

SUBSTANCE ABUSE, HIV RISK AND HIV/AIDS IN TANZANIA

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ABSTRACT

This article reviews the existing literature on substance abuse in Tanzania and reports preliminary findings from an ongoing HIV prevention study investigating risky drug use and sexual behaviours in a sample of heroin injectors in Dar es Salaam, Tanzania. The mixed method study included in-depth interviews with heroin injectors, a survey, voluntary HIV counselling and testing, and the collection of biologicals. HIV status was confirmed by the Elisa Western Blot. Here we analyze preliminary survey data from 319 (76%) men and 98 (24%) women. All participants reported using heroin and one-third reported sharing needles with other injectors. Eighty-five percent of the women reported trading sex for money. Twenty-seven percent of the men and 58% of the women tested positive for HIV infection. Due to the high number of injecting drug users reporting HIV risk behaviours and the high prevalence of HIV infection in this group, multiple strategies for harm reduction in this population must be pursued.

KEY WORDS: substance abuse, HIV/AIDS, Tanzania

INTRODUCTION

In East Africa, especially Tanzania and Kenya, injection drug use came into practice as the AIDS epidemic in Africa neared the end of its second decade. East Africa had become a drug transit point by the 1980s, but consumption of heroin was limited and confined mainly to smoking. The Tanzanian government, in response to a growing awareness of drug trafficking established its inter-ministerial Anti-Drug Commission in 1995 (UNODC, 2006). In sub-Saharan Africa at the end of the 1990s, HIV/AIDS education for behavioural change was

focused on the ABCs [Abstinence, Being faithful, Condoms] of safer heterosexual sexual practices rather than education about safer illicit needle use practices. In this paper, we present what is known about substance abuse and HIV risk in Tanzania and present preliminary findings on demographic factors, drug use, sexual behaviours, and HIV status of participants in an ongoing research study, the Tanzanian HIV Prevention Project, being conducted with sexually-active heroin injectors in Dar es Salaam, Tanzania. The HIV prevalence rate for the general population in Tanzania is currently estimated at 7%; however, there are

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particular subgroups and regions of the country at higher risk with higher HIV prevalence rates than the general population (REPOA, 2005).

Coastal communities in Tanzania and Kenya, two East African countries sharing the Indian Ocean coastline, have historically been part of an Indian Ocean trading network that connected them with the Indian sub-continent and the Arabian Peninsula. During the nineteenth century the slave and ivory trade marked the first wave of globalization and urbanization in this region. During the colonial era from the late nineteenth century through the post World War II era, first German and then British colonial authorities laid claim to what would become mainland Tanzania and its resources and peoples. The independence period of the 1960s and 1970s was marked by attempts to carve out an African socialist programme that promoted a nationalist identity. Over the course of the twentieth century, the sea transport network was expanded by connections between air terminals, and new commodities began to move through this route that now easily and quickly connects to Europe and the United States. As Tanzania became a part of international drug trafficking routes, some youth became drug users and slowly a local Tanzanian drug using subculture developed.

Tanzania has a population of 36.2 million people and approximately 120 different ethnic groups. Swahili, the national language, facilitates easy communication. Between 1965 and 2002, Tanzania experienced dramatic urbanization, as the urban population grew from 5-33%. Dar es Salaam, the commercial capital of the country, is home to 50% of the urban population. Economic liberalization marked the opening of increased movement of young Tanzanians abroad and increased trade opportunities with Asia and Europe. Measures taken by the

International Monetary Fund (IMF) forced Tanzania to reduce government expenditures and increase government revenues. The Tanzanian government, among other measures, reduced education and health care expenditures. By 1999 one-third of Tanzanian children did not attend primary school, 51% of Tanzanians lived on less than US\$1 a day, and most of the urban workforce was unskilled and underemployed (UNDP, 2000). Re-introduction of free primary schooling in 2003 has led to overall reported school attendance rates of 90%; however, required fees for other school needs still limit the poorest Tanzanians from keeping their children in primary school (REPOA, 2005).

