

Original Research Article

Influence of behavioral characteristics of people who inject drugs on uptake of harm reduction services: an observational study

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ABSTRACT

Background: People who inject drugs (PWID) are stigmatized and discriminated against and consequently experience barriers to essential services, which limit their access to care. Without the necessary treatment and unaware of the risks associated with injecting drug use, they remain vulnerable to HIV, hepatitis B and hepatitis C infections by sharing contaminated injecting equipment. Harm reduction programs are beneficial in reducing the risk of spreading these infections; however, uptake remains low at less than 20-40% in Sub-Saharan Africa. The study sought to assess the influence of behavioral characteristics of PWID on uptake of harm reduction services in Nairobi City County, Kenya.

Methods: A cross-sectional study design was adopted using respondent-driven sampling to recruit participants in the study. Descriptive and bivariate analyses were carried out. One hundred ninety-two respondents participated in the study, 126 (66%) male and 66 (34%) female. About 71.35% of respondents had low uptake, and 28.65% had high uptake of harm reduction services. The relationship between period of injecting and uptake of harm reduction services was statistically significant at $X^2=7.079$, p value 0.029.

Results: PWID injecting on a less frequent basis were significantly more likely to have adopted harm reduction practices. Peer group support, as well as support from family, were also statistically significant at $X^2=7.87$, $p=0.005$ and $X^2=21.869$, $p<0.001$ respectively. These findings suggest that support from peers or family is likely to increase their probability of adopting harm reduction services.

Conclusions: In summary, advocacy, peer support groups and social support networks are encouraged for harm reduction. A study on other factors influencing uptake of harm reduction services may be considered based on the health belief model or the socio-ecological model.

Keywords: PWID, Harm reduction, Opiate substitution treatment (OST)

INTRODUCTION

Globally, approximately 15.6 million PWID, with widening geographic distribution in Africa.¹ In the Eastern Africa community (EAC) region, there is an estimated 262,000 drug users, accounting for one-fifth of Africa in total.² In Kenya, it is estimated that there are over 18,000 PWID, with 6,216-10,937 in Nairobi city county and 3718-8500 in the coastal region. Evidence

shows increasing numbers in Kisumu, Migori, Thika and Nyeri.³ Injecting drug use is a public health concern as morbidity rises due to transmission of blood-borne viruses, consequently causing HIV, hepatitis C and hepatitis B infections through sharing contaminated injecting paraphernalia. Globally, 17.8% PWID are living with HIV, 9.1% with hepatitis B and 52.3% with hepatitis C, resulting in an increase in disability-adjusted life years (DALYs) credited to these diseases.¹ In Kenya, the prevalence of HIV among PWID is estimated at 18%

against 4.9% in the general population (KENPHIA, 2018).

PWID are marginalized, stigmatized, and discriminated against by the general population and healthcare providers, and consequently, they experience barriers to essential services that limit their access to care. Violence, homelessness, joblessness, lack of monetary and social support experienced by PWID may exacerbate adverse health among this population. Without the necessary treatment and unaware of the risks associated with injecting drug use, PWID remain vulnerable to HIV, hepatitis B and hepatitis C infections through the sharing of contaminated injecting equipment. Harm reduction focuses on working with this population without judgement or discrimination by removing human rights-related impediments to health service provision.

Harm reduction encompasses policies, programs, and practices whose primary purpose is to decrease the adverse social, economic, and health consequences of drug use, including transmission of HIV, without necessarily cutting drug use itself.^{4,11} The Kenya national HIV/AIDS strategic plan (2009-2013), for the first time, recognized key populations and harm reduction strategies to tackle the spread of HIV in these groups.⁵ The WHO, UNODC and UNAIDS developed a comprehensive package of interventions essential for reduction of drug-related infectious diseases. The interventions include opiate substitution therapy (OST) such as methadone assisted therapy (MAT), needle and syringe programs (NSP), vaccination of hepatitis B, diagnosis and treatment of hepatitis C, prevention and treatment of sexually transmitted infections (STI), condom distribution programs, targeted information, HIV testing services, antiretroviral therapy (ART), and diagnosis and treatment of TB.

