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Low HIV Testing Rate and Its Correlates Among Male People Who Inject Drugs in Iran

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Running title: HIV testing among people who inject drugs in Iran

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Abstract

Background: Iran has a concentrated HIV epidemic among people who inject drugs (PWID). Low HIV testing uptake could contribute to the significant number HIV-infected PWID, who go undiagnosed. This study aims to assess HIV testing uptake and its correlates among PWID in Iran.

Methods: Data was collected through a national cross-sectional bio-behavioral study in 2010. Adult male HIV-negative PWID were included in the current analysis. All estimates were adjusted for the clustering effect of the sampling sites. Multivariable logistic regression was used to examine the correlates of recent HIV testing and adjusted odds ratios (AOR) were reported.

Results: Out of the 2146 eligible PWID for this study, 49.8% reported having ever tested for HIV. However, only 24.9% had tested in the previous year and received their test results. Around 65.2% of PWID knew an HIV testing site. In the multivariable analysis, knowing an HIV testing site (AOR= 13.9; P-value<0.001), ≥24 years of age (AOR= 3.30; P-value= 0.027), and multiple incarcerations (AOR= 1.71; P-value<0.001) were positively, and a monthly income of ≥65 US dollar (AOR= 0.23; P-value=0.009) was negatively associated with having been tested and received the results.

Conclusion: Despite the availability of free HIV counselling and testing for PWID in Iran, only one-fourth of adult male PWID had been tested for HIV and received their results. Implementing policies and strategies to normalize routine HIV testing among PWID are crucial steps to help curb the epidemic among Iranian PWID.

Keywords: HIV testing, People who inject drugs, Surveillance, HIV, Iran

Introduction

The HIV pandemic remains a global health challenge with an estimated 36.9 million people living with HIV (PLHIV) by the end of 2014 (WHO., 2015). Iran is one of the most populated countries in the Middle East and North Africa (MENA) region with a large illicit drug using population and a concentrated HIV epidemic among people who inject drugs (PWID). It is estimated that 1.2 to 2 million drug users living in Iran (Alam-Mehrjerdi, Abdollahi, Higgs, & Dolan, 2015; Alam-mehrjerdi, Noori, & Dolan, 2016; Malekinejad & Vazirian, 2012). A recent study estimated the prevalence of injection drug injection as 280 per 100,000 population in Iran (Nikfarjam, et al., 2016). In Iran, over 28,000 HIV-positive cases were identified and registered by the end of 2014; a figure well below the estimated number of 75,700 (95% CI: 49,600-135,400) people living with HIV (PLHIV) (National HIV progress report., 2015). Unsafe and shared injections among PWID account for over two-third of the new HIV infections in Iran. A number of studies across different provinces suggest an HIV prevalence of around 13-15% among PWID (Khajehkazemi, et al., 2013; Rahimi-Movaghar, Amin-Esmaeili, Haghdoost, Sadeghirad, & Mohraz, 2012).

Early detection of positive cases through frequent HIV testing, and providing effective care and treatment services could suppress the viral load in PLHIV (Montaner, et al., 2006) and, therefore, lower the average community viral load and lead to a reduced HIV transmission probability (Das, et al., 2010). Early diagnosis can also minimize HIV transmission as PLHIV are likely to practice safer behaviours following their knowledge of their positive HIV serostatus (Girardi, Sabin, & Monforte, 2007). Hence, HIV testing programs are a major part of surveillance, prevention, and treatment efforts catered towards key populations (e.g., PWID) at risk of HIV and frequent HIV testing is highly recommended for PWID due to their high-risk injection and sexual practices (Donoghoe, Verster, & Mathers, 2009). Despite available free HIV testing services for PWID,

socio-cultural and structural barriers to scaling up HIV testing continue to exist and mitigate their likelihood of getting tested. Anticipation of HIV stigma, fear of being tested positive followed by its impact on PWID's relationships, loss of privacy, and low perceived risk have been reported as some of these barriers across various settings (Bolsewicz, Vallely, Debattista, Whittaker, & Fitzgerald, 2015; Tobin, Tang, Gilbert, & Latkin, 2004).

