Women Who Use or Inject Drugs: An Action Agenda for Women-Specific, Multilevel, and Combination HIV Prevention and Research

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Abstract: Women account for more than half of all individuals living with HIV globally. Despite increasing drug and HIV epidemics among women, women who use drugs are rarely found in research, harm reduction programs, or drug and HIV treatment and care. Women who use drugs continue to face challenges that increase their vulnerability to HIV and other comorbidities because of high rates of gender-based violence, human rights violations, incarceration, and institutional and societal stigmatization. This special issue emphasizes how the burdens of HIV, drug use, and their co-occurring epidemics affect women in a global context. Articles included focus on the epidemiologies of HIV and hepatitis C virus and other comorbidities; HIV treatment, prevention, and care; and policies affecting the lives of women who use drugs. This issue also highlights the state of the science of biomedical and behavioral research related to women who use drugs. The final article highlights the major findings of articles covered and presents a call to action regarding needed research, treatment, and preventive services for women who use drugs. To address these needs, we advocate for women-specific thinking and approaches that consider the social, micro, and macro contexts of women's lives. We present a women-specific risk environment framework that reflects the unique lives and contexts of women who use drugs and provides a call to action for intervention, prevention, and policies.

Key Words: women, drugs, HIV

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GLOBAL BURDEN OF DRUG USE AND HIV AMONG WOMEN

Injection and non-injection drug use affect the health and well-being of millions of women worldwide. Although women comprise one-third of all people who use drugs,[1] they do so in substantial numbers; global estimates from 2010 suggest that 4.7 million women are dependent on illicit opioid drugs, 6.3 million on amphetamines, and 2.1 million on cocaine.[2–4] An estimated 3.8 million women inject drugs.[2] The United States has recently seen a demographic shift in heroin consumption, with more women and white middle-class nonurban residents using the drug and many women transitioning from prescribed opiates to heroin.[5]

The articles included in this special issue demonstrate a range of harmful physical, psychological, and social consequences of female drug use. Larney et al[6] found that substance-using women experience greater excess mortality than men who use drugs. Mortality from overdose of prescribed painkillers increased 5-fold from 1999 to 2010, and excess mortality rates were also higher for women than for men.[7] About 5600 women in the United States died from prescribed opiate overdose in 2010; 4 times as many as from heroin and cocaine overdose combined.[7]

Other articles in this issue detail why drug use can create greater health burdens for women than for men. Page et al[8] and Springer et al describe meager coverage of biomedical risk reduction treatments, including antiretroviral therapy (ART), opioid substitution therapy, opiate agonist therapy (OAT), and preexposure prophylaxis (PrEP) for women. Gilbert et al[9] demonstrate that both injection and non-injection drug use among women are closely associated with a number of co-occurring disorders, including gender-based violence (GBV), trauma, and sexually transmitted infections (STIs), most notably HIV. Additionally, Iversen et al[10] demonstrate the extensive burden of hepatitis C virus (HCV) experienced by drug-using women: 60% of female injection drug users have been exposed to HCV and 70%–90% of HIV-positive women who inject drugs have comorbid HCV infection. HIV-infected female drug users have significant HIV- and non–HIV-related medical needs; yet, as shown by Metsch et al,[11] HIV testing and access to care remain low. Furthermore, Blankenship et al[12] describe a range of structural barriers that complicate or prevent access to services for drug-using women.

For certain subpopulations of women, drug use and HIV occur together with additional burdens. The article by Strathdee et al[13] highlights intricate connections among drug use, sex work, and the criminal justice system. The size of the global sex industry is increasing, and approximately 30% of female sex workers (FSWs) inject or use drugs. Drug use is also a route to the criminal justice system; the majority (60%) of incarcerated women worldwide are serving time for drug-related offenses.[1] In the United States, the number of

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women incarcerated for drug-related offenses has increased by more than 800% over the past 30 years, compared with a 300% increase for men.[14] Furthermore, women in the criminal justice system often suffer from co-occurring physical and sexual abuses, trauma, and psychiatric disorders.[15] There are disproportionate effects of incarceration on women's adherence to HIV care and treatment that persist post-release; women are significantly less likely than men to experience (1) retention in care, (2) ART prescription or optimal ART adherence, and (3) viral suppression.[14]

IMPACT OF LIMITED DATA

Although the articles included highlight the extent of the challenges experienced by drug-using women, they also highlight substantial knowledge gaps (Table 1). Women who use and inject drugs remain underrepresented in many drug trials, studies, and, hence, in systematic reviews. In this issue, Page et al[8] call for greater involvement of drug-using women in drug trials, Metsch et al[11] call for increased research on their access to HIV care, and Auerbach and Smith[16] call for greater consideration of gender theories in understanding risk environments.

