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Optimizing HIV pre-exposure prophylaxis among transgender women in the United States: a conceptual framework of engagement in prevention-effective adherence

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Abstract

Transgender women in the United States experience a disproportionate burden of HIV driven by multi-level social and structural vulnerabilities. Although oral PrEP, injectable cabotegravir, and twice-yearly lenacapavir are now available, PrEP use remains suboptimal. We conducted a qualitative analysis of 18 semi-structured life history calendar interviews conducted between February and June 2022 with transgender women in the eastern and southern United States who were indicated for PrEP and had varied PrEP histories. We generated a conceptual framework of prevention-effective adherence based on findings. Two bidirectional domains, capacity to safely engage with the healthcare system and compatibility between PrEP and individual values and preferences, shaped prevention-effective adherence. Influencing both domains were distal factors, including stigmas, identity-based oppression and marginalization, and sociostructural context. Unlike models that categorize barriers using existing frameworks, our inductively derived framework specifies how factors relate to each other, centers prevention-effective adherence rather than discrete cascade steps, and situates PrEP engagement in the life course. Our findings illuminate modifiable factors, including cost, availability of gender-affirming care, and access to evidence-based HIV/STI information, to improve and optimize PrEP engagement among transgender women in the United States.

Introduction

Transgender women experience the highest HIV incidence among all priority populations within the United States, with HIV prevalence estimated between 14% and 42% and notable inequities experienced by Black and Latina transgender women.[1-3] These inequities are driven by structural oppression and social marginalization, many of which also act as critical barriers to PrEP. With this overlap, HIV inequities could be reinforced if PrEP interventions are not optimized to reach the transgender women who have the highest barriers to use.[4]

Barriers and facilitators to PrEP engagement among transgender women are well documented, mostly in large U.S. cities among Black and Latina transgender women.[5-15] Barriers include medical mistrust rooted in transphobia[8], concerns about safety and interactions with hormones[9,12], PrEP stigma[10], competing priorities[11], mental health and substance use concerns[13], language, and cultural barriers.[14] Facilitators include access to gender affirming providers[8], comprehensive financial coverage[9], alternative PrEP modalities[10], social support[11], trans-specific, accurate messaging[12,14,15], employment, and transportation[13]. Recent studies have organized these determinants using established frameworks, including the Consolidated Framework for Implementation Research, socioecological models, the Health Belief Model, the COM-B model, and the Health Stigma and Discrimination Framework [16-21]. Because these approaches sort factors into predefined levels or constructs, less is known about which factors are most salient, how they relate to one another, and how they function over the life course.

Health behavior theories help explain how these factors interact. The Behavioral Model for Vulnerable Populations, posits that individuals facing competing demands may still seek care if there is a recognition that this care is important,[22] in line with research establishing that competing demands are a recognized barrier to HIV prevention among transgender women.[3,15] Protection Motivation Theory suggests that threat perception energizes action, but a response depends on response efficacy and self-efficacy,[23,24] both of which are challenged by similar barriers to PrEP engagement such as lack of access to safe and affordable transportation.[13] These models of health behavior provide a lens to describe how and why transgender women experiencing many overlapping barriers engage in PrEP care.

Since the approval of daily, oral, PrEP in the United States, the PrEP landscape has evolved.[25] Injectable cabotegravir, administered every two months, and twice-yearly lenacapavir were both approved for transgender and gender-diverse individuals.[26-29] Transgender women report strong interest in long-acting PrEP.[30-32] Although long-acting modalities may resolve barriers such as daily pill burden and discreet storage needs, real-world uptake and persistence have been low, hampered by enduring structural, clinic-level, and coverage barriers.[25,33-35] Similar to oral PrEP, injectables require recurrent clinic visits and sustained insurance coverage. Further, PrEP stigma enacted by providers is unlikely to differ by modality.[10] Understanding determinants that transcend modality is therefore essential.

When evaluating PrEP optimization, it is important to acknowledge that HIV acquisition risk varies across transgender women and over time.[36] The prevention-effective adherence paradigm recognizes that PrEP is needed only during periods of HIV acquisition risk not covered by other prevention strategies.[37] This paradigm more holistically captures efficacious PrEP engagement, integrating uptake, adherence, and discontinuation into a single outcome, reflected in dynamic choice models that let people start, stop, and switch prevention methods as needs change.[38] Awareness of prevention-effective adherence may increase self-efficacy by equipping transgender women with the knowledge and resources to accurately assess HIV risk and to maximize perceptions of response efficacy.[23,24]

The objective of this study was to develop a conceptual framework illustrating how multi-level factors, and changes in these factors over time, shape transgender women's capacity to engage in prevention-effective adherence. Although interviews were conducted in 2022, shortly after injectable cabotegravir was approved, our life history approach elicited accounts of PrEP engagement spanning several years, allowing us to identify determinants that transcend a specific modality. The resulting conceptual framework advances existing models by specifying how domains relate to one another, defining prevention-effective adherence as the outcome, and situating PrEP engagement within the life course.

