HIV/AIDS Risk Behaviours Among Injecting Drug Users: Addressing Development of Risk Behaviour Knowledge and Patterns of Risk Behaviour Practices in Context of Demographic Characteristics

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Objectives: The present study is aimed to investigate patterns of HIV/AIDS risk behaviour practices (sexual and syringe sharing) among injecting drug users by addressing; 1. Factors effecting acquisition of risk behaviour knowledge, and 2. Demographic and psychosocial characteristics influencing practice of risk behaviour knowledge.

Design: This is a cross sectional study, patients admitted for treatment and rehabilitation from injecting drug abuse, were interviewed and statistical testing was conducted using SPSS 10.1 to identify critical factors of risk behaviour practices.

Material and Method: 149 male injecting drug users were included in the present study; females were excluded due to insignificant representation. Patients were interviewed on a self-developed structured questionnaire for demographic and psychosocial characteristics and another structured questionnaire was used to obtain level of risk behaviour knowledge and frequency of risk behaviour practices.

Place and Duration: The study was conducted at Model Drug Abuse Control Center (MDACC), a subdivision of Department of Psychiatry and Behavioural Sciences, Bahawal Victoria Hospital, Bahawalpur, a teaching hospital affiliated with Quaid-e-Azam Medical College.

Results and Discussion: Present study investigated HIV/AIDS risk behaviour practices in injecting drug users. Results showed that only two sources of knowledge Television and Print Media significantly influenced acquisition of risk behaviour knowledge (p=0.05). Among demographic characteristics, of IDUs and their access to sources of knowledge, only socio-economic status (p=0.01) and education (p=0.001) were associated with access to sources of knowledge. Finally, the study concerns with differences in demographic characteristics and their association to risk behaviour practices. Post Hoc analysis of demographic characteristics showed that only middle level of education predicted low syringe sharing risk behaviours with (Mean difference = -1.19, P =0.03). Sexual risk behaviour was predicted by marital status and Living status. Patients living alone showed higher levels of risk behaviour practices than patients living with parents (Mean difference = 1.61, P = 0.001) and patients living with family (Mean difference = 1.31, P =0.02). In addition, high frequency of injections predicted higher levels of risk behaviour practices.

Conclusion: The study reveals some flaws in HIV/AIDS risk behaviour preventions programs, as more access to channels of sources didn't predict low risk Behaviour. Serious efforts are required in awareness campaigns by considering specific needs of injecting drug users.

Key Words: HIV/AIDS, Injecting Drug Users (IDUs), Sexual risk behaviours, Syringe sharing risk behaviours, and Demographic and Psychosocial characteristics.

Introduction

In World Health Organization (WHO) latest statistics, Pakistan is ranked 53rd by ratio of population with HIV/AIDS. Although prevalence of HIV/AIDS is low, Pakistan is considered a country with rich profile of high risk groups and thus HIV/AIDS situation may reach to an alarming situation if protective measures are not taken. Among these high risk groups Injecting drug users (IDUs) are one of the potential contributors. According to a report compiled by Nai Zindgi in June 2005, HIV prevalence is 6.2% in IDU's in Pakistan. It is well established fact that injecting psychoactive drugs adds to substantial health consequences associated with illicit substance abuse.[12] In particular, injection drug use is a major contributor to the spread of the human immunodeficiency virus (HIV), and accounts for approximately one in four new cases of AIDS.[32] In a study by Dinwiddie et al. (1996) Injection drug users (IDUs) reported more HIV risk behaviours as compare to general population.[6] IDUs represent the second most frequent exposure category among persons with AIDS in the US, with about one-quarter of the cumulative AIDS cases consisting of IDUs.[1,13,24] Rai, et al. 2007, reported injection drug users (IDUs) as the future highest potential source in promotion of HIV in Pakistan.[31]. As risk prevention studies has shown importance of individual and group characteristics in implementation of risk prevention program, considering the threat of HIV and other epidemics, many researchers has focused IDUs in Pakistan and reported risk behaviour practices.[22&30] In their study Emmanuel et al. reported HIV risk injection practices including: group injecting (83.2%), sharing syringes (58.7%), and re-