The most significant impact is attained when all the strategies in the comprehensive package are affected jointly. However, prioritization should be on NSP, OST/MAT and diagnosis and treatment of hepatitis C and HIV infections for the PWID community.⁶ OST is highly effective in reducing injecting behaviors and high coverage of NSP and OST services can cut the risk of hepatitis C virus infection by 74%.⁷ Data has shown the benefits of Harm Reduction programs in reducing risky injecting behaviors and consequently preventing the spread of HIV, HBV and HCV infections. Nonetheless, coverage of harm reduction services globally remains insufficient.⁷ Coverage is the percentage of people at risk reached by an intervention, preferably with enough intensity to have a probable impact.⁸ Less than 1% of PWID live in sites with high coverage of OST and NSP services.⁶

It is recommended by the WHO, UNODC and UNAIDS that about 60% of PWIDs be consistently reached with clean, new needles/syringes with approximately 200 needles/syringes distributed per person per year.

Similarly, about 40% of those dependent on opioids be registered for OST.⁶ Studies have revealed that the coverage of harm reduction services is relatively low in Sub-Saharan Africa, varying from less than 20% to 40%.⁷ Needle/syringe sharing at last injection was more common in Nairobi (23%) than the coast (4%) in an assessment evaluating NSP.¹⁰ In Kenya, by 2016, 155 sterile needles and syringes were distributed to each PWID.⁷

A study carried out in South Africa found that the risk of HCV is associated with an increased frequency of injecting drugs. The majority of the study participants reported injecting at least four times a day and had limited access to clean, unused injecting apparatus, whereby each PWID receives around 10 to 14 sterile needles and syringes either once or twice a week. In 2018, 88% of PWID reported using a sterile needle and syringe the last time they injected drugs, with Mombasa County having the highest proportion. Similarly, more women than men reported using a new needle/syringe.¹² The findings of the national AIDS and STIs control program (NASCOP) survey reported 15% of PWID shared needles/syringes the last time they injected. Condom use at last sexual encounter with non-regular partners was lowest in Nairobi County compared to Mombasa and Kilifi counties.

The Nairobi city county HIV and AIDS strategic plan 2015/2016-2018/2019 aims to extend services for HIV testing and prevention up to 80% to all susceptible populations through an increase of harm reduction services by scaling-up the number of drop-in centers and strengthening welfare of key population (KP) in delivery of non-discriminatory services. The purpose of this study was to assess the influence of behavioral characteristics of PWID on uptake of harm reduction services in Nairobi city county. The findings of the study will help understand the extent of utilization of available harm reduction services by PWID. It will enhance ways in which interventional efforts may be optimized and guide the provision of inclusive and holistic services. The study will build on preliminary global research on harm reduction services targeting PWID thereby providing a basis for policy development in the future.

METHODS

Research design

We used a cross-sectional study design to determine the association of independent variables with dependent variables. This study used both quantitative and qualitative approaches in data collection.

Dependent variable

We defined the dependent variable as the uptake of harm reduction services. This was assessed by whether one had utilized the following services in the previous 3 months;

MAT, access to condoms, HIV testing services, hepatitis B vaccination, hepatitis C treatment, NSP and demonstration of correct use of NSP commodities. To determine the level of uptake across the six different types of harm reduction services measured, we created two categories, 'low' and 'high' were created. Those who took up NSP, MAT and testing and treatment for HIV and hepatitis within the previous three months (September to November 2020) were considered 'high'. Those who had not taken up the four critical services for PWID (MAT, NSP, HIV testing services and hepatitis C treatment) within the previous three months were considered 'low'.

Intervening variable

The intervening variable was level of perception, which was measured as perceived benefits and perceived risk.

Independent variables

The independent variable was behavioral characteristics of PWID measured by: drug use history; injecting behavior; health beliefs about MAT; support from family/friends; peer support groups.

Study population

The study was carried out among PWID in Nairobi city county, Starehe sub-county respondents were community based and with the help of peer educators they were found at different hidden 'dens' where they commonly socialize. It is estimated that there are 6,216-10,937 PWID in Nairobi city county. Consequently, Nairobi city county was selected as the study area due to higher numbers of PWIDs with existing evidence from earlier studies demonstrating injection drug use to be high in the Nairobi CBD, Starehe sub-county.