Methods

Parent study

The analyses reported here were generated through a qualitative sub-study of The LITE Study, as part of an explanatory sequential mixed methods design. The LITE Study was a mixed-mode (i.e., site-based and fully remote), multi-site cohort characterizing HIV prevention as well as sexual, mental, and general health outcomes among transgender women not living with HIV in the eastern and southern United States. Detailed study procedures have been previously published.[39,40] Quantitative analyses from the parent cohort study have identified multi-level correlates of PrEP engagement and HIV seroconversion, including structural factors (e.g., homelessness, health insurance status), social network factors (e.g., partners taking PrEP), and individual factors (e.g., race and age); and have described preferences for long-acting PrEP modalities.[3,31,36,41,42] Building on these findings, we aimed to achieve a richer understanding of how these multi-level factors manifested in PrEP engagement narratives and the extent to which these factors were interrelated with one another.

Data Collection Procedures

We used the semi-structured life history calendar method to structure in-depth interviews with 18 transgender women who were participants in The LITE Study and had provided permission to be contacted regarding additional research opportunities.[43] The interviews took place in English and Spanish between February and June 2022 via Zoom. Through the parent study, we had access to individual-level data on PrEP indications, PrEP engagement, and HIV/STI testing history during the 24-48 months prior to each interview. We used this information to purposively recruit adult transgender women who had indications for PrEP and who had various patterns of PrEP utilization over the duration of the study. We attempted to achieve maximum variation across race, age, and geography to ensure the inclusion of a wide range of perspectives and experiences.

Prior to each interview, the first author generated a summary of the reported PrEP experiences, HIV/STI testing history, and key changes or transitions in sociostructural context (e.g., changes in housing, job, or food security, changes in number or types of sexual partnerships, etc.) that were reported throughout the parent study. This process was intended to support the interviewer in identifying key events and influences to probe on. Semi-structured interview guides consisted of three sections 1) Life story, including high and low points and key influences 2) Health and wellbeing, including high and low points and healthcare encounters and 3) PrEP and HIV prevention, including prevention strategies and goals. The interview guide was broadly informed by existing literature and our prior quantitative analyses; however, the semi-structured nature facilitated the emergence of additional factors and topics not previously considered from the outset. All interviews were audio-recorded (with explicit participant permission), transcribed verbatim in the language of the interview, and checked for accuracy by the interviewer. Audio recordings, transcripts, and field notes (including life history timelines) were compiled and uploaded to a secure file storage system as soon as possible following each interview. Participants received a $50 gift card for sharing their time and experiences.

Analytic approach

Our analysis drew upon grounded theory methodology and included iterative analysis throughout data collection which was facilitated through regular study team meetings.[44] This ongoing analysis fostered discussion of emergent themes, adaptation and evolution of the interview topics covered, and refinement of logistics and procedures. Interview transcripts were imported to Atlas.ti for coding. Transcripts were coded in the language of the interview. Key quotations from Spanish-speaking participants are presented in the original Spanish followed by English translation. The first and third author began with line-by-line open coding of a small subset of transcripts to generate inductive codes. Additional deductive codes based on the interview guide and memos from team meetings were also generated. Using the constant comparative method, the codebook was further refined through generation of axial codes, which were then applied to remaining transcripts.[44] Analytic memos were used to document and reflect upon emergent themes and their relationship to existing literature throughout the coding process. These memos also supported the development of the conceptual framework by describing how concepts and themes were organized and related to one another. The conceptual framework was refined through a series of meetings with study team members, which included reflection on key quotations and searching for confirming and disconfirming cases to maximize the extent to which the framework was grounded in the data.

Ethical considerations

The Johns Hopkins School of Medicine single Institutional Review Board granted ethical approval of this study. To minimize risk to participants, no additional identifying information (beyond what was provided in the parent study) was collected. All participants were engaged in an informed consent process, which included reviewing the oral consent form together, and encouraging participants to ask questions at several points throughout the process.