using used syringes (78%). Furthermore, various risky sexual practices included multiple partners (24%), homosexuality (10.8%), and sexual contacts with commercial sex workers (CSW) (20.8%), and with transvestites (3.3%).[7] Although demographic characteristics and risk behaviour practices are well documented in several studies conducted in Pakistan in both clinical.[2,33] and non-clinical[10] population yet limited work has been done to explore patterns or differences of risk behaviour practices within IDUs. Deeper understanding of psychosocial characteristics and drug use histories of injection drug users (IDUs) may ultimately improve clinical ability to identify those at risk for development of HIV. Our study is aimed to explore high and low risk groups within demographic characteristics of IDUs.

Studies of risk behaviours in IDUs reported two major types of risk behaviours: first syringe sharing and reusing, and second risky sexual behaviours. Some studies demonstrated clearly that injection occurs often in group setting and that sharing drugs and injection paraphernalia is common,[3,9,17,20,25,27,29] while others reported high level of sexual risk behaviours.[23] It is currently estimated that sexual partners of IDUs are one of the fastest growing populations of people with HIV and AIDS.[5,28] Both aspects of risk behaviours (i.e. sexual and syringe sharing) are equally important in development and implementation of risk prevention programs. As reported by Karl, et al. 2001, declines in needle sharing due to availability of interventions such as needle exchange programs, the attributed risk of HIV infection due to sexual transmission can be expected to increase.[21] Considering this fact, present study is designed to investigate both (i.e. sexual and syringe sharing) risk behaviour differences individually in context of demographic characteristics.

Studies indicate that HIV risk behaviours vary greatly among IDUs. The source of such variation is often ascribed to individual differences.[14] Factors which have been associated with risky behaviour in IDUs consist of (1) informational deficits, including a lack of knowledge about HIV transmission and prevention, and (2) use of incorrect "decision rules" to decide whether or not to practice safer behaviours (e.g. rules to the effect that if one is in a monogamous relationship with a partner, safer sex is unnecessary).[11,35,39] For HIV negative people, there is an information processing bias leading them to assume that sexual (and possibly needle sharing) partners are probably also HIV negative, which may elicit risky behaviour.[26] Holtzman et al. (1994) reported that high school students who had a greater level of HIV knowledge were less likely to have had multiple lifetime sex partners or to have injected illicit drugs.[15] In his study Waddy GL. (1996) reported age and education levels as significant predictors of knowledge about HIV transmission.[38] In a survey Jimenez & Lee found that a great majority of Filipino urban men were not at risk of acquiring and transmitting HIV, had moderate to high knowledge concerning HIV transmission routes and about the means of protection from the disease and majority of the men had learned about HIV/AIDS prior to the survey from television, radio, newspapers/magazines and books.[18] In their study, Brabant, et al. (1990) showed that for injecting drug users, main sources of information about AIDS were TV and papers (67%). Only 5.8% IDUs received information from their doctors and 11.4% from brochures.[4] First part of the present study addresses acquisition of risk behaviour knowledge. We will investigate effectiveness of sources of knowledge. We hypothesized that more exposure to sources of knowledge causes an increase in risk behaviour knowledge and thus causes a decline in risk behaviour practices. In addition we investigated demographic characteristic of IDUs, which have potential to increase access to channels of information.

Patterns of heterosexual and homosexual partnership vary substantially by age, residence, and marital status in Greater London.[19] In their study Essien et al. (2004) reported that primary source of income is associated with high HIV risk behaviour, particularly whose primary source of income is illegal (i.e. sex for money or sex for drug) reported high HIV risk behaviours[8]. Low education levels were associated with sexual risk behaviours as compared to high education levels,[37] whereas Vanichseni, (2002) reported that educational level and gender are not related to levels of risk Behaviour and Behavioural change over time.[36] Jimenez & Lee reported that among the three age categories of men, the youngest age group15-24 exhibited substantial risky sexual behaviours.[18] In there study Smereck & Hockman, (1998) found that on-the-street homeless drug users were at strong risk for acquisition and transmission of HIV infection.[34] Above mentioned studies present evidences about active role of demographic characteristics in risk behaviour practices (sexual & syringe sharing). The present study consisted of three parts: In first part, we investigated effectiveness of sources of knowledge, in second part dealt with demographic characteristics and the access to channels of sources and finally in third part of the study we explored differences in sexual and syringe sharing risk behaviour in context of personal and demographic characteristics.

