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ORIGINAL PAPER

Client and Provider Perspectives on Antiretroviral Treatment Uptake and Adherence Among People Who Inject Drugs in Indonesia, Ukraine and Vietnam: HPTN 074

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Abstract

HIV-infected people who inject drugs (PWID) have low uptake of HIV services, increasing the risk of transmission to uninfected injection or sexual partners and the likelihood of AIDS-related deaths. HPTN 074 is a vanguard study assessing the feasibility of an integrated intervention to facilitate treatment as prevention to PWID in Indonesia, Ukraine, and Vietnam. We describe barriers to and facilitators of ART uptake and adherence among PWID. We conducted in-depth interviews with 62 participants, including 25 providers and 37 PWID at baseline across all sites. All interviews were recorded, transcribed, translated into English and coded in NVivo for analysis. Matrices were developed to identify emergent themes and patterns. Overall, differences between provider and PWID perspectives were greater than differences in cross-site perspectives. Providers and PWID recognized clinic access, financial barriers, side effects, and lack of information about HIV testing and ART enrollment as barriers to ART. However, providers tended to emphasize individual level barriers to ART, such as lack of motivation due to drug use, whereas PWID highlighted health systems barriers, such as clinic hours and financial burden, fears, and side effects. Providers did not mention stigma as a barrier though their language reflected stereotypes about drug users. The differences between provider and PWID perspectives suggest a gap in providers' understanding of PWID. This misunderstanding has implications for patient-provider interactions that may affect PWID willingness to access care or adhere to ART. Lessons learned from this study will be important as countries with a significant HIV burden among PWID design and implement programs to engage HIV-infected PWID in care and treatment.

Keywords HIV/AIDS · Antiretroviral treatment uptake · Antiretroviral treatment adherence · People who inject drugs · Indonesia · Ukraine · Vietnam

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Introduction

Injection drug use is a major driver of the HIV epidemic, particularly in Southeast Asia and Eastern Europe [1]. People who inject drugs (PWID) face unique, multi-level barriers to accessing HIV services, due in large part to drug- and HIV-related stigma and discrimination coupled with lack of knowledge about HIV testing and treatment [2–6]. As a result, HIV-infected PWID have low uptake of HIV services, increasing the risk of transmission to uninfected sexual or injection partners and the likelihood of AIDS-related deaths [7–12].

Globally, effective HIV prevention interventions are needed to promote antiretroviral therapy (ART) uptake and adherence among PWID. HPTN 052 demonstrated the benefit of ART for the prevention of sexual HIV transmission within serodiscordant couples in stable relationships, presumably by ART-induced reduction of HIV viral load in genital secretions [13–15]. This success provides a template for further HIV prevention efforts in other groups at high risk for HIV acquisition. Among PWID, treatment as prevention is more complex, due to several issues including primarily blood-borne transmission and the challenges associated with substance use [16, 17]. Treatment as prevention among PWID may have unique barriers that must be elucidated to realize the full benefits of widespread ART use.

HPTN 074 is a multi-site vanguard study assessing the feasibility of an integrated intervention to facilitate treatment as prevention to PWID in Jakarta, Indonesia; Kyiv, Ukraine; and Thai Nguyen, Vietnam. Qualitative data were collected one to three months after study initiation/enrollment to inform the intervention and to provide additional data for evaluating the intervention. In this paper, we present an analysis of these qualitative data with the primary goal of describing environmental and population barriers to and facilitators of ART uptake and/or adherence at baseline.

Materials and Methods

Ethics Statement

All participants provided written informed consent to participate in the HPTN 074 trial. The study was approved by ethical review committees for each site: Faculty of Medicine, University of Indonesia (Indonesia), Ukrainian Institute on Public Health Policy (Ukraine), Hanoi School of Public Health, and University of North Carolina-Chapel Hill (Vietnam). All informed consent forms were translated and administered in the local language.