Results

Our sample included transgender women from seven metropolitan areas throughout the eastern and southern United States who ranged in age from 18 to 50 at enrollment in the parent study and who predominantly identified as Black or Latina (Table 1). Seven interviews were conducted in Spanish and eleven were conducted in English. PrEP engagement histories varied greatly; some participants were PrEP-naïve at enrollment and never engaged with PrEP despite experiencing indications while others had consistently used PrEP for years prior to enrollment and continued to use PrEP throughout follow-up. The remaining participants had heterogenous longitudinal patterns of PrEP utilization. While all participants were seronegative for HIV as an inclusion criterion for enrollment in the parent study, three qualitative interviewees experienced HIV seroconversion following PrEP discontinuation and prior to the interview.

Our overarching objective was to understand how multi-level factors impacted transgender women's engagement in prevention-effective adherence practices. The conceptual framework that we generated based on our findings is presented in Figure 1. Analysis produced two domains promoting or inhibiting engagement in prevention-effective adherence practices. The first domain was capacity to safely engage with the healthcare system, which encompassed the factors impacting healthcare engagement beyond PrEP alone (1. availability of gender-affirming care, 2. availability of trauma-informed care, 3. affordability, and 4. accessibility). The second domain, compatibility between PrEP and individual values and preferences, comprised of PrEP-specific factors (1. symbolic meaning of PrEP, 2. modality-specific factors, 3. accuracy of perceived HIV acquisition risk, and 4. awareness of evidence-based HIV/STI

information). These two domains were bidirectionally related. For example, routine visits with appropriate, quality healthcare could improve the accuracy of perceived HIV acquisition risk. Upstream of both domains were distal, macro-level factors including stigmas, identity-based oppression and marginalization, and sociostructural context. These upstream factors did not directly determine prevention-effective adherence but shaped transgender women's healthcare access and the alignment between their values and preferences and available PrEP services.

Stigmas, identity-based oppression and marginalization, and sociostructural context

Several upstream factors—including stigma, identity-based oppression and marginalization, and the broader sociostrucutral context—impacted transgender women's capacity to engage in prevention-effective adherence practices. Many transgender women experienced a heightened threat perception in terms of HIV acquisition risk but these upstream factors such as oppression and stigma inhibited self-efficacy to engage in preventative behaviors.

When asked about periods of time when she had the lowest risk for HIV, one Latina participant described how she experienced the greatest agency and lowest risk before she transitioned. She went on to explain that after her transition, sexual violence, rooted in patriarchy and transphobia, soon followed:

La verdad yo creo que nunca ha habido un momento, pues antes de comenzar mi transition-- antes de comenzar mi actividad sexual, yo creo que fue eso, porque después de ahí, desde que, ah, me abusaban hasta en adelante yo no había usado protección.

The truth is that I don't think there has ever been a moment, well before I started my transition—before I started my sexual activity, I think it was then, because after that, since, ah, they abused me. Until then I had not used protection.

Another Latina woman described the importance of "tenerla discrete por cuidar mi seguridad" or "keeping [her trans identity] discreet for [her] safety" because her lived experiences of transphobic violence meant that being perceived as a transgender woman by others could make her "vulnerable a cualquier tipo de peligro" or "vulnerable to any kind of danger". This participant also avoided spaces and communities that were seen to be geared toward Central American immigrants because of the discrimination she had previously experienced in those spaces.

Otro punto bajo, se puede decir, era la-- era la discriminación, creo así por la gente, más por mi comunidad latina, que es, ahm, es muy machista, se puede decir. Por eso yo siempre evitaba ir a tiendas latinas o lugares que conociera gente de mi país o países centroamericanos, porque el-- Para uno ellos es algo raro, si se puede decir.

Another low point, it can be said, was the-- was the discrimination, I think because people, mostly my Latino community, which is, um, it's very macho, you could say. That's why I always avoid going to Latino stores or places where people from my country or Central American countries go, because the--- For some of them it's [her trans identity] something strange, you could say.

For this participant, who felt most comfortable speaking Spanish and who preferred to keep her transgender identity discreet, PrEP services would need to be available in Spanish and delivered in a gender-affirming care environment, but not necessarily in a space that is explicitly designated for transgender women or Latino communities.

Across many interviews, we also heard how early life experiences and traumas (including in carceral systems, foster care, and with medical neglect/abuse) shaped how trans women engage with healthcare as adults. One Black transgender woman described how she grew up with no access to healthcare, even during emergencies. She was hit by a car at age 12 and sustained a serious injury, but was told by her mother that she was "fine" despite ongoing back pain that still impacts her over a decade later. Another Black transgender woman, who was incarcerated twice as a minor described being denied healthcare by corrections officers despite significant weight loss and other symptoms that she felt indicated a serious health issue. She also commented on the impact of condom bans within carceral settings:

"I'm sorry—I just feel bad for the people--for the girls in there now. Like I just hope that like—do you know they banned Trojans [condom brand] from there and said it's because of safety issues?".

