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Multilevel Factors Shaping Awareness of and Attitudes Toward Pre-exposure Prophylaxis for HIV Prevention among Criminal Justice-Involved Women

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Abstract

Although pre-exposure prophylaxis (PrEP) is a key tool in HIV prevention efforts, little is known about PrEP as a prevention strategy for criminal justice-involved (CJI) women. The purpose of this study was to examine multilevel factors shaping PrEP awareness and acceptability among CJI women. Between January 2017 and December 2017, we conducted 52 interviews with CJI women at high risk for HIV and stakeholders from the criminal justice (CJ) and public health (PH) systems. Interviews explored awareness of PrEP and the multilevel factors shaping PrEP acceptability. Data were analyzed using inductive thematic analysis and executive summaries. Atlas.ti facilitated analyses. The majority of CJI women (n = 27) were, on average, 41.3 years, from racial and ethnic minority groups (56% Black/African-American; 19% Latinx) and reported engaging in recent high-risk behavior (nearly 60% engaged in transactional sex, 22% reported ≥ 4 sexual partners, and 37% reported injection drug use). Of system stakeholders (n = 25), 52% represented the CJ sector. Although CJI women were generally unaware of PrEP, attitudes toward PrEP were enthusiastic. Barriers to PrEP acceptability included medication side effects (individual level); distrust in HIV prevention mechanisms (community level); lack of local HIV prevention efforts among high-risk women (public policy/HIV epidemic stage level). Factors promoting PrEP included perceived HIV risk (individual level); PrEP being an HIV prevention method that women can control without partner negotiation (social and sexual network level); and availability of public health insurance (community level). Despite low awareness of PrEP, CJI women expressed positive attitudes toward PrEP. To improve PrEP access for CJI women, implementation efforts should address barriers and leverage facilitators across multiple levels to be maximally effective.

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Conflict of Interest The authors declare that they have no conflict of interest.

Ethical Approval All study protocols were approved by the Institutional Review Board at the University of California San Francisco.

Informed Consent All participants provided Informed consent before engaging in study procedures.

Keywords

Incarceration; Women's health; HIV prevention; PrEP

Introduction

More than one million women are involved in the U.S. criminal justice (CJ) system annually (United States Bureau of Justice Statistics, 2019). Women involved in the CJ system are particularly vulnerable to and experience high rates of sexually transmitted infections (STIs), including HIV (Kouyoumdjian, Leto, John, Henein, & Bondy, 2012). Criminal justice-involved (CJI) women also experience conditions that increase their risk for HIV (e.g., high rates of substance use, psychiatric disorders, and histories of physical or sexual victimization) (Conklin, Lincoln, & Tuthill, 2000; Jordan, Schlenger, Fairbank, & Caddell, 1996; Staton, Leukefeld, & Webster, 2003). Furthermore, given documented disproportionate racial and ethnic minority system contact (i.e., Black women are more than three times as likely as White women to be incarcerated) (Carson, 2014), CJ settings provide an opportunity to address racial and ethnic health disparities in HIV among women (i.e., Black and Hispanic women account for 58% and 16% of new HIV infections among women, respectively) (Beckwith, Zaller, Fu, Montague, & Rich, 2010; Binswanger, Redmond, Steiner, & Hicks, 2011; Centers for Disease Control and Prevention, 2020).

One segment of CJI women, women under the supervision of the CJ system but living in the community (i.e., women who are "community-supervised" on probation or parole), are of particular public health significance because they have a greater number of opportunities to interact with environments (e.g., sexual and substance abuse networks) and engage in behaviors (e.g., transactional sex, injection drug use [IDU]) that increase their risk for HIV (Noska et al., 2016; Spaulding et al., 2002). Further, gender-based power imbalances that impact interpersonal communication regarding safer sexual practices play a central role in HIV prevention efforts for women (Amaro & Gornemann, 1992; Gómez & VanOss Marín, 1996; Pulerwitz, Amaro, De Jong, Gortmaker, & Rudd, 2002). Sexually active heterosexual women are often unable to negotiate condom use with their male partners, exacerbating their risk of HIV acquisition (Amaro & Gornemann, 1992; Pulerwitz et al., 2002; Woolf & Maisto, 2008). Other factors (e.g., housing instability, intimate partner violence, poverty) also shape HIV risk among this group (Dauria, Elifson, Arriola, Wingood, & Cooper, 2015a; Dauria et al., 2015b; Fickenscher, Lapidus, Silk-Walker, & Becker, 2001; Freudenberg, Daniels, Crum, Perkins, & Richie, 2005; O'Brien et al., 2004).