Inclusion criteria

Eligible participants were males and females 18 years and older who reported injecting illicit drugs at least once in the preceding 3 months, lived in Nairobi, participated voluntarily and provided written informed consent.

Exclusion criteria

People who injected drugs for medical purposes or treatment of illness and those mentally incapacitated during the study were excluded from the study.

Sampling techniques and sample size

We used respondent-driven sampling (RDS), is a modified snowballing technique intended to overcome many of the challenges of chain referral sampling. PWID are a hidden community that hardly is accessed through standard sampling methods. Through administering unique coupons to subjects, participants are randomly selected using a unique identifier number on a coupon.

First, 6 initial participants were selected purposively based on established interaction with the study population of PWID. These participants were each provided with two unique recruitment coupons, used to enlist other drug users in their network. These new sample members were then offered recruitment coupons that they could use to enlist others. Subjects continued recruiting more PWID, until the required sample size was obtained. This process recurred with consequent recruits up to a point where the research team recognized that recruitment was repeated or stalled and that saturation had been reached. Sample size for this study was computed based on the Fisher's et al formula which was estimated at 218 respondents.

Ethical considerations

All participants gave informed consent and participation was voluntary. Confidentiality was ensured by maintaining anonymity during collection of individual information since there was no indication of their names or identification numbers anywhere. Ethical clearance and approvals were sought from; Kenyatta university graduate school and Kenyatta university ethics and review committee. Research permit was sought from national commission for science, technology and innovation (NACOSTI) and further approval obtained from Nairobi metropolitan services-health and administrative services.

Data collection and analysis

We administered structured questionnaires to PWIDs who were 18 years and older and who gave informed consent. Key informant interviews (KIIs) conducted for following: head of MAT program; Starehe Sub-County key population lead; and head of civil society organization-Nairobi outreach services trust, Ngara (NOSET). Secondary data from community-based organizations and MAT program database were also collected. Data entry was done on MS excel where data were cleaned, verified and double-checked to ensure data quality.

Cleaned data were later transferred to SPSS v.23 for analysis. Descriptive analysis was done using frequencies and percentages. The descriptive analysis was presented in tables and figures. Bivariate analyses were done in order to establish the influence of the independent variables on the dependent variable by chi-square analysis which was done using chi-square statistics. Statistical significance between groups was assessed at conventional probability value of 0.05 at 95% confidence interval.

RESULTS

A total of 192 questionnaires were administered by trained research assistants giving a response rate of 89%. The majority of the respondents 125 (65.1%) were male, while 67 (34.9%) were female. Most of the respondents 103 (53.6%) were below thirty years of age while 69 (35.9%) were between ages 31-39. Those above 40 years of age were the minority 20 (10.4%).

Table 1: Socio-demographic factors, (n=192).

Socio-demographic factors		F	%
Gender	Male	125	65.1
	Female	67	34.9
Age (Years)	<30	103	53.6
	31-39	69	35.9
	>40	20	10.4
Education	None	29	15.1
	Primary	99	51.6
	Secondary	45	23.4
	College/higher education	19	9.9
Employment	Not employed	122	63.5
	Self-employed	24	12.5
	Sex worker	22	11.5
	Casual worker	17	8.9
	Transport industry	7	3.6
Living situation	Alone	39	20.3
	With family	32	16.7
	With peers	26	13.5
	Homeless	95	49.5
Marital status	Single	127	66.1
	Separated/divorced	58	30.2
	Married	7	3.6
Type of health insurance	None	184	95.8
	NHIF	8	4.2

Table 2: Uptake of harm reduction services.

PWID services	Yes (%)	No (%)
MAT	67 (34.9)	125 (65.1)
NSP and demonstration of correct use of NSP commodities	182 (94.8)	10 (5.2)
Access to condoms	191 (99.5)	1 (.5)
HIV testing services	185 (96.4)	7 (3.6)
Hepatitis B vaccination	187 (97.4)	5 (2.6)
Hepatitis C treatment	11 (5.7)	181 (94.3)

The majority of respondents 137 (71.4%) had a low uptake of harm reduction services with a minority 55 (28.7%) having high uptake of harm reduction services. The findings suggest that in general PWID have a low uptake of crucial harm reduction services.