In this third decade of the AIDS epidemic, both urban migrants and long-term residents are finding support networks and family ties stressed and less able to provide moral, social, and community resources. Rural to urban migration took place in an environment of reduced job opportunities and limited access to affordable social and health services. Once in the city, new migrants often found they had little, if any, access to urban-based social support institutions (Kilonzo, 1989). In the absence of, or diminished presence of, family and community support systems in new urban settings, men and women of different generations, backgrounds, and places of origin have negotiated new practices, social roles and obligations (Hodgson & McCurdy, 2001). Out of school youth lacking the skills necessary to seek occupations that provide them with a steady income are increasingly spending free time on the street. Harmful patterns of alcohol and drug consumption in Tanzania emerged in tandem with this process of rapid urbanization, decrease in employment opportunities, breakdown of the traditional social fabric and family system, and limited affordable social services and healthcare

facilities (Kilonzo, 1989; McCurdy et al. 2005a; Singano, 1984).

Drug Abuse

Drug abuse, especially use of heroin, is a fairly recent phenomenon in Tanzania and so the role of illicit drug injection in the HIV epidemic in Africa has received minimal attention. In recent years both local and international young adults have been involved with the increased importation of illicit drugs into the country (See Table 1 for drug seizures in Tanzania). Although there are no official statistics on drug abuse in the country, it is estimated that the city of Dar es Salaam, which has a population of 2.5 million, has 200,000 to 250,000 drug abusers (IRIN, 2006). The country has a long history of trade and smuggling with neighbouring countries making it easy for drug traffickers to move in and out of the country. From 1980 to 1985 a total of 6,019 persons were prosecuted on narcotics charges, of whom, 7% were aged less than 16 years and 49% were aged between 16 and 25 years. During 1986 and 1989 alone, more than 250,000

tablets of Mandrax were intercepted at Tanzanian ports. Cases of heroin seizures increased from 54 in 1997 to 230 in 2005. The many direct international air and sea connections through Tanzania make the country even more vulnerable.

HIV/AIDS

HIV prevalence in Tanzania has been estimated at 9.2%, although this figure was recently revised to 7%, reflecting more representative sampling frames (Ministry of Health United Republic of Tanzania, 2004). The first AIDS cases were reported in Northwest Tanzania in 1983 and by 1986 the disease had spread to all regions in the country (NACP, 1994). During 2004, 16,430 AIDS cases were reported from Tanzania’s 21 mainland regions. Heterosexual intercourse has pre-dominantly been the major mode of trans-mission (NACP, 2003); however, and about 5% of all new cases reported in 2004 were in individuals aged less than 15 years suspected to have been infected perinatally, bringing the cumulative number of AIDS cases for Tanzania up to 192,532 (MOH, 2005).

Estimated Number of Males and Females Living with HIV/AIDS in Tanzania 2000-2006

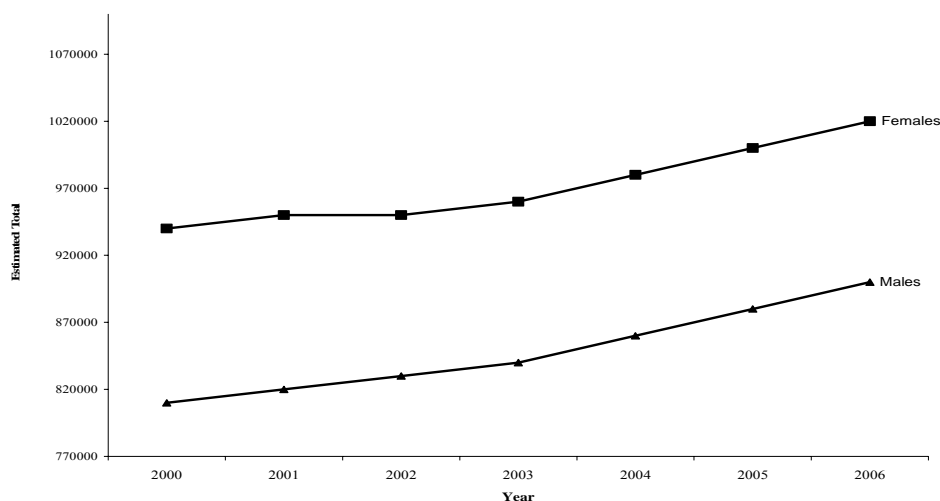


Figure 1. Estimated number of males and females living with HIV/AIDS in Tanzania 2000-2006