Pre-exposure prophylaxis (PrEP), in the form of a fixed-dose combination of two antiretroviral drugs, has emerged as a powerful HIV prevention tool (Baeten et al., 2012; U.S. Public Health Service, 2014; Van Damme et al., 2012). The Centers for Disease Control and Prevention (CDC) estimates that ~468,000 heterosexual women nationally have indications for PrEP (Smith et al., 2015). Despite PrEP being efficacious for women (between 64–84% [Baeten et al., 2012; Van Damme et al., 2012]), uptake among women is low and the proportion of initiation has declined in recent years (from 12% in 2014–2015 to 9.8% in 2016) (Mera Giler et al., 2017). Several factors shape women's low uptake of PrEP

including low levels of knowledge of the medication and challenges with identifying women at increased risk of HIV (due, in part, to an underestimation of HIV risk-limiting self-referral to HIV prevention services and underreporting of risk behaviors to healthcare providers) (Aaron et al., 2018; Auerbach, Kinsky, Brown, & Charles, 2015; Calabrese et al., 2018; Patel et al., 2019).

To the best of our knowledge, few empirical studies focus on PrEP in any type of CJ population. In one recent cross-sectional survey of HIV-uninfected, cisgender justice-involved women in Connecticut, Rutledge, Madden, Ogbuagu, and Meyer (2018) found low levels of PrEP awareness (25%) and high levels of acceptability (90%). Successfully identifying, referring, and linking individuals involved in the justice system to HIV prevention services is complicated by a number of multifactor barriers. Fear of disclosing sexual behavior, lack of trust in correctional staff and systems, and the absence of systematic screening protocols related to sexual health and other risk behaviors are among some of the factors that complicate connecting justice-involved individuals at high risk for HIV with prevention services (Brinkley-Rubinstein et al., 2018; Brinkley-Rubinstein, Peterson, Zaller, & Wohl, 2019; Peterson et al., 2019). Further, to date, the bulk of this work has centered on justice-involved men. Additional research on the factors that shape PrEP awareness and acceptability among justice-involved women is needed in order to adequately address the unique needs of this population with PrEP programming.

The PrEP care continuum proposes a nine-step framework to evaluate PrEP implementation progress (Nunn et al., 2017). The first three steps in the framework address PrEP awareness, steps four through seven center on PrEP uptake, and steps eight and nine focus on adherence and retention in PrEP care (Fig. 1). The present study, guided by the Modified Social Ecological Model (MSEM; Fig. 2) (Baral, Logie, Grosso, Wirtz, & Beyrer, 2013), aims to extend the limited research exploring CJI women's awareness and acceptability of PrEP, by describing and examining the multilevel factors shaping the upstream factors identified as critical to successful PrEP implementation in the PrEP care continuum. The CDC and the Institute of Medicine both recommend the application of social ecological models to understand HIV program implementation, and this study adds to the existing literature in this area (Baral et al., 2013; Lelutiu-Weinberger & Golub, 2016).

The MSEM illuminates how characteristics at the individual, network, community, and policy levels, and HIV epidemic stage may shape women's attitudes and awareness of PrEP. Individual-level factors include biologic or behavioral characteristics associated with risk of HIV acquisition (e.g., condomless sexual activity, coinfections) (Baral et al., 2013; CDC, 2009). Social and sexual network characteristics include facets of interpersonal relationships that may promote or reduce the risk of HIV (Baral et al., 2013), for example, network-specific social norms related to sexual and gender roles, high prevalence of STIs and HIV, social support, and risk behaviors of network members (Dauria et al., 2015a, 2015b; Drumright, Gorbach, & Holmes, 2004). Factors at the community level are those that determine access to safe HIV prevention, treatment, and care services or engaging in environments that can promote health or well-being or reinforce stigma and discrimination (Dauria et al., 2015a, 2015b; Diez Roux, 2001; Richardson & Norris, 2010). The content, financing, and implementation of laws and policies that promote or decrease HIV risk

include, for example, the criminalization of sex work and substance use and the allocation of resources for healthcare services. Lastly, the HIV epidemic stage within the social or sexual network, community, or geographic location will determine the risk of HIV for an individual (Rothenberg, 2001). These factors are particularly important to understand in order to successfully develop and test programs addressing upstream steps in the PrEP care continuum (Nunn et al., 2017), especially given the nascent stage of PrEP implementation among this population.

Method

Participants

In 2018, 55,374 women in California were involved with the CJ system (Offender Information Services Branch, 2013). Despite representing only 6.17% of the population, Black women represent 28.3% of all women involved in the CJ system (Department of Corrections and Rehabilitation, 2011; U.S. Census Bureau, 2015). The majority (88.62%) of all CJ-involved women (n = 49,077) are currently community-supervised (California Department of Corrections and Rehabilitation, 2011). The present study took place in a city in Northern California.

This study consisted of two participant groups: CJI women (i.e., “community-supervised” women) and stakeholders from the CJ and public health (PH) systems. CJI women were eligible if they were between 18 and 64 years, had recent CJI (≤ 3 years), and endorsed ≥ 1 risk factor for HIV acquisition that would make them eligible for PrEP per CDC guidelines (U.S. Public Health Service, 2014). Individuals were excluded if they were: currently on PrEP, HIV-positive, or unable to speak English (n = 15). Maximum variation methods were used to create a sample that varied with relation to recent IDU (< 6 months) (Patton, 2002). *System Stakeholders*: Any CJ staff who worked with CJI women at the time of the study were eligible (e.g., probation officers, judges). All PH stakeholders whose work centered on PrEP or women’s health were eligible (e.g., PrEP navigators).