To address drug use-related harms in Iran, harm reduction services were successfully scaled up in the early 2000s; creating an example for MENA countries (Alam-Mehrjerdi, et al., 2015; Razzaghi, et al., 2006). After piloting small-scaled harm reduction (HR) policies in certain seetings in Iran, the comprehensive HR programs commenced in 2002 and included opioid substitution treatment (OST), needle exchange programs (NEP), methadone maintenance therapy (MMT), PWID outreach programs, and triangular clinics (Malekinejad & Vazirian, 2012; Rahnama, et al., 2014; Razzaghi, et al., 2006; Zamani, et al., 2010). In Iran, the Ministry of Health (MOH), State Welfare Organization (SWO) and the Iranian Prison Organization (IPO) work in tandem in providing HR services (e.g., free HIV counselling and testing (HCT)) to key populations (e.g., PWID). Over 1000 healthcare facilities including but not limited to voluntary counselling and testing centres (VCT), HR centres for vulnerable women, shelters, drop-in centres (DIC), prisons, and antenatal clinics provide free HIV testing to key populations (WHO/UNAIDS., 2015). While studies indicate that PWID have low HIV testing uptake (Kawichai, et al., 2006), very little is known about the correlates of HIV testing among PWID in Iran. Therefore, using data from a national sample of PWID, we aimed to assess the prevalence of recent HIV testing and its correlates among PWID in Iran.

Methods

Study Design and Participants

Data were obtained from the national bio-behavioural surveillance survey among PWID in 2010. The study design and sampling procedures have been described in detail elsewhere (Khajehkazemi, et al., 2013). In brief, the survey was conducted in ten (out of 31) provinces representing a geographically diverse sample. The recruiting sites included HR facilities catered towards PWID such as DIC, drug treatment centres, shelters, and VCT. Around 10% of the participants were recruited from street-based venues through outreach efforts. After verbally consenting, participants completed a standard pilot-tested behavioural risk assessment questionnaire about socio-demographics, drug- and sex-related behaviours, knowledge about HIV, and history of HIV testing.

Overall, 2591 PWID were approached and assessed for eligibility criteria. A total of 70 female PWID were excluded from this analysis due to their small sample size, limiting the statistical power. For the present analysis, we restricted our sample to male HIV-negative (excluding 334 HIV-positive cases), who were 18 years or older, and had injected drugs during the last 12 months (excluding 41 ineligible cases). Therefore, the final analytic sample included 2146 male PWID, who met the inclusion criteria.

Study variables

The main outcome of interest, recent HIV test result, was defined as having had tested and received the test results in the previous year. The binary dependent variable consisted of those who had either not tested or tested, but not received their test results in the last year versus those who had tested for HIV in the last year and received their result. This variable was ascertained by asking

participants "Have you tested for HIV in the last year? If yes, have you received your last HIV test results?"

Independent variables included: age at interview (≤24 vs. >24 years), employment status (unemployed or employed), education (≤primary school or middle school or high school and above), marital status (single or married or other), average monthly income (no income or <65 US dollar (USD) or ≥65 USD), knowing an HIV testing site (yes or no), age at first drug use (≤15 or 16-20 or >20), incarceration during the last 10 years (none or once or multiple), sex with a non-paying partner in the last year (yes or no), sex with a paying partner in the last year (yes or no), ever had sex with another man (yes or no), source of recruitment in the study (outreach or facility-based), HIV comprehensive knowledge (yes or no), self-perceived risk of HIV (yes or no), and unsafe injection (using shared/used syringe or needle) in last injection (yes or no).

Statistical analysis

HIV testing was reported in total and among different subgroups of PWID. Absolute and relative frequencies were reported for categorical variables. To examine bivariable associations, we used the Pearson's test and Fisher's exact test (if necessary). Using logistic regression, the potential determinants of recent HIV test result among participants were assessed, and odds ratios (OR) along with 95% confidence intervals (95% CI) were reported. We also assessed the effect modification of knowing an HIV testing site and recent HIV testing among subgroups of age, monthly income level, marital status, and having a paid sex partner in the last 12 months.

Next, a multivariable model was developed, including variables from the bivariable model with a P-value less than 0.2. We applied this model with and without interaction terms for the four variables mentioned above. The model with interaction terms resulted in a higher likelihood ratio

test and a lower AIC. Therefore, the adjusted odds ratios (AOR) of the model with interaction effects were reported. All P-values were two-sided and values less than 0.05 were considered to indicate statistical significance. All analyses were conducted in Stata v. 12.0 (StataCorp, 2011).

