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Authors

Haque, N
Zafar, T
Brahmbhatt, H
et al.

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ORIGINAL RESEARCH ARTICLE

High-risk sexual behaviours among drug users in Pakistan: implications for prevention of STDs and HIV/AIDS

N Haque MD MTH[1], **T Zafar** BBS[2], **H Brahmbhatt** MPH PhD[1] **G Imam**[2], **S ul Hassan** BSc[2] and **S A Strathdee** PhD[3]

[1]*Department of Epidemiology, Bloomberg School of Public Health, Johns Hopkins University, 615 N. Wolfe Street, Baltimore, MD 21205, USA;* [2]*Nai Zindagi, Islamabad, Pakistan;* [3]*Division of International Health and Cross-Cultural Medicine, Department of Family Health Sciences, University of California, San Diego, CA, USA*

Summary: Our objective was to describe HIV/STD risk behaviours and awareness among a community-based sample of drug users in Pakistan. Drug users contacted through street outreach by a non-governmental organization in Quetta, Peshawar and Rawalpindi underwent interviewer-administered questionnaires. Descriptive statistics were used to characterize sexual behaviours by city, marital status and the use of injection drugs. Logistic regression was used to identify correlates of ever having an STD.

Of 608 drug users studied, all but one was male; median age was 32 years and 45% had no formal education. Half were married, of whom 25% were living with their wives. Sexual behaviours were reported as follows: 14% had sex with other males, 28% reported sex with both males and females, 49% had paid money to have sex and only 10% had ever used condoms. One-fifth reported having had an STD and about 40% reported having suffered from either one or more STD-related symptoms. Only 41% had heard about HIV/AIDS, of whom 17% knew that HIV/AIDS could be transmitted through sexual contact.

In conclusion, high-risk sexual behaviours are prevalent among male drug users in Pakistan, and awareness of transmission risks is low. These data attest to the urgent need for effective and specific interventions in Pakistan to prevent transmission of HIV and STDs among drug users and their sex partners.

Keywords: sexual behaviour, STDs, drug use, Pakistan

Introduction

The first reported case of AIDS in Pakistan was in 1987[1,2]. Since then, the number of HIV cases has increased to approximately 100,000 among the country's population of 145 million[3]. This suggests that the number of reported cases of HIV is still relatively low among the general population. These findings are consistent with most reports among high risk population such as sex workers, truck drivers and persons seeking treatment for STDs[4,5]. UNAIDS currently characterizes Pakistan as a country of 'high-risk/low-prevalence'[6].

Although estimates of HIV prevalence among injection drug users (IDUs) have typically ranged from 0–2%[6,7], prevalence of hepatitis C virus among IDUs in the same settings is above 85%[6]. These data suggest that once HIV seriously penetrates needle-sharing networks in Pakistan, a widespread HIV/AIDS epidemic could occur, as documented elsewhere in Asia[8,9].

Although estimates vary, most recent estimates suggest that half a million drug users and approximately 180,000 IDUs are thought to reside in Pakistan[10]. In the past two decades, political and economic changes within the region have been associated with an increase in poverty and social problems linked to the illegal production, manufacture, marketing and misuse of opiates[11]. Problems associated with heroin use in Pakistan are exacerbated due to Pakistan's extensive porous border with Afghanistan, one of the world's largest producers of opium. Fluctuations in heroin availability, purity and price have led many heroin addicts to switch to injection of liquid pharmaceuticals that are readily available at pharmacies without a prescription[12,13]. As a consequence,

Correspondence to: Dr Steffanie A Strathdee
E-mail: sstrathdee@ucsd.edu

injection drug use may become increasingly common in Pakistan and could facilitate the spread of HIV infection.

The role of IDUs as 'multipliers' of HIV infection to the general population has only recently been recognized. In countries such as India in the State of Manipur, Myanmar (Burma) and the Ukraine, IDU-associated HIV epidemics have led to situations where HIV prevalence among the general population is over 1%[14]. The interaction between IDUs and sex partners who engage in sex work and homosexual activity is thought to play an important role in these HIV transmission dynamics[15,16], in addition to the prevalence of ulcerative STDs which can be co-factors for HIV transmission.