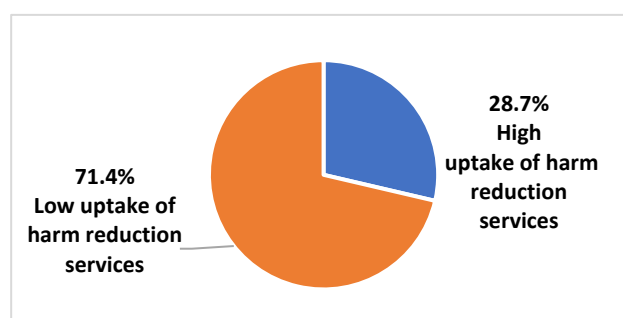
**Figure 1: Uptake of harm reduction services.**

Table 3 below shows that the majority of respondents 124 (64.6%) indicated that they used a condom the last time they had sex with a regular partner and a commercial partner while 48 (25%) indicated they did not use a condom and 20 (10.4%) indicated that they do not know if they used a condom or not.

Most of the respondents 90 (46.9%) indicated that they were extremely worried that they had been exposed to HIV, 53 (27.6%) were moderately worried, 27 (14.1%) were slightly worried, and 22 (11.5%) were not worried at all. In terms of hepatitis C, most of the respondents 90 (46.9%) were extremely worried and 27 (14.1%) were slightly worried and 22 (11.5%) were not worried at all.

Table 3: Level of perception, (n=192).

Variables		F	%
The last time you had sex with a regular partner or a commercial partner, did you or your partner use a condom?	Yes	124	64.6
	No	48	25.0
	Don't know	20	10.4
How worried are you that you have already been exposed to HIV	Not at all	22	11.5
	Slightly	27	14.1
	Moderately	53	27.6
	Extremely	90	46.9
How worried are you that you have already been exposed to hepatitis C	Not at all	22	11.5
	Slightly	27	14.1
	Moderately	53	27.6
	Extremely	90	46.9

Table 4 presents influence of behavioral characteristics of PWID on the uptake of harm reduction services. Majority of those who had been injecting for less than 5 years 73 (38.0%) and the majority of those who had been injecting for between 6-10 years 49 (25.0%) were among those with low uptake levels. Contrary, the majority of those who had been injecting for 6-10 years 23 (12.0%) were the majority of those with high uptake levels. The relationship between period of injecting and uptake harm reduction services was statistically significant ($X^2=7.079$, $p=0.029$). Table also shows that majority of those who injected everyday 102 (53.1%) had low uptake levels while those who inject only once/twice week 14 (7.3%) had high uptake of harm reduction services. Relationship between frequency of injection drug use and uptake of harm reduction services statistically significant ($X^2=32.523$, $p<0.001$). Table shows that majority of those who were in support groups 59 (30.7%) among those with low uptake levels while the majority of those who were not in any support groups 78 (40.6%) had low levels of harm reduction services uptake. Relationship statistically significant ($X^2=7.87$, $p=0.005$). Similarly, the majority of those who had no support from family 111 (57.8%) had lower levels of uptake of services while the majority 29 (15.1%) who had support from family had high levels of harm reduction uptake where $X^2=21.869$, $p<0.001$.

Table 4: Behavioral characteristics influencing the uptake of harm reduction services.

Behavioral characteristics		Uptake of HRS				X ²	Df	P value
		High		Low				
		F	%	F	%			
How long have you been injecting drugs? (Years)	<5	19	9.9	73	38.0	7.079	2	0.029*
	6-10	23	12.	48	25.0			
	>10	13	6.8	16	8.3			
During the past one month, how often would you say you injected drugs?	Everyday	18	9.4	102	53.1	32.523	4	0.000*
	More than 5 times a week	7	3.6	12	6.2			
	3 to 4 times a week	14	7.3	13	6.8			
	Once to twice a week	12	6.2	7	3.6			
	None	4	2.1	3	1.6			
Are you in a support group for drug users?	Yes	36	18.8	59	30.7	7.87	1	0.005*
	No	19	9.9	78	40.6			
Do you receive any support from your family and friends on harm reduction as a drug user?	Yes	29	15.1	26	13.5	21.869	1	0.000*
	No	26	13.5	111	57.8			

