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Drug use as a driver of HIV Risks: Re-emerging and emerging issues

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Abstract

Purpose of Review—We reviewed papers published in 2012–2013 that focused on re-emerging and emerging injection and non-injection drug use trends driving HIV risk behaviors and transmission in some parts of the world.

Recent Findings—While HIV incidence has declined in many countries, HIV epidemics remain at troubling levels among key drug using populations including females who inject drugs (FWID), FWID who trade sex, sex partners of people who inject drugs (SP-PWID), young PWID, and people who use non-injection drugs in a number of low- and middle- income countries such as in Central Asia, Eastern Europe, Southeast Asia, and parts of Africa.

Summary—HIV epidemics occur within contexts of global economic and political forces, including poverty, human rights violations, discrimination, drug policies, trafficking, and other multi-level risk environments. Trends of injection and non-injection drug use and risk environments driving HIV epidemics in Central Asia, Eastern Europe, Southeast Asia, and parts of Africa call for political will to improve HIV and substance use service delivery, access to combination HIV prevention, and harm reduction programs.

Keywords

injection drug use; non-injection drug use; HIV/AIDS

INTRODUCTION

Worldwide, the number of people newly infected with HIV continues to fall, with a 20% reduction in HIV acquisition between 2001 and 2011 (1). This heartening progress suggests that the global HIV pandemic has passed peak incidence (1, 2). Such progress may have transpired due to two major advancements: substantially increased access to anti-retroviral

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therapy (ART) has increased global coverage by 63%, thereby contributing to decreased HIV transmission (i.e., HIV treatment as prevention) (3), and increased availability and access to HIV combination prevention (e.g., behavioral and biomedical) (4).

Despite this progress, recent reports depict a different reality in some regions. For example, reductions in new HIV infections are uneven due to injection drug use (IDU) and non-injection drug use in a number of low- and middle-income countries (1, 3–6). In the past several years increases in injection and non-injection drug use have affected HIV risks and HIV incidence among key sub-populations, including females who inject drugs (FWID), FWID who engage in sex work, non-IDU sex partners of people who inject drugs (SP-PWID), young people who inject drugs, and non-injection drug users.

UNAIDS identified nine countries where HIV incidence increased 25% or more between 2001 and 2011 (2, 3). In six of these countries, the majority of which are in Eastern Europe and Central Asia (2, 3), IDU was the major mode of HIV transmission. While the highest concentration of PWID remains in Eastern Europe and Central Asia (7), South East Asia and some countries in Africa, including Kenya, Tanzania, Nigeria, Mauritius, and South Africa (8, 9) are experiencing increases in the number of people who inject drugs (PWID). Furthermore, the emergence of some forms of non-injection substance use (particularly stimulants) is occurring in a number of countries including parts of Africa. This rise of non-injection drug use may also be driving HIV transmission, due to associations between substance use and sexual risk behaviors (4, 10–13).

This paper focuses on studies published in 2012–2013 which consider 1) re-emerging and emerging injection and non-injection drug use as drivers of HIV transmission among females who inject drugs (FWID), FWID who engage in commercial sex work, non-IDU sex partners of people who inject drugs (SP-PWID), young PWID, and non-injection drug users; 2) structural risk environments that promote injection and non-injection drug use as drivers of HIV risk among key sub-populations; and 3) prevention and policy strategies to address growing concerns and challenges related to these trends.

DRUG-USING POPULATIONS AND THE HIV EPIDEMIC

Both injection and non-injection drug use are drivers of HIV infection among key populations. Drug use may lead to HIV transmission through shared syringes and drug equipment, unprotected sex while under the influence of drugs, and the influence of drug use, which can lead to heightened sexual activity and impaired judgment (10–13, 17). Moreover, gender and roles and social norms about condom use and drug sharing may influence HIV risk behavior.

Injection drug use risks for HIV transmission are of growing concern among the following four populations.