CJI-women: We recruited using passive and active recruitment methods. Recruitment flyers with study information were posted at select community-based organizations serving CJI women, including one affiliated with the CJ system. Additionally, case managers presented the study to their clients; interested women were referred to a member of the research team. *System Stakeholders*: We generated an initial list of stakeholders from our previous work, and these individuals received study invitations via email. Additional system stakeholders were recruited using snowball sampling methods.

Procedure

CJI-Women: One-time individual interviews (60–90 min) were conducted in a private room at a community-based location serving CJI women. The semi-structured interview guide, informed by the MSEM, provided participants with basic PrEP education and explored participant’s attitudes and awareness of PrEP. Participants also received information about other routes of PrEP administration (e.g., long-acting injections, vaginal rings, gels). A semi-structured format allowed participants to respond freely and answer

questions in an open-ended way. A brief questionnaire assessed the sample's sociodemographic characteristics. Participants received $30 and a resource guide for their contribution. *System Stakeholders*: Individual interviews (45–60 min) were conducted via telephone to explore stakeholders' perceptions of the current need for HIV prevention and PrEP for CJI women and perceived system-level barriers and facilitators to CJI women's acceptability of PrEP. A brief questionnaire characterized the sample. Form of compensation (≤ $50) depended on system practices.

Analysis

Interviews were recorded and transcribed verbatim. *CJI-Women*: Data from CJI women were analyzed using inductive thematic analytic (ITA) methods (Braun & Clarke, 2006). The initial codebook was developed using the interview guide and the first five interview transcripts. Once the codebook was finalized, two members of the research team independently coded all of the remaining transcripts. To improve reliability and ensure adequate inter-coder agreement, members of the study team compared and refined coding patterns for all transcripts until consensus was reached (ED and AL). To code for themes unique to participants who reported recent IDU, the codebook was revisited and revised when coding the first two interviews from this subset of the sample. All of the coded text was reviewed, and memos highlighted connections between codes and subcodes. Quotations were compiled, and concepts and relationships pertinent to core themes were developed. The final set of codes and memos was compared and combined into overarching themes and subthemes. To enhance validity, the final analysis was presented to participants to solicit feedback ("member check") (Maxwell, 1996). Qualitative analyses were facilitated using Atlas.ti 7.0 (Berlin, Germany). *System Stakeholders*: Executive summaries were used to provide data quickly, identify whether or not saturation of data was achieved, and highlight findings germane to research aims. Descriptive statistics for both samples were generated using SAS 9.4 (Cary, NC).

Results

Sociodemographic and Sexual Risk Characteristics

Twenty-seven women took part in the study, of which, 37% (n = 10) reported recent IDU (Table 1). The median age was 42 years (range, 19–57 years), 11% self-identified as a transgender woman, 59% as Black/African-American, and 18% as Hispanic. Women with a history of IDU were predominantly White (70%) and Hispanic (40%). Regardless of IDU status, the majority of participants reported an annual household income < $10,000 and 80% reported having health insurance. Nearly 60% reported engaging in transactional sex, and roughly 22% reported ≥ 4 sexual partners (past 90 days). Twenty-five system stakeholders took part in the study, of which 52% worked in the CJ sector (Table 2). The majority of PH and CJ stakeholders self-identified as female, White, and non-Hispanic.

Overview

First, we present CJI women's HIV knowledge, and awareness and attitudes toward PrEP for HIV prevention. Next, we explore the multilevel factors underpinning this attitude and awareness illuminated by CJI women and systems stakeholders.

HIV Knowledge

The majority of participants described low levels of HIV-related knowledge. Participants made incorrect statements about the routes of HIV transmission (e.g., that HIV can be transmitted via “sharing a drink”), the source of HIV (i.e., HIV resulting from having an untreated STI), bodily fluids where HIV is present, risk reduction activities, and the availability of a biomedical cure for HIV. Younger participants (< 29 years) were among those with the lowest levels of HIV knowledge. In addition to older women, participants with an IDU history reported higher levels of HIV knowledge.

PrEP Awareness and Acceptability

CJI women were generally unaware of PrEP availability. Upon receiving basic PrEP education, participants expressed disbelief at not having previous knowledge of the medication. Among women with previous knowledge of PrEP were those with a history of IDU. These participants reported learning about PrEP from a variety of sources including from individuals in their substance use networks and during recent jail detention. Even when participants reported previous knowledge of PrEP, however, they were not fully informed about aspects of the medication regimen (e.g., pill frequency), treatment efficacy, or for whom the medication was available (e.g., PrEP only being available for “gay men”). Despite low levels of PrEP knowledge, once participants received PrEP education their attitudes toward the medication were enthusiastic (i.e., “[PrEP is] very encouraging for women”). Stakeholders also expressed positive attitudes toward PrEP for HIV prevention for CJI women.