Study Design

HPTN 074 is a multi-site, two-arm, randomized controlled trial. The trial is described in detail elsewhere [18]. Briefly, the purpose was to determine the feasibility of a future trial to assess the effectiveness of an integrated intervention combining psychosocial counseling and supported referrals for ART at any CD4 cell count and medication-assisted treatment (MAT) for opioid disorders to reduce HIV transmission among HIV-uninfected injection partners, compared to routine care dictated by national guidelines for HIV-infected PWID. The intervention included (1) systems navigators to facilitate access and retention in HIV care and MAT; and (2) psychosocial counseling using motivational interviewing, problem solving, skills building, and goal setting to facilitate substance use treatment and HIV care and medication adherence. In all three sites, the roles of system navigators and psychosocial counselors were performed by the same people. Network units, consisting of an HIV-infected index participant and their HIV-uninfected network injection partner(s), were randomized to receive the intervention or the standard of care in a 1:3 ratio, stratified by site. Guarantees of ART availability at any CD4 count were obtained from each Ministry of Health prior to study onset.

To assess the feasibility, barriers, and uptake of the integrated intervention, index participants and network partners completed an interview-administered survey at baseline and every 3 months for up to 24 months. Index participants also provided blood samples for HIV viral load testing and CD4 cell counts and network partners were tested for HIV infection.

To evaluate the feasibility of the integrated intervention qualitatively, two rounds of qualitative interviews were conducted with a sample of index participants, clinicians, and counselors/systems navigators at each study site. The first round of qualitative interviews was conducted 1-3 months after the first participant was enrolled in the trial in each study site and after the participant had completed the initial intervention sessions. The second round of qualitative interviews was conducted with the same participants 1-3 months prior to the last participant concluding study follow-up. This paper presents data from the first round of qualitative interviews only.

Study Sites

HPTN 074 was conducted in Jakarta, Indonesia; Kyiv, Ukraine; and Thai Nguyen, Vietnam. Study sites were chosen, in part, based on HIV prevalence and incidence among PWID. Jakarta is the capital of Indonesia and the largest city in Southeast Asia, with a population of over 30 million people. HIV prevalence among PWID in Jakarta is estimated to be up to 55% [19]. Kyiv, the capital of Ukraine, has a population of about 3 million people and the HIV prevalence among PWID is approximately 20% [20]. Thai Nguyen is a mountainous northern Vietnamese province with a population of 1.1 million. The province has the highest HIV prevalence among PWID (34%) in Vietnam [21].

The health systems providing HIV care to people living with HIV (PLHIV) differ across the three countries and are described briefly below for context.

Indonesia

The health system consists of public and private providers, with the public system administered in line with the decentralized government system. The centralized Ministry of Health manages communicable diseases programs, including HIV/AIDS. HIV treatment delivery has been scaled up and decentralized at the primary healthcare level in high prevalence regions, and first- and second-line antiretrovirals (ARVs) are provided free of charge [22]. In 2014, the government established a universal social health insurance scheme, and the government is aiming to expand the insurance program to achieve universal health coverage by 2019 [23]. However, CD4 counts and TB screening, which are required to initiate ART, are relatively costly and costs are not covered by the government.

Ukraine

General health services are designed as a hospital-centered, vertical system with parallel clinics that offer specialized care. As a result, there is limited coordination and integration between specialized clinics, and HIV, substance use, and TB treatment are mostly delivered in separate places and by separate specialties [6]. Within the HIV system, HIV testing and treatment are often provided in separate clinics. People diagnosed with HIV are required to register in the HIV care system to initiate ART and mandatory tests include CD4 count, viral load, general blood tests, blood biochemistry, chest x-rays, ultrasound of abdnominal cavity organs, and electrocardiogram, of which only CD4 count and viral load testing are provided free of charge.

Vietnam

The health system is designed as a vertical, three-tiered system that is overseen by the Ministry of Health. Similar to Indonesia, Vietnam is in the process of scaling up its social health insurance program and is aiming to achieve universal coverage by 2020. In the past, HIV/AIDS services have been covered by other funding sources, such as PEPFAR; however, PEPFAR has started scaling down their funding in Vietnam [24]. To initiate ART, individuals are required to register in the HIV system with a support person. Mandatory tests include CD4 count, general blood tests, blood biochemistry, creatinine, ASL/ALT, and anti-HCV, all of which must be paid for by the client.