Ethical considerations

Participants were informed about the purpose of the survey, voluntary nature of their participation, incentives, and anonymity of all collected data. An additional verbal informed consent was acquired for HIV testing (and blood sampling). Participants' refusal to take part in the study did not interfere with or impact the services or treatment provided to them. The study design and all procedures were reviewed and approved by the Ethics Committee of Kerman University of Medical Sciences (IR.KMU.REC.1394.597).

Result

Participants' characteristics

Most participants (88.7%) were older than 24 years old, and 48.2% were single. Approximately, 40% reported no source of income and 39.9% reported their monthly income to be less than 65 USD. Only 39.1% had completed middle school. One-fourth (25.5%) of the participants had started drug use before the age of 15, and half (49.4%) were unemployed or had an unstable job. Those recruited from outreach were significantly less educated, younger, and less likely to be married (P<0.001). The distribution of age at first drug use, employment status, and monthly income was not significantly different across PWID recruited from outreach and facilities **(Table**

Table 1: Characteristics of Iranian Male HIV-negative People Who Inject Drugs in 2010 (N=2146).

Variables	Total (N=2146)	Outreach N=268 (12.5%)	Facility-based N=1878 (87.5%)	P-value [a]
Age at interview (%)				<0.001
≤24	241 (11.3)	48 (18.0)	193 (10.3)	
>24	1899 (88.7)	218 (82.0)	1681 (89.7)	
Marital status (%)				<0.001
Single (never married)	1035 (48.2)	160 (59.7)	875 (46.6)	
Married	650 (30.3)	82 (30.6)	568 (30.4)	
Other (widow, divorced, sigheh [b])	461 (21.5)	26 (9.7)	435 (23.2)	
Monthly income (%)				0.123
No income source	840 (40.2)	121 (45.8)	719 (39.3)	
Less than 65 USD [c]	835 (39.9)	93 (35.3)	742 (40.7)	
65 USD or more	414 (19.8)	50 (18.9)	364 (19.9)	
Highest level of education completed (%)				<0.001
Primary school or lower	644 (30.1)	104 (38.9)	540 (28.8)	
Middle school	837 (39.1)	73 (27.4)	764 (40.7)	
High school and above	661 (30.8)	90 (33.7)	571 (30.5)	
Age at first drug use (years)				0.692
≤15	582 (25.5)	71 (27.1)	511 (27.5)	
16-20	997 (47.0)	129 (49.2)	868 (46.7)	
>20	541 (25.5)	62 (23.7)	479 (25.8)	
Employment status (%)				0.832
Unemployed /unstable job	1059 (49.4)	134 (50.0)	925 (49.3)	
Employed/stable job	1085 (50.6)	134 (50.0)	951 (50.7)	

[a] P-values compare the baseline variables between street-outreach and facility-based participants; [b] Sigheh: practice of temporary marriage; [c] USD: US dollar

Reported HIV testing history by recruitment type

About half of the participants (49.8%) had ever tested for HIV; 43.5% of the outreach and 50.7% of facility-based PWID (P-value= 0.026). However, only 34% of the outreach and 40.5% of facility-based participants had tested for HIV and received their test results (P-value= 0.045). Similar across outreach and facility-based participants, most PWID (69.7%) had not tested for HIV in the last 12 months. Moreover, 6.7% of outreach and 5.2% of facility-based participants had tested for HIV in last year but not received their results (P-value= 0.553). Overall, 34.8% knew an

HIV testing site with no significant difference between the outreach (36.5%) and facility-based (34.6%) recruited participants (P-value= 0.531) **(Table 2)**.

Table 2: HIV Testing and Knowledge of HIV Testing Sites among Iranian Male HIV-negative People Who Inject Drugs in 2010 (N=2146).

Variables	Total	Outreach (N=268)	Facility-based (N=1878)	P-value [a]
Ever tested for HIV				0.026
Yes	1063 (49.8) [b]	116 (43.5)	947 (50.7)	
No	1071 (50.2)	151 (56.5)	920 (49.3)	
Ever tested for HIV and received the result				0.045
Yes	851 (39.7)	91 (34.0)	760 (40.5)	
No	1295 (60.3)	177 (66.0)	1118 (59.5)	
Had a test during past 12 months				0.553
No	1497 (69.7)	187 (69.8)	1310 (69.8)	
Yes but did not get the result	116 (5.4)	18 (6.7)	98 (5.2)	
Yes and obtained the result	533 (24.9)	63 (23.5)	470 (25.0)	
Knew an HIV testing site				0.531
Yes	1370 (65.2)	158 (63.5)	1212 (65.4)	
No	731 (34.8)	91 (36.5)	640 (34.6)	

[a] Comparing baseline variables between outreach and facility-based participants
[b] n (%)

Correlates of recent HIV testing

In the bivariable analysis, having a recent HIV test result was not significantly associated with employment status, having a non-paying sexual partner, study recruitment type, HIV self-perceived risk, and having a recent high-risk injection **(Table 3)**.

