HIV Continuum of Care Among People Who Inject Drugs in Iran

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Research Article

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Abstract

Background: People who inject drugs (PWID) are at higher risk for HIV and may have lower access to care and treatment services when infected. We aimed to assess the HIV continuum of care among PWID in Iran.

Methods: We collected data from 2,663 PWIDwho self-reported injection drug use at least once during the past 12 months. They were recruited via respondent-driven sampling to a national bio-behavioral surveillance survey from 11 cities of Iran between June 2019 and March 2020. For participants who were tested positive for HIV in the survey, we asked questions to calculate the proportionwho were 1) aware of their HIV status, 2) linkage to HIV care, 3) initiated an HIV treatment anti-retroviral therapy (ART), 4) retention on ART and 5) virally suppressed (< 1000 copies/mL).

Results: Out of 95 PWID were tested positive for HIV, 100% (95% Confidence Intervals (CI): 96,100%) reported that they were aware of their HIV positive status, 57% (95% CI: 46, 66%) were linked to an HIV care service and initiated ART, 49% (95% CI: 39, 59%) retained on ART and only 15% (95% CI: 8, 23%) had viral load less than 1000 cp/ml.

Conclusion: Our results indicated that about half of the PWID diagnosed with HIVever started ART, and less than one in six were virally suppressed.Strategies to improve linkage to ART programs, and to improve ART retention and adherence may improve HIV care outcomes among PWID in Iran.

Introduction

HIV infection is still a serious global public health concern, but recently arrival and expansion of antiretroviral treatment (ART) decreased the occurrence and mortality in people living with HIV (PLHIV) and also non-AIDS complications with an incremental life expectancy of PLHIV(1, 2). In addition to the advantages shown in individual PLHIV, ART significantly decreases HIV onward transmission. This lays the foundation for the Joint United Nations Programme on HIV/AIDS (UNAIDS) 90–90-90 goal, which includes 90% of PLHIV diagnosed, 90% of persons diagnosed with HIV initiating ART, and 90% of people taking ART virally suppressed to ending the AIDS epidemic by 2020. The HIV care cascade includes all stages of HIV treatment, from infection through virological suppression (3). Involving PLHIV in the HIV care cascade is critical to meeting the UNAIDS 90-90-90 targets and understanding the limitations of service coverage particularly among key subpopulations and need to address them.

That was estimated that there are 59,314 (UI: 32,685-125,636) PLHIV in Iran, of whom 22,054 people were diagnosed (37% of PLHIV). At the end of 2019, 25% of PLHIV received antiretroviral therapy. Also, of whom 6,338 (11% of PLHIV) people had viral load suppression by 2019(4).With more than 208,000 people who inject drugs (PWID) in Iran, injecting drug use continues to be the leading route of HIV transmission and PWID, has been one of the main drives of the HIV epidemic in Iran(5). There is a paucity of evidence on each step of the continuum of care among PWID in most countries and as a result, it is

critical to address HIV among key population, not only because of the disease's impact on their health, but also because of the possible influence on the general population.

In this study, using data from recent HIV bio-behavioral surveillance survey, we assessed the HIV continuum of care (including HIV diagnosis, ART initiating, retention on ART and viral load suppressed) among PWID in 2019-20 who were recruited from 11 cities of Iran to monitor progress towards the UNAIDS 90–90-90 target.

Methods

Setting and Data collection

All data were collected from the fourth national bio-behavioral surveillance survey of Iranian PWID. The cross-sectional survey has been reported in detail previously(6)(Khezri et al., 2021)(Khezri et al., 2021)(Khezri et al., 2021)[6]. In brief, by respondent-driven sampling (RDS)method, we recruited 2,663 PWID from 11 major cities in Iran between June 2019 and March 2020. Individuals were eligible for inclusion if they were ≥ 18 years old, self-reported injection drug use at least once during the past 12 months, live in the city of study during past 6 months, had the ability to talk in Persian, provided verbal informed consent, and had a valid referral coupon consistent with the study methodology. The recruitment of participants started with a purposive selection of seeds. We provided three referral coupons (that were valid for 3 weeks)to each participant, and trained them to recruit up to 3 peers to the study. This method was repeated with succeeding recruits till the targeted sample size was earned. We also provided monetary incentives for the interview (10,000 Tomans ~ 1 USD), HIV/HCV rapid test (5,000 Tomans ~ 0.5 USD), and an extra incentive of 10,000 Tomans for every successful peer recruitment.

Eligible participants completed face-to-face interviews to report information, including demographic characteristics, substance use, injection drug use, sexual practices, history of substance use treatment, and uptake of harm reduction services. They also completed HIV/HCV testing after consenting for tests and receiving pre-test counselling. HIV testing was conducted by SD-Bioline rapid test, and if it was reactive, a confirmatory test (i.e., Unigold HIV rapid test) was carried out. HCV testing was performed by one SD-Bioline rapid test. The study protocol was approved by the ethics committee of the Kerman University of Medical Sciences (Ethics Code: IR.KMU.REC.1397.573).