Females Who Inject Drugs

Recent reports show that the number of FWID has increased in many countries (3, 7). In countries where HIV prevalence is higher than 20% among FWID, Des Jarlais et al. (14)

found that HIV prevalence was significantly higher among FWID than MWID. This finding was consistent across 117 studies that included 128,745 PWID in 14 countries. In Thailand, where this trend was also observed, higher levels of risk behaviors were also found among FWID when compared to MWID, including less frequent use of sterile needles and condoms (15). One explanation for the gender disparity in HIV prevalence is that FWID are more likely to have sex partners who also inject drugs, placing them at higher risk for acquiring HIV through drug or sexual risk behaviors with their partners, while MWID are more likely to have sex partners who do not inject drugs (16, 17). Moreover, studies have identified gender-associated economic and social inequalities within the drug cultures of many countries. For example, men often influence women's drug use by introducing them to drug injection and providing drugs, contributing to social network insularity (18). Many FWID rely on their sexual partners for access to drugs, and hence lack control over injection equipment (19). Condom use remains low among some FWID and their main partners, and condoms may be used less often when couples adhere to traditional gender roles (20). These problems are further complicated by the fact that FWID in some countries face greater challenges than MWID in obtaining sterile injection equipment and accessing harm reduction programs (14), due to a reliance on intimate partners to access resources including needles (21, 22) and greater levels of discrimination experienced when seeking HIV and drug use treatment (7).

Females Who Inject Drugs and Trade Sex

Overlap between injection drug use and sex work is common worldwide (6, 23–25). Sex work has emerged as a major driver of HIV among FWID in Eastern Europe and Central Asia (24–27), where the dual risks of injection and sex trading influence HIV transmission (19, 28). Consistent access to drugs in these regions has led to increases in the number of women injecting drugs and increased engagement in sex trading due in part to difficulties maintaining other employment as a result of drug use (29).

A systematic review with data from 77 countries showed that the percentage of adult HIV-infected sex workers was a strong predictor of national adult HIV prevalence (24). FWID who trade sex may struggle to protect themselves from HIV due to sexual and physical abuse from clients, police, and their intimate sexual partners (30). Condom use among females who trade sex is often inconsistent due to clients' preferences for unprotected sex, and females who trade sex tend to not use condoms with their intimate partners (25, 27, 31). Furthermore, FWID who trade sex face social structural barriers that impede their access to HIV prevention such as a lack of access to health care and HIV services, poverty, criminalization of sex work, imprisonment, and the confiscation of condoms as evidence of commercial sex work (25, 27, 31). This situation underscores the urgent need to address sexual and drug risks and structural barriers to HIV prevention services and policies for FWID who trade sex.

Sexual Partners of People Who Inject Drugs

In many parts of the world where IDU has been a major driver of the HIV epidemic, sexual transmission of HIV from PWID to their sexual partners has increased (5, 11, 32). IDU-concentrated epidemics are likely to have initiated heterosexually transmitted epidemics in

Argentina, Brazil, China, Indonesia, the Netherlands, and Ukraine (5). Most of these countries have had fewer resources for PWID and higher levels of stigmatization towards PWID when compared to countries where this transition was not observed (Italy, Scotland, Spain, France, and Thailand). Indonesia in particular saw a ten-fold increase in HIV incidence between 2006 and 2011 (33). In 2011, heterosexual transmission represented half of all new HIV infections in Kazakhstan (34, 35), suggesting that a transition from IDU-concentrated epidemics to heterosexual HIV epidemics (5) is occurring in Central Asia. Condom use between PWID and their sex partners remains low (17, 20, 36) and non-injecting female sex partners may be at particular risk (16). This growing key population has not received sufficient attention in HIV prevention, especially in low and middle-income countries.

The extent to which PWID transmit HIV to male sexual partners is understudied, but is important in regions where IDU is endemic, particularly when homosexuality is illegal or highly stigmatized (25). Recent legislation against homosexuality in Russia (37) may lead to increases in sexual and drug risks if needles/syringes, condoms, and other HIV services become less accessible. Additionally, alcohol and non-injection drug use may be drivers of sexual transmission between men who have sex with men (13, 38).

Young People Who Inject Drugs

HIV incidence increased by 20% among young people (ages 15–24) in Eastern Europe between 2001 and 2011; the majority of this HIV-infected sub-population injects drugs (3, 39). A recent review of studies conducted in Ukraine indicated that youth who were homeless and orphaned were more likely to be HIV-positive and to engage in injecting drug use, compared to youth with stable housing who resided with their parents (40). In Western countries, adolescents have reported use of emerging drugs such as synthetic cannabinoids (e.g., “Spice”) and cathinones (e.g., “bath salts”), and over-the-counter cough medicine dextromethorphan has gained popularity in Thailand among middle and high school students (41). The extent to which these substances affect sexual behaviors such as condom use are unknown (13). Age-appropriate HIV prevention services are needed for young people who use drugs, as are additional studies to inform prevention development.