There is very little documentation of the extent, nature and context of sexual behaviours among drug users in Pakistan. Such data are needed to help plan intervention programmes against HIV and STDs. We studied sexual risk behaviours for HIV and STDs, and awareness of transmission risks among drug users in three urban centres in Pakistan.

Methods

Study population

A cross-sectional study was conducted in three Pakistani cities (Quetta, Peshawar and Rawalpindi) from January 2001 to August 2001 as part of a rapid situation assessment conducted by a local non-governmental organization that provides harm reduction, HIV prevention and residential drug treatment services to drug users (Nai Zindagi, or 'New Life'). Quetta and Peshawar are in close proximity to Afghanistan, whereas Rawalpindi is the twin city of the nation's capital, Islamabad. The total populations of these cities in year 2000 were 1.2 million, 2.2 million and 0.6 million, respectively.

Data collection

Prior to developing the questionnaire, focus group discussions and in-depth interviews were held with a selected sample of street drug users in each city, as described previously[6]. A questionnaire was also administered to community members about street drug use. This information was used to develop a detailed questionnaire that was pre-tested and finalized. Data were collected by an interviewer-administered questionnaire from drug users who received services from Nai Zindagi in each of the three cities, by trained interviewers. Informed consent was obtained from all participants. The questionnaire for the interview included information about demographic characteristics, drug use history, sexual behaviours, STD history, HIV/AIDS awareness and knowledge of transmission routes. The Johns Hopkins Committee on Human Research approved this study. Upon request, respondents were referred to medical and detoxification services.

To assess the health risks involved with drug use the following questions were asked: 'Have you ever used injected drugs?', 'Did you inject drugs at any time during last month?', 'During last month how many times did you inject drugs daily?', 'Which drug do you inject presently?', 'Do you re-use used syringe?', 'Do you clean your syringe and needle?,' 'How do you usually clean your syringe and needle?', 'Approximately, after how many injections do you change your syringe and needle?', 'Do you usually inject drugs when you are alone or in a group of people using same syringe?', 'Do you share syringes?', 'If yes, on how many occasions do you share syringes?', 'During the last month how many times have you injected with a syringe or needle already used by someone else?', 'During last month, how many times has someone else used a syringe or needle after you had already used it?'.

The following questions were asked to assess sexual behaviour and HIV/AIDS related knowledge: 'How long ago did you have your last sexual experience?', 'Have you ever had sexual intercourse with (a) women (b) boy (c) men (d) eunuch?', 'Have you ever paid for having sexual intercourse with (a) woman (b) men (c) boy (d) eunuch?', 'Have you ever used condom while having sex?'. For these questions, sex with men and boys was inquired about separately since some Pakistani men may have sex with boys exclusively and yet may not consider their behaviour in the same context as having sex with a man[17].

Questions about HIV and STDs included the following: 'Have you ever heard of HIV/AIDS?', 'Can you list ways HIV or AIDS can be spread?', 'Can you list some of the measures how AIDS can be prevented?', 'If you are injected with a used syringe, what health related problems you might face?', 'Can diseases like hepatitis and HIV/AIDS be spread by already used syringes?', 'Have you ever suffered from a sexually transmitted disease?', 'Have you suffered from any of the following ailments (a) pus in urine (b) wound on penis (c) abscess inside thigh (d) warts on penis (e) pain/swelling on testicles (f) itching inside thigh or penis?', 'Have you ever been tested for HIV/AIDS?'

Statistical analyses

Chi-square (χ^2) tests were used to compare socio-demographic and behavioural characteristics across the three cities. Potential correlates of sexual behaviours among IDUs and non-drug users were explored. Analyses included frequency distributions of socio-demographic and risk behaviour variables. Bivariate analyses using χ^2 tests were conducted to compare demographic, behavioural characteristics, sexual behaviours, self-reported

Table 1. Sociodemographics, sexually transmitted disease (STD)/HIV/AIDS risk behaviours and knowledge among drug users in Quetta, Peshawar and Rawalpindi, Pakistan