Multilevel Barriers and Facilitators Shaping PrEP Acceptability (Fig. 2)

Individual Level—A participant’s perception of their HIV risk was one of the primary individual-level facilitators making PrEP an appealing HIV prevention strategy. Women described engaging in many behaviors that increased their HIV risk, including multiple, overlapping sexual partnerships, condomless sexual activity, transactional sex, and IDU. The majority of CJ and PH stakeholders echoed the perceptions shared by CJI women about their risk for HIV. For example, one male stakeholder with 8 years of experience in the CJ system stated:

> [CJI] ladies that I work with, they’re homeless. A lot of them have been raped sleeping on the street. A lot of them tend to be drug users. So, it could be their IV drug use. It could be having sex to get money to pay for drugs or to pay for a place to stay.

A CJI woman’s previous history with daily medication adherence was the second-most commonly described individual-level facilitator shaping PrEP acceptability. Women from across the life continuum described previous experience with daily medication adherence including to prevent pregnancy and to manage chronic and acute medical conditions. Previous adherence to a daily medication also shaped participants’ acceptability of routes of PrEP administration. CJI women expressed most interest in oral and long-acting implant or injection versions of the medication because of their familiarity with medication administered in this way (i.e., hormonal birth control). PrEP administered via a vaginal ring

was the least preferred route of administration, as participants were concerned about ring insertion and interference with sexual activity.

The most commonly reported individual-level barrier to PrEP acceptability was related to a participant's concern about the medication's side effects, interactions, and impact on their preexisting conditions. Several participants disclosed having Hepatitis C and were particularly concerned about how PrEP use might interfere with treatment plans and/or exacerbate their existing condition.

Social and Sexual Network Level: CJI women described having sexual and substance use partners who engaged in high-risk behaviors (e.g., having sexual partners who engaged in IDU, frequent condomless sexual activity, and concurrent partnerships) as being central to their interest in PrEP. One 35-year-old Black female described her perception of the risk characteristics of individuals in her network when stating "It worries me because I was always scared of catching HIV because of the other peoples' lifestyles, you know. Like me —the people that I surround myself around—everybody's not perfect." PrEP was described as an HIV prevention method that "empowers women" because CJI women could control their treatment adherence without having to negotiate with their partner(s). Highlighting this fact, one 52-year-old White woman stated "I just have to protect myself…I don't need to convince you [male partner]. I just need to take care of me, because you're not going to take care of me."

This perception was particularly apparent among CJI women engaged in transactional sex or reported experiencing or being in fear of intimate partner violence. In these situations, CJI women described an inability to negotiate safer sex practices (e.g., condom use). Stakeholders from both systems echoed the benefits of PrEP as a "person-controlled" HIV prevention method for CJI women, especially in the context of their high-risk sexual and substance use networks. One 51-year-old Black participant who engaged in transactional sex and was afraid of potential partners' coercive behavior occurring in these situations noted the following:

> We're in a hotel. It is late. He might leave me there. If I don't go along with it [condomless sexual activity], I might get left. And he is holding the money. So, if I don't go along with it [condomless sexual activity], I dang sure ain't going to get no money, and I might get left.

Lastly, participants who knew someone living with or who previously lived with HIV often discussed their enthusiasm for PrEP in the context of these relationships. This included one participant whose primary sexual partner was HIV positive and was an active IDU.

Community Level: Participants' mistrust of the PH and CJ systems was a deterrent to healthcare utilization, particularly for CJI women of color. This mistrust was rooted in their own, or known community members', experiences of discrimination during receipt of routine and emergency healthcare services (both in the community and during periods of detention). This discrimination was described as being the result of their CJ history and their risk behaviors (e.g., transactional sex, IDU) and for racial and ethnic minority women, their race and/or ethnicity. One 34-year-old CJI White female, who reported engaging in

transactional sex and being homeless, highlighted her hesitancy to seek out health services due to the stigma associated with these aspects of her life (including her justice involvement) when stating:

> I'm so freaked out about going there [local healthcare facility], because, you know, living the life that I live, it always causes people to stereotype you—and they think all the stuff she done did, she should have AIDS by now.

Regarding seeking out HIV prevention services specifically, women were reluctant to disclose risk behaviors in CJ systems due to negative judgments and fear of discrimination. One 41-year-old Asian CJI woman who engaged in recent transactional sex described her hesitation to discuss her HIV risk behaviors with her probation officer:

> I would be judged, you know, and I don't want to be treated differently…just because [I] do this or that. They [staff in the CJ-system] treat you differently, lower. They'll talk to you like shit instead of trying to help you…They'll treat you like you don't know what the hell you're doing.

These fears were echoed when CJI women described hesitation to disclose HIV risk behaviors in community-based medical settings. Notably, two Black CJI women described mistrust of HIV prevention efforts more broadly; expressing concern that medication, like PrEP, would instead spread HIV among racial and ethnic minority groups.

One 54-year-old Latinx female described the context for her discomfort and distrust in the CJ system as being inextricably linked to having to relinquish power and decision-making capability in her life : "I guess it comes from all these long years of handing my power over to the judge, the probation officer, the men." Notably, this participant highlighted the fact that this disempowerment occurred in the context of a male-dominated system.