Methodology

Model Drug Abuse Control Center (MDACC) is an integral part of the Department of Psychiatry, Bahawal-Victoria Hospital, a teaching hospital associated with Quaid-e-Azam Medical College, Bahawalpur. The center offers free community and treatment services for drug users with a team of trained sociologists, psychologist and psychiatrists. In its revised drug abuse treatment and rehabilitation program the center introduced a number of recreational facilities along with psychotherapy and chemotherapy for the treatment of drug users. Present study was conducted on the injecting drug users who received treatment from the center during three years i.e. 2003-2005. Focus was on street drug users who do not have access to treatment facilities due to lack of awareness or lack of finances but on the other hand they are the high risk group for HIV and other viral infections. Trained community workers approached this HIV high risk

group of drug users and motivated them to take treatment for their addiction.

Addicts, convinced to take treatment, were admitted in MDACC, for treatment and rehabilitation after initial medical check-up. Questionnaires related to their demographic characteristics and risk Behaviour practices were filled for each patient during his first session with psychologist. In the present study male injecting drug users only were included. To control gender differences female IDUs taking treatment at MDACC were excluded as only limited number of female IDUs were neither a good comparison group nor a true representative group of female injecting drug users. One way ANOVA were conducted to see mean differences in risk Behaviour of male injecting drug users. Further analysis was conducted by computing Post Hoc (LSD) to investigate demographic and psychosocial characteristic critical for syringe sharing and sexual risk behaviour practices.

Table 1:

Factors	Dependent Variable	Groups	N	Mean	F	P
Sources of knowledge	Sexual Risk Behaviours	0	8	3.38	4.12	0.01
		1	83	4.08		
		2	51	4.61		
		3	7	3.71		
	Syringe Sharing Behaviours	0	8	0.75	3.18	0.03
		1	83	1.84		
		2	51	1.94		
		3	7	0.71		
	Risk Behaviours (Total)	0	8	4.13	6.17	0.00
		1	83	5.93		
		2	51	6.55		
		3	7	4.43		

Results

A total of 149 male injecting drug users were admitted in three subsequent years since 2003. Only 8 patients were un-aware of AIDS, rest of 141 patients had some knowledge about the disease Major variable risk behaviours was categorized into two subtypes i.e. sexual risk behaviours and syringe sharing risk behaviours. Data was analyzed in three parts: first part deals with sources of knowledge and status of risk behaviour practices, second part consist of demographic characteristics and their association with access to sources of knowledge, and third part is investigates association of demographic characteristics with risk behaviour status of injecting drug users. Table 1 and 2 present results from first part of the study. In the first part we hypothesize that addicts having more sources of knowledge have less risk behaviour practices as the general belief that more sources leads to better and effective knowledge.

Table 2:

Factors	Dependent Variable	Groups	N	Mean	F	P
T.V	Sexual Risk Behaviours	No	22	3.95	1.16	0.28
		Yes	127	4.25		
	Syringe Sharing Behaviours	No	22	1.27	3.21	0.08
		Yes	127	1.85		
	Risk Behaviours (Total)	No	22	5..23	4.02	0.05
		Yes	127	6.10		
Print Media	Sexual Risk Behaviours	No	143	4.21	0.01	0.93
		Yes	6	4.17		
	Syringe Sharing Behaviours	No	143	1.83	6.73	0.01
		Yes	6	0.33		
	Risk Behaviours (Total)	No	143	6.03	3.79	0.05
		Yes	6	4.50		

Five sources of knowledge were investigated and results showed that no one has access to all five sources of knowledge. It is evident from the results in table I that there is significant mean difference in sexual risk behaviours (p= *0*.01) and syringe sharing risk behaviours (p=0.03) in all groups from lowest to highest in terms of excess to sources of knowledge but on the other hand result indicated a different pattern stating that addicts having more access to channels of knowledge appeared with more sexual and syringe sharing risk behaviour. Those having no source of knowledge and thus unaware of AIDS showed least risk behaviours i.e. 3.38 for sexual and 4.13 for syringe sharing risk behaviours, others with access to 1, 2 and 3 sources of knowledge have mean sexual risk behaviours 4.08, 4.61 & 3.71 and mean syringe sharing risk behaviours 5.93, 6.55 & 4.43 respectively.

