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Original Articles

Socio-economic and Demographic Factors associated with Injecting Drug Use among drug users in Karachi, Pakistan

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Abstract

Objective: To identify the socio-economic and demographic factors associated with injecting drug users (IDUs) in Karachi.

Methods: We recruited 242 IDUs (taking drugs through sub-dermal routes) and 231 non-IDUs (taking drugs other than sub-dermal routes) from February through June 1996. IDUs were interviewed regarding socio-demographic factors, economic condition, and social network (marital status, living with spouse). In addition, information regarding location of drug users within the city (districts of Karachi) and current history of sexually transmitted diseases (STDs) were gathered. Moreover, blood samples were also obtained for HIV testing.

Results: Multivariate analysis showed that the income generation via illegal modes [AOR 1.6, 95% CI 1.0-2.6], non-sharing of income with family [AOR 1.7, 95% CI 1.1-2.7] and presence of suicidal thoughts [AOR 2.0, 95% CI 1.1-3.8] were associated with the use of drugs through injections. Further, drug users from districts West, East and Central were more likely to use drug through injection as compared to drug users from district South. The history of genital herpes was also found to be associated with injecting drug use. One IDU was found seropositive for HIV.

Conclusion: The high-risk behaviors, such as illegal modes of earning and presence of suicidal thoughts, among IDUs suggest that the group needs rehabilitation programme. Moreover, non-sharing of income suggest that IDUs are isolated from social network, therefore primary prevention activities with focus on improving socio-economic conditions and social networking can reduce drug use through injections. Focused interventions on target districts would be helpful in reducing IDU (JPMA 53:511;2003).

Introduction

Pakistan, along with Iran and Afghanistan, falls in the golden crescent, a region notorious for drug production and trafficking.[1] According to the United Nations International Narcotic Control Board, the illicit cultivation, production and trafficking of narcotic drugs almost always result in drug use amongst local population. In this regard, Pakistan is quoted as a classic example.[2] The National Health Survey of Pakistan 1993, reported approximately 2.7 million drug users in Pakistan.[3]

The morbidity and mortality associated with psychoactive drug use have been recognized worldwide. Nevertheless, the statistics regarding the extent and prevalence of drug use are difficult to obtain, as drug users are mostly under-sampled in surveys.[4] Globally, drug use poses significant health risk to an estimated 15 million people.[4,5]

Injecting is considered the worst route of drug use, accounted for 100,000 to 200,000 deaths per year worldwide. Studies have shown that drug users inject drugs in "shooting galleries"; a communal injection site located beside "Nalahs" (sewage water streams), on footpaths, or in abandoned buildings, where needles are usually borrowed for injections.[6] In many countries such as Russia, Ukraine and India, the increasing scales of injecting drug use creates a potentially massive group of individuals at risk of acquiring blood borne pathogens such as Human Immunodeficiency Virus (HIV), and Hepatitis B and C.[5,7]

In Pakistan, injecting drug use was not common until after the Afghan war, when a variety of drugs flooded from Afghanistan for transit.[8] In 1993, 1.8% drug users were injecting drugs, however, in 1995 the proportion of drug users rose alarmingly to 25%. Moreover, a study by Baqi et al reported that about 52% IDUs were sharing needles to inject drugs.[9] Further, half of those (1.52 million) IDUs were injecting heroin as narcotic drug.[1,3,10]

The United Nations International Drug Control Programme (UNDCP) has indicated an increasing prevalence of IDUs in developing countries during the past decade.[5] Studies have shown socio-economic and demographic factors, such as inadequate education[11], homelessness[12], depression[13], and low income[11], associated with injecting drug use in the developed world. However, there is a general dearth of scientific literature, especially regarding modes and determinants of drug use, in developing countries.

As injecting drug use is associated with number of morbidities, therefore, exploring associated factors will help

understand the nature of the problem and eventually address the hazards encountered by this high-risk group. Therefore, the objective of this study was to identify the socio-economic and demographic factors associated with the Injecting Drug Use among drug users in Karachi, Pakistan.