Knowing an HIV testing site modified the odds of having a recent HIV test result among different subgroups of age, marital status, income level, and selling sex in the previous year. In other words,

knowing an HIV testing site in young PWID (≤24 years old) was associated with a higher likelihood of having a recent HIV test result compared to older people (OR= 11.06 vs. 4.26, P-value interaction= 0.102). The odds of having a recent HIV test result was also higher among those who knew an HIV testing site and had a monthly income of ≥ 65USD compared to those in the lower income and no income group (OR= 13.13 vs. 4.1 and 4.2, P-value interaction= 0.108). Widowed/divorced PWID were less likely to have had a recent HIV test result compared to single and married participants, even if they knew an HIV testing site (OR= 2.9 vs. 5.0, P-value interaction= 0.14). Lastly, the odds of having a recent HIV test result was lower among PWID who knew an HIV testing site and had sold sex compared to those who had not (OR= 2.91 vs. 5.33, P-value interaction= 0.097).

Given the interactions for the above four variables, the effect of different variables on recent HIV testing was modelled in the multivariable analysis. Older age (AOR= 3.30, 95% CI: 1.14, 9.53), knowing an HIV testing site (AOR= 13.9, 95% CI: 4.38, 44.0), and history of multiple incarcerations (AOR= 1.71, 95% CI: 1.29, 2.26) remained significantly associated with having a recent HIV test result. However, same-sex sexual encounter (AOR= 1.35, 95% CI: 0.99, 1.86), and middle school educational level (AOR= 1.29, 95% CI: 0.99, 1.70) were positively significant but at a borderline level. In addition, having an income of 65 USD or more (AOR= 0.23, 95% CI: 0.08, 0.69; P-value= 0.009) was significantly associated with decreased odds of having a recent HIV test result. Lastly, starting drug use at an older age (>20 years) decreased the likelihood of having a recent HIV test result, albeit with a borderline significance (AOR= 0.73, 95% CI: 0.54, 1.00; P-value= 0.053) **(Table 3)**.

Table 3: Correlates of Having a Recent HIV Test Result among Iranian male HIV-negative People Who Inject Drugs in 2010 (N=2146)

