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# Women's perspectives on female-initiated barrier methods for the prevention of HIV in the context of methamphetamine use and partner violence

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#### Abstract

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**BACKGROUND**—Female-initiated barrier methods for the prevention of HIV may be an effective alternative for drug-using women who are unable to negotiate safe sex, often as a result of physical and/or sexual partner violence.

**METHODS**—Utilizing a SAVA (substance abuse, violence, and AIDS) syndemic framework, we qualitatively examined perspectives on female condoms and vaginal microbicides among 18 women with histories of methamphetamine abuse and partner violence in San Diego, CA, USA.

**FINDINGS**—Most women were not interested in female condoms due to perceived discomfort, difficulty of insertion, time-intensive effort, and unappealing appearance. Alternatively, most women viewed vaginal microbicides as a useful method. Positive aspects included convenience, ability to disguise as a lubricant, and a sense of control and empowerment. Concerns included possible side effects, timing of application, and unfavorable characteristics of the gel. Acceptability of female-initiated barrier methods was context dependent (i.e., partner type, level of drug use and violence that characterized the sexual relationship).

**CONCLUSIONS**—Findings indicate that efforts are needed to address barriers identified for vaginal microbicides to increase its uptake in future HIV prevention trials and marketing of future FDA-approved products. Strategies should address gender-based inequalities (e.g., partner violence) experienced by drug-using women and promote female empowerment. Education on female-initiated barrier methods is also needed for women who use drugs, as well as health care providers and other professionals providing sexual health care and contraception to women with histories of drug use and partner violence.

#### Introduction

The confluence of substance abuse, violence, and HIV/AIDS, also known as the SAVA syndemic (synergistic epidemics), is highly prevalent among vulnerable women worldwide (Meyer, Springer, & Altice, 2011). In the United States, of the 20% of new HIV infections that occurred among women in 2010, 84% were attributed to high-risk heterosexual contact and 16% due to injection drug use (Centers for Disease Control and Prevention (CDC), 2011). Women who use or inject drugs face multilevel vulnerabilities to HIV/STIs, including physical and sexual violence by intimate or paying sex partners (El-Bassel, Gilbert, Witte, Wu, & Chang, 2011; Stockman, Ludwig-Barron, Hoffman, Ulibarri, & Penniman Dyer, 2012). The prevalence of physical and sexual intimate partner violence is 3-5 times higher among drug-using women compared to those who do not use drugs (El-Bassel, Terlikbaeva, & Pinkham, 2010; El-Bassel et al., 2011). Such gender-based power imbalances combined with drug use render male condom negotiation difficult and call for other solutions to increase female empowerment, including female-initiated barrier methods for reducing HIV/STI risk (i.e., the female condom, vaginal microbicides) (Gollub, 2008).

The female condom, approved by the US Food and Drug Administration in 1993 as a method to protect against unplanned pregnancy and HIV/STIs, has received widespread attention for its physical prevention capabilities and its symbolic implications in reversing power dynamics in heterosexual relationships (Gollub, 2000; Latka, 2001; Vijayakumar, Mabude, Smit, Beksinska, & Lurie, 2006). However, uptake of the female condom in the United States has been lower than expected due to poor user acceptability, high costs, and

concerns about efficacy in preventing HIV infection (Latka, 2001). Among some women, the female condom has been well received for its strength, durability, and more complete coverage of the vagina and vulva, allowing confidence in limiting the risk of unintended pregnancy and HIV/STI acquisition and transmission (Hoffman, Mantell, Exner, & Stein, 2004; Vijayakumar et al., 2006). In the limited research on drug-using women's acceptability of the female condom, favorable characteristics include the high level of protection it can provide when used correctly and that it can be placed autonomously without being torn or otherwise sabotaged by their partner (Gollub, 2000; Telles Dias, Souto, & Page-Shafer, 2006; Gollub, 2008). Furthermore, women who use drugs can insert the female condom several hours prior to sex to ensure coverage during periods of drug use, when being too "high" may limit women's ability to initiate or negotiate use of prevention methods (Gollub, 2008). However, for other women who use drugs, challenges of using the female condom have included difficulty of insertion, storage, disposal, and price (Gollub, 2008).