System stakeholders also identified CJI women's system mistrust as a barrier to them disclosing their risk behavior to individuals who could potentially link them to prevention services, thus limiting their knowledge of and access to PrEP services. Stakeholders noted that CJI women were afraid of disclosing risks associated with substance use and transactional sex behavior due to a fear of CJ system sanctions. Describing how a lack of trust in the CJ system can shape CJI women's overall willingness to openly discuss their risk behaviors with CJ staff (specifically related to substance use), one female CJ stakeholder working for 20 years in the system described the following:

> It gets tricky when they're in court because they know that we [staff] have to report to the court what's going on, and so it takes a while to get them to understand that, you know, even if they are using [substances] the court is not going to just throw them back in jail.

Notably, despite the perception of CJI women, CJ stakeholders detailed a system that may not be immediately punitive as a result of risk behavior disclosure.

The lack of relevant systems-level training was a dominant theme discussed by participants from both systems. Within CJ settings, participants felt that staff interacting with CJI women (e.g., probation officers, case managers) did not possess the knowledge, training or resources

to sufficiently address their complex HIV-related needs. This included very limited knowledge and understanding of PrEP broadly and for women in particular. Furthermore, at least three CJ stakeholders noted that sexual risk behaviors were not included in any CJ system screening tools and therefore never a point of direct communication with their clients, as opposed to substance use which was discussed with CJI women frequently. Similarly, and with few exceptions, stakeholders in the PH system did not feel that community-based healthcare providers (i.e., not those in CJ settings) received adequate training on PrEP provision for women. Consequently, stakeholders felt that CJI women were likely not being screened for or receiving PrEP education during post-release healthcare visits.

Despite these barriers, CJI women and stakeholders identified the availability of public health insurance coverage as the primary community-level facilitator of engaging in and managing the costs associated with PrEP-related healthcare visits and medication adherence.

Public Policy and HIV Epidemic Stage Level: CJI women identified women in their peer groups (described as CJI women with IDU and transactional sex histories, and racial and ethnic minority women) as being at high-risk for HIV. Public health stakeholder interviews suggested that women are "a forgotten population" in the city's HIV prevention efforts, which were focused exclusively on men who have sex with men (MSM). These stakeholders specifically highlighted that despite the increasing rates of HIV among Black women in the region (a group identified as being overrepresented in the local CJ system) they were largely absent from HIV prevention work in both representation and targeted outreach: "We really should be focusing on Black women, ensuring that Black women are represented in the advertisement, in the discussion, in the outreach, because that's where the largest disparity is (male PH stakeholder with 6 years of experience)."

Relatedly, one-third of the PH stakeholders noted that the local Department of Public Health perceived HIV prevention efforts for women to be under the purview of reproductive health services and did not extend their efforts outside of this arena. Thus, if a CJI woman was not engaged in reproductive health services, as was detailed by CJI women and stakeholders from both the CJ and PH systems, they were not likely to receive any information about PrEP despite their risk-level. Even within the provision of reproductive health services, PrEP was described as a lower priority to other needs. Describing the disparity in the need and availability for HIV prevention services to be offered to women, one female PH stakeholder working for 20 years in the system said: "[HIV-prevention] should be addressed through reproductive health services or women's health services. there's the assumption [in the Department of Public Health] that [HIV and PrEP] prevention and education happens that way but it's not necessarily a priority…even though the [HIV] numbers are there."

It should be noted that several stakeholders from the PH system described "the intersection of [CJI women's] vulnerability" (i.e., those that crossed various levels identified in the MSEM). For example, this included discussions related to how biological HIV risks associated with some sexual activities (i.e., receptive anal intercourse), a high burden of STIs, engagement in transactional sex (often as the result of economic instability), and

barriers when seeking out preventive and urgent health services (e.g., stigma, discrimination) intersected, resulting in a unique set of HIV risks for transgender women of color.

Discussion

The present study addresses notable gaps in the current discourse related to understanding awareness and acceptance of PrEP for HIV prevention among a population of women at high risk of HIV: CJI women (Brinkley-Rubinstein et al., 2019). Despite low awareness of PrEP, CJI women expressed positive attitudes toward PrEP. Using the MSEM to guide data collection helped illuminate discrepancies between the need for PrEP among women and their PrEP awareness and acceptability, addressing important steps in the PrEP care continuum. Notable barriers to PrEP acceptability included medication side effects (individual level), distrust in HIV prevention efforts and inadequate PrEP training (specific to women) among community-based healthcare providers and CJ stakeholders (community level). Lack of local HIV prevention efforts focused on the unique risks of women was a barrier at the public policy/HIV epidemic stage level. Multilevel facilitators to PrEP acceptability were perceived HIV risk of CJI women due to their own sexual behaviors and/or their substance use and sexual partner's behaviors (individual level and social and sexual network levels); PrEP being an HIV prevention method that women can control without partner negotiation (social and sexual network level); and availability of public health insurance to cover costs associated with PrEP-related care (community-level).

