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"We fear the police, and the police fear us": Structural and individual barriers and facilitators to HIV medication adherence among injection drug users in Kiev, Ukraine

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Abstract

Ukraine has one of the most severe HIV/AIDS epidemics in Europe, with an estimated 1.63% of the population living with HIV/AIDS in 2007. Injection drug use (IDU) remains the predominant mode of transmission in Kiev—the capital and largest city. Prior reports suggest that the HIV infection rate among IDUs in Kiev reaches 33%, and many have poor and inequitable access to highly active antiretroviral therapy (HAART). Among those with access to HAART, little is understood about barriers and facilitators to HAART medication adherence.

In 5/2009, two semi-structured focus groups were conducted with HIV-infected IDUs seeking treatment at the City AIDS Center, Kiev. The goal was to use this information to adapt and tailor, to Ukrainian culture, an evidence-based intervention for improving adherence to HAART. All 16 participants attributed HIV infection to IDU. Their average age was 31.6 (SD=7.0), average time with HIV 5.7 years (SD=4.0), average time on HAART 2.5 years (SD=1.7), average time as IDU 14.6 years (SD=6.8), and 88% were on opioid substitution therapy.

The most salient themes related to adherence barriers included: (1) harassment and discrimination by police; (2) opioid dependence; (3) complexity of drug regimen; (4) side effects; (5) forgetting; (6) co-occurring mental health problems; and (7) HIV stigma. Facilitators of adherence included: (1) cues for pill taking; (2) support and reminders from family, significant other, and friends; (3) opioid substitution therapy; and (4) wanting improved health. Additional factors explored included: 1) knowledge about HAART; (2) storage of medications; and (3) IDU and sexual risk behaviors.

Findings highlighted structural and individual barriers to adherence. At the structural level, police discrimination and harassment was reported to be a major barrier to adherence to opioid substitution therapy and HAART. Privacy and stigma were barriers at the individual level. Recommendations for adherence interventions included education, training, and identification cards to show police that medication was for treatment of HIV, not for abuse; and involving family members and other systems of support for HIV treatment.

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Keywords

HIV; ARV; IDU; Ukraine; opioid substitution therapy; adherence

INTRODUCTION

Ukraine has one of the most severe HIV/AIDS epidemics in Europe, with an estimated 440,000 persons—1.63% of the population—living with HIV/AIDS in 2007 (ECDC/WHO Europe, 2008). In 2000, 485 new HIV cases were reported representing 112.2 per million among the general population and by 2007, 13,239 new HIV cases were reported representing 284.7 infections per million population.

Injection drug use (IDU) remains the predominant mode of transmission in Eastern Europe, representing 57% of 22,793 new cases in 2007. In Eastern Europe in 2007, 67% (66,706/98,882) of all newly diagnosed HIV infections among IDUs were reported in Ukraine, and a 47% increase in new infections was observed between 2003 and 2007 among IDUs (4,815 cases in 2003 vs. 7,087 in 2007). In 2007, the majority of cases were in Kiev and southeastern Ukraine, which together accounted for more than 70% of all registered HIV/AIDS cases in Ukraine (Kruglov et al., 2008). Research suggests that IDUs have poor and inequitable access to HAART, especially in Eastern Europe (Bollerup et al, 2008; Donoghoe et al, 2007). Despite a 1998 law in Ukraine mandating that HIV/AIDS treatment should be free, access to HAART remains poor due to limited resources with the vast majority of IDUs not receiving it—largely due to stigma and doubts about adherence to treatment (WHO, 2008). As of end of October 2009, out of 14,256 HAART patients in Ukraine, only 940 were IDUs (MOH Ukrainian AIDS Centre, unpublished data).

Although these figures shed some light on availability of HAART, and the fact that significant differences in HIV treatment outcomes have been observed between HIV-infected IDUs and non-IDUs (Lert & Kazatchkine, 2007; Spire et al, 2007), little research has examined barriers and facilitators to HAART adherence among IDUs in the Ukraine. Factors that may contribute to suboptimal HIV treatment outcomes in IDUs include delayed access to HAART, co-morbid diseases (i.e., hepatitis C), increased rates of non-HIV-related deaths, depression and negative life events, and lower adherence to HAART (Lert & Kazatchkine, 2007; Spire et al., 2007). For these reasons, research is needed to explore barriers and facilitators to HAART adherence among Ukrainian IDUs. Here we present formative work that explores these issues through focus groups with HIV-infected opioid-addicted IDUs. The end goal was to use this information to adapt and tailor an existing intervention, Life-Steps (Safren et al, 1999; 2001), that has been shown effective in the U.S. for improving adherence in Kiev.