Multiple articles in this issue describe difficulties in finding sex-disaggregated data on drug use, especially in low- and middle-income countries. Population-based studies of drug users rarely include women, making it difficult to estimate the prevalence of female drug use. Special efforts are needed to recruit women for studies on substance use, and comprehensive surveillance systems to monitor and report drug trends by sex must also be developed. As Larney et al describe, data on HIV prevalence among drug-using women are equally sparse. Of the 81 countries reporting data on HIV prevalence among people who inject drugs to United Nations Program on HIV/AIDS since 2011, only 48 reported data disaggregated by sex.[6] Among the reporting countries, there was a considerable variation in HIV prevalence among women (0%–65%).[6] This may be a function of the small sample sizes of women and reliance on data from a limited number of locations.

Additionally, certain subpopulations of female drug users remain underresearched. Little attention has been given to HIV prevalence among women who use non-injection drugs, although non-injection drug use is also closely associated with HIV.[17] Preliminary evidence suggests that women who have sex with women have higher rates of drug use and higher prevalence of HIV relative to women with male sex partners only.[18,19] Similarly, young transgender women show high rates of both non-injection[20] and injection drug use,[21,22] with high self-reported HIV prevalence among those who use drugs.[23] Research on HIV among women and female adolescents who use drugs in the criminal justice system remains limited in low- and middle-income countries.

Finally, as Auerbach and Smith[16] describe, research on drug-using women lacks intersectionality or a consideration of the ways in which race, class, and additional affiliations affect women's risk. Moreover, co-occurring disorders (eg, substance use, violence, and AIDS or the "SAVA syndemic") among women are underresearched.[9]

The paucity of data regarding female substance users continues to undermine the effectiveness of risk reduction programs, compromises civil society's attempts to allocate funding for drug-using women, and relegates women-specific barriers to care as secondary concerns.

GENDER-SPECIFIC RISK ENVIRONMENTS FOR HIV FACED BY WOMEN WHO USE DRUGS

Over the past decade, there has been a surge in epidemiological, social science, modeling, and ecological researches on the structural factors that shape HIV among people who inject drugs. Established frameworks consider the impact of various environments on risk behaviors among drug users.[24] However, conceptual approaches and prevention strategies tailored to women are lacking. As both Blankenship et al[12] and Auerbach and Smith[16] describe in their articles, approaches and programs for women are still driven by individual behavior-change theories and a male-focused perspective on the risk environment. In this article, we use the same framework that was used by Strathdee et al[13,24] to consider the gender-specific risk environment, focusing on both macro- and micro-level physical, social, economic, policy, and legal influences and barriers to harm reduction and treatment services (Table 2). Although many of the barriers described affect men as well, in most circumstances, they occur more frequently and severely for women.

Physical Risk Environment

Women who use drugs often live and work in physical settings that place them at high risk for acquiring HIV and other STIs. Blankenship et al describe the challenges women who use drugs can face in physically accessing care. In many parts of the world, women may be geographically removed from harm reduction and drug treatment services. This is especially true of those who engage in sex work, which often occurs in remote locations far from services.[25] Harm reduction services may be available only during certain hours, which conflict with employment or family responsibilities. Women who are homeless or lack proper documents may face additional problems in accessing harm reduction or HIV treatment. Lacking stable housing has been found to be associated with HIV risk behaviors.[26]

As Springer et al[27] and Wechsberg et al[28] show in this special issue, even when women have the time and transportation to access harm reduction and drug treatment programs, these programs can be unfriendly or even hostile to women. In many countries, such programs are operated and attended primarily by men; they do not address needs specific to women, such as reproductive health, intimate partner violence (IPV), childcare responsibilities, or food insecurity.[28] As Gilbert et al[9] discuss, not many programs have been designed to simultaneously address SAVA syndemic components. Few women-only service centers exist, which can discourage access for some. Shelters offering other services may refuse to admit drug-using women, and admitting drug use can lead to increased instability (eg, being evicted from housing).[11]