Non-Injection Drug Use

The past decade has witnessed the emergence and acceleration of different non-injection drugs in some regions of the world. Certain non-injection drugs, particularly stimulants, lead to an elevated rate of HIV transmission due to their association with high-risk sexual behaviors (25, 26).

In Brazil and other South American countries, cocaine injection was prevalent in the late 1980s and heroin injection was prevalent in the 1990s, while methamphetamine smoking is currently emerging (13). Methamphetamine plays a role in HIV transmission in that it leads to increased sexual activity, impaired decision-making and inconsistent condom use (42, 43). Use of amphetamine-type stimulants, specifically methamphetamine, has increased in many countries within East and South-East Asia (44). A recent study among PWID in

Bangkok found that the availability of heroin, methamphetamine, crystal methamphetamine, midazolam, and illicit methadone increased substantially between 2009 and 2011 (45).

Heroin, methamphetamine, and methcathinone use has also increased in South Africa (7, 46, 47). Other countries in sub-Saharan Africa have witnessed epidemics of heroin and cocaine use (8, 17, 46), especially among FWID who trade sex (48). Recently, West Africa came to the fore as a drop-off point on a major cocaine trafficking route from South America to Western and Central Europe. High rates of cocaine and heroin use in Nigeria may result from the country's role in drug trafficking (9). West African drug trafficking organizations which historically have focused on cocaine and heroin have become increasingly involved in trafficking methamphetamine, using diverse methods to avoid detection (49).

New compounds derived from parent substances like cocaine and heroin have emerged through efforts to avoid laws addressing drug possession and distribution (50). The use of these compounds is increasing in many countries including Eastern Europe and Central Asia, both of which have seen the arrival of heroin synthetic substitutes and home made drugs such as krokodil (51, 52). Krokodil use has increased in Russia, Kazakhstan and Ukraine due to changes in heroin availability, purity, and price, all of which are associated with heroin 'droughts,' police interdiction, legislative changes targeting poppy imports, and rising poverty levels in Russia since the 2008 global economic downturn (53). In the last three to five years, an increasing number of reports suggest that drug producers in Russia, Ukraine, and other countries are making drugs with over-the-counter medications that contain codeine instead of poppies or raw opium as a starting material (49, 54, 55). Knowledge about how these newer substances affect sexual behavior is lacking (56) and needs research attention.

STRUCTURAL RISK ENVIRONMENTS

Common structural risk environments affect the re-emergence and emergence of injection drug use and HIV epidemics in some countries, including lack of access to treatment and prevention services. Few HIV prevention efforts exist in low- and middle-income countries where resources for drug treatment programs and ART are limited. Low levels of committed resources in national healthcare budgets leave dependence on international donor support for harm reduction programming (1). As a result, harm reduction program coverage remains low, especially in regions where HIV is spreading rapidly (2, 39, 57). Opioid substitution therapy (OST) has yet to become widely available in Eastern Europe and Central Asia where rates of IDU are high. Political opposition in Kazakhstan delayed the introduction and scale-up of nationwide OST programs (34) and in Uzbekistan, an OST pilot project was declared ineffective prematurely, accompanied by denial of the evidence supporting OST's effectiveness at reducing HIV (34). In Russia, OST remains illegal (57).

In addition to a lack of funding and support for harm reduction services, government policies that criminalize and restrict access to needle exchange programs and non-governmental health organization services may lead to arrests of harm reduction service clients, physical abuse or the extraction of bribes in response to possession of syringes/needles (58, 59), or sexual exploitation of FWID and sex workers who inject drugs by police

(60). Effective HIV programs require cooperation from law enforcement officials, but relationships between drug users and the police are problematic in many countries. Many countries in Eastern Europe and Central Asia have official registries of persons known to be addicted to drugs. Registered persons lose important civil rights, are subject to police brutality, and are therefore often reluctant to participate in HIV prevention services (59, 61). Even carrying sterile needles and syringes can be risky for PWID as they may be arrested for paraphernalia possession (62, 63).