METHODS

Design

In May 2009, 16 individuals participated in one of two semi-structured qualitative focus groups (8 participants per group) conducted by two trained interviewers. The rationale for the groups was to collect information on Ukrainian IDUs that might be useful in modifying the content of Life Steps so it is culturally sensitive and useful as an adherence intervention for an ongoing study of the acceptability and response to methadone treatment in HIV-infected and uninfected IDUs. The study was approved by the institutional review boards of the University of Pennsylvania School of Medicine and The Ukrainian Institute on Public Health Policy (UIPHP; web page: http:www.uiphp.org.ua).

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Setting

All study activities took place at the City AIDS Center, Kiev, which serves HIV/AIDS patients living in Kiev; almost 75% of the patients are IDUs. It has 25 beds and an outpatient unit that can accommodate 10,000 visits per year. It is the site of a buprenorphine program that was started in 2007 and a methadone program that began in 2008. The average methadone dose is 80mg/day; drug screens are done weekly in the methadone study program, but monthly in the standard methadone program.

Sample

Recruitment—Focus group participants were recruited from those attending treatment at the Kiev City AIDS Center. Prior to participating in the groups, each participant met with a study counselor to discuss the purpose of the group, how it would be conducted, the date and time of sessions, and the amount of reimbursement they would receive. Participants were compensated 40 Ukraine hryvnas ($8 U.S.) for their time and efforts.

Eligibility criteria—Participants were screened by treatment staff and determined to be eligible for the focus groups if they were: (1) 18 years or older; (2) a Kiev resident; (3) opioid dependent; and (4) HIV-infected via IDU.

Data collection

Each eligible participant completed a verbal informed consent process with trained study staff followed by a brief self-report quantitative assessment before group participation. The groups included study participants, two facilitators (Drs. Mimiaga and Safren), three observers (Drs. Dvoryak, Needle, Woody), and a translator. They lasted two hours and addressed several broad areas: (1) main problems or barriers IDUs face in taking HIV medications as prescribed; (2) strategies for being adherent to HIV medications; (3) knowledge about antiretroviral therapy; (4) storage of HIV medications; and (5) continued IDU and sexual risk behaviors.

Questions that guided the semi-structured groups were based on a literature review, a qualitative adherence study from our group (Kumarasamy et al., 2005), and needs identified by health specialists at The Ukrainian Institute on Public Health Policy and the Kiev City AIDS Center regarding information needed to adapt a behavioral intervention for improved medication adherence. The same interviewers conducted both focus groups and met with study staff post-focus group sessions to discuss themes and issues. English and Russian “Ukrainian” responses were digitally recorded and transcribed verbatim in real time by study staff. Transcriptions of the audio recordings were reviewed for errors and omissions and then cleaned; some extraneous words were removed and obvious problems with syntax were corrected.

A self-report quantitative assessment was conducted prior to the beginning of the focus groups and took approximately 10 minutes. Demographic questions were adapted from previous HIV medication adherence studies (Safren et al., 1999; 2001).

Data Analysis and Adaptation of the Life-Steps Intervention

The focus group data were analyzed using content analysis (Strauss & Corbin, 1997). NVIVO software aided with the coding, organization, and searching of narrative sections from each focus group, and facilitated the comparison and analysis of themes across the two groups. Study staff reviewed the transcripts and determined emerging themes that provided the basis for a thematic codebook. Members of the research team met on several occasions and data were reexamined; ongoing discussions between coders and authors allowed for further theorizing and making connections between research questions, coding categories, and transcribed data.

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Data from the focus groups were used to adapt the Life-Steps intervention (Safren et al., 1999; 2001) such that it would be responsive to the needs and cultural context of HIV-infected IDUs with HAART adherence challenges. Acceptability of topics, content and feasibility of the intervention were to be tested in a field trial. Life-Steps is based on general principles of cognitive-behavioral therapy and motivational interviewing (Miller & Rollnick, 1991; 2002), and problem solving therapy (D'Zurilla, 1986; Neza & Perri, 1989). Eleven informational, problem solving, and cognitive-behavioral steps were targeted and modified if necessary based on data from the groups.

RESULTS

Demographics

Overall demographic and other characteristics of the participants are outlined in Table 1. All were Ukrainian and lived in Kiev with a mean age of 31.6 (SD=7.0; range=20 to 48); just over two-thirds were male.