Variables	Recently tested for HIV (%)	Crude OR (95% CI)	P-value	Adjusted OR (95% CI) [d]	P-value
Age at interview (years)					
≤24	39 (16.2)	-	-	-	-
>24	493 (25.9)	1.8 (1.25,2.63)	0.002	3.30 (1.14, 9.53)	0.027
Employment status					
Unemployed/unstable job	274 (25.9)	-	-	-	-
Employed/stable job	258 (23.8)	0.89 (0.73, 1.08)	0.262	-	-
Education					
Primary school or lower	141 (21.9)	-	-	-	-
Middle school	230 (27.5)	1.35 (1.06, 1.70)	0.014	1.29 (0.99, 1.70)	0.060
High school and above	161 (24.4)	1.14 (0.88, 1.48)	0.292	1.05 (0.78, 1.41)	0.714
Marital status					
Single (never married)	249 (24.1)	-	-	-	-
Married	148 (22.8)	0.93 (0.73, 1.17)	0.544	0.90 (0.48, 1.69)	0.749
Other (widow, divorced, sigheh [a])	136 (29.5)	1.32 (1.03, 1.68)	0.026	1.73 (0.93, 3.24)	0.083
Average monthly income					
No income	227 (27.0)	-	-	-	-
Less than 65 USD [b]	209 (25.0)	0.90 (0.72, 1.21)	0.353	0.93 (0.55, 1.59)	0.811
65 USD or more	83 (20.0)	0.67 (0.50, 0.90)	0.007	0.23 (0.08, 0.69)	0.009
Knowing an HIV testing site					
No	70 (9.6)	-	-	-	-
Yes	459 (33.5)	4.75 (3.62, 6.23)	<0.001	13.9 (4.38, 44.0)	<0.001
Age at first drug use (years)					
≤15	160 (27.5)	-	-	-	-
16-20	247 (24.8)	0.86 (0.68, 1.09)	0.234	0.81 (0.63, 1.05)	0.124
>20	123 (22.7)	0.77 (0.59, 1.01)	0.067	0.73 (0.54, 1.00)	0.053
History of incarceration (last 10 years)					
None	98 (18.7)	-	-	-	-
Once	64 (19.5)	1.05 (0.74, 1.49)	0.780	1.11 (0.76, 1.63)	0.565
Multiple	371 (28.6)	1.74 (1.35, 2.23)	<0.001	1.71 (1.29, 2.26)	<0.001
Sex with a non-paying partner (last year)					
No	399 (25.4)	-	-	-	-
Yes	126 (24.1)	0.93 (0.74, 1.17)	0.560	-	-
Sex with a paying partner (last year)					
No	450 (26.4)	-	-	-	-
Yes	77 (19.4)	0.66 (0.51, 0.87)	0.004	0.90 (0.46, 1.75)	0.763
Ever had sex with a male partner					
No	449 (24.0)	-	-		
Yes	83 (30.7)	1.4 (1.06, 1.85)	0.017	1.35 (0.99, 1.86)	0.057
Type of recruitment in the study					
Outreach	63 (23.5)	-	-	-	-
Facility-based	470 (25.0)	1.08 (0.80, 1.46)	0.590	-	-
HIV comprehensive knowledge					
No	361 (23.6)	-	-	-	-
Yes	172 (27.7)	1.23 (1.01, 1.53)	0.047	0.94 (0.74, 1.19)	0.65
Self-perceived risk of HIV					
No	252 (24.0)	-	-	-	-

Yes	281 (25.6)	1.09 (0.89, 1.32)	0.380	-	-
Unsafe injection (last injection) [c]					
No	511 (24.7)	-	-	-	-
Yes	16 (27.6)	1.14 (0.93, 2.1)	0.65	-	-

[a] Sigheh: practice of temporary marriage; [b] USD: US dollar; [c] Unsafe injection: Using used/shared syringes or needles for injection; [d] P-values less than 0.2 were considered for the multivariate model

Discussion

We found that around three-fourth of Iranian PWID did not have a recent HIV test result and over one-third were not aware of any HIV testing site. In addition, HIV testing frequency was similar across PWID recruited from outreach and facilities. Higher likelihood of having a recent HIV test result was associated with older age, knowing an HIV testing site, and history of multiple incarcerations. Conversely, higher income and starting drug use at an older age were associated with decreased likelihood of having a recent HIV test result.

HIV counselling and testing are important parts of HIV prevention interventions and linkage of PLHIV to care and treatment (WHO., 2015). Few recent HIV test results complement the findings of other studies on PWID across the country indicating a relatively low rate of HIV testing among this population (Rahimi-Movaghar, et al., 2012; Rahnama, et al., 2014; Zamani, et al., 2010). For example, a study in the capital city of Tehran, Iran reported that only one-fourth of their participants had ever tested for HIV; 10.5% of whom had not received their test results (Rahnama, et al., 2014). Scaling up HIV rapid test at different facilities serving key populations such as PWID has been recently added to Iran's national strategic plan for HIV. Proper implementation of such policies can increase HIV testing uptake among PWID (WHO/UNAIDS., 2015). In comparison with other high-risk groups for HIV infection, PWID had a similar HIV testing prevalence. Recent HIV test results were reported by 27.5% of Iranian female sex workers in 2010 (Shokoohi, et al., 2016).

While PWID in our study reported a relatively higher frequency of lifetime HIV testing compared to previous studies, odds of having a recent HIV test result remained low (Rahnama, et al., 2014). Iran's recent efforts to shift from client-initiated strategy to provider-initiated HIV testing for key populations is encouraging and may improve HIV testing coverage for PWID who are referred or accessible at facilities; however, it may not necessarily serve others who do not come to clinics and other facilities. Observing a similar prevalence of HIV testing across facility-based and outreach PWID is alarming and points to potential inefficiencies in the implementation of HCT services (e.g., MMT; NEP) provided by MOH and integrating into current HR programs (Malekinejad & Vazirian, 2012; Nissaramanesh, Trace, & Roberts, 2005). Introducing rapid HIV testing to the facilities and outreach teams and training the counsellors to provide high quality counselling and testing services would further improve HCT services, increase early diagnosis rates, and help link the diagnosed PLHIV to the appropriate care and treatment (Vian, Semrau, Hamer, Loan le, & Sabin, 2012).