Table 1: Drug Seizures in Tanzania during Calendar years 1997 to 2005

Year	Cannabis marijuana			Cannabis resin			Khat			Heroin			Morphine			Cocaine			Methaqualone		
	Case	Suspect	Kg	Case	Susp	Kg	Cas	Susp	Kg	Cas	Susp	Kg	Cas	Susp	Kg	Cas	Susp	Kg	Cas	Susp	Kg
1997	3,787	5,446	82,539				230	261	592,128	54	219	4.852	38	33	0.283	46	75	0.2	52	30	0.58
1998	3,895	4,539	4,625.616	34	46	42.162	237	131	320.575	160	200	2.745							2	1	3.5
1999	3,895	4,539	6,186.371				1	293	2,209.876	199	236	7.107			53	79	0.161	2	10	73	
2000	4,431	3,756	24,936	34	46	15	265	209	1,415.1	160	200	5.322			36	5	2.104	2	1	295	
2001	4,288	5,125	249,639.256	3	4	12.5	219	345	1,905.602	207	412	7.9965	1	3	3.338	31	64	7.3885	2	364	0.10
												44			2		4				7
2002	3,674	4,711	111,510.857	5	3	1,865.6137	233	401	2,971.180	193	294	1.4579	32	23	0.850	67	180	2.4610	34	44	1.5
			721			34			55		07				45		4				
2003	4,034	5,399	733,222.63				254	410	12,002.58	234	277	4.71			70	16	10.727				
									2												
2004	2,229	3,749	964,070.381				120	265	9,650.98	250	350	14.354			3	3	0./620	1	1		
																	4				0.5
2005	2,790	3,949	150,450.4	3	1	78.75	322	289	1,206.945	230	269	9.936	6	2	1.401	19	20	0.3615			

Key:

Case = Number of legal cases involving drugs

Susp = Number of suspects involved in the legal cases involving drugs

Kg = Weight in kilograms of the seized drugs

Khat = Khat edulis (chat, mirungi)

Cannabis resin = hashish

Note 1: It is very rare for amphetamines to be seized in Tanzania. The only case noted during this period was one case involving one suspect during 2004 who was seized with 154 grams of amphetamine.

Note 2: During calendar year 2005 there were 19 Tanzanians apprehended in foreign countries for drug trafficking. Out of these, 8 were arrested in Pakistan, 8 in Iran, 2 in Ethiopia and one in Kenya. All of these were trafficking in heroin except one who was arrested in Iran carrying cocaine. Quantities of the illicit drugs involved were indicated for 9 traffickers amounting to 9,622 grams (9.622 kg) of heroin.

Prevalence has varied widely among segments of the population. HIV prevalence studies among sex workers in Dar es Salaam showed an increase from 29% in 1986 to 49.5% in 1993 (UNAIDS/WHO 2005). During 2001, a study reported that 70% of the sex workers in Mbeya, in southwestern Tanzania were HIV positive (UNAIDS/WHO 2005). During 2003, seroprevalence was 9.1% among antenatal clinic attendees in Tanzania HIV, and 8.8% among blood donors. Across various regions, the HIV prevalence for youth aged 15 to 24 years, who provided blood donations, ranged from 0% to 19%. In the Dar es Salaam region, HIV prevalence among adolescent blood donors was 5-10% (NACP, 2004). During 2004, 6.9% of the male blood donors from Ilala municipality, Dar es Salaam (n=2348) were HIV positive compared to 18.8% from Kinondoni (n=224) (MOH, 2005), which has been a centre for a great deal of injecting activity during our study.