Subjects and Methods

This cross-sectional study was conducted from February through June 1996 in Karachi- the largest city of Pakistan, with a population of 9.9 million. Karachi is divided in four administrative districts: East, Central, West and South. The economic dominance in Karachi has led, in part, to massive in-migration and inhabitation by a wide variety of communities belonging to diverse ethnic, religious and linguistic backgrounds.[14]

Prior to data collection, the key informants mostly resource persons in drug treatment centers from each district were interviewed to identify habitats of drug users. Drug users were then traced and interviewed. In addition to streets, drug users were also recruited form the Central Prison, Karachi and major drug-treatment centers; namely Edhi Village, Azam Village, Al-midway Rehabilitation Center, Asghar Hospital, Karachi Addiction Clinic and Saadat Clinic.

We defined drug users as subjects taking drugs for recreational purposes. Among them, IDUs were those who took drug/drugs through sub-dermal route at least once during the past two months, with or without use of drugs from other routes. While non-IDUs were those who were taking drugs by routes other than sub-dermal injection.

After explaining the purpose of the study, verbal consent was taken and a structured questionnaire (adapted from prototype questionnaire of World Health Organization) was administered through trained staff. Subjects who were disoriented or were unable to respond to the questions asked were excluded. Drug users were interviewed with regard to socio-demographic factors (age, ethnicity, religion, city born, number of children, household members, education) social network (marital status, living with spouse, history of alcohol intake, place of residence) and economic condition (total income, employment status, source of income). In addition, information regarding district where the drug user was recruited from and current history of sexually transmitted diseases (syphilis, genital herpes, gonorrhea) were also gathered. Moreover, blood samples were also obtained for Human Immunodeficiency Virus (HIV) testing.

We divided ethnicity into five major groups (Mohajir, Punjabi, Pathan, Balochi, and Sindhi) on the basis of mother tongue. Having assessed the source of income generation, we categorized those into legal and illegal. We labeled robbery, stealing and other illegitimate ways of earnings as illegal means. The history of alcohol intake was explored by asking whether the individual had taken alcohol in his life. Similarly, subjects reported living on streets and/or having no fixed residence were categorized as "no fixed address" group. Presence of suicidal thoughts was elicited by asking whether the subject had suicidal feelings or not. We assessed the past illness of sexually transmitted diseases (STDs) by inquiring about the clinical signs and symptoms of STDs.

The study complied with the human subjects' protection requirements of the institution review board of The Aga Khan University Hospital, Karachi.

Table 1. Socio-demographic characteristics of drug users of Karachi.

Characteristics	No.	%
Age*	30.95	(±8.4)
Place of interview		
Drug treatment centers and prison	84	(17.4)
On streets	389	(82.2)
Subjects from districts of Karachi		
Central	215	(45.5)
East	72	(15.2)
South	88	(18.6)
West	98	(20.7)
Ethnicity		
Mohajir	177	(37.4)
Punjabi	140	(29.6)
Pathan	65	(13.7)
Sindhi	35	(7.4)
Baloch	23	(4.9)
Others	33	(7.0)
Religion		
Muslims	455	(96.2)
Christians	15	(3.2)
Hindus	3	(0.6)
Education		
Illiterate	237	(50.1)
Primary	125	(26.4)
Secondary or more	111	(23.5)
Marital status		
Married (living with wife)	141	(29.8)
Unmarried	312	(66.0)
Divorced\Separated\ Widowed	20	(4.2)
Employment status		
Regular	48	(10.1)
Temporary	395	(83.5)
Unemployed	30	(6.3)

* Means ± Standard Deviation

Table 2. Univariate analysis for the factors associated with injecting drug use in Karachi.

	Non-IDU (n=231)	%	IDU (n=241)	%	OR	95% CI
Socio-demographic						
Place of interview						
Drug treatment center and prison	44	(19.0)	40	(16.5)	1.0	-
On street	187	(81.0)	202	(83.5)	1.2	0.7 - 1.9
Subjects from district of Karachi						
South	63	(27.3)	25	(10.3)	1.0	-
West	24	(10.4)	48	(19.8)	2.1	1.2-3.9*
East	53	(22.9)	45	(18.6)	5.0	2.6-9.9*
Central	89	(38.5)	120	(49.6)	3.4	2.0-5.9*
Ethnicity						
Mohajirs	92	(39.8)	85	(35.1)	1.0	-
Non-mohajirs	139	(60.2)	157	(64.9)	1.2	0.8 - 1.9
Religion						
Muslims	226	(97.8)	229	(94.6)	1.0	-
Others	5	(2.2)	13	(5.4)	2.6	0.9 - 7.3
City born						
Karachi	104	(45.0)	104	(43.0)	1.0	-
Any other	127	(55.0)	138	(57.0)	1.1	0.8 - 1.7
Education						
Illiterate	128	(55.4)	109	(45.0)	1.0	-
Primary	60	(26.0)	65	(26.9)	1.3	0.8 - 2.0
Secondary or more	43	(18.6)	68	(28.1)	1.8	1.2 - 2.9*
Number of children						
≥3	42	(18.2)	36	(14.9)	1.0	-
1-2	33	(14.3)	40	(16.5)	1.4	0.7 - 2.7
0	156	(67.5)	166	(68.6)	1.2	0.8 - 2.0
Household members						
0-5	68	(29.4)	46	(19.0)	1.0	-
≥6	163	(70.6)	196	(81.0)	1.8	1.2 - 2.7*
Social network						
Marital Status						
Married	71	(30.7)	70	(28.9)	1.0	-
Unmarried	160	(69.3)	172	(71.1)	1.1	0.7 - 1.6
Living with spouse						
No	42	(18.2)	46	(19.0)	1.0	-
Yes	189	(81.8)	196	(81.0)	0.9	0.6 - 1.5