PrEP utilization as a tool in the *Ending the HIV Epidemic Initiative* remains low among women, including CJI women; however, there is emerging research in this area (Grant To Me, 2020; Ramsey et al., 2019; U.S. Department of Health and Human Services, 2020). This research gap is particularly concerning given that many CJI women self-report engaging in high-risk behaviors including IDU, transactional sex, and condomless sex with multiple partners (Noska et al., 2016; Rutledge et al., 2018). Furthermore, transwomen and women from racial and ethnic minority groups, two groups disproportionately affected by HIV (Becasen et al., 2019; CDC, 2020), are overrepresented in the CJI population (Center for American Progress, 2016; Zeng, 2019). The findings from this study extend previous research conducted with justice-involved populations (Brinkley-Rubinstein et al., 2018, 2019; Peterson et al., 2019), most notably Rutledge et al.'s (2018) work with CJI women in Connecticut, by qualitatively highlighting the factors shaping low levels of PrEP awareness and high levels of acceptability from the perspectives of both CJI women and stakeholders in the CJ and PH systems.

Although CJI women report being aware of their own personal high-risk taking behaviors, they were unaware that PrEP was available as an HIV prevention option for them. This is especially notable among CJI women with IDU who were more likely than other CJI women to be aware of PrEP from their social networks, but assumed that PrEP was not available for them because information was surrounded by male-targeted marketing locally and nationally. Similar misconceptions about PrEP have been reported among MSM communities of color, heterosexual communities of color, transgender women, and Black female adolescents (Aaron et al., 2018; Auerbach et al., 2015; Brooks, Nieto, Landrian, Fehrenbacher, & Cabral, 2020; Calabrese et al., 2018; Johnson et al., 2019; Misra, Huang, &

Udeagu, 2019; Misra & Udeagu, 2017; Patel et al., 2019). Importantly, PH stakeholders stated that PrEP marketing and interventions have to be more intentional about targeting and tailoring resources to women in order to address notable disparities in PrEP awareness, access, and uptake. One factor contributing to less PrEP marketing for women may be that the latest HIV medication approved for PrEP, Descovy, was approved without demonstrated efficacy in women (Hare et al., 2019).

CJI women reported concerns about judgment related to their intersecting risks (e.g., CJ history, IDU) from healthcare providers when seeking out PrEP and other health services. This sentiment is described in other studies with justice-involved populations, Black and Latino MSM, adolescents, and seen in numerous studies that illustrate how biases and discrimination continue to perpetuate national sexual health disparities (Biello et al., 2018; Brinkley-Rubinstein et al., 2018, 2019; Hosek et al., 2016; Peterson et al., 2019). For example, a recent study among CJI males highlights the role that PH stakeholders felt that healthcare providers may not be adequately trained or aware of resources that might benefit this population. Our results are particularly significant given the criteria outlined by both the CDC and the American College of Obstetrics and Gynecology that encourage healthcare providers to discuss HIV prevention strategies, including PrEP, with any CJI woman (Committee on Gynecologic Practice American College of Obstetricians and Gynecologists, 2014). These findings draw attention to a large systematic malfunction of the healthcare system in relation to working with marginalized populations, understanding implicit biases, and staying abreast of emerging healthcare information.

Despite these barriers, there are multilevel facilitators that are promising for increasing PrEP awareness and acceptability among CJI women. Importantly, once provided with HIV information, CJI women were able to accurately identify their own HIV risk behaviors and were receptive to PrEP use. These findings are congruent with previous research examining PrEP acceptability among other female populations (Khawcharoenporn, Kendrick, & Smith, 2012; Patel et al., 2019). Many CJI women reported personal insight into the difficulties with negotiating condom use and specifically highlighted that PrEP was an HIV prevention method they could control. Female-controlled methods of contraception have improved reproductive autonomy and reduced negative reproductive outcomes (e.g., a reduction in the incidence of early and unintended pregnancies) (Bailey, 2010; Blumenthal, Voedisch, & Gemzell-Danielsson, 2010; Mosher, 1988). In order to strengthen HIV prevention among women, including CJI women, HIV prevention options could be presented synergistically with other sexual and reproductive health services to women (e.g., female-controlled contraceptive methods). Importantly, however, while daily adherence of PrEP use may be concealed by women, partners may still be able to limit access to PrEP by controlling a woman’s access to money or resources, including restricting mobility to attend healthcare visits; further research is needed to examine how gender and power may impact these aspects of PrEP access along the care continuum.

Acceptability of PrEP use is further facilitated by women’s social networks. Among the IDU community, PrEP is being discussed (even if it is not being explicitly discussed in the context of prevention for women) and many women were personally familiar with a person living with HIV. The association observed between discussion of PrEP in social networks

and acceptability among CJI women is similar to what has been seen in the MSM literature (Mehrotra et al., 2018; Phillips et al., 2019) and among women who inject drugs (Walters, Reilly, Neaigus, & Braunstein, 2017). HIV prevention programming for CJI women might benefit from leveraging social or peer networks to improve knowledge and uptake of PrEP.