Vaginal microbicides, a topical form of pre-exposure prophylaxis (PrEP), represent another major female-initiated barrier method. For more than two decades, efforts have been underway to develop safe, effective, and acceptable vaginal microbicides (Rosenberg & Devlin, 2012). Although the 2010 CAPRISA trial in South Africa demonstrated that tenofovir gel inserted vaginally within 12 hours before and after sexual intercourse decreased HIV incidence by 39% in the treatment group over 30 months of follow-up (Abdool Karim et al., 2010), other trials (e.g., VOICE, FemPrEP) of tenofovir and tenofovir/ emtricitabine gel and tablet formulations have been unable to demonstrate efficacy, likely due to suboptimal product adherence (Microbicide Trials Network, Atlanta GA, 2013a; Microbicide Trials Network, Atlanta GA, 2013b; van der Straten, Van Damme, Haberer, & Bangsberg, 2012). While these trials demonstrated proof-of-concept for vaginal microbicides as a form of HIV prevention (Mayer & Krakower, 2012; Rosenberg & Devlin, 2012), experts have called for additional research into product acceptability and adherence among diverse populations at risk for HIV (Mantell et al., 2005). While interest in vaginal microbicides is generally high, acceptability may vary by ethnic group (Hammett et al., 2000), prior experience with vaginal products (Reiff, Wade, Chao, Kronenberg, & Cushman, 2008), and drug use patterns (Hammett et al., 2000; Weeks et al., 2004; Hammett, Norton et al., 2000; McMahon, Morrow, Weeks, Morrison-Beedy, & Coyle, 2011).

Although vaginal microbicides are often conceptualized as promising HIV prevention alternatives for women who are unable to successfully negotiate safe sex, microbicide acceptability may be reduced in some vulnerable populations of women due to perceived barriers to consistent use. Qualitative research among drug-dependent women found that correctly timing doses and carrying gel applicators were perceived as important challenges (Mason et al., 2003). Microbicide acceptability is also lower among women with a history of partner violence (Weeks et al., 2004) and who sense that they have little power or control in their intimate relationships (Hammett, Norton et al., 2000; Tolley et al., 2006). A recent review found that while much of the existing microbicide acceptability research focused on physical characteristics of products, attention to the social processes influencing acceptability remains inadequate (Mantell et al., 2005).

Taken together, these studies suggest that further investigation into the factors that shape the acceptability of female-initiated barrier methods among women with histories of drug use and partner violence are urgently needed. This vulnerable population has largely been excluded from trials focused on the feasibility, acceptability, and evaluation of femaleinitiated barrier methods, even though they may greatly benefit from its use. We sought to explore the acceptability of female-initiated HIV prevention barrier methods among women with histories of methamphetamine (meth) use and partner violence for a number of reasons. Unlike the gender ratio associated with other drugs, the proportion of female meth users is nearly equal to men (Cohen, Greenberg, Uri, Halpin, & Zweben, 2007). Compared to males, female meth users are more likely to be introduced to meth by a partner, initiate use to increase energy or cope with depression, use meth more frequently, progress to regular use more quickly, and have worse physical and mental health outcomes (e.g., depression, mood disorders, suicidality) (Cohen et al., 2007; Dluzen & Liu, 2008; Cheng et al., 2009). In addition to increasing sex drive (Corsi & Booth, 2008), meth use contributes to partner violence with approximately 60-80% of meth-using women having reported physical or sexual violence by their intimate partners (Cohen et al., 2003; Sommers, Baskin, & Baskin-Sommers, 2006; Christian et al., 2007). Violence and coercion tend to occur in meth users' relationships, particularly because meth-using men may demand riskier sexual acts due to increased arousability or intensification of emotions whereby they may be unwilling to accept a refusal (Brown, Domier, & Rawson, 2005; Sommers et al., 2006). These reasons highlight the need to understand women's perceptions of female-initiated barrier methods within a syndemic context of meth use, partner violence, and HIV vulnerability.

We frame our analysis within a SAVA (substance abuse, violence, and AIDS) syndemic perspective which conceptualizes each of these components as mutually reinforcing epidemics that interact and exacerbate each other (Singer, 1996). Through the use of qualitative methods, we describe perceptions of female condoms and vaginal microbicides with particular attention to how drug use and relationship factors shape women's perspectives. We highlight how the acceptability and feasibility of female-initiated barrier methods in HIV prevention efforts is best understood within the broader context of the SAVA syndemic.

#### **Methods**

From February to September 2011, we conducted a qualitative study in San Diego, California, nested in *FASTLANE-II*, an HIV behavioral intervention study designed to reduce sexual risk behaviors, meth use, and depressive symptoms among HIV-negative, heterosexual meth users. Eligibility criteria for *FASTLANE-II* included heterosexual, HIV-negative men and women who were > 18 years of age, used meth at least twice within two months prior to screening, and engaged in unprotected vaginal, anal, or oral sex with a partner of the opposite sex within two months prior to screening. HIV-negative status was confirmed prior to entry into the study using the OraSure HIV-1 oral collection specimen device (OraSure Technologies, Bethlehem, PA). A total of 223 men and 209 women (n=432) were recruited into *FASTLANE-II* using participant referrals, community outreach, and advertisements in public areas and newspapers in target areas with known high prevalence of meth use.