Demographic characteristics	Quetta ($n=302$)	Peshawar ($n=156$)	Rawalpindi ($n=150$)	Total ($n=608$)	*P*-value (χ^2 test)
Age (years)					
20 or less	23 (7.62)	5 (3.21)	9 (6.00)	37 (6.09)	0.021
21–30	139 (46.03)	72 (46.15)	50 (33.33)	261 (42.93)	
31 or more	140 (46.36)	79 (50.64)	91 (60.67)	310 (50.99)	
Education					
No education	118 (39.20)	87 (55.77)	66 (44.00)	271 (44.65)	<0.001
5 or less years	106 (35.22)	28 (17.95)	29 (19.33)	163 (26.85)	
6–10 years	71 (23.59)	32 (20.51)	52 (34.67)	155 (25.54)	
11 or more years	6 (1.99)	9 (5.77)	3 (2.00)	18 (2.97)	
Married					
Yes	150 (50.17)	68 (43.59)	48 (32.21)	266 (44.04)	0.001
No	149 (49.83)	88 (56.41)	101 (67.79)	338 (55.96)	
Living arrangements					
Alone	68 (24.37)	62 (47.33)	91 (61.49)	221 (39.61)	<0.001
Wife and children	40 (14.34)	15 (11.45)	12 (8.11)	67 (12.01)	
Others	171 (61.29)	54 (41.22)	45 (30.41)	270 (48.39)	
Sexual partners					
Any sex with:					
Women	85 (80.19)	59 (80.82)	60 (84.51)	204 (81.60)	0.504*
Boys	16 (15.09)	11 (15.07)	11 (15.49)	38 (15.20)	
Men	5 (4.72)	2 (2.74)	0	7 (2.80)	
Eunuchs	0	1 (100)	0	1 (100)	
Multiple sex partners					
Heterosexuals	85 (51.52)	59 (60.82)	60 (60.61)	204 (56.51)	
Homosexuals	23 (13.94)	14 (14.43)	13 (13.13)	50 (13.35)	0.418
Bisexuals	57 (34.55)	24 (24.74)	26 (26.26)	107 (29.64)	
Paid money to have sex					
Ever	144 (47.68)	81 (51.92)	74 (49.33)	299 (49.18)	0.690
Never	158 (52.32)	75 (48.08)	76 (50.67)	309 (50.82)	
Reported ever having an STD					
Yes	27 (13.78)	40 (27.21)	27 (18.12)	94 (19.11)	0.007
No	169 (86.22)	107 (72.79)	122 (81.88)	398 (80.89)	
Condom use					
Ever	15 (8.77)	9 (9.47)	11 (11.70)	35 (9.72)	0.740
Never	156 (91.23)	86 (90.53)	83 (88.30)	325 (90.28)	
Heard about HIV/AIDS					
Yes	85 (28.15)	59 (38.06)	103 (68.67)	247 (40.69)	<0.001
No	217 (71.85)	96 (61.94)	47 (31.33)	360 (59.31)	
Knowledge of HIV/AIDS transmission					
None	229 (75.83)	122 (78.21)	104 (69.33)	455 (74.84)	0.418
Through sex	49 (16.23)	25 (16.03)	32 (21.33)	106 (17.43)	
Through needle-sharing	24 (7.95)	9 (5.77)	14 (9.33)	47 (7.73)	
Ever tested for HIV/AIDS					
Yes	3 (1.01)	5 (3.31)	3 (2.00)	11 (1.84)	0.20*
No	293 (98.99)	146 (96.69)	147 (98.00)	586 (98.16)	

*Fisher's exact test. Missing values [education (1); married (4); living arrangements (50); sexual partners (248); reported STD (116); condom use (248); heard about HIV/AIDS (1); tested for HIV/AIDS (11)]

STDs and HIV/AIDS knowledge among IDUs and non-IDUs and among married and unmarried drug users. Logistic regression was used to identify correlates of ever having had an STD. Statistical analysis was performed using STATA, version 7.