Limitations

CJI women were recruited from agencies providing required (via court sanctions) and voluntary services to women involved in the CJ system and may overrepresent women who were more actively engaged in the CJ system or are in need of social and supportive services. Therefore, the findings may not be generalizable to CJI women who are not as compliant with CJ-related sanctions. The sample included a small number of CJI transwomen ($n = 3$). Additional research among this population is warranted. Lastly, system stakeholders were recruited using snowball sampling methods which may restrict participants' views to a smaller occupational network. In an attempt to address this limitation, at the end of each interview we asked participants to identify a list of stakeholders or experts with whom it would be important to speak to regarding the present study. Many of the identified stakeholders were mentioned by more than one active participant.

Conclusion

To reach the *Ending the HIV Epidemic Initiative*'s goal to reduce new HIV infections by improving PrEP access, it is critical to develop scientifically informed interventions for high-risk populations, including CJI women. The present study applied the MSEM to understand PrEP awareness and acceptability among women involved in the CJ system. Findings from this study point to multiple and intersecting factors shaping PrEP awareness and acceptability among this group as identified in the PrEP care continuum (Nunn et al., 2017), thus highlighting the need for multilevel HIV prevention interventions tailored to the unique attitudes, risks, and current HIV programming gaps for CJI women. At the individual level, HIV prevention efforts should include HIV and PrEP education and related healthcare services. At the systems level, programming could include training for stakeholders on HIV prevention (including PrEP) and the unique HIV risks of CJI women, improved screening for HIV-related risks in CJ settings, and targeted marketing of PrEP for women. Finally, in order to reduce HIV risk for CJI women, it is critical to improve the continuity of all healthcare-related services between CJ settings and the community and address factors shaping women's involvement in the CJ system more broadly.

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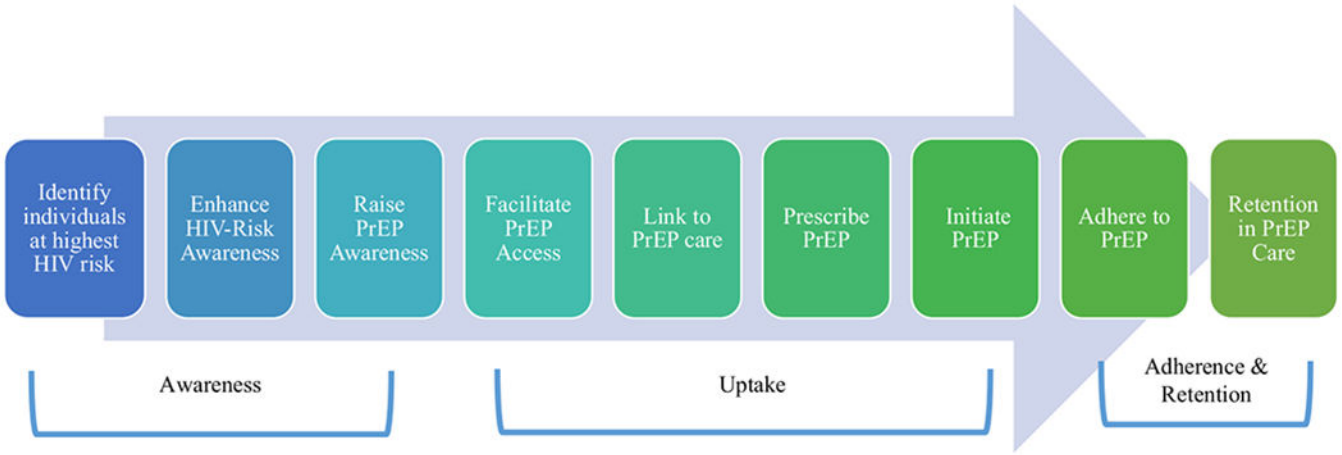