#### **Study Population**

We used an iterative sampling strategy to recruit female *FASTLANE-II* participants into our qualitative study on experiences and attitudes toward female-initiated barrier methods. We first used criterion sampling to select a potential pool of eligible women who participated in *FASTLANE-II* (Patton, 2002). At the time of the current study, *FASTLANE-II* was in its final year of data collection. All eligible women for our qualitative study had completed their final follow-up visit between one month and three years ago, and participation in the *FASTLANE-II* intervention (either in the control or intervention group). Eligibility included ever experiencing physical or sexual violence by a current or former male sex partner (i.e., spouse, steady, casual or anonymous partner). Of the 138 women who met these criteria according to the *FASTLANE-II* baseline quantitative survey, we purposively selected participants to represent maximum variation in ethnicity (White, African American, and Hispanic), allowing for a range of perceptions of female-initiated barrier methods to be described. We contacted participants through phone and email using a standard script to explain the study and request participation. Interested participants provided written informed consent and completed interviews at the *FASTLANE-II* research project offices.

After completing 18 interviews, discussions among the research team concluded that conceptual saturation had been reached, whereby we repeatedly heard similar stories and opinions about our primary topics of interest and no new information would be elicted through further interviews (Guest, Bunce, & Johnson, 2006, Guest, Bunce, Johnson, Akumatey, & Adeokun, 2005). The institutional review board of [name of IRB blinded by *WHI* editors for peer review] approved all study protocols.

#### **Data Collection**

Using a standardized interview guide, we conducted semi-structured, qualitative interviews with women to examine relationship histories, experiences of current or former partner violence, contraceptive and HIV prevention methods, attitudes toward the female condom, and opinions and interest in using vaginal microbicides. We also asked participants about their substance use histories, relationship status, and experiences with contraceptives and STI prevention methods. All interviews were audio recorded and lasted 30-90 minutes. Participants were reimbursed \$25 for their time, given a bus pass for transportation, and provided with a resource sheet containing local support services. Interviewers wrote detailed notes after each interview to summarize key topics and assess the physical and mental conditions of participants. Audio recordings were transcribed verbatim and evaluated for quality control purposes by an interviewer to ensure transcript accuracy (McLellan, MacQueen, Neidig, 2003).

#### **Data Analysis**

We employed both deductive and inductive analytic approaches to the interview data. First, the principal investigator, qualitative project coordinator, and research assistant independently read through the same interview excerpts and generated an initial list of codes based on the content of the interview guide as well as relevant themes that emerged in the transcripts. The team met to discuss the codes that were used for the initial round of coding. Codes were arranged in a hierarchical structure by parent codes (e.g. relationship,

individual, and social network level codes) and corresponding sub-codes for each level (e.g. relationship with current partner). Separate parent and sub-codes were organized around the main topics of the study, including female-initiated barrier methods and drug use. The qualitative project coordinator assigned transcripts for all three members to code, merged the coded data into a single project file, and checked the codes for consistency of application. Team members met regularly to discuss the transcripts, resolve differences in coding assignment, and refine codes as needed until the content of the codebook stabilized, which supported our determination of reaching conceptual saturation. We used MAXQDA software to manage coding and analysis in an integrated system (MAXQDA, 2010). Representative quotes were selected from across our sample to illustrate the key themes in our analysis. All names were converted into pseudonyms to protect participants' identities.

#### Results

Table 1 shows characteristics of the 18 women who participated in the study. Average age was 41 years (range: 26-57) and the sample was ethnically diverse. Sixteen women had children; of whom, seven had children aged < 18 years. Eleven women reported daily or weekly meth use within the past two months; five of these women reported meth use in combination with alcohol or marijuana. Eleven were in a current relationship, of whom 3 had an abusive partner. Five women had female sex partners at some time in their life. Women reported various high-risk sex partners in their life including anonymous partners, casual partners, those who had concurrent sex partners, and HIV-positive partners. All women had a history of having drug-using sex partners and several women were high on meth before or during sex. Eleven women reported having at least one sexually transmitted disease (e.g., gonorrhea, chlamydia, syphilis, herpes) at some time during their life. Only two women mentioned ever getting tested for HIV outside of FASTLANE-II. Twelve women had experienced both physical and sexual partner violence in their lifetime. Regarding contraception practices, many women had ever used male condoms (n=17) and birth control pills, including emergency contraceptive pills (n=15), and spermicides that contain nonoxynyl-9 (e.g. creams, gels, foam, suppositories) (n=11). Five had ever used injectable birth control (i.e., Depo-Provera). The withdrawal method was reported by seven women. Only 4 women viewed female condoms as a useful HIV prevention method; in contrast, 15 were in support of vaginal microbicides.