Incarcerated women are generally far removed from harm reduction services. As of 2014, only 41 countries

TABLE 1. Research Gaps on HIV in Women Who Use Drugs

Research Questions	Studies Needed
Epidemiology	
How prevalent is drug use among women in low and middle income countries?	Sex-disaggregated statistics in country-level studies as well as global surveillance systems on all different drugs including prescribed painkillers
How prevalent is drug use among certain sub-populations of women?	Population-based studies of WSW, transgender women, incarcerated women, sex workers, adolescents and girls
How prevalent is HIV in women who use drugs?	Epidemiological studies globally, but primarily in middle and low-income countries, with sex-disaggregated data
How prevalent are co-occurring disorders such as HIV, violence, etc. among women who use drugs?	Population-based and epidemiological studies of SAVA syndemic (Substance Use, Violence, and AIDS factors and other co-occurring disorders
How prevalent is HIV among drug-using women in the criminal justice system?	Epidemiological studies that take place among groups of incarcerated women and women in alternative to incarceration programs
How prevalent is HIV among non-injection drug users?	Epidemiological studies of HIV prevalence among women and girls who use, but don't inject, drugs and alcohol
Basic Research	
What forms of vaginal and rectal microbicides will be acceptable, safe and effective for women who use drugs?	Inclusion of women who use drugs in phase 1 and phase 2 trials of microbicides
What forms of oral or injectable PreP will be acceptable, safe and effective for women who use drugs?	Inclusion of women who use drugs in phase 1 and phase 2 trials of PreP
HIV Prevention	
What interventions will reduce HIV incidence for women who use drugs and have co-occurring disorders such as violence, etc.?	Population-based studies of SAVA syndemic factors and other co-occurring disorders
Improvement of care	
How well do harm reduction and drug treatment services reach women?	Sex-disaggregated surveillance data on harm reduction and drug treatment services
How to maximize effectiveness of interventions for women?	Interventions studies (all stages) for women, especially in biomedical research
Structural change	
What is the effect of decriminalization of drug use and sex work?	Population-based longitudinal or comparative studies that examine effects of decriminalization on access to harm reduction. Some research, including theoretical modelling studies exist, but because these behaviors are criminalized in most countries worldwide, not many research opportunities exist
How might police education programs reduce HIV risks among women who use drugs?	Longitudinal studies to examine the impact of police education programs on HIV risk behaviors of women who use drugs, including sex workers
How do the institutions of race, ethnicity, and class interact with gender to heighten risk among drug-using women?	Consideration of intersectionality in formative research and mathematical models with PWID, disaggregated by sex. Studies should include a diverse sample of drug-using women

provided methadone or buprenorphine maintenance in prison and only 9 operated prison-based needle and syringe programs.[29] Both ART and OAT are more likely to be available in men's than in women's prisons.[30] Incarceration increases a women's HIV risk and drug use in many ways. Incarcerated women lack access to care and social support. Isolation among female inmates is a source of anxiety and depression, which can lead to increased substance use.

TABLE 2. Risk Environment for HIV Among Women Who Use Drug Use and Potential Interventions