Fig. 1.
The PrEP care continuum

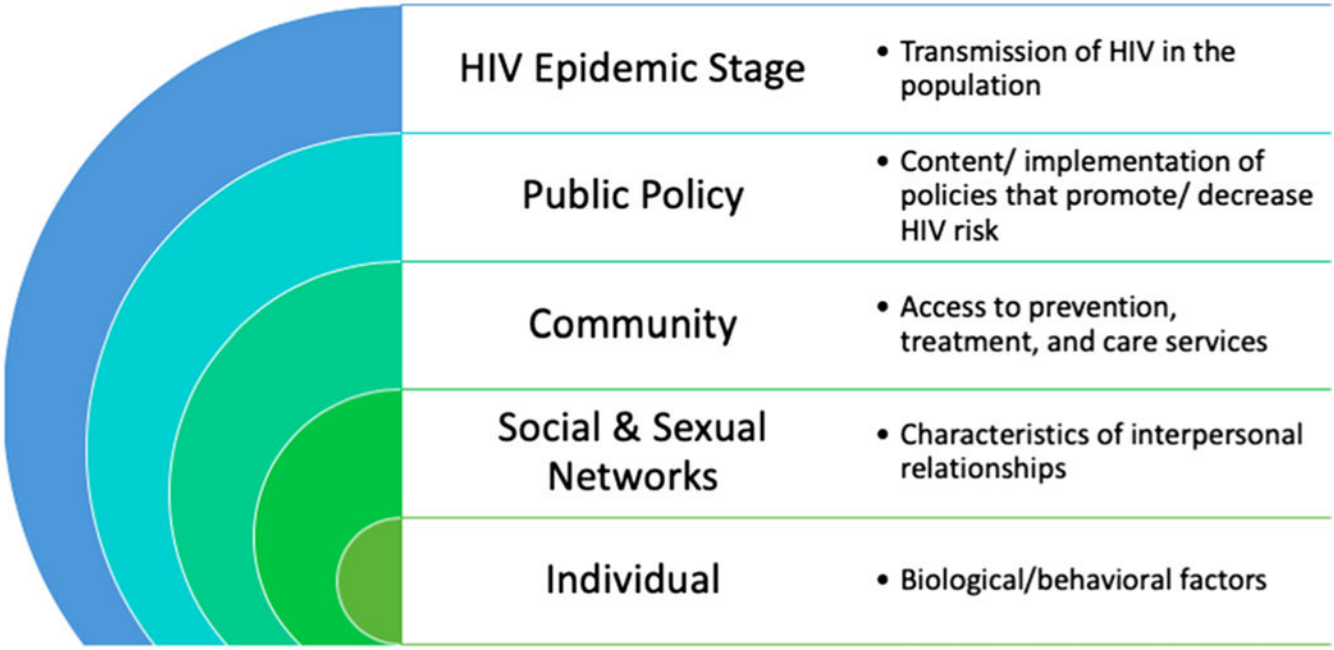

Fig. 2.
Modified social ecological model shaping PrEP awareness and acceptability among CJI women

Table 1

Sociodemographic characteristics of criminal justice-involved women, by injection drug use status ($N = 27$)

	Total	**Non-IDU**	**IDU**
	***N* = 27**	***n* = 17**	***n* = 10**
	Median (range) or N (%)		
Median age (years)	41.52 (19–57)	40.65 (19–57)	43 (31–55)
Self-identify as a transwoman	3 (11%)	2 (12%)	1 (10%)
Race			
Black/African-American	15 (56%)	13 (76%)	2 (20%)
White	11 (41%)	4 (24%)	7 (70%)
American Indian/Native Hawaiian	6 (22%)	4 (24%)	1 (10%)
Asian	2 (7%)	2 (12%)	n/a
Mixed race	3 (11%)	1 (6%)	2 (20%)
Ethnicity			
Hispanic	5(19%)	2 (12%)	4 (40%)
Education level			
< High school	6 (22%)	6 (35%)	n/a
High school diploma/GED	5 (19%)	3 (18%)	3 (30%)
Some college/Associate degree/Trade school	11 (41%)	7 (41%)	4 (40%)
Bachelor degree/any graduate education	3 (11%)	1 (6%)	3 (30%)
Annual household income			
$0 to $9,999	15 (56%)	9 (53%)	6 (60%)
$10,000 to $19,999	6 (22%)	4 (24%)	2 (20%)
$20,000 to $29,999	4 (15%)	2 (12%)	2 (20%)
≥ $30,000	2 (7%)	2 (12%)	n/a
Number of children			
0	10 (37%)	6 (35%)	4 (40%)
1–2	11 (41%)	4 (24%)	3 (30%)
3–4	7 (26%)	5 (29%)	1 (10%)
≥ 5	3 (11%)	2 (12%)	1 (10%)
Average number of recent male sexual partners	2.85 (1–10)	2.94 (1–5)	2.7 (1–10)

	Total	Non-IDU	IDU
	N = 27	*n* = 17	*n* = 10
	Median (range) or N (%)		
Percentage who reported having a recent transactional sex partner	17 (63%)	11 (65%)	6 (60%)
Percentage who reported being tested for HIV	25 (93%)	17 (100%)	9 (90%)

Table 2

Sociodemographic characteristics of system stakeholders ($N = 25$)

	Total $N = 25$ N (%)	**Criminal justice** $n = 13$	**Public health** $n = 12$
Age			
18–34	10 (40%)	3 (23%)	7 (59%)
35–44	6 (24%)	3 (23%)	3 (25%)
45–54	6 (24%)	4 (31%)	2 (17%)
55–64	3 (12%)	3 (23%)	N/A
Gender			
Female	21 (84%)	12 (92%)	9 (73%)
Race			
Black/African-American	8 (32%)	5 (29%)	3 (25%)
White	12 (48%)	7 (54%)	5 (42%)
Other	5 (20%)	1 (8%)	4 (33%)
Ethnicity			
Hispanic	4 (16%)	1 (8%)	3 (25%)
Education level			
Some college	4 (16%)	2 (15%)	2 (17%)
Bachelor's degree	3 (12%)	2 (15%)	1 (8%)
Any graduate education	15 (60%)	6 (46%)	9 (75%)
Other	3 (12%)	3 (23%)	N/A
Years of employment, mean (SD) *	9.9 (6.0)	10.7 (5.4)	9.0 (6.6)

* $N = 24$; one CJ stakeholder was not currently employed in the CJ system (they were employed within the system in the last 3 years) and did not respond to this item

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