Results

Socio-demographic information

Socio-demographic characteristics of the study sample are reported in Table 1. Of 608 respondents, 607 (99.8%) were males and one was a eunuch. The majority (49.5%) were from Quetta, 156 (25.8 %) were from Peshawar and the remainder (25%) were from Rawalpindi. In terms of ethnicity, 325 (54%) were Pathan, 93 (15%) were Afghan, 85 (14%) were Baloch, 47 (8%) were Punjabi and 57 (9%) constituted other ethnic groups, reflecting the diversity of this population along the Pakistan–Afghan border areas. The median age was 32 years (inter-quartile range (IQR): 26–40).

Half of the respondents (50%) were married, with significantly higher proportions of married respondents in Quetta than Peshawar and Rawalpindi ($P=0.001$). One-quarter of the married

Table 2. Differentials in sexually transmitted disease (STD)/HIV/AIDS risk behaviours and knowledge among intravenous drug users (IDUs) and non-IDUs, Pakistan

Behaviour	IDUs ($n=92$)	Non-IDUs ($n=512$)	Total ($n=604$)	*P*-value (χ^2 test)
Any sex with:				
Women	32 (86.49)	172 (81.13)	204 (81.93)	
Boys/eunuchs	4 (10.81)	34 (16.04)	38 (15.26)	0.713
Men	1 (2.70)	6 (2.88)	7 (2.81)	
Sexual behaviour				
Heterosexual	32 (54.24)	172 (57.14)	204 (56.67)	
Homosexual	5 (8.47)	44 (14.62)	49 (13.61)	0.247
Bisexual	22 (37.29)	85 (28.24)	107 (29.72)	
Paid money to have sex			299 (49.50)	0.088
Ever	38 (41.30)	261 (50.98)	305 (50.50)	
Never	54 (58.70)	251 (49.02)		
Ever had an STD				
Yes	8 (12.12)	85 (20.05)	93 (18.98)	0.127
No	58 (87.88)	339 (79.95)	397 (81.02)	
Condom use				
Ever	10 (15.87)	25 (8.45)	35 (9.75)	0.071
Never	53 (84.13)	271 (91.55)	324 (90.25	
Heard about HIV/AIDS				
Yes	48 (52.17)	198 (38.75)	246 (40.80)	0.016
No	44 (47.83)	313 (61.25)	357 (59.20)	
Knowledge of HIV/AIDS transmission				
None	61 (66.30)	391 (76.37)	452 (74.83)	0.012
Through sex	17 (18.48)	88 (17.19)	105 (17.38)	
Through needle-sharing	14 (15.22)	33 (6.45)	47 (7.78)	
Ever tested for HIV/AIDS				
Yes	2 (2.22)	9 (1.79)	11 (1.85)	0.779
No	88 (97.78)	494 (98.21)	582 (98.15)	

respondents reported living with their wives and children. Forty-five percent had no formal education and only 3% had completed eleven or more years of education (Table 1). The proportion of uneducated respondents was highest in Peshawar ($P<0.001$).

The majority of subjects reported using heroin (98.7%), mostly by inhalation (i.e., 'chasing the dragon'); the remainder reporting using injection pharmaceuticals (e.g., buprenorphine, diazepam, antihistamines). A total of 92 persons (15.2%) had ever injected drugs; 18.7% in Quetta, 16.8% in Rawalpindi and 7.1% in Peshawar ($P=0.004$).

Sexual behaviours

Over half 360 (59.4%) of the respondents reported ever being sexually active; 46% in Quetta, 27% in Peshawar and 27% in Rawalpindi. Of those who had ever reported having sex ($n=360$), half (50.8%) reported having ever paid money for sex. Of those who reported having paid money to anyone for sex, 131 (49.2%) were married.

A total of 29.6% of respondents reported having had both sex with women, and/or sex with boys, eunuchs or men in their lifetime. Among the three cities, bisexuality was most common in Quetta, although differences between cities were not significant ($P=0.42$). The proportion reporting exclusively having sex with females was 56.5%, whereas the proportion reporting exclusively having sex with boys/eunuchs and men was 13.4%. The proportion of respondents reporting exclusive homosexual behaviour did not differ across the three cities. Condom use was almost negligible; only 10% had ever used a condom.

Comparing IDUs and non-IDUs, no significant differences emerged for most sexual behaviours (Table 2); however, IDUs were marginally more likely to have ever used condoms compared with non-IDUs (15.9% *vs* 8.5%, $P=0.07$). IDUs were significantly more likely than non-IDUs to have heard of HIV/AIDS and to be aware that HIV could be spread through needle/syringe-sharing compared with non-IDUs.