#### **Experiences with and Perspectives on Female Condoms**

The five women who had ever tried using female condoms reported negative experiences including perceived discomfort, difficulty of insertion/extraction, time-intensive effort, and unappealing appearance (Table 2). Most of the women received the female condom from Planned Parenthood when it was initially available and tried it as "something new" and "experimental." A couple of women described difficulty in keeping the female condom in place, with one woman referring to it as a "hefty bag that tended to slip out of place." Women reported using female condoms to substitute for dental dams during oral sex, often with female sex partners. Other women discussed difficulty inserting the female condom:

"I don't know what I did, it just wasn't right...I know when I would be squeezing the little ringy thingy it kept slipping through my fingers, like popping out...I was

just like, 'Oh my gosh. I need something that I can just deal with.'" – Carol (African American, 30 years old)

Most of these women also complained of the messiness and sexual dissatisfaction associated with using female condoms. One woman inserted the female condom hours before an anonymous sex encounter, only to feel messy and dirty afterwards:

"I was going to take it off and it wasn't there. I was like, "Did it fall out?" So I'm digging all up inside me and I felt the rim.... I was like, "Dang, ewww!" It was like all inside me and then, you know, all of his semen and stuff was just all over the place." – Michelle (African American, 34 years old)

#### **Perspectives on Vaginal Microbicides**

Vaginal microbicides were perceived in a more positive manner than female condoms as a female-initiated barrier method. Women perceived several advantages of vaginal microbicides, which were viewed as acceptable alternatives to male condoms (Table 2). Women reported that vaginal microbicides would lower their stress and anxiety surrounding disease transmission while helping some women avoid difficult and frustrating arguments with partners who resisted male condoms. Women perceived the gel to be highly convenient because its use could be planned hours in advance of sex, allowing them to protect themselves without interrupting the "flow of things" when they were "in the heat of the moment" (e.g., stopping foreplay to put on condoms). Women who did not have sex frequently and did not want to use a daily medication found the flexibility of gel dosing schedules to be appealing, which could be used frequently or infrequently, depending on the types of partners and sexual lifestyle or "cycle" that women have (i.e., they would not have to be used every day), or stage of their addiction (e.g., meth binging with high sexual activity, less meth use with less sexual activity). Older women also explained that their age and menopause caused vaginal dryness and using products with lubricating properties could increase arousal and sexual satisfaction of themselves and their sex partners.

Despite high interest, we also identified several important concerns regarding vaginal microbicides. Women expressed apprehension about its inability to prevent pregnancy, uncertainty surrounding effectiveness, insufficient scientific testing (e.g., unknown long-term health consequences), and possible side effects (e.g., irritation, yeast infections, allergic reactions, discharge). A few falsely believed that vaginal microbicides could also be used following an unplanned sexual encounter, similar to the "morning after pill" (emergency contraception). Several women who had experience with spermicides and other vaginal products were also concerned about vaginal microbicides containing "toxic" chemicals like pesticides. These women expressed mistrust in pharmaceutical companies and equated vaginal microbicides with unhealthy, unnatural products:

"Ya know, we start using all these different types of gels and things that they're creating, the pharmaceutical companies. It's like, I already put enough poisons in my body with other bad habits." – Sharon (White, 42 years old)

Several women raised concerns about the timing of doses, which would "be the catch," especially in relation to drug use. Women who used drugs or had unplanned or infrequent

sex were concerned that remembering to apply a product 12 hours before sex would be impractical, difficult to remember, and confusing. Timing and advance planning would be particularly difficult for women who used meth and experienced increased sex drive:

"The gel would be something interesting in except that it'd be hard for them 'cause when [you] do meth, your sex drive is there. You don't think before, 'okay, I'm gonna do meth, I'm gonna have sex.' It's not planned. It's not thought out... You smoke one day and your sex drive is there and then it's not like twelve hours away." – Cynthia (African American, 54 years old)

Finally, other potential undesirable product characteristics (e.g., messiness, odor, taste) caused some women to worry about vaginal microbicides making them less attractive or sexually desirable to sex partners or causing them to experience heightened feelings of self-consciousness:

"[If it has an odor] it's gonna make a lot of difference. 'Cause guys always get down, you know. So if it has an odor, then they're really not gonna go down [perform oral sex]. You're going to be out of luck you know." – Angela (Latina, 49 years old)

#### Female-initiated Barrier Methods in SAVA Syndemic Perspective

Despite the differences in women's acceptability of the design and logistics of female condoms versus vaginal microbicides, several common themes emerged relating to women's perspectives of female-initiated barrier methods in broader terms. Our analysis suggests that acceptability of female-initiated barrier methods is highly context dependent and based on a subjective assessment of HIV risk according to the individual woman, partner type, and the level of drug use and violence that may characterize the sexual relationship (Table 2).

Partner type mattered in perception of appropriate contexts of use, as women perceived benefits and challenges of using female-initiated barrier methods within different types of relationships. In general, such methods were viewed to be most beneficial for use with casual sex partners, including exchange and drug-using partners and steady partners who were known or suspected to be non-monogamous. They were also perceived to diminish conflict and abuse associated with condom use, particularly with male partners who resisted condoms, argued that condoms reduced sexual sensation, or associated condom use with infidelity. These women believed that female-initiated barrier methods would provide a greater sense of control and empowerment in sexual encounters with abusive partners.

While several of the older women in our sample reported less personal interest in using female-initiated barrier methods due to less frequent sex, they strongly agreed that vaginal microbicides and female condoms would be ideal for younger women, including their daughters and younger female relatives. Younger women were viewed as more likely to engage in high risk sexual behavior with multiple casual partners and have less ability to assert themselves and negotiate male condom use. One woman specifically referenced empowering younger girls who may feel as though men are more dominant:

"I think this is a good idea and [it] would empower younger women more than anything to be responsible sexually, to not always feel like the man is the dominant person when it comes to sex, you know..." – Stacy (White, 41 years old)

Building on the idea that partner type and perceived risk shaped women's perspectives, most agreed that female-initiated barrier methods would be especially beneficial to active drug users, particularly meth users. Women frequently discussed the HIV vulnerability that emerges from linkages between meth use and high risk sexual behaviors, including having multiple sex partners, casual or anonymous partners, and drug-using male partners who may have outside partners, including those of the same sex.

"[It is] especially [useful] with partners doing meth, you don't know if they have other partners." – Rita (Latina, 39 years old)

Several women said outright that female-initiated barrier methods would be useful for "bag whores," or women who exchange sex for drugs, because it would provide women with greater control in their sexual activity with potentially risky clients. For women who had a history of supporting their drug use by exchanging sex for drugs or money with a large number of unknown sex partners, vaginal microbicides in particular were viewed as a promising method to avert STIs:

"When you're out there trying to support your habit and I mean at one point it was \$400-\$700 a day that I was using. That's a lot of money, which translates to a lot of tricks, a lot of Johns. You have to think if this had been out back then, you can get up, get ready for your day, insert your microbicide, go do your job, go do what you gotta do, come home at the end of the day, use it again, and oh my God, can you imagine how much stuff that would have headed off...like hit off syphilis and gonorrhea? I wouldn't wound up with everything I got now." – Gina (Latina, 47 years old)

These variations in sexual partnerships also shaped women's willingness to disclose their use of female-initiated methods. Women explained that their ability to discuss vaginal microbicides with their partners would depend on the type and quality of relationship, including the presence of physical and sexual abuse. Some women reported that they would feel more comfortable discussing such methods with their steady sex partners rather than casual sex partners, while others felt it could lead to an argument about infidelity and lack of trust:

"If I were to bring this up to him [steady partner]...it wouldn't be a positive thing when it should be...but it wouldn't be 'cause it'd be more as something in the back-of-his-mind bullshit. He would say I'm accusing him of something...In a relationship such as mine, I don't think it would be a good thing to talk about...But I don't think it's any of their business because you're not hurting them, you know. I mean...in fact, it's a double benefit. You're protecting yourself and hopefully them by having it, so they don't need to know. It's your body, right?" – Veronica (Asian/European, 36 years old)

Many women reported that they would prefer to be discreet ("incognito"), using vaginal microbicides without telling their sex partners "so it wouldn't be awkward" or start an

argument with an abusive partner or because partners did not need or deserve to know ("it's none of his business"). If male partners did find out, it could be "passed off as a lubricant." One woman explained that she could bring up the gel topic as part of a sex role-playing game, which could be a non-threatening way to introduce the topic, leading to more open discussions in the future.