	Micro-Level Factors	Macro-Level Factors	Possible Interventions
Physical	Harm reduction, drug treatment and HIV treatment services may be inaccessible, particularly for women	Women's lower mobility (especially in suburban and rural settings)	Expansion/restructuring of existing drug treatment and harm reduction services to improve women's access to them, including strengthening outreach efforts, use peers as outreach workers, provide transportation to clinics, mobile clinics, and childcare at clinics
	Women may feel unwelcome/unsafe at drug treatment and harm reduction programs	Drug treatment and harm reduction programs are typically designed for men	Development of interventions and services designed for women that consider childcare, reproductive health, parenting skills, and women-only centers
	Few legal/safe places for women to inject or use drugs	Hostile street environment created by policing	Integration of health and social services, offering "a one stop shop" model of services (multiple services in one location), strengthening referral networks among various services
	Women may have few legal/safe places to sell sex	Homelessness and dislocation	Establish "safe" injection spaces for women with support staff and sterile equipment
	Due to drug-using status, women may be denied access to shelters or access to special services (e.g. IPV shelters)	Harsh prison environment including sexual abuse by other inmates and staff in prison	Establish legal "safe" spaces where women can trade sex without police interference and harassment
	Few prisons provide HIV and drug treatment services		Outreach to homeless women, provide housing
	In prison environment, access to clean injection equipment is limited		Establish drug treatment programs, HIV treatment programs and harm reduction programs in prisons
Social	Gender roles and relationships with sexual partners may prevent women from accessing harm reduction services or lead to forced unsafe sex	Social marginalization of women	Reduce stigma among service providers by improving provider attitudes towards women who use drugs, improving provider-patient relationships, and changing organizational culture
	Weak social support from family and friends (particularly when incarcerated)	Gendered organization of drug-using networks	Reduction of GBV and IPV in the wider community through mobilization interventions targeting norms and cultural practices
	Experience of violence (IPV and GBV)	Acceptance of GBV/IPV as a cultural norm	Reduce police harassment of female drug users and sex workers through sensitivity training
	Experience of stigma at clinics and service centers, particularly towards women	Structural and individual stigma towards women who use drugs (and related stigmas towards sex workers, HIV+ women, etc.)	
	Isolation of women in prison encourages drug use		
Economic	Women lack financial resources or may be in debt	Gender biases and stigma discourage women from being financially independent	Increase drug-using women's access to legitimate employment through job training programs, end employment discriminatory practices against women who use drugs, create job opportunities for women who use drugs
	Women may be economically dependent on their partner and others in their drug networks	Few employment/training programs for women who use drugs	Asset-building, including microfinance programs
	Women are denied employment opportunities due to drug use or related histories of sex work or incarceration	Little funding for women-specific HIV prevention, treatment and harm reduction programming in communities	
	Women are often denied government financial aid due to drug use histories	Little funding for women-specific HIV prevention, treatment and harm-reduction in prisons	
Policy/legal	Drug-related arrests of women	Criminalization of drug use/possession (including drug use during pregnancy)	Decriminalization of drug use/protection and sex work
	Aggressive policing	Criminalization of sex work	Establish social protections for women who use drugs, including removal of laws that require registration of drug users, removal of laws that allow children to be taken from mothers who use drugs, removal of laws that criminalize drug use during pregnancy
	Service providers don't adhere to confidentiality rules or such rules don't exist	Policing policies that target drug users and sex workers	Ensure the interests of drug-using women are represented in local and national discourse, encourage drug-using women to organize and advocate for their interests
	Denial of welfare or loss of government housing/ benefits due to women's drug use	Policies that separate women drug users from their children during drug treatment	
		Limited funding for women-specific programming in communities and in prisons	

Strathdee et al[13] confirm that some women initiate drug use in prison, switch from one substance to another, or begin a more harmful pattern of drug use with injection drugs to avoid detection by prison staff.[13,31] In prisons without harm reduction services, sterile injection equipment is not available and the likelihood of syringe-sharing increases.[29]

Social Risk Environment

Several articles in this issue identify social inequalities that increase HIV vulnerabilities for women.[12,16,28] Studies show that women tend to use or inject in social settings, and their social networks overlap with their drug-use networks more than men's do.[9,32] Women are more likely to experience their first drug injection with an intimate partner and to have that partner inject them.[33,34] Refusal to share needles often symbolizes distrust and a denial of intimacy in a relationship, which can lead to IPV.[35] If women believe that such refusal might threaten the relationship and their safety, they may engage in unsafe injection practices.[36] Additionally, assisted injection among women has been found to be associated with increased risk of HIV infection. Women express a need to be injected by another because they have "weaker veins" or they lack the skills to locate and inject into a viable vein without scarring.[37] In contrast, most men quickly learn to self-inject and rarely permit their female sexual partners to inject them.[38] Therefore, women are often "second on the needle," as control over injection equipment is in the hands of their partner.[32]

Women who use drugs are stigmatized more than men because of cultural stereotypes that hold women to different expectations and roles.[39] Women who use drugs are often portrayed as "bad" and "unfit" as mothers. Both stigma and criminalization of drug use during pregnancy drive women to hide their addiction from health-care providers, keeping them from accessing harm reduction and HIV prevention.[36,40] Stigma contributes to poor mental and physical health and interferes with drug treatment and recovery. Finally, women who use drugs may lack social support, such as childcare, because of the stigma held by their families and friends.[36,41]