Correlates of ever having a sexually transmitted disease

Univariate logistic regression revealed that participants from Peshawar were four times more likely to report having had an STD (odds ratio (OR)=4.22, 95% confidence interval (CI)=2.21, 8.03) compared with participants from Quetta and Rawalpindi. Unmarried men were more likely to report having STDs as compared with married men

(OR=1.79, 95% CI=1.11, 2.88). Men who reported having sex with other men and women, were almost twice as likely to report having ever had STD as compared with men who had sex with women only (OR=1.88, 95% CI=1.07, 3.32).

Sexually transmitted diseases and HIV/AIDS knowledge

The proportion of respondents who reported having an STD was higher in Peshawar ($P=0.007$) compared with the other cities. One-third (32%) of married men reported ever having an STD. Among persons who reported ever being sexually active and who responded to the set of questions on STDs ($n=490$), 22% reported ever having had an STD, 56% reported having had pus in urine, 11% had sores in the genital area and 29% boils/lumps or itching in the genital area.

A total of 41% of respondents had heard about HIV/AIDS; of these, only 17% knew that HIV/AIDS could be transmitted through sexual contact. Very few (15.2%) of IDUs knew that HIV/AIDS could be transmitted through needle/syringe-sharing. HIV/AIDS awareness was highest in Rawalpindi (69%) compared with Peshawar (38%) and Quetta (28%) ($P<0.001$). Only 2% of the respondents had ever knowingly received an HIV antibody test.

Discussion

In our study of male drug users in three Pakistani cities, we found very low levels of condom use and HIV/AIDS awareness coupled with evidence of high-risk sexual behaviours. In particular, nearly half of the sample reported having paid to have sex, and nearly one-third reported having had sex with both females and males in their lifetime. Our data indicate the potential for transmission of HIV or STDs to the sexual partners of drug users, since almost half of this population was married. Indeed, in a recent study of IDUs in Manipur, Panda and colleagues found that 45% of their wives were HIV seropositive[18].

Although reports of sexual intercourse with commercial sex workers are common in many parts of Asia[19–22], data on homosexual behaviours are sparse. In our study, 15% of male drug users reported engaging in sex with boys. In these cities, study staff report that it is not uncommon for male drug users to have sexual relationships with street-involved children, who are often boys.

In an earlier study in Pakistan, 11% of truck drivers reported having sex with male commercial sex workers[17]. In Bangladesh (formerly known as East Pakistan), Gibney and colleagues report that in both urban and rural areas male prostitution is reported among truck drivers, hotel boys and tea/restaurant boys[19]. In a qualitative study, most men having sex with men in Bangladesh began doing so as adolescents and some who continued after their marriage reported doing so for pleasure or profit[19,20]. As in our study, condom use was very low. Anecdotal reports suggest that most of the men who engage in sex with men and boys in our study do not identify as homosexual, especially if they are the insertive partner. Similar findings have arisen from other cultures, such as the African–American community[23]. These findings indicate that traditional prevention programmes that try to target men having sex with men through the homosexual community may fail since they may not relate to these messages and do not consider themselves homosexuals. The tendency for the Islamic faith to consider homosexuality as deviant behaviour may also contribute to this problem[24].

While we lack data on the age of the male sex partners of our respondents, it is likely that most were under the legal age of consent, which in Pakistan is 18 years for males. This is cause for concern, since many of these boys may have been coerced or forced to have sex, while others may have engaged in prostitution as a means of survival on the street. Further study of the context and risk conditions of male–male sex in Pakistan is needed to ensure that the health and service needs of these subgroups are met.

Earlier studies suggest that most people in Pakistan remain unaware of HIV/AIDS, especially those who are uneducated and living in rural areas[25,26]. We found that among our respondents only 41% of drug users had ever heard about HIV/AIDS, and less than one-fifth were aware of HIV risks through sexual contact. Although virtually all of the respondents were heroin users; a very small proportion were aware that HIV/AIDS could be transmitted through needle/syringe-sharing. During the study period, not all of the study staff engaged in data collection had received formal HIV/AIDS education and such information was not regularly provided to each client. Since this study was completed, our study team has facilitated education sessions for staff members on HIV/AIDS and viral hepatitis, many of whom have since become certified HIV/AIDS counsellors.