Main problems or barriers to taking HIV medications as prescribed

Barriers to adherence included: (1) harassment and discrimination by police; (2) opioid dependence; (3) complexity of drug regimen and treatment options; (4) medication side effects; (5) forgetting; (6) co-occurring mental health problems; and (7) HIV associated stigma. Within each of these major themes, sub-themes were explored and are discussed below.

Harassment and discrimination by police—This problem was the most frequently discussed barrier to adherence. Every participant reported being arrested and experiencing harassment when carrying HIV medications. Participants openly discussed fearing the police and the police fearing them:

> "When I was arrested last I told the policeman what my medications were and what kind of disease (HIV) I have. All of the policemen were so afraid of me. They put me in a separate holding cell, all alone, and tried to avoid contact....they were even afraid of taking the pen I had used." (32 year-old male, HIV-infected for 3 years, IDU for 14 years)

Participants reported that police in Kiev often monitor the opioid treatment site. It is located in the same building as the City AIDS Center and law enforcement officers have used questioning, search and seizure, arrest, and accusation to harass patients receiving substitution therapy. Participants also reported having to "pay off" police in order to be freed. For patients carrying HIV medications, this was a special challenge as officers often mistook (either intentionally or unintentionally) HIV medications as illicit narcotics and seized them:

> "When I was arrested by the police, the police took from me 4 pills of ART, I always keep it with me in my bag, the police thought it was drugs, and they just took it from me, because they stop me as a drug user, they think my HIV pills are drugs." (31 year-old female, HIV-infected for 1 year, IDU for 15 years)

> "One of the main problems is police – so it's not safe to carry ARV medications on you, its dangerous, once they stop you and they find some pills, the police immediately assume these are drugs, arrest you and take you to the police station. Once you are arrested by the police, you try to convince them that these medications are vital, very necessary, they don't listen, and sometimes it takes 2-3 days to explain to convince them." (35 year-old male, HIV-infected for 3 years, IDU for 16 years)

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Three participants reported owning an identification card (ID) that was helpful if police stopped them. The ID card explicitly states that the card holder is HIV-infected, on antiretroviral therapy, and is carrying medications to treat HIV:

> "Usually the police stop you somewhere around this AIDS center, because they know that here they have an opioid substitution therapy site, and that is why they hang around here. Plus we have problems getting this ID card (participant shows card to the group) saying that I am on ART treatment, it took me one year to get and was not easy to obtain, but it helps. Once you have such a card, it makes your life easier, you show this card and they understand." (28 year-old male, HIV-infected for 4 years, IDU for 12 years)

An HIV/AIDS service organization had obtained these IDs, but they were no longer available due to costs associated with making them. Uniformly, participants discussed these cards as one potential solution to police harassment, and every participant reported a great desire to be able to get one.

Opioid dependence—Most participants discussed the destructive nature of opioid addiction and how their drug abuse resulted in adverse consequences including poor adherence. Participants described their addiction as being such that most of their days were spent pursuing their next "fix", which often did not include time for remembering to take HIV medications or going to the clinic to obtain them:

> "People who take street drugs are busy thinking about where to get drugs, how to get drugs and do not have time to take ART. It happened to me before I started taking substitution therapy, but was on ARV, and because I was constantly in search of drugs, there was a period of time I was injecting drugs daily, I simply could not find the time to come here (AIDS center) and get ARV medications" (27 year-old female, HIV-infected for 6 years, IDU for 8 years)

Complexity of drug regimen and treatment options—Some described the dearth of treatment options as an adherence barrier. They stated that HIV-infected individuals have few treatment options in Ukraine since only "4 drug combinations" are available, much different than the 21medications that they knew had been approved by the U.S. Food and Drug Administration (FDA) and are available in other countries. Similarly, several participants discussed the complexity of their drug regimens as barriers to adherence—having to take medications at specified times, often more than once, and with food restrictions presented challenges:

> "You have to take these medicines regularly, every 12 hours, you cannot miss a dose – this can be a problem, the strict time table." (31 year-old female, HIV-infected for 1 year, IDU for 15 years)

A few participants described being on other medications in addition to antiretroviral therapy, which sometimes became an issue with remembering which medications to take, or whether or not they already took them:

> "It happened to me today—this morning—sometimes I just, not on purpose, when I wake up, I am confused, very tired, I know I have to take my ART at a certain time, but by mistake I took ART treatment when I needed to take something else, I took it earlier, and should have taken the other medicine. Sometimes I mix the medicines up." (31 year-old female, HIV-infected for 5 years, IDU for 15 years)