Moreover, women would not typically broach the topic with casual, paying, or drug involved partners, which contributed to women's sense of empowerment in using these methods. Likewise, all of the women experiencing current partner violence were interested in vaginal microbicides, but none would disclose their use to their current abusive partner to circumvent arguments or accusations, accusations of infidelity, and more abuse.

"I would not [disclose use]. In this case, it would be about letting him think he won the battle. I'm sorry, but ultimately this is just really a relationship of sharing manipulation so...I wouldn't tell him." – Gina (Latina, 47 years old)

In sum, our analysis suggests a complex interplay between multiple factors that shape women's perceptions about female-initiated barrier methods. While the *idea* of female-initiated barrier methods as a form of empowerment was broadly supported by our sample, the specific *type* of method and the *context* of its use were important considerations for its acceptability.

#### **Discussion**

To our knowledge, this is one of the first studies to examine perceptions of female-initiated barrier methods for the prevention of HIV among women with experiences of meth use and partner violence. While we found high levels of enthusiasm for the idea of female-initiated barrier methods, our study documented extremely low levels of use and enthusiasm for female condoms in contrast to broader support for vaginal microbicides. Consistent with other acceptability research conducted with vulnerable populations (Latka, 2001; Gollub, 2008), predominant barriers to interest in female condoms were difficulty of insertion, perceived discomfort, and unappealing appearance. Interestingly, women with negative experiences using female condoms believed that they could be useful for select populations (i.e., young girls, women who exchange sex for drugs or money, women seeking more control in making sexual decisions). This finding may reflect the large proportion of middle/older aged women in our sample who were sexually experienced and already had strong opinions about what they desired in terms of sexual acts and prevention methods.

Although most women were not interested in female condoms, the majority of women expressed interest in vaginal microbicides as an alternative barrier method. A major reason for such high interest was the sense of power and control over HIV prevention, which would not require women to rely on their male sex partners to use condoms (Hammett, Norton et al., 2000; Weeks et al., 2004). Because many of the women in this study had used a contraceptive method in their lifetime, either through relying on their male partners to use condoms or by taking birth control pills, there is optimism that these women would be willing to use female-initiated barrier methods, such as vaginal microbicides, given appropriate education on available products. Consistent with a prior study on perspectives

on vaginal microbicides among 743 drug-using women and female sexual partners of male injection drug users that found that a high proportion would use microbicides with paying (90%) and primary (78%) partners (Hammett, Norton et al., 2000), women in our study expressed the belief of a beneficial use of vaginal microbicides with casual, exchange, drug-using, and steady sex partners. Distinct relationship contexts also influenced women's willingness to discuss vaginal microbicide use with their sex partners: stable, open relationships promoted greater willingness to communicate and relationships where accusations and arguments were paramount resulted in less willingness to communicate about female-initiated barrier methods.

Most women, including those in a currently abusive relationship, expressed favorable views towards vaginal microbicide use. This is in stark contrast to an actual microbicide simulation trial among high-risk inner city women, some of whom were drug users, which documented an inverse relationship between microbicide acceptability scores and ever experiencing physical and/or sexual violence (Weeks et al., 2004). It is plausible that because our sample was predominantly middle- and older-aged women, most women believed that vaginal microbicides could be masked and passed off as a lubricant to solve the problem of vaginal dryness. Nonetheless, being mindful that vaginal microbicide use may require male cooperation, interventions to promote vaginal microbicides should develop communication strategies such as those employed in couples-based interventions (El-Bassel et al., 2010), and allow time for practicing communication and negotiation. Some women felt that role-playing in the context of couples-based interventions or making the gel part of foreplay could help increase its acceptability among men.

Limitations to the present analysis include the select nature of the study sample. Because women enrolled in this sub-study had already participated in a larger HIV behavioral intervention trial (FASTLANE-II), attitudes and perceptions on female-initiated barrier methods may be influenced by knowledge gained through the intervention. However, given that only the female condom (and not vaginal microbicides) was promoted through participation in FASTLANE-II, and most women in the current study were not interested in female condoms, it is likely that such influences were minimal. Additionally, because women enrolled in this sub-study were purposively sampled from FASTLANE-II, generalizability of our study findings may be limited to women who may be more motivated to reduce their sexual and drug risk behaviors and open to new HIV prevention methods (e.g., vaginal microbicides). Moreover, FASTLANE-II was designed specifically for active meth users and those with current depressive symptoms. However, given that abused women often experience adverse mental health effects (e.g., depression, post-traumatic stress disorder) and substance abuse (Ellsberg et al., 2008; Meyer et al., 2011; Illangasekare, Burke, McDonnell, & Gielen, 2013), we are confident that this limitation poses minimal impact upon the generalizability of study findings. Moreover, as a qualitative study, our concern was to gain greater depth of understanding of facilitators and barriers of femaleinitiated barrier methods for the prevention of HIV in this population than to generalize the findings to all women engaged in high risk behaviors.