Data Collection

Each site purposively sampled 4–10 providers for interviews, with approximately equal distribution of HIV and substance use treatment clinic staff. All study counselors/systems navigators were interviewed at each site. In addition, each site selected for interviews 4–15 PWID who were randomized to receive the intervention, purposively sampling half who had successfully initiated ART and half who had not.

The semi-structured interviews were conducted based on a standard field guide that was used across all sites. We trained teams of 2–4 local interviewers in qualitative research using a standardized training across the three sites. The trainings focused on building qualitative data collection skills including open-ended questions, probing, and active listening through the use of role plays and practice interviews. A knowledge and skills assessment was conducted to ensure that each interviewer was prepared to start conducting the interviews. Interviewers conducted 60-90 min interviews in a private room at the study site's office or a local clinic or hospital. The semi-structured interview guide covered the following topics: barriers to ART and substance use treatment and perceptions of the HPTN 074 intervention, including counselor/systems navigators and counseling session content. The consent, screening, and interviews were all conducted in the local language. Each participant received the equivalent of 8-10 USD for time and travel to complete the interview. Interviews were audio recorded and interviewers also recorded field notes to document their impressions and observations. All audio recordings were transcribed by the site-specific interviewers or external transcriptionists and translated to English for analysis. During the translation process, site staff were instructed to note key terms or concepts, leave them in quotes in the local language, and provide literal and conceptual translations.

Data Analysis

Transcripts were imported into NVivo11 software for coding and analysis. At each site, a qualitative supervisor trained staff and supervised data collection, data transcription and translation, and coding at their sites. Qualitative supervisors checked transcription and translation quality by reviewing 10% of the interviews against the original audio files. Following transcription and translation, a team of local and centralized data coders indexed data by topics through the application of codes.

Senior data analysts from the University of North Carolina-Chapel Hill (UNC) developed a codebook to provide definitions of each code and instructions about when to apply and when not to apply each code. Codebooks were organized by topics that were included on the field guide. Each of the 4 core content areas included 3 additional sub-codes: informational, motivational, and financial barriers, although unanticipated barriers and facilitators were added later based on the data. For example, the code “drug-related barriers” was added to the standard codebook after analysts noted that providers and PWID often mentioned that PWID did not access HIV services due to their drug addiction. Study sites also added site-specific codes in order to explore unique characteristics of their sites. We developed standardized workshops to train staff in the codebook, the application of codes, and the use of NVivo. To maintain coding quality, each coder completed a certification exercise prior to initiating the work. Senior data analysts from UNC and FHI 360 checked 10% of all coded transcripts, with more transcripts being checked early in the coding process to catch errors early. Coding differences were resolved by consensus and code definitions were updated accordingly.

The senior data analysts were responsible for cross-site data analyses with support from the qualitative supervisor at each study site. Summary reports were generated and reviewed by the team. A matrix was developed to explore emergent themes and patterns around barriers to and facilitators of ART. Barriers and facilitators were compared across participant type (provider or PWID) and across study site. Similarities and differences in reported barriers to and facilitators of ART uptake and adherence were identified and described.

Results

The sample comprised 62 individuals, including 25 providers and 37 PWID participants (Table 1). Among providers, 8 were counselors/systems navigators and 17 were clinicians. In Vietnam, the two counselors/systems navigators were also clinicians. Over half of the providers were male (n = 14; 56.0%). The median age of providers was 42.0 years. All providers had at least a high school level of education, and over three-fourths completed higher education (n = 21; 84.0%).

Most PWID were male (n = 32; 86.5%). All five female participants were from the Ukraine site, reflecting the PWID gender distribution of each of the sites. The median age of participants was 35.0 years and almost half were unemployed (n = 18; 48.6%). The median length of years using drugs was 14 years.