Study Variables

The primary outcomes of this study were, what percentage of PWID have been diagnosed with HIV, what percentage have been linked to services, what percentage have been treated with ART and what percentage have been suppressed viral load (was defined as viral load of less than1000 HIV RNA copies per mL). We measured the outcomes by asking the following question "*Do you know your HIV status?*", "*Had been linked to HIV care?*", "*Had ever linked to ART*?", "*Had retention on ART*?" and *"What was the results of viral load test?"*.

Statistical Analysis

Descriptive statistics were reported for demographic and behavioral characteristics, including sex,age group, marital status, ethnicity, education, job status, monthly income, drug injection and incarceration history.All analyses were conducted using Stata 14.1.

Results

A total of 2,663 PWID were recruited and tested for HIV infection in our study. Of those, 95individuals (3.1%; 95% Confidence Intervals (CI): 1.8, 4.3)were diagnosed with HIV and were included in our analysis. Among 95 PWID who lived with HIV (**Table 1**), majoritywere male (97.8%), 35 years of age or older (81.0%), divorced (34.7%), ever experienced beinghomeless (70.5%), had a history of incarceration (84.2%),injected drug for more than 5 years (82.1%),and injected mostly opioids (60%).

Of those PWID who lived with HIV (95 persons) (**Figure 1**), 95 (100%, 95% CI: 96-100) were aware of their status, 54(57%, 95% CI: 46, 66) were linked to an HIV careservice, 54(57%, 95% CI: 46, 66) initiated ART, 47 (49%, 95% CI: 39, 59) retained on ART, and 14 (15%, 95% CI: 8, 23) were virally suppressed.

Discussion

Our results indicated that about half of the PWID diagnosed with HIV had ever started ART, and only less than one in six were virally suppressed.

There is a wide diversity between countries with a broad spectrum of political, economic, and HIV epidemic status in reaching 90-90-90 targets among PWID. Comparison the first cascade indicator in Iran with other countries revealed that this proportion was relatively higher than in Central Asia or other European countriesand some countries like Mexico(7-10).Regarding the 57% ART coverage among PWID who were aware of their HIV status, we have found that in this study is lower than the average in other Low-Middle income countries globally and within Eastern Europe and Central Asia(7, 11). The level of viral load suppression in Iranian PWID is not comparable and desirable compared to other countries globally which is reported about three quarters of all HIV-infected PWID on ART (7).

The poor engagement in different stages of HIV care among PWID in Iran could be influenced bythe lack of accurate estimation of the number of PWID and inadequate services that bring for these key populations. Inaddition,a high level of stigma and discrimination within the general and PWID populations is one of the key barriers as well. Although HIV rapid tests are now accessible at most health facilities like drop in centers (DIC) and Voluntary Counseling and Testing centers (VCT), use of such services by PWID remains low(5). Our results showed that (not present here) in the previous year, just half of those who inject drugs were tested for HIV. Based on present HIV testing and counseling strategy in Iran, people to get services need to visit facilities, which for some member of the key populationespecially older PWID, especially men, who are not interested using any other health or social services is a barrier.Iran to overcome these barriers and reach to the desirable point needs to reform and improve the

old strategy and given that utilizing some novel and feasible approaches like social network services approaches in Ukraine,scaling up community-based non-clinical testing programs, offering HIV self-testing and peer-driven HIV services which strategies have been shown to enhance HIV services in other situations must be examined in order to close such a large gap in diagnosis(12-15).

ART uptake in PWID and retention in HIV care also need to improve in Iran. Studies in the eastern european countries showed thatstructured integrated intervention that focused on linkage to HIV care and opioid agonist therapy services maintenance could be important role on improvement in retention in HIV care(16, 17). In addition, integration of TB/HCV and HIV services can be effective strategies to substantial increase in HIV detection and ART initiation(18-20). Peer navigation and supports intervention and supports for patient transportation, family centered approaches and the use of lay healthcare providers all can lead to substantial increase in HIV detection and ART initiation(21, 22). All of these potentially successful approaches must be modified and tested in Iran.

Our study has some limitations. First, data collection through the study was conducted using face-to-face interviews, which may be subject to social desirability and this causes an underestimation in our cascade estimates due to stigmatized, sensitive, or illegal injecting. Second, the sample participants recruited in our study were not representative of the all PWID population in Iran as participants were recruited from the main cities where PWID populations are concentrated.

Conclusion

Our results revealed that the main gap between the number of diagnosed PWID and the number of PWID on ART is relatively large, with only half of the diagnosed PWID were retained on ART. The second major gap is only about a quarter of them were virally suppressed.In order to overcome these obstacles and reach golden points, Iran needs to reform the old strategy for HIV services delivery especially among key populations like PWID and, take this into account, adopt some new feasible methods like HIV differentiated delivery services that need to be changed and tested in Iran.

Declarations

Ethics approval and consent to participate

All participants verbally consented to participate in this study, and the ethical committee of Kerman University of Medical Sciences approved the study protocol (IRB# IR.KMU.REC.1396.2422).