Despite these limitations, this study is among the first to examine perceptions of the female condom and vaginal microbicides among women with experiences of meth use and partner

violence. This vulnerable population has not been included in trials focused on the feasibility, acceptability, and evaluation of female-initiated barrier methods. Since these are the women who might face the most challenges with use of these methods, it is critical to understand their perspectives to facilitate translation of clinical trial research into 'real world' effectiveness.

### Implications for Practice and/or Policy

Despite high interest in vaginal microbicides, several women expressed concerns about possible side effects (e.g., irritation), application logistics (e.g., timing), product characteristics and safety, and insufficient scientific testing. These barriers have implications for marketing strategies and product development that could facilitate product uptake and adherence among drug-using women with experiences of partner violence as well as other at-risk groups (e.g., youth, sex workers). For example, marketing strategies should dispel concerns about side effects and undesirable product characteristics (e.g., messiness, timing of gel application), and has not thus far been found to have substantial known side effects or toxicity (Rosenberg & Devlin, 2012). This is critical given the high level of distrust in healthcare providers and researchers expressed by these women and other vulnerable populations (Shelton, Goldman, Emmons, Sorensen, & Allen, 2011; Westergaard, Beach, Saha, & Jacobs, 2013). Product counseling should also clearly explain dosing schedules ("twice a day" may be easier to understand than "twelve hours before/after"). This is particularly important for women whose drug use introduces an element of chaos into their daily lives, rendering it difficult to adhere to a strict dosing schedule. At the same time, newer microbicide products under development could address several of these issues, including the highly acceptable, long-acting vaginal ring containing a time-released dapivirine that may provide monthly protection and eliminates complying to a daily regimen (Malcolm, Fetherston, McCoy, Boyd, & Major, 2012; Montgomery et al., 2012; van der Straten et al., 2012).

Education on female-initiated barrier methods is also needed for women who use drugs, as some had the misperception that vaginal microbicides could be used in a manner similar as "the morning after pill" (emergency contraception). Female condoms were also incorrectly used which may have contributed, in part, to negative perceptions. This indicates the need for further education from health care providers and other professionals providing sexual health care and contraception to women who use drugs. Provisions for subsidized costs and increased access to available female-initiated barrier methods (e.g., female condom) in drop-in centers, transitional housing facilities, and emergency rooms will facilitate reductions in HIV acquisition and transmission among women with experiences of drug use and partner violence.

Continued research is needed to address the potential barriers identified for vaginal microbicide use to increase its uptake in adaptation of evidence-based HIV prevention interventions for women who use drugs. Although few evidence-based HIV prevention strategies exist that simultaneously address drug use and partner violence and other intersecting issues such as mental illness and housing instability (Amaro et al., 2004; Wechsberg, Lam, Zule, & Bobashev, 2004; Tross et al., 2008), some have incorporated

issues such as empowerment and gender-based inequalities while promoting the use of the female condom (Wechsberg et al., 2004; Tross et al., 2008). These interventions have been successful at reducing the number of unprotected sex acts and drug use while improving housing and employment status. This is promising given the multiplicity of risks faced by women who use drugs. As a syndemic perspective recognizes that HIV vulnerability is intensified by multiple, intersecting risk factors, interventions that address the multiple levels of risk faced by women who use meth offer our best hope of curbing the HIV epidemic among this vulnerable population.

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 $\label{eq:Table 1} \textbf{Table 1}$  Characteristics of HIV-negative female methamphetamine users with experiences of partner violence (n=18), San Diego, CA, 2011

Characteristic	N (%)
Average age (range)	41.2 (26-57)
Race/Ethnicity	
White	7 (39)
African American	6 (33)
Latina	4 (22)
Asian/Pacific Islander	1 (6)
Children	16 (89)
Current steady partner	11 (61)
Methamphetamine use within the past 2 months	11 (61)
Type of partner violence experienced in lifetime	
Physical partner violence only	5 (28)
Sexual partner violence only	1 (6)
Physical and sexual partner violence	12 (67)
Currently in an abusive relationship	3 (17)
Ever had a sexually transmitted disease	11 (61)
Lifetime contraception practices	
Male condom	17 (94)
Female condom	5 (28)
Diaphragm	3 (17)
Sterilization	5 (28)*
Contraceptive sponge	1 (6)
Spermicides**	11 (61)
Birth control pill***	15 (83)
Injectable birth control (Depo-Provera)	5 (28)
Dental dam	2 (11)
Withdrawal	7 (39)
Other	3 (17)
Viewed female condoms as a useful HIV-prevention method	4 (22)
Viewed vaginal microbicides as a useful HIV-prevention method	15 (83)