DISCUSSION

Our study found that less than half of the respondents 67 (34.9%) indicated that they have used MAT services. This was low since the recommendation by the WHO, UNODC and UNAIDS is that around 40% of those dependent on opioids should be enrolled in opiate substitution therapy (OST) or medically Assisted Therapy (MAT).⁶

It was noted that the enrollment process into MAT was through engaging CSOs such as NOSET to bring clients eligible for drug dependence treatment. A monthly schedule of the number of clients that could be enrolled is prepared based on the availability of methadone at the clinic and the supply did not match the demand for the medication. In addition, methadone program sustainability is purely dependent on donor funding. The ministry of health should be committed to including MAT services in program budgets so as to strengthen the available services supported by donors.

The majority of respondents 182 (94.8%) indicated that they use NSP services. It is recommended by the WHO, UNODC and UNAIDS that about 60% of PWID be consistently reached by NSP with approximately 200 needles/syringes distributed per person per year. Inconsistencies in supply resulted in low numbers of NSP dispensed at 6036 over a three-month period whereas the needs per month stood at approximately 20,577.

The majority of respondents 191 (99.5%) indicated that they had had access to condoms within the previous three months. This could be attributed to the supply of condoms being constantly met at PWID drop-in centers. Similarly, the majority 185 (96.4%) indicated that they had received HIV testing services, contrary to findings that HIV testing uptake among PWID in Nairobi was

reported to be very low at 12% from September to December 2015.¹³ Introduction of strategies for the HIV testing services (HTS) optimization such as the social networking strategy and assisted partner notification services attributed to the improved uptake. Similarly, the 187 (97.4%) indicated that they had received hepatitis B vaccination while 11(5.7%) indicated they had received hepatitis C treatment. These findings are similar to those by points (2018) who reported that high coverage of OST and NSP services could decrease the risk of hepatitis C virus infection by 74%.⁷

A key informant stated that the harm reduction program is included in less than 20% of grant proposals, all sources of funding are external.

This is not a sustainable endeavor since donor funding has been significantly reducing. It was further stated during a key informant interview that no advocacy is done for drug dependence resulting in stigma and discrimination from the community and amongst PWID as some remain in denial of addiction, most lack support or are shunned by family. This poses a barrier in service provision even with integrated services of PWID-targeted amenities. The study also examined some of the outcomes of harm reduction services and it was found that the majority (83.3%) of the respondents claimed that since starting NSP, they stopped sharing needles which implies that once individuals enroll in NSP programs they no longer share needles, but instead get their own. The findings show that being enrolled in the harm reduction services equipped the PWIDs with knowledge an also a platform where they can get syringes and needles from reducing their likelihood of injecting with used needles.

Drug use history and injecting frequency were found to be statistically significant implying that the period one has been injecting as well as the frequency of injecting

influence on their likelihood of uptake of harm reduction services. These findings support the claims by who report that there are different pre-disposing factors influencing the uptake of harm reduction services including knowledge and perception towards the risks involved in the practice.¹⁴ The majority of respondents indicated that they do not believe MAT is safe for them. These findings imply that there is a lack of knowledge among the PWID on the safety of MAT. Continuous health education on the health benefits of MAT is encouraged among this key population through peer educators.

It was also found that support groups and families help PWID where it was found that those in support groups were likely to be on harm reduction services. Similarly, the family was found to have an important influence on the uptake of resources. Generally, family support and social-group support had a significant influence on the uptake of harm reduction services.

The study also found that the majority of respondents could source unused needles, with most of them getting from the needle and syringe program. The findings concur with those from a study conducted in Georgia which showed that social support networks are critical in utilization of harm reduction services.¹⁵

The limitations of the study included challenges in making inferences from the sample directly to the population when data is collected through respondent-driven sampling (RDS) unlike traditional sampling and estimation processes.

CONCLUSION

In summary, advocacy, peer support groups and social support networks are encouraged for harm reduction. A study on other factors influencing uptake of harm reduction services may be considered based on the health belief model or the socio-ecological model.

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