As reviewed by Auerbach and Smith[16] in this special issue, the low social status of women and female adolescents who use or inject drugs leads to IPV and GBV as an extension of the unequal distribution of sexual, social, and economic power between men and women in drug-using subcultures. The prevalence of sexual and physical abuses is 3–5 times higher among drug-using women than among their non-using female counterparts.[9,36] Physical IPV may create a context of fear and submission that makes it difficult for women to negotiate safer sex and for HIV-positive women to disclose their serostatus. Both Gilbert et al[9] and Wechsberg et al[28] discuss how HIV-positive women who experience GBV and IPV are less likely to access HIV care, adhere to ART, and participate in HIV prevention and drug treatment services.

Economic Risk Environment

Globally, drug-using women experience high unemployment rates.[42] Because of the stigma and discrimination described above, these women have minimal opportunities to access employment and become financially independent; many remain poor and depend on their sexual partners for food and shelter.[36,39,40,43] Such financial constraints reduce women's access to educational or vocational training, banking and asset accumulation, and property ownership. The articles by Blankenship et al[12] and Auerbach and Smith[16] show that financial gender inequality promotes IPV in relationships, reduces women's power in sexual negotiations with male partners, and increases their vulnerability to HIV.

Strathdee et al[13] discuss how depressed socioeconomic conditions lead women to enter sex work, increasing their HIV risk.[44] Sex workers who are in debt have reduced negotiating power with clients, resulting in increases in unprotected sex and GBV.[13,44] Indeed, a significant proportion (20%–26%) of FSWs report engaging in unprotected sex in exchange for higher payments from their clients.[44,45] Economic concerns are closely related to women's imprisonment; limited funding for HIV prevention and harm reduction in prisons and the lack of funding for appropriate training of correctional staff are important economic barriers that increase prisoners' vulnerability to HIV and HIV-related morbidity and mortality.[46]

Policy/Legal Risk Environment

An article by Strathdee et al describes the harsh legal and policy environments faced by drug-using women.[11] In some parts of the world, such as in Eastern Europe and Central Asia, drug treatment, arrest, or even admission of drug use leads to registration as a drug user, which can have a range of detrimental and more severe consequences for women than men, including ineligibility for free ART and public housing, loss of one's driver license, and police harassment.[47] Registration can be especially threatening to women whose parental rights can be jeopardized when their drug use is exposed. Discrimination against drug-using women by employers, doctors, courts, and educational institutions is often legal or overlooked.[48] Harsher punishments for women who use drugs and alcohol also exist in many countries, including corporal punishment.

Women's drug use can be exploited by police officers as justification for abuse and harassment. Aggressive policing includes arresting women for buying or carrying sterile syringes, harassment at needle exchange programs or drug treatment clinics, soliciting bribes to avoid arrest, sexual abuse and violence, or planting drugs on women.[49] As Strathdee et al[13] discuss, police worldwide have the authority to search, arrest, and detain both men and women for possession of small amounts of drugs, unused syringes, and drug paraphernalia. Studies on women worldwide have found a strong connection between substance use and police sexual misconduct, coercion, or rape,[50,51] but little attention has been given to this serious human rights violation in the domains of research, prevention, and policy. Women may fail to report police abuses because of fears of imprisonment or other retributive consequences for themselves and their families.[50] Police abuses create micro risk environments in which drug-using women engage in riskier behaviors. Fears of police harassment, abuse, and confiscation

of drug paraphernalia among women who smoke crack cocaine and inject drugs have been associated with increased HIV risk behaviors.[25]

As Strathdee et al[13] report, sex work is illegal and criminalized in 116 countries, including countries that criminalize adult consensual sex and related transactions (buying, soliciting, or procuring), brothel keeping, and management of sex work. A number of other laws are used to target FSWs, including vagrancy, loitering, and public nuisance laws. Such laws increase vulnerability to violence and other risks by driving sex work underground.[52]

INTERVENTION PRIORITIES

This dynamic interplay of HIV and drug use requires a multilevel approach to HIV prevention and treatment. Structural approaches, tailored to the specific needs of the population at risk, are crucial to HIV prevention and treatment.[53] Drawing on the articles included in this special issue, we now outline structural prevention approaches that consider the gender-specific risk environments (Table 2).