Overall, the prevalence rate for those attending national voluntary HIV counselling and testing (VCT) sites during 2004 was 24.8% (MOH, 2005). Among males testing at Magomeni, Mnazi Mmoja, and Muhimbili sites in Dar es Salaam the proportion of those testing positive were 7% (n=142), 10.4% (n=205), and 16.6% (n=514); for females it was 17.6% (n=373), 22% (n=385), and 33.5% (n=1106), respectively. Magomeni is the first suburb past the commercial business district of Kariakoo and the National Referral Hospital Muhimbili. Mnazi Mmoja is between city centre and Kariakoo, the commercial trading centre, both places where there are established practices of sex work and drug trading.

As shown in Figure 1, generally rates of HIV infection are highest among females aged 25 – 29 years (NACP,

2005). The peak age for HIV infection for males has constantly been 30 – 34 years suggesting that most infected males had female partners who were at least five years younger (NACP, 2005; See Table 1 for estimated number of HIV/AIDS cases in Tanzania). Available behavioural surveillance surveys show that multiple partners are fairly common among youth and condom use is generally low (NACP, 2004). The observed differences in rates of infection by age and gender are most likely linked to the practice in most ethnic groups of men usually marrying women who are several years younger (Leshabari et al., 2005).

REVIEW OF LITERATURE

The literature on illicit drug use in Tanzania is sparse. In a 2000 study comparing drug use in Kinondoni, Dar es Salaam to that in Old Stone Town, Zanzibar, researchers found that 30 day drug use for adults from Kinondoni was 1% for heroin with no injection use. In comparison, in Old Stone Town, Zanzibar, 30 day drug use for adults was 7% for heroin with 3% injection use. Lifetime youth heroin use was 9% with 2% injection use (UNDCP/WHO, 2001).

During 2001, Save the Children funded a rapid situational assessment of drug use conducted in five regions of the country, Arusha, Dar es Salaam, Mbeya, Mwanza, and Zanzibar. Researchers found increased availability and consumption of drugs in all areas investigated (Kilonzo et al., 2002, unpublished report). Using 44 focus groups and 127 individual interviews conducted with district leaders (i.e., medical officers, police commanders, social welfare officers, administrative officers, and community leaders), former and current drug users, and youths living on the street, Kilonzo et al. noted with

particular concern an increase in injection drug use and needle sharing by heroin users (2002). Heroin use was highest in Arusha, Dar es Salaam, and Zanzibar, and was emerging as a concern in Mwanza. In another study conducted during 2001 in and near the commercial district of Ilala, Dar es Salaam, 624 drug users (40 female) reported they started using drugs as adolescents, used multiple drugs, were unemployed, and had a high number of health problems (Muhondwa and Mpembeni, 2002, unpublished report).

Among substance abuse patients admitted to psychiatric hospitals in Dar es Salaam between January and June 2004, heroin was the second most common primary substance of abuse accounting for 30% use among 169 patients ($n = 50$) (Parry and Pluddemann, 2005). Nine percent of these heroin using patients admitted they were injecting. These early studies were focused on the prevalence of substance use alone. Samples were small, specialized, preliminary, and focused primarily on Dar es Salaam and many of the methods and sampling techniques were not well described.

The above studies demonstrate that little was known about the sexual and drug using practices that put heroin injectors in Dar es Salaam at risk for HIV at the beginning of 2003. Our initial semi-structured interviews with 51 male and female injecting drug users (IDUs) residing in eight neighbourhoods in Dar es Salaam, Tanzania revealed that Dar es Salaam IDUs began smoking heroin in hangout areas with their friends, either because of peer pressure, desire, or involved deliberate deceit (they did not know they were ingesting heroin in the marijuana or tobacco they were smoking). Most IDUs began their heroin use with marijuana-laced heroin (McCurdy et al., 2005a). During this first research phase, it was found that 33% of male IDUs were

no longer sexually active and that gendered practices had emerged in the day-to-day practices young men and women engaged in. Most women were sex workers and kept different hours than men, not surprisingly, they also made more money. We found that injecting heroin was a comparatively recent practice in Africa and coincided with: 1) Tanzania transitioning to becoming a heroin consuming community; 2) the growing importance of youth culture; 3) the technical innovation of injecting practices and the introduction and ease of use of white heroin (that became increasingly available after 2000); and 4) the perceived need of heroin smokers, sniffers, and inhalers to escalate their use through a more effective and satisfying form of heroin ingestion (McCurdy et al., 2005a,b).