<sup>\*</sup> Includes one participant who reported that her partner was sterilized

<sup>\*\*</sup> includes creams, gels, foams, and suppositories that include nonoxynyl-9 (excludes vaginal microbicides examined in the current study)

Includes emergency contraceptive pills (i.e., morning-after pill)

# Table 2

Themes related to perspectives on female condoms and vaginal microbicides among HIV-negative female methamphetamine users with experiences of partner violence (n=18), San Diego, CA, 2011

Stockman et al.

Main Finding by Theme	Illustrative Onotes
Experiences and perspectives on female condom	
Negative: Difficulty with insertion/extraction, messiness, time-intensive effort, unappealing appearance	<ul> <li>"We tried the female condom and it just felt like a Hefty bag. I'm like whatever. And it kept falling out of place as far as changing positions and this going in and out and every. It just wasn't working out." – Sheila (White, 26 years old)</li> <li>"It's kind of weird, you kind of take it out of the package and you unroll it and you twist it and you kind of like insert it, it's sort of like a tamponIt didn't really feel the same. I don't think he enjoyed it as much." – Tina (African American, 48 years old)</li> </ul>
Positive: Useful method for experimentation and certain women (i.e., younger, those with transactional sex partners)	<ul> <li>"It wasn't bad. I just noticed it was therebecause you can hear it. Like every time she did her lick, you can hear itsounded like it was stretching. But other than that, it didn't bother me. It was alright." – Lisa (White, 39 years old)</li> <li>"I had grabbed a bunch of them at Planned Parenthood and I think we were just kinda actually we were messing around experimenting with all different kinds of condoms in general." – Sheila (White, 26 years old)</li> <li>"I think it's even a good idea for younger women and younger girls who, in fact, they are the ones that are more nervous about saying, 'Do you have a condom?" – Stacy (White, 41 years old)</li> </ul>
Perspectives on vaginal microbicides	
Positive: Convenient, can be passed off as a lubricant, better option than male condoms, more control and empowerment	<ul> <li>"Can you imagine how much stuff that [vaginal microbicide] would head offlike syphilis and gonorrhea? I wouldn't wound up with everything I got now." – Gina (Latina, 47 years old)</li> <li>"You don't have to worry about the competition of the conversation, you know. Of people not wanting to do it [put a male condom on] or thinking it's gonna come between the time putting it [male condom] onWe're all in the heat of the moment and I gotta stop and put this [male condom] on, you know. You don't have any of that because you're puttin' it [vaginal microbicide gel] on way ahead of time." – Linda (African American, 57 years old)</li> <li>"To me it would be just like a tampon so it'll be easier than the other one [female condom]." – Rita (Latina, 39 years old)</li> </ul>
Negative: Possible side effects, unfavorable potential characteristics (e.g., odor, messiness), timing of application	<ul> <li>"I've used the foam and the gels and things with the applicators and it just, all comes out. It's very uncomfortable." – Kelly (White, 48 years old)</li> <li>"It's reminding me of a spermicide. I would like to know if it has an odor or does it have a color to it, do you start to discharge. That probably would not be appealing to me at all." – Sharon (White, 42 years old)</li> <li>"One thing I would probably worry about is irritation." – Belinda (African American, 44 years old)</li> </ul>
SAVA Syndemic Perspective	
Drug Use	• "The gel would be something interesting except that it'd be hard for them'cause when they do meth, you're not, your sex drive is there, you know. It's not planned. It's not thought out. I think it'll help a lot, but I don't know." – Cynthia (African American, 54 years old)
Violence	• "You're not trying to call him out but yet you're not trying to throw yourself under the bus." – Veronica (Asian/European, 36 years old)

Page 18

Main Finding, by Theme	Illustrative Quotes
Partner Type	• "If you are with someone either casually or sleeping with more than one partner, I think it would be completely [appropriate]." – Sue (White, 30 years old)
	• "I think [it] would be okay for us because we could still have a child, but just in case of any cheating or anything like that, it would be there too, to help prevent with STDs or anything like that." – Carol (African American, 30 years old)

Stockman et al.

Page 19