Only exception was in the group of patients having access to three sources of knowledge. To explore this excep-

tion which caused decrease in risk behaviours, we performed individual ANOVA for all five sources of knowledge. Only two sources of knowledge appeared to have significant effect on risk behaviour practices, results are presented in Table II. It is evident that television and print media are only two sources of knowledge with some effect on risk behaviours of addicts with a (p=0.05). Further analysis by partitioning risk behaviours showed that only syringe sharing risk behaviours are effectively influenced by the two sources of knowledge but with a different pattern, i.e. print media appeared to decrease syringe sharing practices whereas television appeared to a slight increase the syringe sharing risk behaviour practices but (p=0.08) represented that even this slight increase was not significant.

In the second part of the study we investigated access to sources of knowledge of injecting drug users in reference of their demographic characteristics. As distribution of sources in the normal population is based on certain demographic characteristics (e.g. Socio Economic Status, Education, Living Status and Profession, we hypothesize that these demographic characteristics are also associated with availability of sources of knowledge for injecting drug users.

Table 3:

Age	**F**	**P**
Age	.701	.593
Education level	6.283	0.000
Locality	0.788	0.376
Marital Status	2.158	0.119
Source of Income	2.923	0.028
Income Level	2.923	0.010
Dependency	13.356	0.000
Living Status	0.611	0.656
Current Employment Status	0.374	0.542
Occupation	1.307	0.216

The results are shown in table 3. It is evident that variables related to Socio Economic Status such as Income Level (p= 0.0001), Source of Income (p=0.02) and Dependency (p=0.0001) are clearly associated with access to sources of knowledge. Other then these variables, only Education level (p=0.0001) appeared to have association with access to sources of knowledge. Further analysis by computing Post Hoc (LSD) showed that education level has a direct relation with access to sources of knowledge. It appeared that higher the level of education more is the access to sources of knowledge. Post Hoc analysis of Income level showed that group with no income significantly differ in access to sources of knowledge then other groups of income level but no significant difference appeared between other income groups. Analysis of sources of income showed that addicts who are dependent on family have significantly more access to sources of knowledge as they may be sharing all sources of their family.

Table 4:

Demographic Characteristics	**Sexual Risk Behaviour**		**Syringe Sharing Risk Behaviour**	
	F	***p***	**F**	***P***
Age	.555	.695	.722	.578
Education Level	1.621	0.172	5.058	0.001
Marital Status	5.639	0.004	0.314	0.731
Source of Income	0.918	0.494	0.933	0.483
Level of Income	0.853	0.531	1.696	0.126
Dependency	1.922	0.168	2.721	0.101
Living Status	2.700	0.033	0.927	0.450
Current Employment	7.135	0.008	8.696	0.004
Frequency of Injection	2.902	0.037	0.265	0.851

Table 4 presents results from third part of the study. We intended to explore relationship between demographic characteristics and risk behaviour practices. It is evident from Table IV that syringe sharing risk behaviours are associated with Education Level (p=0.001). An increasing pattern of syringe sharing risk behaviours can be followed from uneducated to Matric level education whereas only highly educated i.e. F.A is inversely associated with risk behaviour practices. It is evident from Post Hoc analysis presented in Table 5 that middle level of education is associated with low risk behaviours than low and high education levels. Although uneducated group showed less syringe sharing risk behaviours yet this group was higher on risk behaviour than middle and high level groups.