Consent for publication

Not applicable

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

HSand AM designed and directed the project. NG, GM, MK, SM and FT collected the data. FTanalyzed the data, NG drafted the manuscript. HS and AM were supervised the work and data analysis. All authors discussed the results and commented on the manuscript. The author(s) read and approved the final manuscript.

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Disclosure Statement

The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

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Tables

Table 1: Demographic and behavior characteristics of people who inject drugs diagnosed with HIV (N=95) in the HIV Bio-Behavioral Survey, Iran, 2019-20.

Characteristics	n	%
Sex		
Male	93	97.9
Female	2	2.1
Age		
25-34	17	17.9
≥35	78	82.1
Current Marital Status		
Married	14	14.7
Divorced	35	36.8
Single	30	31.5
Married but live alone	7	7.3
Not permanent	4	4.4
Widowed	5	5.3
Ethnicity		
Fars	29	30.5
Azari	9	9.7
Kord	35	36.8
Lor	14	14.7
Balouch	1	1.0
Arab	7	7.3
Ever Homeless		
Yes	67	70.5
Education		
Elementary or less	26	27.3
Middle school	36	37.9
Diploma or University	31	32.6
Job Status		
Permanent job	1	1.0

Temporary Job	11	11.6
Monthly Income		
Less than 40 $	59	62.1
More than 40 $	31	32.6
Ever Alcohol Use		
Yes	12	12.6
Ever Incarceration		
Yes	80	84.2
Injection Duration		
≤ 5 Years	9	9.4
> 5 Years	78	82.1
Most Injection Drug type in last 3 Months		
Opioids	57	60.0
Stimulants	10	10.5
Daily Injection in last 3 Months		
Yes	55	57.9
Had Ever Sex		
Yes	62	65.2
No	18	18.9

Figures

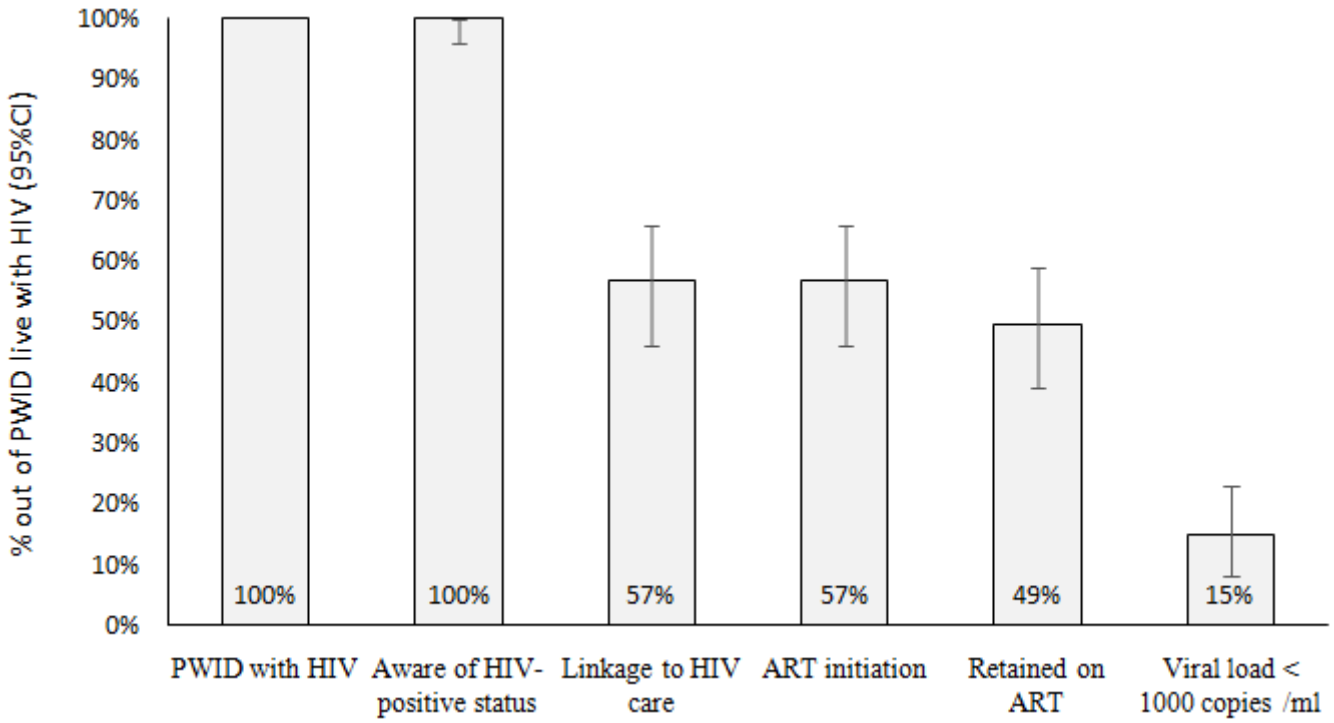

Figure 1

HIV continuum of care among people who inject drugs (PWID) diagnosed with HIV in the Fourth HIV Bio-Behavioral Surveillance Survey in Iran, 2019-20.