Provider Perspectives

Provider reports of PWID barriers to ART were similar across sites (Table 2). Overall, barriers to and facilitators of initiating ART identified by providers centered on individual level characteristics, such as motivation, that were perceived to be influenced by drug addiction. Even in the context of structural barriers, including financial limitations and access, providers often felt that PWID’s inability to overcome structural barriers was due to lack of internal motivation and that lack of motivation was linked to prioritization of drug use over everything else. Providers described PWID’s characteristics as barriers to ART uptake and adherence, describing PWID as forgetful, lazy, and/or unreliable. Some providers linked addiction directly to lack of internal motivation, speaking about the two as the same barrier. As a provider in Indonesia explained, addiction to drugs is a priority over HIV care and treatment:

> …If they have money, they prioritize buying drugs rather than having examination as a requirement to access ARV, such as X-ray and blood testing. Examination fee varies from one health care to others. In one primary health care they apply about IDR [Indonesian rupiah] 170.000 to 190.000. So when they save their money and knowing that their saving is already IDR 70.000, for example, they don’t care about their health but immediately buy alprazolam or suboxone. (Indonesia provider)

About half of the providers in each country acknowledged that certain health systems barriers, such as clinic hours, made it challenging for PWID to initiate ART. For example, in Ukraine, providers explained that clinics are located far away and only open 2 days a week. Therefore, PWID have to adjust their schedules, and because of limited clinic hours, lines at the clinic are often quite long. Clients may need to take an entire day off of work:

> We have crowds of people registered in our clinic…a lot of them from other cities…He spends two hours just commuting here, so he has to come here early in the morning to line up for referral…When he gets to the doctor, half day has passed already; to receive ART, to get home – and it’s already evening. (Ukraine provider)

More than half the providers in the three sites mentioned that the costs of lab tests required to initiate ART can deter patients. In Indonesia, providers noted that while national health insurance can defray costs, it was complicated to apply for national health insurance. And in Vietnam, providers explained that PWID often have seasonable jobs outside Thai Nguyen making it challenging to go to HIV clinics for medication refills.

Table 1 Demographic and behavioral characteristics of all interview participants (n = 62)

Characteristic Providers	Total n (%) (n = 25)	Indonesia n (%) (n = 10)	Ukraine n (%) (n = 8)	Vietnam n (%) (n = 7)
Role in clinic				
Clinician	17 (68.0)	8 (80.0)	4 (50.0)	5 (71.4)
Counselor/systems navigator	8 (32.0)	2 (20.0)	4 (50.0)	2 (28.6)
Gender				
Male	14 (56.0)	5 (50.0)	6 (75.0)	3 (42.9)
Female	11 (44.0)	5 (50.0)	2 (25.0)	4 (57.1)
Median age (years)	42.0	43.5	31.0	51.0
Highest education completed				
High school/diploma	4 (16.0)	3 (30.0)	1 (12.5)	0 (0.0)
University/college	13 (52.0)	3 (30.0)	6 (75.0)	4 (57.1)
Master/doctor/PhD	8 (32.0)	4 (40.0)	1 (12.5)	3 (42.9)
Median length of time in role (years)	5[a]	12	3.5	4.5[a]
PWID	(n = 37)	(n = 7)	(n = 15)	(n = 15)
Gender				
Male	32 (86.5)	7 (100.0)	10 (66.7)	15 (100.0)
Female	5 (13.5)	0 (0.0)	5 (33.3)	0 (0.0)
Median age (years)	35.0	36.0	33.0	37.0
Highest education completed				
Primary school	5 (13.5)	2 (28.6)	0 (0.0)	3 (20.0)
Secondary school	7 (18.9)	1 (14.3)	0 (0.0)	6 (40.0)
High school	19 (51.4)	2 (28.6)	12 (80.0)	5 (33.3)
University/college	6 (16.2)	2 (28.6)	3 (20.0)	1 (6.7)
Employment status				
Employed	18 (48.6)	3 (42.9)	6 (40.0)	9 (60.0)
Unemployed	19 (51.4)	4 (57.1)	9 (60.0)	6 (40.0)
Median length of drug use (years)	14	13	15	13