Side effects—Just over half of the participants in each of the two groups reported side effects as a barrier to adherence or initiating HIV treatment. The most commonly reported were

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diarrhea, headaches, stomachaches, fatigue, and nausea; less commonly reported were vomiting and joint/muscle pain. Most attributed side effects to the generic brands available to them, and/or where the medications were manufactured. There appeared to be strongly held beliefs that Indian generic formulations caused more side effects:

> "The problem is that now-a-days they usually provide us with generic brands, which are produced in India, and these generics have more severe side effects." (48 year-old male, HIV-infected for 10 years, IDU for 30 years)

In addition to side effects, some reported misconceptions about the outcome of taking certain HIV medications:

> "One person I know who was prescribed ART treatment developed epilepsy as a result of the medication." (25 year-old male, HIV-infected for 5 years, IDU for 6 years)
>
> A friend of mine found out that the ART medications cause tumors in the brain, so she stopped taking it." (27 year-old female, HIV-infected for 6 years, IDU for 8 years)

Forgetting—Another theme that emerged was "simply forgetting". Most participants reported forgetting to take medications on occasion because they were "caught up in the moment of an activity" or due to lack of a commonly used reminder:

> "Simply forgetting – sometimes you just forget to take your doses." (34 year-old male, HIV-infected for 2 months, IDU for 12 years)

Co-occurring mental health problems—A few discussed how mental problems may interfere with adherence. The most common problem discussed was depression, and participants spoke of this leading to a lack of motivation related to properly taking one's medications:

> "Although I am not on therapy myself, I think in my opinion what can be the problem is if the person is taking drugs and doesn't appreciate his life, doesn't care about the future, or has depression leading to no motivation, the person doesn't feel like, doesn't want to take his meds because he feels that its not necessary." (29 year-old male, HIV-infected for 2 years, IDU for 13 years)

HIV associated stigma—Stigma was unanimously mentioned as a barrier to adherence. Fears of stigmatization were most often related to feeling that having HIV made them suspect to being seen as an IDU, which often deterred them disclosing their HIV status:

> "The problem of stigma and discrimination is connected. Previously HIV positive people were mainly IDU, now it has changed some—people get HIV through sexual and other contacts—and that's why there are some prejudices against these people, if they hear you are HIV positive they think you are a drug user, so sometimes you don't disclose your status." (31 year-old female, HIV-infected for 1 year, IDU for 15 years)

Disclosure and fears of stigmatization were particularly important factors to consider because most participants reported living with their families; therefore, these concerns may increase patients' difficulty taking medications. Some discussed non-disclosure of their HIV status to family members because of fears of rejection, which may preclude them from getting help with pill taking from household members.

HIV associated stigma was also experienced from medical providers and/or hospitals in which they sought treatment:

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> "The attitude of doctors to HIV positive people, they refuse to help, say that they do not want to treat you if you are HIV positive." (20 year-old female, HIV-infected for 2 months, IDU for 4 years)

Hence, disclosure to medical providers when hospitalized or during visits to an ER could result in negative consequences, such as drug-drug interactions, and/or missed doses of HIV medications during their stay.

Participants also discussed being discouraged by the wait time often associated with getting treated for HIV and being "referred out" for other healthcare needs, which often resulted in out-of-pocket expenses and decreased motivation to continue HIV treatment:

> "What happens when they [medical providers] refer you from one place to another, you end up spending the whole day, and you don't get a real tangible result. You don't end up seeing the specialist, and the next day you don't feel motivated, so you stop treatment." (28 year-old male, HIV-infected for 4 years, IDU for 12 years)

Successful strategies and other facilitators for HIV medication adherence

To further inform interventions for improving adherence, we examined and extracted themes related to facilitators of adherence. These included: (1) cues for pill taking; (2) support and reminders from family, significant other, and friends; (3) opioid substitution therapy; (4) and wanting improved health. Within each of these major themes, sub-themes were explored and discussed below.