Analysis of survey data collected from 237 male and 123 female heroin users between October 2003 and January 2004 found that men were older, more likely to inject only white heroin, share needles, and give or lend used needles to other injectors. Women were more likely to be living on the streets, to have injected brown heroin, to have had sex, to have had a higher number of sex partners, and to have used a condom with the most recent sex partner. Despite other gender differences, both male and female injectors in Dar es Salaam exhibited elevated risk of HIV infection associated with drug use (Williams et al., in press).

During July 2005, female study participants reported that they had adopted a new needle sharing practice that they called 'flashblood.' Flashblood is the English term Swahili speakers use to describe drawing blood back in a syringe until the barrel is full, and then passing the syringe to a female companion who injects the blood. By injecting the syringe, women believed that they could avert

symptoms associated with heroin withdrawal because the first injector's blood was thought to have 'some heroin in it.' The rationale for flashblood may have been the price and quality of heroin. Most female heroin users in Dar es Salaam trade sex for money to support their habits, and have been greatly affected by the increase in cost and decline in quality of heroin. Women in poor health as the result of chronic heroin abuse and who cannot attract a sufficient number of male sex trade partners to support their use are most likely to engage in this practice out of desperation. Female IDUs still able to attract customers for sex have begun accommodating women in more desperate circumstances by providing them with flashblood (McCurdy, 2005b).

Perhaps because of the relative newness of injection drug use and the magnitude of the heterosexual HIV epidemic, the needle sharing behaviours of users have received little attention. Study participants did note, however, during in-depth interviews conducted in 2003 that they knew they should not share needles because they had listened to radio programmes that warned of the dangers of needle-sharing. Despite this warning, many IDUs left their needles with owners of shooting galleries, a location where drugs are purchased and used, and would come back later to use them. Though they might have hoped that these needles and syringes would remain safe and not be used, there were aware that others could use them in their absence (McCurdy, 2005a). Currently, a number of international and local nongovernmental organizations (NGOs) and the Tanzania Commission on Drug Control are working on strategies to address injection drug use and HIV transmission.

The objective of this most recent research phase was to investigate

sociodemographic factors, drug use, sexual behaviours, and HIV seroprevalence in a sample of heroin injectors in Dar es Salaam, Tanzania. During this second phase we focused solely with heroin injectors who were sexually active. Here we report on preliminary findings from our Tanzanian HIV/AIDS Prevention Project that includes, along with the collection of biologicals, a VCT component, and a demonstration of how to use bleach to sterilize needles and syringes.

METHOD

Data for this study were collected in an ongoing cross-sectional study between October 2005 and April 2006 in Dar es Salaam, Tanzania. Individuals were recruited to participate in the study using targeted snowball sampling (Booth et al, 1993; Watters & Biernacki, 1989). A sampling plan was developed based on information provided by key informants knowledgeable about illicit drug use in Dar es Salaam and the experience of a Tanzanian investigator who has worked extensively in local drug treatment programmes. Neighbourhoods targeted for sampling were selected through interviews with local key informants and direct observation of drug use activities, including injection, by an outreach worker in areas of the city where heroin injectors hung out and in shooting galleries. Local key informants were interviewed and asked to refer other heroin users to be screened for the study. The outreach worker pre-screened heroin injectors by asking if an individual had injected an illicit substance in the last 48 hours. If the response was "yes," the individual was asked to show evidence of recent needle track marks, and then transported to the project office to be further screened by project personnel.