Only 10% of the drug users we studied reported having ever used condoms and it can be expected that their use was inconsistent. Unfortunately, our findings are consistent with earlier reports. Agha found that most truck drivers in Pakistan were not aware that condoms were an effective way of preventing HIV and used condoms only within marriage as a contraceptive method[17].

It is well documented that ulcerative STDs such as syphilis and chancroid can be co-factors of HIV transmission[19,27]. In our study, 19% of the drug users reported having suffered from STDs; however, this is likely to be an underestimate since many were likely unaware of their infections. An earlier study of IDUs in Karachi found that 7% had active cases of syphilis[28]. An anthropological study carried out in Sindh, Pakistan, documents that

people in the community did not consider themselves at risk of getting STDs, which may be due at least in part to the fact that there is limited knowledge regarding causes and prevention of STDs in Pakistan[29]. A study carried out in Karachi reports that general practitioners were deficient in knowledge and skills to appropriately manage and counsel STD patients[30].

Under Pakistan's constitution, health care is a provincial responsibility. In 1987 Pakistan National AIDS Program was set up by the government to coordinate AIDS surveillance and control activities. However, provinces are expected to develop their own HIV/AIDS and STDs prevention programmes[31]. Currently, efforts by the country's four provinces are mixed and need to be further developed. The AIDS control programme of Sindh is the oldest and most extensive with regards to its activities. However, there is a consensus that HIV/STD services for the general population and high-risk populations such as drug users needs to be made more available, effective and affordable[31].

There are several limitations of our study. First, our sample was comprised exclusively of men apart from one eunuch, which reflects the clientele served by this urban non-governmental organization. Although it is recognized that most populations of heroin users over-represent males, another possible reason for this gender imbalance could be due to low empowerment of women in the society and their limitation on travelling unaccompanied outside the house. Restrictions on women's mobility limits access to information and preventive and support services. Second, self-reported cases of STDs and STD symptoms were not validated with clinical examination and/or with laboratory tests. Previous studies have shown large discrepancies between self-reported symptoms and clinical examinations[32,33]. Self-reports of sexual behaviours, especially homosexual behaviour, are also likely to be under-reported. Nevertheless, a high proportion of respondents admitted to this activity, which is indicative of the strong rapport respondents have with study staff. Lastly, since data on many sexual behaviours referred to the respondents' lifetimes rather than a specified period, we cannot make strong inferences about current bisexuality, for example, within the context of marriage.

In our study, respondents reported high-risk behaviours that could facilitate the spread of heterosexual STD and HIV infection. The lack of awareness of HIV/AIDS transmission routes, and misconceptions about the disease, may further contribute to continued high-risk behaviours by segments of the population and thus, to the spread of HIV/STDs. Pakistan's proximity to India, where HIV/AIDS is a growing issue increases the fears of a future epidemic in Pakistan. In order to avert an HIV/AIDS epidemic, Pakistani society needs to be tolerant and develop a better understanding of drug users. The country must also address the issues of public ignorance regarding HIV/STDs and face the realities of bisexuality, homosexuality, child sexual abuse, drug addiction and prostitution.

Thus far, initiatives at governmental or non-governmental level to prevent STD/HIV/AIDS in Pakistan have been minimal. At the time of writing, there was only one needle exchange programme operating in the country, in Lahore. Literature also suggests that very little is known about sexual behaviours of drug users and other high-risk populations in Pakistan. Therefore future research should focus on determining the sexual behaviours and STD status among high-risk groups, with representative samples from both genders. Programmes targeted to increase HIV/AIDS awareness should be introduced through electronic media, outreach workers, religious leaders, health workers, friends and family members. Vocational training programmes to empower drug users will improve their chances of returning back to society as productive members. More treatment services and counselling services should be introduced. Efforts such as these at community and government level are needed to avert a major HIV/AIDS epidemic in Pakistan.

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