[a] Missing: n = 1

Still, many providers in the three sites felt that these barriers are surmountable if the client is internally motivated:

> Interviewer: Do we need to overcome these barriers, or is everything fine as long as a client has a desire?
> Respondent: Well, for someone who has a will it is not a barrier. For someone who does not have motivation it might be a barrier; for someone who is looking for an excuse…(Ukraine provider)

Side effects of ART, both experienced and anticipated, were mentioned by most of the providers in Indonesia and Ukraine and one in Vietnam. Many providers mentioned "feeling healthy" or perceived lack of need for services as a barrier to accessing care in Indonesia and Vietnam, particularly given the overall fear of side effects of ART. As a provider in Ukraine describes:

> Sometimes they may say, "I'm fine. I feel very well. Why should I take antiretroviral therapy?" They seem to banish those thoughts about HIV infection. They really come and say, "I feel good, I'm going to live like that for a little bit, let's wait three more months…" (Ukraine provider)

Provider stigma was rarely mentioned as a barrier by providers; however, notably, language in interviews reflects stereotypes and judgment towards PWID clients across all sites.

> Respondent: …Sometimes we need be firm about taking medications…but we should consider the patient's characteristics when we talk to them…for drug users, we need to say like that…
> Interviewer: Just confront them, isn't it?
> Respondent: Yes…if we don't speak to them firmly, they will manipulate and intimidate us…it is totally different if the patients are housewives, for example. (Indonesia provider)

Table 2 Barriers and facilitators to ART uptake: provider perspectives

Barriers	
Internal motivation and drug use	More than half of providers in all three sites felt that PWID's inability to overcome structural barriers was in part due to lack of internal motivation and prioritization of drug use over HIV treatment
Lack of clinic access	About half of the providers from the three sites mentioned clinic access as a barrier, noting distance from the clinic and limited clinic hours as challenges
Financial barriers	More than half of the providers from the three sites mentioned cost of required tests as a barrier to initiating ART. Some suggested that financial barriers could be overcome if treatment was prioritized over drug use. Others felt that costs posed a serious challenge due to unemployment
Side effects	Fear or experience of ART-related side effects was a pronounced barrier and was reported more often in Indonesia and Ukraine as compared to Vietnam
Feeling healthy	About half of providers, especially in Indonesia and Vietnam, mentioned "feeling healthy" or perceived lack of need for services as a barrier to accessing care
Lack of information	Providers in Indonesia and Ukraine noted that PWID's lack of information about ART was a barrier due to drug use or poor counseling
Provider stigma	Provider stigma was rarely mentioned as a barrier by providers; but providers' language reflected stereotypes and judgment of PWID clients across all sites
HIV disclosure	Fear of inadvertent HIV disclosure was a barrier according to providers in Ukraine
Facilitators	
Social support	Providers from all sites explained that when patients do not adhere to ART due to side effects or the large number of daily pills, having a family member managing medications can be very helpful
Number of clinics	Recent increase of clinics was mentioned as a facilitator to accessing care by providers in Ukraine and Vietnam

Indeed, providers in Ukraine and Indonesia were unaware of their stigma towards PWID and believed that providers' attitudes towards PWID encouraged PWID to attend clinics:

> They are very pleased to get such an attention. They are very happy. Finally, they realize that they are treated as a part of big family. Being a part of a big family makes them feel at home. There is no psychological barrier between the staff and the patients here. We try to get close each other. With this good atmosphere, we can keep them controlled. (Indonesia provider)

In Indonesia, providers suggested that basic knowledge of HIV and the benefits of ART are very limited, with a few linking clients' lack of knowledge to PWID's drug use. In Ukraine, while basic HIV knowledge was not an issue, providers explained that the quality of counseling is inconsistent, emphasizing the need to explain the impact of skipping an ART dose, even when the patient feels "good." A few small differences by country emerged when providers described barriers to ART. Fear of inadvertent HIV disclosure was mentioned among providers in Ukraine but not in Indonesia or Vietnam.