Study participants were then asked to respond to a brief questionnaire to determine eligibility. Eligibility criteria for the study required that participants were at least 18 years of age, had injected an illicit drug in the 48 hours before being screened, and were willing to give informed consent. Individuals matching eligibility criteria were given information about the study, and then asked to provide verbal informed consent. If consent was obtained, the respondent was interviewed by a trained research assistant. The interview took about one hour. Participants were paid approximately US\$3 for their time and travel expenses. All procedures and data collection forms for the study were reviewed and approved by university committees for the protection of human subjects at the University of Texas Houston Health Science Centre, the Tanzania Commission for Science and Technology, Muhimbili University College of Health Sciences, and the Tanzanian National Institute for Medical Research.

Data were collected using the Swahili version of the Peer Outreach Questionnaire (POQ). Items included in the POQ were developed by the investigators and used in other studies with drug users (Bowen et al, 2001; Williams et al., 2003). All data were self-reported. Data were collected on sociodemographic variables, drug and needle use, sexual risk, and HIV status. Data from 319 (76%) men and 98 (24%) women were analyzed. Means and frequencies of sociodemographic characteristics, drug use, and sexual behaviours were assessed. All analyses were conducted using SPSS version 14.

RESULTS

Twenty-seven percent of the men and 58% of the women in this sample tested positive

for HIV infection. Thirty-five percent of participants reported ever having been diagnosed with gonorrhoea and 8% with syphilis. The average and median age for all participants was 28 years (range = 18-59). Ninety-two percent of participants were able to read and write, and 93% had more than 4 years of formal schooling. Three-quarters reported being single and 27% reported either being married or living with a partner of the opposite sex. There were significant differences between men and women ($p = .0001$) in their major source of income. Six men reported having regular jobs and 67% of men said that they did odd jobs. Twenty-six percent of the men reported engaging in illegal sources to obtain money. Eighty-five percent of the women were trading sex for money compared to only one man. Twelve percent of the women were being supported by their spouses or sexual partners and the remainder was doing odd jobs. Of all participants, 23% considered themselves homeless. Two-thirds of the participants, however, were living with their parents or partners at home and 76% of the men lived at home. Women were more likely to perceive themselves as homeless (41%) and less likely (28%) to be living at home.

All participants reported having a sex partner in the past 30 days and 75% reporting having sex partners in the past seven days. Of those with sex partners during the past seven days, all but two had engaged in vaginal sex. Sixty percent of those reporting they had sex partners during the last seven days said they never used a condom. Only 22% of those who reported having sex during either the past 30 days or the past seven days said they always used condoms. Thirty-eight percent reported not having a primary partner in the past seven days and most (60%) said they had one primary partner. Two-thirds of participants reported no casual partners in the past week. The

women who were trading sex for money reported having sex with a paying partner an average of 92 times in the past 30

days. The women reported always using condoms with paying partners only 68% of the time.

Table 2. Reported drug use

Drug Use	% Used	Average Age of Onset	Length of Time used	Average in 30 Days	Average in 7 Days
Heroin	100	20	8.3 yrs	98 times	23 times
Marijuana	98	16	9.6 yrs.	73 times	17.6 times
Alcohol	83	18	6.6 yrs	3.8 times	2.2 times
Valium	50	24	1.6 yrs	20 times	6.2 times
Mirungi	9	23	2.5 yrs	11 times	4 times
Mandrax	2	23	1.6 yrs	5 times	1 time.

Source: National AIDS Control Programme, Report 18, Ministry of Health, United Republic of Tanzania

All participants were using heroin (See Table 2). Sixty-seven percent reported never using a needle that had already been used and 55% said they had never given a used needle to someone else. One-third reported using a needle that had been used by at least one other person.