Marital status is only significantly associated with sexual risk behaviours (p=0.004). Mean risk behaviour of singles, married and separated appeared as 3.83, 4.36 & 5.17 respectively. In Table 5 Post hoc analysis showed that singles have significantly less sexual risk behaviours than married and separated, although married appeared to have less sexual risk behaviour than separated yet difference was not significant with a high ($p=0$.10). Although Level of Income and Dependency seem to have some effect on Syringe Sharing Risk Behaviours with a (p=0.12 & 0.10) respectively yet all the three variables related to Socio Economic Status i.e. Source of Income, Level of Income and Dependency are neither significantly related to Sexual Risk Behaviours nor to Syringe Sharing Risk Behaviours. As was

expected living status explained some of Sexual Risk Behaviours, Post Hoc analysis Table VI showed that those living alone have higher Sexual Risk Behaviours than those living in family (p=0.02) and those living with parents (p=0.001). Although those living on street also appeared to have high Sexual Risk Behaviours yet the difference was not significant.

Although mean difference between currently employed (n = 59) and unemployed (n = 90) was significant for Sexual and Syringe Sharing Risk Behaviour, yet the analysis showed a complex pattern. Unemployed were significantly low on Sexual Risk Behaviour (p=0.008) with Mean 4.00, then employed with Mean 4.53 whereas inversely for Syringe Sharing Risk Behaviour. Unemployed were significantly high (p=0.004) with Mean 2.03, then employed with Mean (1.36). Frequency of injecting drug of abuse is another variable significantly associated with Sexual Risk Behaviours (p=0.03). A clear pathway can be followed from the Post Hoc analysis presented in table VI. The table represents that high frequency of injecting drug, predict higher Sexual Risk Behaviour.

Discussion

In first part of the study, five sources of knowledge (i.e. T.V, Print Media, Radio, Friends, and Staff of treatment center) were investigated against sexual and syringe sharing risk behaviours. Sources of knowledge predicted both sexual and syringe sharing risk behaviours but in an inverse pattern that is access to more sources of knowledge predicted an increase in risk behaviours. This inverse relationship is not surprising as different campaigns related to know- ledge about HIV/AIDS on media in Pakistan are not developed in a way to attract attention of this high risk group. Mostly such campaigns are designed for general public and such campaigns fail to attract serious attitude of injecting drug users (IDUs). On the other hand most of the sources investigated here are perceived as sources of recreation and enjoyment instead of sources of knowledge and thus it can be concluded that more access to these resources for recreation and enjoyment can be associated with less serious acquisition of knowledge. Although results contradicted some studies[15,38] yet these results can be explained by biases in information processing.[11,26,35,39] Individual analysis for sour-

Table 5:

Post Hoc Tests (Multiple Comparisons)LSD				
Dependent Variable	**(I) Level of Education**	**(J) Level of Education**	**Mean Diff. (I-J)**	**Sig.**
Syringe Sharing Risk Behaviours	Non	1 – 5	-.71(*)	0.01
		5 – 8	0.32	0.26
		Matric	-0.87	0.11
		F.A	0.70	0.08
	1 – 5	5 – 8	1.04(*)	0.00
		Matric	-0.15	0.78
		F.A	1.42(*)	0.00
	5 – 8	Matric	-1.19(*)	0.03
		F.A	0.38	0.34
	Matric	F.A	1.57(*)	0.01
Sexual Risk Behaviours	**(I) Marital Status**	**(J) Marital Status**	**Mean Diff. (I-J)**	**Sig.**
	Single	Married	-.54(*)	0.01
		Separated	-1.34(*)	0.01
	Married	Separated	-0.80	0.10

Table 6:

Post Hoc Tests (Multiple Comparisons) LSD				
Dependent Variable	**(I) Living with whom**	**(J) Living with whom**	**Mean Diff. (I-J)**	**Sig.**
Sexual Risk Behaviours	Parents	Family	-0.30	0.13
		Alone	-1.61(*)	0.00
		Street	-0.35	0.49
		Relatives	-1.01	0.23
	Family	Alone	-1.31(*)	0.02
		Street	-0.04	0.93
		Relatives	-0.71	0.40
	Alone	Street	1.27	0.08
		Relatives	0.60	0.54
	Street	Relatives	-0.67	0.49
	(I) Frequency of Injection	**(J) Frequency of Injection**	**Mean Diff. (I-J)**	**Sig.**
	1	2	-.93(*)	0.03
		3	-1.18(*)	0.00
		More then 3	-1.07(*)	0.01
	2	3	-0.25	0.37
		More then 3	-0.14	0.59
	3	More then 3	0.11	0.63

ces of knowledge showed that only two sources of knowledge (Television and Print Media) predicted risk behaveours where as analysis for subtypes of risk behaviour presented that only Print Media was significantly associated with syringe sharing risk behaviours and none of the sources of knowledge predicted sexual risk behaviours. These results showed a real picture of Pakistani media as sex education and sex related risk behaviours are not accepted on public media, and people hesitate to talk about sexual complications and risk even with their friends. Our results were partially supported by findings of Jimenez and Lee in their survey about risk of acquiring and transmitting HIV and also by some earlier studies.[4,18]

In the second part of the study, access to sources of knowledge of IDUs was investigated in reference to their demographic characteristics. It was hypothesized that certain demographic characteristics (e.g. Socio Economic Status, Education, Living Status and Profession) are associated with access to sources of knowledge. Findings from this part of investigation can be useful in developing awareness programs for harm and risk reduction. Results showed that variables related to Socio Economic Status (i.e. Income Level, Source of Income and Dependency) are clearly associated with access to sources of knowledge. Income level showed that group with no income is significantly low in excess to sources of knowledge than other groups of income level, but no significant difference appeared between others income groups. IDUs living in families appeared to have significantly more access to sources of knowledge as was expected, since this group was sharing all available sources of family. A joint family system in Pakistan allows sharing of sources in all members of family. Level of Education also predicted access to sources of knowledge. It appeared that higher level of education causes more access to sources of knowledge. These findings are according to our assumption as it is evident that uneducated group can not take advantage of print media. These results were consistent with earlier findings about distribution of sources.

Third part of the study deals with relationship between demographic characteristics and risk behaviour practices. Certain variables were investigated and results showed that an increasing pattern of syringe sharing risk behaviours can be followed from uneducated to Matric level education whereas only highly educated i.e. F.A is inversely associated with risk behaviour practices. Furthermore, middle level of education is associated with low risk behaviour than low and high education levels. Although uneducated group showed less syringe sharing risk behaviours than primary level group yet this group was higher on risk behaviour than middle and high level groups. Contradictory findings are reported in earlier research. Results of the study are partially consistent with Verhouden, 1991 where as contradicted with Vanichseni, 2002.[36,37] Marital status is significantly associated only with sexual risk behaviours and it appeared that singles have significantly less sexual risk behaviour than married and separated, although married appeared to have less sexual risk behaviours than separated yet difference was not significant. Earlier research reported association of sexual risk behaviours with Marital Status, Age, and Residence.[19] All the three variables related to Socio Economic Status (i.e. Source of Income, Level of Income and Dependency) are neither significantly related to Sexual Risk Behaviours nor to Syringe Sharing Risk Behaviours. In association with our assumption, living status explained some of Sexual Risk Behaviours. IDUs living alone showed high risk behaviours than those living in family and with parents. Although difference was not significant but those living on street showed greater sexual risk behaviours than others groups of IDUs. Partial support for our findings is available in earlier work by Smereck and Hockman, (1998). Unemployed were found to be high on syringe sharing risk behaviours as was expected in absence of syringe exchange program in that part of the country. Frequency of injecting is also significantly associated with sexual risk behaviours. Results were not surprising as case histories of IDUs presented the evidence that a significant number of people started or shifted toward injecting drugs because of sexual problems.

Conclusion

The present work describes HIV/AIDS in IDUs. Addicts who were single, employed and living with their parents or family showed significantly less sexual risk behaviours as compare to married, unemployed, separated or living alone.

The study reveals some flaws in HIV/AIDS risk behavior preventions programs, as more access to channels of sources didn't predict low risk behaviors. Serious efforts are needed in awareness campaigns by considering specific needs of injecting drug users.

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