As earlier diagnosis relies on the availability of HIV testing, and PWID's willingness to test, prevention efforts should also try to normalize frequent HIV testing among PWID by including HIV testing in the HR packages provided by general practitioners in HR clinics. Currently, through a program supported by Iranian SWO and MOH, general physicians provide counselling and MMT services to people who use/inject drugs at numerous private HR clinics (Mirzazadeh , Haghdoost, & Doostmohammadi, 2006; Ohiri , et al., 2006). To maximize the effect of such programs, general practitioners who have been certified to provide HR services could also be trained to recognize the importance of frequent HIV testing in such high-risk group and offer free and confidential HIV testing and counselling. While this approach has been piloted in some settings in Iran, it needs to be further scaled up. Results of pilot studies in Europe have also shown that offering HIV testing

in general practitioner settings is feasible and acceptable and therefore, could result in earlier HIV diagnosis (Kall, Smith, & Delpech, 2012).

Although barriers to HIV testing were not explored in our survey, we observed that knowing an HIV testing site was significantly associated with having a recent HIV test result; a finding that has also been reported elsewhere (Moyer, et al., 2008). This highlights the role of HR programs in further providing accurate and up-to-date information about HIV testing sites among PWID. Younger PWID with higher income were less likely to have a recent HIV test result, regardless of their awareness of HIV testing sites. While barriers to HIV testing among youth in Iran is poorly understood, decreased uptake of HIV testing among youth has been strongly associated with structural- and individual-level HIV-related stigma in numerous settings (Cunningham, Tschann, Gurvey, Fortenberry, & Ellen, 2002; Shoveller, et al., 2009; Tilson, et al., 2004).

Furthermore, history of multiple incarcerations increased the likelihood of having a recent HIV test result. This could be partly explained by the provision of HCT services in prison settings in Iran (Navadeh, et al., 2013). Nonetheless, providing testing services in detention centres and prisons have its limitations. For instance, follow-up of short-term inmates who leave prison settings before receiving their HIV test result is usually difficult. Due to PWID's high incarceration rates, improving the quality of counselling and using rapid tests in prisons seem to be feasible approaches to increase HIV testing uptake and provision of test results to this sub-population.

We acknowledge the limitations of this study that are common to studies among this sub-population. Our self-reported data is prone to social desirability and reporting biases. Moreover, while efforts were made to select representative venues and diverse cities and provinces in the country, the convenience nature of participants limits the generalizability of our findings to all

PWID. Given the exclusion of female PWID from our analysis, our interpretations should not be generalized to female PWID. Moreover, the overall HIV testing prevalence among PWID in this study may be subject to underestimation due to the exclusion of HIV positive cases, however, given the small number of HIV-positive cases in our sample, their potential effect on the estimates would be minor. Our questionnaire also did not include HIV-related stigma questions, which could affect PWID's HIV testing practices. Due to the cross-sectional nature of our study, causal inferences cannot be made, and the underlying causes of low HIV testing uptake could be further unpacked through future qualitative study designs. Cohort studies of PWID to assess fixed and time-varying predictors of HIV testing and change in behaviours after a negative or positive test will also be useful to define motivators and barriers to HIV testing and retesting in people with a continuous risk of HIV acquisition.

Conclusion

Our findings suggest that over a decade into the existence of HR programs in Iran, HIV testing uptake of PWID remains low. Effective case finding and early diagnosis of HIV among PWID in Iran, could benefit from normalizing frequent HIV testing, adopting and scaling-up acceptable and feasible new testing strategies (e.g., integrating rapid HIV testing into routine care; providing mobile and home-based HIV counselling and testing among PWID). Using implementation sciences methods, studies are required to assess feasibility and acceptability, as well as the cost-effectiveness of new testing strategies among PWID in Iran.

Key Messages:

- A large proportion of male PWID in Iran did not have recent HIV testing which could lead to late HIV diagnosis.
- Young age, no incarceration history, starting drug use at an older age, and higher income level decreases the likelihood of having a recent HIV test among Iranian PWID.
- Policies and strategies to normalize frequent HIV testing in PWID are required to increase the HIV diagnosis in this sub-population.

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