Gender-Specific Drug Treatment and Harm Reduction

A number of articles in this issue advocate for female outreach workers, female-specific services (eg, reproductive health, childcare), and access to comprehensive approaches that address trauma and mechanisms connecting SAVA syndemic components and multilevel evidence-based HIV prevention approaches (eg, couple and peer-led behavioral HIV interventions and social network interventions that train a member of the network to be a peer educator).[12,16,28] Strathdee et al call for female prison guards to supervise female inmates, in an effort to decrease sexual abuse. Governments must provide funding and ensure access to comprehensive HIV prevention strategies recommended by United Nations Office on Drugs and Crime, World Health Organization, and United Nations Program on HIV/AIDS for people in harm reduction programs and in prisons. As HIV-infected women transitioning from jail experience greater comorbidity and worse HIV treatment outcomes than men,[14] future interventions that transition incarcerated people to community-based HIV clinical care should be gender specific.

Protection of Legal Rights

Blankenship et al call upon funders and civil society organizations to support advocacy efforts to repeal laws and policies that criminalize syringe possession, needle exchanges, and sex work. A recent modeling scenario in 3 cities (Vancouver, Canada; Bellary, India; and Mombasa, Kenya) found that full decriminalization of sex work could reduce HIV incidence among FSWs and clients by up to 43%.[52] Additionally, Blankenship et al[12] advocate for the creation of safe places for women to inject drugs. These settings may reduce women's dependence on partners to inject them and in turn may reduce syringe sharing.

Reduction of Police Harassment

As Strathdee et al discuss, there is a need to design, implement, and enforce policies to reduce police harassment and abuses in prisons and communities. Legislative reforms are needed along with police education programs, such as those supported by the Law Enforcement and HIV Network.[54]

Stigma Reduction Interventions

Blankenship et al[12] call for policies aimed at reducing inequality and exclusion that lie at the heart of drug use, HIV, and sex work–related stigmatization and discrimination. The majority of existing stigma reduction interventions for substance-using women is based on social and cognitive–behavioral models; there is less emphasis on social conditions and power that influence a woman's right to access services and resources. Therefore, there is a need to develop institutional- or structural-level stigma interventions, such as community-led mobilization which involves drug-using women and female adolescents in the change process, to force the creation and enforcement of laws against police harassment and abuses and human rights violations.

Reducing GBV

Blankenship et al discuss the necessity of addressing GBV through community mobilization and advocacy efforts. Community mobilization interventions use a range of strategies: social media, advocacy campaigns, and community activism aimed at changing gender-based norms associated with GBV and HIV risk behaviors. Campaigns should aim to change norms and attitudes toward drug-using women and female adolescents to enact laws that protect their rights and to encourage these women to seek life-saving health and other services. Targeted legislative, policy, and advocacy efforts are also needed to ensure that police, prosecutors, and judges are able to respond effectively to GBV cases.

Economic Interventions

Blankenship et al[12] describe microfinance interventions that help women increase access to legitimate employment, asset building, and business skill development. Income-generating interventions have been documented to lead to reductions in sexual and drug risk behaviors especially among poor women and those engaged in sex work.[55–57] Microfinance has been adapted less frequently for those who use or inject drugs. This might be because of a common value judgment that people who use drugs are not capable of becoming employable and committed to work.[42]

Biomedical Treatment

As discussed by Page et al, the significant global reductions in HIV incidence and mortality that have occurred over the past decade[58] are largely because of increased access to ART among those living with HIV, which in turn are related to greater levels of viral suppression, and reduced likelihood of transmission to

the uninfected, an effect referred to as HIV "treatment as prevention."[8,59] In this special issue, Springer et al[27] describe the effectiveness of medication-assisted therapies for opioid use (eg, methadone, buprenorphine or buprenorphine/naloxone, oral naltrexone, extended-release naltrexone) in reducing frequency of injection and relapse to opioid use while improving health and social functioning and preventing transmission of HIV. Yet, the authors in this special issue emphasize that there has been little or no development of OAT specifically tailored for women and that access to OAT for drug-using women is most constrained in the highest need countries. In many countries, multiple systems are in place to implement OAT and other harm reduction programs funded by nongovernmental organizations and private practitioners when governments have been unsupportive. For women who inject drugs, the overall state of access to harm reduction services is abysmal. A rallying cry from civil society and advocacy groups is sorely needed to move governments toward earnestly addressing the needs of women who inject drugs.