Residence						
Fixed residence	102	(47.7)	112	(52.3)	1.0	-
No fixed residence	129	(49.8)	130	(50.2)	0.92	0.6-1.3
History of alcohol intake						
No	190	(82.3)	186	(76.9)	1.0	-
Yes	41	(17.7)	56	(23.1)	1.4	0.9 - 2.2
Income sharing with family						
No	151	(65.4)	174	(71.9)	1.0	-
Yes	80	(34.6)	68	(28.1)	0.7	0.5 - 1.1
Economic conditions						
Employment status						
Temporary work	202	(87.4)	193	(79.8)	1.0	-
Regular employment	17	(7.4)	31	(12.8)	1.9	1.0 - 3.6*
Unemployed	12	(5.2)	18	(7.4)	1.6	0.7 - 3.3
Sources of income						
Legal means	182	(78.8)	158	(65.3)	1.0	-
Illegal means	49	(21.2)	84	(34.7)	2.0	1.3 - 3 .0
Monthly income (Rupees)						
≤2000	114	(49.4)	124	(51.2)	1.0	-
>2000	117	(50.6)	118	(48.8)	0.9	0.6 - 1.3
Sexually Transmitted Diseases						
Syphilis	-					
No	229	(99.1)	239	(98.9)	1.0	
Yes	2	(0.9)	3	(1.2)	1.4	0.2 - 8.7
Gonorrhea						
No	209	(90.5)	211	(87.2)	1.0	-
Yes	22	(9.5)	31	(12.8)	1.4	0.8 - 2.5
Genital herpes						
No	216	(93.5)	196	(81.0)	1.0	-
Yes	15	(6.5)	46	(19.0)	3.4	1.8-6.2
Others						
Thought of committing suicide						
No	209	(90.5)	198	(81.8)	1.0	-
Yes	22	(9.5)	44	(18.2)	2.1	1.2 - 3.7*

Laboratory Procedures

Laboratory procedures were carried out at the Department of Pathology, The Aga Khan University Hospital, Karachi. Serological testing was done for HIV-1 and HIV-2 using dipstick method (PATH; Dipstick-HIV+2). Positive samples were double tested with the same test and reconfirmation was done with Enzyme Linked Immunosorbant Assay, ELISA-11 (Enzygnosy Anti HIV-1/HIV-2; Behring).[15] We also performed anonymous linked testing of the seras, provided pre-test HIV counseling, and post-test counseling to those seeking results.

Statistical Analysis

Descriptive analysis was done by calculating means (± standard deviation) for continuous and proportions for categorical variables. Univariate analysis was performed by applying chi-square and Fisher exact tests for categorical variables. To observe the independent effect of individual factors, the potential confounders were controlled by means of logistic regression analysis and adjusted odds ratios (AOR) with their 95% confidence interval (CIs) were obtained.[16] All variables with p-value of <0.2 in univariate analysis were included in the multivariate analysis.

Statistical program Epi-Info 6 was used to enter the data and analysis was performed using Statistical Package for Social Sciences.[17,18]

Results

We interviewed 473 drug users, among them 389 (82.2%) were found on streets and 84 (17.4%) were recruited from rehabilitation centers or prison. Among drug users, 242 were IDUs and 231 were non-IDUs. All subjects were males with mean age of 30.95 ± SD 8.4 years. The majority 215 (45.5%) were recruited from district Central of Karachi. About 50% of the participants had no formal education and 83% were working as temporary employees. We also found that 312 (66%), 141 (29.8%) and 20 (4.2%) subjects were single, currently married and separated or divorced respectively (Table 1).

