. It is also possible that the most indigent IDUs did not visit the study site because of fear, embarrassment, or lack of ability to reach the clinic. It is unclear whether any of these factors would vary by ethnicity. Results from this study cannot necessarily be generalized to populations outside of Dushanbe, which is the largest and most urban city in the predominantly rural Tajikistan. Because many regions in Tajikistan are separated from one another by impassible mountains and share long borders with diverse countries such as Afghanistan, Uzbekistan, Kyrgyzstan, and China, the geography of the country might lend itself to the establishment of IDU populations with different ethnic compositions, as well as varying access to drugs and sterile syringes.

Levels of discrimination and other human rights considerations, harsh living conditions, lack of financial opportunity, and other contextual factors differ for Tajiks, Russians, Uzbeks, and other nationalities living in Tajikistan. All of these factors affect the “risk environment”, the complex interplay of economic and social contexts that create conditions conducive to epidemic spread in various ways (Rhodes et al., 1999). In many settings, IDUs are often treated as a homogeneous group in the design and implementation of HIV prevention programs and messages. The results presented in this paper make it abundantly clear that for HIV prevention among IDUs in Tajikistan to have any chance of being successful, it is crucial that each of the ethnic groups be considered individually in regard to demographic characteristics, treatment-seeking behaviors, social networks, access to NEPs, likelihood of arrest and relationship with authorities, legal status, beliefs and practices concerning condom use, and channels through which narcotics and syringes are obtained.

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