Cues for pill taking—All participants discussed the importance of cues as reminders to take medications. The most commonly discussed were: (1) using a mobile phone to program an alarm reminder to go off at the time doses are needed; (2) using stickers throughout their homes —placed strategically on things they use daily—to signify the importance of taking medications and as a continual reminder to take them on time; (3) using alarm clocks and/or watches with alarms; and (4) carrying extra doses with them:

> "I use an alarm clock to remind me to take my meds. I also simply put stickers, dot stickers, around my house. On my stickers it is written to take my meds at 10 o'clock. So all of these stickers are all reminders – even for myself this system serves as a reminder." (31 year-old female, HIV-infected for 5 years, IDU for 15 years)

Support and reminders from family, significant other, and friends—Participants in both groups spoke about family, a spouse/significant other, and friends as vital support for reminding them to take medications:

> "My relatives usually phone me in the morning—every morning—and remind me to take my medications." (43 year-old male, HIV-infected for 17 years, IDU for 28 years)

Some participants also mentioned that if their supply of medications ran out, they could call a friend who was on the same treatment plan and borrow a few doses until they were able to get a refill at the AIDS Center. This form of support between HIV-infected peers/friends was perceived to be an adherence facilitator:

> "In case you have no chance to get medications, you have no supply, you can always call your friends who take the same regimen and ask to borrow a few doses." (31 year-old female, HIV-infected for 5 years, IDU for 15 years)

Opioid substitution therapy—Almost all participants were on some form of substitution therapy, either methadone or buprenorphine, and each remarked about its importance on their ability to take care of their health, including HIV medication adherence:

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> "Of course what helps is the fact I'm on substitution therapy, so I have more time, and I don't have to think about where to get street drugs. Substitution therapy helps with being able to take your HIV meds." (31 year-old female, HIV-infected for 5 years, IDU for 15 years)

A few spoke of concerns related to the current opioid substitution therapy system in Ukraine. In particular, participants talked about becoming inadvertently restricted from travel outside their home area once initiating therapy, mainly because there are very few sites to access it, and no take-home doses are allowed:

> "The other problem with substitution therapy is that you cannot leave – you cannot go away, you need to stay in the city to get your regular dose. You have no freedom of movement; you have no way to go on holidays. There is no system or coordination of substitution therapy at sites in different cities, so you are stuck." (31 year-old female, HIV-infected for 1 year, IDU for 15 years)

Wanting improved health—Finally, several participants spoke about wanting to maintain good adherence to improve their wellbeing and overall state of health:

> "It is important to know that ARV treatment can improve and make better the quality of your life and it gives you a real chance to conduct a normal life and to live, not to die." (35 year-old male, HIV-infected for 3 years, IDU for 16 years)

Knowledge about antiretroviral therapy

Participants were generally knowledgeable about how HIV is transmitted–many specifically mentioned "IDU or via sexual risk"–and were also knowledgeable about antiretroviral therapy, specifically about how maintaining high adherence is important to treatment success. One recurring theme was that people outside of Kiev –"in the countryside"–know nothing about HIV transmission and treatment, and that people in Kiev know very little:

> "Very few people know about HIV. That's in Kiev, in the capital. In the countryside people don't know at all." (27 year-old female, HIV-infected for 6 years, IDU for 8 years)

Storage of HIV medications

Storage of HIV medications was generally not a problem. However, as noted above, several participants reported HIV-associated stigma and not wanting their family to know about their HIV; hence they reported "hiding" their medications in various places in their home. As noted above, all participants reported that having medication in their possession after leaving home was problematic due to the possibility of police harassment.

Participants mentioned the potential usefulness of a "special container – like those used in the U.S." to aid in reminding them to take medications and helping to sort their doses by day of the week and morning versus evening doses.

Continued IDU and sexual risk behaviors as a result of taking HAART

Two participants were not on opioid substitution therapy and were active IDUs; all others were on buprenorphine or methadone. Nearly all reported that starting HIV treatment did not significantly affect their sexual behavior or sexual risk taking. One commented that if HIV treatment helped a person feel better, then it would be natural to engage in more sexual behavior:

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> "Of course, I think it is natural, if a person feels physically better from taking their HIV medications, then probably they will have more sexual contacts, and be more sexually active." (20 year-old female, HIV-infected for 2.5 months, IDU for 4 years)

DISCUSSION

Taken together, these findings suggest that HIV-infected IDUs in Kiev face significant and unique barriers to taking HIV medications. Harassment and discrimination by police and law enforcement was by far the most salient theme. Other noteworthy barriers were untreated opioid dependence and substance abuse-related issues (e.g., "trying to get your next fix, and forgetting to take your meds"), complex drug regimens, limited treatment options, side effects, forgetting to take doses, mental health problems (especially depression), and HIV associated stigma with fear of disclosure. These data highlight the importance of developing interventions to improve HIV treatment adherence and finding ways to reduce the individual, contextual, and structural barriers facing HIV-infected IDUs in Kiev.