Social support was the most commonly mentioned facilitator by providers across all three sites. Providers across the three countries explained that when patients do not adhere to ART due to side effects or the large number of daily pills, having a family member, most commonly a wife or mother, managing medications can be very helpful, particularly when the support person accompanies the client to their ART appointments. A provider in Ukraine gave an example of a young married couple, where the wife reminds the patient that he needs to take medication so they can get pregnant and the patient had not skipped a dose of ARV.

The recent increase in the number of clinics in Ukraine and Vietnam was mentioned as a facilitator by providers. For example, in Thai Nguyen, Vietnam, until recently, only six ART clinics existed in the province. With the recent opening of 2 additional clinics in Dinh Hoa and Song Kong, providers reported that ART became easier for PWID to access.

PWID Perspectives

The most frequently mentioned barriers to ART among participants in all sites were lack of access, financial burden, fear, drug use, and lack of social support (Table 3).

Lack of access was the most pervasive theme among all PWID, although the reasons for lack of access varied across countries. Indonesia PWID described clinic distance and overly complicated procedures for ART enrollment. Ukraine PWID spoke mostly about challenges in finding time to access the clinic due to competing work schedules and limited clinic hours, long waiting lines, and lack of knowledge about where to access HIV services. And the vast majority of Vietnam PWID spoke about distance of clinics, time needed to travel to the clinic, and lack of knowledge about where to access HIV services as major barriers to ART.

Table 3 Barriers and facilitators to ART uptake: PWID perspectives

Barriers	
Lack of clinic access	Lack of clinic access was a pervasive theme among PWID in all three sites, although specific challenges were country-specific: distance from the clinic (Indonesia, Vietnam), limited clinic hours leading to long waiting lines (Ukraine), complicated procedures (Indonesia), and lack of knowledge around where to access HIV services (Vietnam, Ukraine)
Financial	The vast majority of PWID in the three sites reported financial barriers, such as the costs of laboratory tests
Fear	More than half of PWID in all sites explained that their inaction around testing and treatment was driven by fear of being HIV-infected and/or fear of having to go on ART, including fear of side effects
Drug use	PWID in Ukraine and Vietnam spoke about PWID, in general, getting distracted from taking or accessing ART due to drug use or withdrawal symptoms
Provider stigma	A couple PWID in Vietnam and Ukraine reported experience or anticipation of being treated poorly by providers as a barrier to accessing services
Lack of social support	Lack of social support, mostly from family members or spouses, was commonly listed as a barrier among Vietnam PWID
Facilitators	
Feeling sick & internal motivation	Feeling sick or the desire to avoid feeling sick due to HIV-related illnesses was a commonly mentioned facilitator across countries. PWID in Ukraine and Vietnam often elaborated that they wanted to take ART to live longer
Social support	Support by clinicians, family and friends facilitated uptake of ART in all three countries

PWID also discussed financial challenges in all three countries, with a particular focus on the cost of tests required to initiate ART.

> I have already made copies of all papers. I already wanted to take medication, but now it is the matter of money. I'm afraid that going to the center of medication, without money it is not possible, I think so, therefore I have not come yet. (Vietnam PWID)

PWID also reported being overwhelmed by the complicated procedures for HIV initiation and often had misinformation about what is required. In Indonesia, where CD4 count and TB screening is required, one PWID's belief that many more tests were needed deterred him from seeking care:

> We have to start with some tests…not only one but all: sputum tests, liver function test, hepatitis test. Every test is costly and because I am poor, the hardest part is the tests. Although ARV is free, the tests are not. So that is why I postpone taking ARV because I have no money. (Indonesia PWID)

Almost all PWID across countries, particularly in Ukraine, spoke about fear. While a few PWID in Ukraine used language similar to providers and described PWID as prioritizing drug use over health, most PWID in all three countries explained that their inaction around testing and treatment was driven by fear: fear of being HIV-infected, fear of having to go on ART. Others explained that it is due to challenges in their lives: "*Sometimes it's due to tiredness, or no money, no job, then they feel embittered and unhappy so they just stop [taking ART]" (PID 3206, Vietnam PWID).*