DISCUSSION

The HIV seroprevalence of the study participants is much higher than that reported by any other subgroup testing for HIV in Dar es Salaam. Fifty-eight percent of the female IDUs, tested HIV positive, an increase of 8.5% from the sex workers study conducted in Dar es Salaam in 1993. There is evidence that few sex workers were injecting during the early 1990s; however, we do not know much about the circulation of sex workers between cities in Tanzania to know how much the HIV seroprevalence of Mbeya at 70% during 2001 might be related to HIV seroprevalence in Dar es Salaam. A United States study of male sex workers in Texas found that sex workers moved between three cities during the course of the year in order to attract more clients. When the number of partners decreased in

one location, sex workers would rotate to another city where the number of partners would increase for a period of time (Williams et al. 2005). Our findings and the study in Mbeya demonstrate that sex workers' HIV seroprevalence is very high in Mbeya and Dar es Salaam.

Prevalence among women testing at VCT centres in Dar es Salaam during 2004 ranged from 17.6% to 33.5%. Female IDU HIV prevalence was 58%, triple that of the lowest group and slightly less than double that of the highest group of female VCT clients, making female IDUs in Dar es Salaam at highest risk for HIV.

What is especially striking in this study is the 27% HIV seroprevalence of male IDUs, especially since only one man reported trading sex for money. During 2004, male blood donors in Dar es Salaam had a HIV seroprevalence ranging from 8% in Ilala to 18.8% in Kinondoni and males testing at VCT centres in Ilala and Magomeni municipalities and Muhimbili Hospital in Dar es Salaam had rates of 7%, 10.4%, and 16.6% respectively in 2004. Male blood donors are likely to be a family member or friend of someone hospitalized and those visiting VCT

centres are most likely to reporting believing they are at risk for HIV infection. The high prevalence (18.8%) of HIV among the 224 men attending VCT centres in Kinondoni is likely related to drug use and sex work.

Only 28% of the women were living at home in contrast to 76% of the men. Eighty five percent of the women engaged in sex work and 26% of men engage in illicit activities to survive and support their habits. More than twice as many women perceive themselves to be homeless (42%) compared to men (16%). This may reflect men's tendency to remain at home and the insecurity of survival on the streets as a sex worker.

Sixty percent of the study participants reported having a main partner and 60% reported never using a condom in the past seven days. It is likely that those IDUs never using condoms during sex were having sex with a main partner. This is true of the general population as well. Of the 22% IDUs who reported always using condoms during sex in the past 30 days, it is likely, when the respondent was female, that all of those partners were clients. Yet, as a group, women in the study reported they only used condoms with clients 68% of the time.

In regards to needle sharing, 45% reported they had given a needle to someone else to use and 33% admitted they had used the needle of someone else; however, this self-reported data does not reveal much about reuse of needles left in a shooting gallery for future use. Whether or not an IDU or shooting gallery owner intentionally left a needle for someone else to use, it was likely that someone who encountered a hidden or saved needle and syringe and needed it would use it. Needle and syringe sterilization practices have only just been introduced and are not commonly used. Typically, for those reusing a needle and syringe the

works are flushed two or three times with water until no trace of blood can be seen.

Clearly both male and female IDUs are in a position to act as a bridge to the main population given their high HIV seroprevalence; lack of condom use with their main partners; and less than 70% condom use with clients by female IDUs who are sex workers. These study participants are also more likely to be more infectious than others who are HIV positive because they are less likely to take care of their own health care needs and more likely to become sick, because of their drug and sexual practices, than the general population. Further research is called for in order to increase understanding of the context in which sex work practices emerge and transform; the ways that HIV risk and IDU practices converge; and the types of interventions that IDUs might find acceptable to reduce their risky sex and drug use practices. In addition, a better understanding of methods for helping drug users, along with their families and friends, transition back into mainstream society and whether or not self-sustaining family-based IDU interventions are possible.

Public health interventions must take into account the local context in which these risky sex and drug practices emerge. In the absence of a well-developed infrastructure or adequate funding to systematically provide treatment options to IDUs, grassroots programmes that build on local efforts should be considered. Interventions developed with local communities that combine theory with a deep knowledge of the local situation are likely to be the most successful and continue after donor or research funding ends. Possible interventions could include self-help support groups, structured behavioural change sessions focused on either encouraging the use of bleach to sterilize

needles or increasing condom use, and strategies designed to increase the availability and accessibility of syringes and condoms.

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