Helpful interventions will likely include education, training, and patient identification cards to address barriers such as harassment by police; involving support from others to help overcome contextual-level factors (e.g., getting support and reminders from family, significant other(s), and friends); and counseling that addresses individual-level factors such as mental health issues and concerns about privacy and stigma. Other individual factors identified as facilitative of adherence—cues for pill-taking, opioid substitution therapy, and wanting improved health—should be carefully considered in designing tailored interventions to improve antiretroviral therapy adherence among this group.

The goal of this study was to use the focus group information to adapt and tailor Life Steps to Ukrainian culture, as it has been shown in earlier studies to be efficacious in the U.S. (Safren et al., 1999, 2001). While many of the original "steps" were maintained, we added: (1) a step on "getting medications during special circumstances" to assist with problem solving should a participant be arrested or hospitalized; (2) a step on enlisting the help of a significant other (spouse/partner, friend, family member); and (3) a recommendation to try to find a way to obtain an official identification card that depicts the legality of the HIV medications.

Internationally, growing evidence suggests coupling antiretroviral therapy with opioid substitution therapy addresses many barriers to HIV treatment and adherence among HIV-infected IDUs (Roux et al., 2008; Wood, Kerr, Tyndall, & Montaner, 2008), and this was corroborated by focus group discussions. Substitution therapy has demonstrated significant reductions in illicit opioid injection drug use, criminal or illicit activity, and HIV exposure risk behaviors associated with IDU, e.g., sharing of injecting equipment (Lawrinson et al., 2008). Moreover, substitution therapy has been associated with increased treatment retention for opioid dependence, reductions in multiple sex partners or exchanges of sex for drugs or money, improved family relations, and successful return to employment (Gowing, Farrell, Bornemann, Sullivan, & Ali, 2006, 2008; IHRD, 2008; Sullivan, Metzger, Fudala, & Fiellin, 2005). As such, it may be an especially effective way to improve access to HIV medications and sustain adherence to HAART for HIV-infected IDUs in Ukraine as in the U.S. Additional efforts are warranted to examine the acceptability and feasibility of integrating adherence interventions, antiretroviral therapy, and opioid substitution therapy. Similar effects may occur in association with any other effective opioid addiction treatment, though studies done to date have focused only on buprenorphine or methadone.

A few limitations are important to consider when interpreting these results. First, although the focus groups reached redundancy in responses across participants and norms were exposed, the participants comprised only a small subset of HIV-infected IDUs in Kiev. Second,

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qualitative studies are meant to gain information and generate hypotheses for future confirmation. However, the results of this study can be seen as an example of how to quickly collect formative data so as to adapt an intervention shown effective in one culture, to another culture.

Findings suggest that continuing to introduce new HIV medications and optimizing treatment outcomes for HIV-infected IDUs in Ukraine will require careful attention to political, cultural, and social issues (e.g., harassment and discrimination by police, potential stigma regarding disclosure of HIV status to one's family) regarding self-care so as to maximize the chances for optimal adherence. The prominence of police harassment, and the reported impact of identification cards in reducing and minimizing this harassment emerged as a step that could be immediately taken to improve the current situation.

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Table 1
Demographics and other characteristics of the study sample (N = 16)

	Mean (SD)	
Age	31.6 (7.0)	
Number years HIV-infected	5.7 (4.0)	
Number years on HAART	2.5 (1.7)	
Number years IDU	14.6 (6.8)	
Number years on substitution therapy	1.9 (1.3)	
	N	**%**
Gender		
Male	11	69
Female	5	31
Education		
Unfinished high school	2	13
Unfinished higher education	4	25
Completed higher education	2	13
Technical school	8	50
HIV and HAART		
HIV-infected for less than 1 year	2	13
On HAART for less than 1 year	3	19
Currently on HAART	11	69
Substitution Therapy		
Currently on substitution therapy	14	88
Methadone	8	50
Buprenorphine	5	31
Unknown	1	6
On substitution therapy for less than 1 year	8	50

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Table 2
Main barriers and facilitators related to HIV medication adherence

	Main problems or barriers to taking HIV medications as prescribed		Successful strategies and other facilitators for HIV medication adherence
1	Harassment and discrimination by police	**1**	Cues for pill-taking
2	Opioid dependence	**2**	Support and reminders from family, significant other, and friends
3	Complexity of drug regimen and treatment options	**3**	Opioid substitution therapy
4	Medication side effects;	**4**	Wanting improved health
5	Forgetting		
6	Co-occurring mental health problems		
7	HIV associated stigma		