ART side effects were a barrier across the three countries. Again, fear came up when PWID discussed experiencing ART side effects:

> It was difficult at the initial stage [of taking ART]… my eyes could not see anything, when I moved I hit the walls, after taking one week then I get used to it. At the beginning, it was in a whirl…I was afraid of that feeling…at the time, I skipped [medications] for a few days…" (Vietnam PWID)

PWID mentioned drug-related barriers more often than providers in Ukraine and Indonesia, although this barrier was mentioned with similar frequency among providers and PWID in Vietnam. Types of drug-related barriers differed between PWID and providers in each country. A few participants from Ukraine and Vietnam explained that the experience or anticipation of being poorly treated by providers because of their drug use was a major barrier to accessing services. In addition to provider PWID stigma, PWID often spoke about PWID being unable to break their addiction to drugs or feeling withdrawal symptoms if they did not take drugs. Ukraine PWID cited problems with police due to their drug use and Vietnam PWID mentioned alcohol use and ART-MAT interactions as barriers to care.

Lack of social support was more commonly listed as a barrier among Vietnam PWID than among PWID from Ukraine and Indonesia. This difference may be because having a social support person register with you at the HIV clinic is a requirement to initiate ART in Vietnam.

Feeling sick or the desire to avoid feeling sick due to HIV-related illnesses was a commonly mentioned facilitator to initiate ART across sites. In Indonesia, PWID often explained that they were motivated to take ART because their HIV-infected friends who avoided ART became sick and/or died. In Ukraine and Vietnam, PWID explained that they were motivated to start ART because they wanted to live longer and feel better. A few Ukraine PWID elaborated that they wanted to live longer for their families.

Similar to providers, most PWID from all sites mentioned social support as a facilitator for ART uptake and adherence. PWID often described family and friends (mostly other drug users) encouraging them to get HIV tested or initiate ART. When speaking about ART adherence, PWID spoke often about family members and spouses giving regular reminders to take their medicine at the correct time.

Discussion and Conclusion

Overall, differences between provider and PWID perspectives were greater than differences within providers and within PWID across the three countries. Both providers and PWID recognized clinic access, financial barriers, side effects, and general lack of information about how and where to access HIV testing and ART as barriers to ART. However, providers tended to emphasize individual level barriers to ART, such as lack of motivation due to drug use, whereas PWID tended to highlight health systems barriers, such as clinic hours and access to care as well as financial burden, fears, and side effects.

Even on similar categories of barriers, PWID and providers presented very different perspectives. For example, both often spoke about lack of internal motivation and drug use as barriers, although in different ways. Providers tended to speak about lack of internal motivation and drug use as overlapping and intertwined issues describing clients in terms such as lazy and unreliable, while PWID provided more nuanced explanations for why these issues were barriers, noting that PWID, in general, were fearful of being diagnosed with HIV and in pain without drugs. Moreover, while a few PWID felt stigma in health care settings could be a barrier, providers did not mention stigma, though their language reflected stereotypes about drug users.

The differences between provider and PWID perspectives suggest a gap in providers' understanding of their patients who inject drugs, which in turn, has implications for patient-provider interactions that may affect PWID willingness to access care or adhere to ART. Providers viewed the inability of PWID to prioritize HIV care engagement and adherence as weakness and poor motivation rather than symptoms of a chronic medical condition. There is a clear need for training and education on addiction as a chronic medical problem that can be managed with MAT and counseling. Our findings suggest that patients have more similar perspectives across countries with different socio-cultural and political contexts than with providers in their own countries, underscoring the depth of disconnect between providers and their patients who inject drugs in multiple settings. Patient-provider communication is critical to engagement in care and predictive of ART adherence [25–27]. For PWID clients, the added dimension of PWID stigma among providers, which may manifest as a lack of empathy or understanding of drug addiction [28], can lead to a breakdown in patient-provider communication. Stigma reduction interventions for health care providers can raise awareness of biases towards PWID and have been shown to reduce stigma among providers, which may improve PWID engagement in the HIV continuum of care [29, 30]. However, implementation science studies are needed to understand how to effectively scale up sustainable stigma reduction programs for health care providers.