Factors associated with Injecting drug use

Table 2 shows results of univariate analysis with socio-demographic, economic and social network related factors taken as exposures against mode of drug use as outcome.

The multiple logistic regression analysis (Table 3) showed source of income generation [Illegal vs legal; AOR 1.6, 95% CI 1.0-2.6], sharing of income with family [No vs Yes; AOR 1.7, 95% CI 1.1-2.7] and having suicidal thoughts [Yes vs No; AOR 2.0, 95% CI 1.1-3.8] as factors significantly associated with injecting drug use. In addition, subjects living in district Central, East and West were more likely to inject the drug compared to individuals living in district South. Similarly, genital herpes was more common in IDUs [Yes vs No; AOR 4.0, 95% CI 2.0-8.0)]. One injecting drug user (IDU) was found seropositive for HIV.

Table 3. Multivariate analysis for factors associated with injecting drug use in Karachi.

	Adjusted Odds Ratio	95% CI
Subjects from district of Karachi		
South	1.0	-
West	2.5	(1.3 - 4.9)
East	6.3	(3.0 - 13.4)
Central	4.3	(2.3 - 7.8)
Share income with family		
Yes	1.0	-
No	1.7	(1.1 - 2.7)
Suicidal thought		
No	1.0	-
Yes	2.0	(1.1 - 3.8)
Sources of income generation		
Legal	1.0	-
Illegal	1.6	(1.0 - 2.6)
Genital herpes		
No	1.0	-
Yes	4.0	(2.0 - 8.0)

Discussion

Injecting drug use has long been a focus of epidemiological research and a target for pubic health interventions, especially because of the impending threat of blood-borne infections spread. Studies have been conducted among drug users in developed and developing countries, however, to the best of authors' knowledge no study is conducted to look at factors associated with injecting drug use in the local context.

In the present study, drug users generating income from illegal sources were more likely to use drugs through injections. Literature has indicated that IDUs dependence on drug is more as compared to non-IDUs, therefore they indulge themselves in illegitimate ways of earning.[19] Studies also revealed that injecting drug use increases with the rise in narcotic drug prices, as required quantity of same drug, to produce desired effect, is less through injection as compared to other routes.[20]

Sharing of income with family members depicts cohesion of the drug users with the family. We found significant association between injecting drug use and non-sharing of income with other family members.[21] This perhaps shows isolated lifestyle of drug users opting injections as mode of drug use. The close family network may help drug users in keeping themselves away from injecting drug use. Similarly, finding that injecting drug users were more likely to have suicidal thoughts compared to non-IDUs, reflects frustration and isolation among IDUs. Furthermore, suicidal thoughts or mental illness are associated with erratic behavior and use of harmful route of drug administration.[22]

Our data showed that subjects belonging to district East, Central and West were more likely to inject drugs compared to those belonging to district South. This association indicates that drug users in some localities were more prone to injecting drug use. This implies easy availability of injection equipment, peers, and localities for this mode of drug use. We also found strong association between the history of current genital herpes and injecting drug use. This suggests involment of IDUs in sexual risk

behaviors.

The low prevalence of HIV among drug users in our study is consistent with other studies conducted in Pakistan.[23-26] This may partly be explained by the relative political isolation of Pakistan from India and other HIV endemic zones.

Certain limitations of the study should be considered in interpreting the results. The hidden and scattered nature of drug users leaves us to use pragmatic ways of sampling subjects. Through this strategy, we recruited drug users from both streets and rehabilitation center/prison, however, our sample does not represent drug users taking drugs in homes. Although, through key informants, we tried our best to reach out all the streets, major rehabilitation centers, we might have missed few habitats of drug users.

Conclusion

Primary prevention activities focusing on improving socio-economic conditions and social network of drug users would help change IDUs behaviors towards non-injecting mode of drug use or even prevent them from indulging in injecting drug use. There are districts which need especial attention, as injecting drug use is more prevalent in few districts of city than others. Both non-sharing of income with other family members and presence of suicidal thoughts among injecting drug users show that these individuals are more isolated from social network. The community-based interventions focusing on social networking may help drug users with injecting drug use.

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