Finally, the contained environment of correctional settings could serve as a place where HIV, viral hepatitis, STIs, and drug and alcohol dependence can be diagnosed and treated. Strathdee et al[13] describe the limited availability of such programs in prisons and advocate for their expansion in all criminal justice settings.

Combination HIV Prevention

HIV research is yet to be able to elucidate what the best combinations of HIV prevention technologies are for women who use drugs. A number of articles in this special issue highlight the benefits of combination HIV prevention,[8,11,27] which includes HIV counseling and testing; linkage to HIV care; access to needle and syringe programs, OAT, and medication-assisted therapies; and biomedical HIV prevention (eg, diagnosis and treatment of STIs, daily PrEP, and vaginal gels such as 1% tenofovir or topical PrEP). Extensive evidence indicates that high coverage of combination HIV prevention with behavioral and structural interventions can decrease HIV risk and vulnerability among women who use drugs.[60,61] Biomedical prevention strategies, such as ART and PrEP, will be most successful if they are integrated into the multilevel and behavioral combination prevention strategies described in Table 2.

Page et al stress that OAT and PrEP are not often offered to women who use drugs and that efforts must be increased to boost access to these combination prevention strategies. The articles in this issue highlight the importance of integrating biomedical prevention to maximize benefits and the need for scale-up of existing evidence-based interventions. However, to help women access combination prevention strategies, it is pivotal to eliminate the structural barriers identified in this special issue.

Although PrEP has been found to be efficacious in reducing HIV transmission, women who use drugs are absent in virtually all phases of PrEP research. Many scientific questions have not been answered about PrEP for these women or other key affected female populations, such as sex workers, transgenders, and those in the criminal justice system. Questions need to be answered such as: How acceptable is PrEP to women who use drugs? If drug-using women want to use PrEP, what barriers exist? What gender-specific adherence *prevention* strategies are needed for women that are different than for men? Are there unique gender and *structural barriers* that exist for the use of PrEP? What gender-specific *adherence* strategies are needed for women who use drugs? Where and how should PrEP be packaged and distributed for these women?

Given the disappointing news from a number of PrEP HIV studies for women, the HIV field needs to consider other HIV technologies for prevention that will meet women's needs and new paradigms for improving adherence strategies. Without addressing these critical issues, we will not be able to advance women-specific HIV prevention and we will continue to blame women for the lack of success.

CONCLUSIONS

If problems such as gender inequalities, GBV, stigma, oppression, and comorbidities are not addressed, they will continue to escalate and affect future generations of women. Drug use continues to increase globally among female adolescents and adults, as documented in a number of articles in this special issue. To combat global HIV/AIDS and substance use epidemics among women, this special issue underscores a critical need for attention to this population in all spheres and to improve policies that prevent them from accessing drug treatment, HIV care, and behavioral and biomedical prevention technologies and services. HIV, drug treatment services, and harm reduction programs must be made more female specific and accessible via creating policies to improve access to care and prevent incarceration. Policing practices must be changed and human rights violations eliminated. Governments and international nongovernmental organizations must generate the political will necessary to increase funding for programs that address the unique contexts of women's lives and the root social causes of drug use and HIV that women face. Governments need to understand that the lack of attention to education, employment opportunities, and rights for women and female adolescents are rooted in the oppression of women and that some consequences of such oppression lead to drug use, sex work, and transmission of HIV. Interrupting intergenerational drug use, HIV, HCV, and comorbidities like mental illness should be a priority. Decriminalization of drug use and sex work is an important structural intervention in the legal and policy environments that can reduce the risk of HIV transmission among vulnerable women. We also call for attention to those women who have been overlooked, namely, women who have sex with women, transgender individuals, and women involved in the criminal justice system.

HIV prevention and treatment approaches for substance-using women must move beyond an individual focus to a multilevel one and be tailored to the realities faced by these women. Researchers and funders must see gender as

more than a control variable or a sampling issue in their studies. HIV and drug-use research must include a sufficient number of female participants so that the scientific conclusions lack gender biases. More gender-inclusive results will better equip researchers, policy makers, and providers to meet women's needs and challenges. Moreover, additional research and funding should be invested in microbicide and PrEP researches for women who use drugs with a concomitant investment to respond to their needs and structural vulnerabilities that increase their risk for HIV and prevent them from accessing prevention and treatment.

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