Both PWID and providers similarly acknowledged lack of knowledge as a barrier; providers emphasized lack of general knowledge about HIV and the benefits of ART, whereas PWID across all three sites stated a lack of knowledge about where to access HIV services and how to navigate a complicated health system. Linking PWID with systems navigators, who help patients walk through the required paperwork, lab tests, and locations, may be effective interventions in settings where PWID feel intimidated or overwhelmed by the health care system, as assessed in the HPTN 074 trial.

Many differences across countries reflect differences in health care systems—for example, insurance coverage, costs of services, and clinic hours. Ongoing efforts to offer HIV testing and ART free of charge in Indonesia, Ukraine, and Vietnam are critical, as providers and particularly PWID mentioned cost as a barrier to accessing services. Increasing number of days and hours that clinics operate in Ukraine would also reduce long waiting lines and increase engagement in care for PWID who have to travel far and work around their jobs to attend clinics. While we acknowledge that keeping clinics open longer may require additional resources, the supply and demand equation in Ukraine suggests that greater supply in the form of open clinic hours are needed to meet PWID needs.

Finally, fear of ART side effects and perceived lack of need for health services (i.e., feeling well) may be addressed by counselors who can work with patients to understand the trajectory of HIV and AIDS and how to minimize ART side effects and help alleviate fears in post-test counseling sessions. Additionally, social support was a commonly mentioned facilitator among both PWID and providers; this finding suggests that counseling may be particularly effective if counselors help clients identify and leverage social support in their lives.

Qualitative data are often more useful for describing contextual issues than frequencies. Our sample size was appropriate for qualitative interviews, as saturation was reached in the data and information was becoming redundant [31]. However, the sample size was not large enough to conduct quantitative analyses across providers and PWID or across sites. Nonetheless, our qualitative interviews provided insight into the complex nature of engagement in HIV care and uncovered issues that interview participants themselves are unaware of, such as PWID stigma among providers.

Due to the multi-site nature of the study, we needed to balance structure with flexibility, opting for more structure to compare data across sites to conduct this evaluation. In addition, since the trial was conducted in three countries, data were collected in multiple languages which then had to be translated into English for coding and analysis. Although quality assurance/quality control procedures were in place to minimize translation errors, inevitably some quality of the transcripts was lost in translation. While interview guides were standardized and topics pre-selected, our approach allowed different patterns to emerge allowing for within- and cross-country comparisons.

The qualitative findings describe the barriers to and facilitators of ART uptake and adherence among PWID in Indonesia, Ukraine, and Vietnam and identified a significant gap in patient-provider perspectives across the three countries. Issues of access were pervasive, highlighting the need for support for PWID in navigating the HIV system. HIV treatment counseling during testing could be used to also help raise awareness about ART and address fears about side effects. PWID stigma among providers, which was unrecognized by providers and most PWID, was apparent through providers' descriptions of PWID in all three countries and underscores the need for stigma reduction interventions to improve patient-provider communication. Lessons learned from this study will be important as countries with a significant HIV burden among PWID design and implement programs to engage HIV-infected PWID in care and treatment.

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Compliance with Ethical Standards

Conflict of interest Vivian F. Go declares that she has no conflict of interest. Rebecca B. Hershow declares that she has no conflict of interest. Tetiana Kiriazova declares that she has no conflict of interest. Quynh Bui declares that she has no conflict of interest. Carl A. Latkin declares that he has no conflict of interest. Scott Rose declares that he has no conflict of interest. Erica Hamilton declares that she has no conflict of interest. Kathryn E. Lancaster declares that she has no conflict of interest. David Metzger declares that he has no conflict of interest. Irving F. Hoffman declares that he has no conflict of interest. William C. Miller declares that he has no conflict of interest.

Ethical Approval All procedures performed in studies involving human subjects were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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