Police education programs promoting harm reduction approaches with occupational safety (i.e., concerns about needlestick injuries) may be a useful avenue for addressing stigma and abuse from the police towards injecting drug users. Beletsky et al (64) recently showed that a police education program implemented in Kyrgyzstan was associated with officers being significantly more likely to support referring individuals to public health organizations, express no intent to confiscate syringes (aOR 1.92; 95%CI 1.09–3.39), better understand sex worker detention procedures, and have higher knowledge regarding occupational safety (64).

An alarming context of structural risk is also impacting HIV acquisition in Greece. Prior to 2011, the HIV epidemic was concentrated among men who have sex with men. However, Greece saw a 15-fold increase in HIV incidence among PWID in 2011 (65, 66). This drastic change in HIV incidence likely occurred as a result of the economic collapse in 2007, demonstrating the impact of poor economic conditions on HIV risk behaviors (67).

Multi-level risk environments including economic and political conditions also play a role in fostering new drug trafficking routes, new drug compounds, and the emergence of non-injection drug use. Non-injection drug users, like PWID, may experience risk environments including stigma, discrimination, incarceration, homelessness, a lack of health insurance, harsh drug policies, and a lack of access to drug treatment and HIV prevention and services (13, 68). These risk environments may contribute to HIV transmission, drug overdose, and death among people who use drugs (69).

CONCLUSION AND WAY FORWARD

The challenges facing key populations highlighted in this paper (PWID, FWID who trade sex, SP-PWID, young PWID, and non-injection drug users) are cause for global concern. The literature highlights the re-emergence and emergence of injection and non-injection drug use as major drivers of HIV transmission, demonstrating that HIV epidemics occur within contexts of global economic and political forces including poverty, human rights violations, discrimination, drug policies, trafficking practices, and other multi-level risk environments.

Research over the past few years has called for more attention to these key populations, especially in low- and middle-income countries, and has stressed the importance of improving access to HIV behavioral and biomedical prevention, HIV treatment strategies (i.e., early initiation of ART, PrEP, etc.), OST, and syringe exchange programs. While some high-income countries have developed and implemented successful harm reduction

programs, in most low- and middle-income countries, harm reduction operates at sub-threshold levels. HIV prevention research on substance-using populations has focused primarily on PWID; however, most abused substances are administered through non-injection methods (e.g., snorting, smoking, inhaling, and ingestion) (13). Like PWID, non-injection drug users have been excluded from many trials on HIV combination prevention due to concerns over potential medication adherence problems (13). However, combination HIV prevention approaches that address non-injection drug use are needed.

This paper advances several recommendations for change: 1) Commitment by policy-makers, funders, and governments is necessary to secure access to evidence-based and optimal HIV and drug treatment programs, including increased access to combination prevention approaches for PWID, SP-PWID, FWID who trade sex, young PWID, and people who use non-injection drugs; 2) Specific contexts and drivers of re-emerging and emerging injection and non-injection drug use (e.g. drug trafficking, drug policies, economic collapse, stigma, discrimination against drug users) must be addressed on local levels with international partnerships and support; 3) Efforts should be made to reduce stigmatization by policy makers and service providers, setting aside biases that limit service availability and effectiveness and ensuring human rights protection for people who use or inject drugs; and 4) There is a serious need for comprehensive data collection on drug use and HIV throughout the world, specifically in low- and middle-income countries. Thus far, in many low- and middle- income countries no accurate estimates exist to indicate how many people use or inject drugs and no accurate surveillance systems exist. Reliable data is essential for policy-makers to make informed decisions regarding drug policies and improved access to HIV and drug treatment services for these key populations (68).

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Key points

- The literature highlights the re-emergence and emergence of injection and non-injection drug use among various populations as major drivers of HIV transmission.
- Key populations affected by trends in injection and non-injection drug use include females who inject drugs (FWID), FWID who trade sex, sex partners of people who inject drugs (SP-PWID), young PWID, and people who use non-injection drugs in many low and middle income countries.
- HIV epidemics occur within contexts of global economic and political forces, including poverty, human rights violations, discrimination, drug policies, trafficking practices, and other multi-level risk environments.