We also heard how STI stigma can function as a barrier to PrEP. Among both participants who had previously used PrEP and those who reported they were not interested in PrEP, the desire for PrEP methods that would also prevent STIs (e.g., microbicidal enemas/douches) was articulated. This was at least partially driven by the stigma of STIs and the false equivalency (from a morbidity and mortality perspective) of acquiring a curable bacterial STI and acquiring HIV, a chronic, incurable but treatable illness. One Latina participant explained:

Creo que el efecto negativo es que, yo lo he visto, que las personas se confían mucho de los me-de los medicamentos, se confían que solo porque toman la PrEP, nun- pueden protegerse del VIH, pero sin imaginarse que hay otras enfermedades también como- de transmisión sexual como gonorrea, sífilis o otras cosas. Es es lo que- el efecto negativo que yo he visto en el PrEP, que se confían mucho por la pastilla, y no se confían en que hay otras enfermedades aparte del-del-del VIH. Y eso me incluyo yo también.

I think the negative effect is that, I've seen it, that people trust the medications a lot, they trust that just because they take PrEP, they can protect themselves from HIV, but without realizing that there are other diseases that are also sexually transmitted like gonorrhea, syphilis, or other things. It is the negative effect that I have seen with PrEP, that they have a lot of trust in the pill, and they don't trust that there are other diseases apart from HIV. And that includes me too.

While participants made the influence of macro-level factors (e.g., transphobia, violence, stigma) clear, they primarily focused on more proximal determinants of PrEP use (e.g., affordability, perceived HIV risk), which directly impacted their decision making around PrEP.

Capacity to safely engage with the healthcare system

Participants described a range of factors influencing their health and wellbeing, including whether they had the capacity to safely engage with the healthcare system. This concept went beyond having somewhere to go for care and the ability to pay for that care; participants needed reassurance that the healthcare encounter was going to lead to a net benefit rather than harm. Given the high burden of violence, disproportionate involvement in carceral systems, and extensive experience with discrimination and systems of oppression among transgender women in our study, participants had to be confident that healthcare encounters would be gender-affirming and trauma-informed if they were going to seek healthcare.

It can be difficult for transgender women to find a healthcare provider and clinic that meets all the criteria necessary to safely engage in care (affordable, accessible, gender-affirming, and trauma-informed). And because these criteria can change, access to healthcare, including PrEP, can also change. For example, a White transgender woman residing in the South, who had been receiving PrEP through a free pilot program, reported how the free program ending led to her discontinuation. While she was referred to other programs that could have potentially covered some or all of the cost, there would have been significant barriers to moving her care elsewhere and navigating the care transition; it takes significant time and energy to vet a clinic or healthcare provider to ensure a safe and gender-affirming environment. Therefore, when the pilot program ended, this participant decided transferring her PrEP care wasn't worth all the potential barriers or harms. She had just one partner at the time of discontinuation and was unaware that her partner was living with HIV at that time. She subsequently seroconverted and was diagnosed with HIV during medical intake at a carceral facility for a charge related to her substance use disorder.

Compatibility between PrEP and individual values and preferences

Several of the women we interviewed reported receiving high-quality and free (or affordable, low-cost) healthcare from federally qualified healthcare centers with explicit missions of serving LGBTQ populations and providing gender-affirming healthcare. Yet not everyone who had demonstrated capacity to safely engage with the healthcare system had found PrEP to be compatible with their values and preferences. We identified four main factors impacting PrEP compatibility: symbolic meaning of PrEP, modality-specific factors, accuracy of self-perceived HIV acquisition risk, and awareness of evidence-based HIV/STI information.

One Black transgender women living in the South, who had taken PrEP prior to her seroconversion reflected on both her underestimation of her HIV acquisition risk and on the symbolic meaning of PrEP by describing the shared vulnerability and intimacy that was conferred when she stopped taking PrEP:

"Well, I've had two partners that were positive and so we were in lengthy relationships and so that's how I started and also that's why I stopped. Because we were engaged [to be married], you know--which I mean looking back I should not have…but life has choices and consequences so…But yeah, I know it's crazy but yeah, I just wasn't thinking that that [HIV] would impact me…yeah and even if, even if I did get it [HIV], you know I wouldn't be alone".

In this instance, her partner had shared his HIV status openly and told her that his viral load was undetectable in the early stages of their relationship. She embraced the message of U=U (undetectable=untransmissible) but lacked the psychological safety within the relationship to openly discuss her partner's ongoing HIV care. She described a tension between the desire for shared vulnerability, wanting to support her partner and not enact HIV stigma toward him, while also prioritizing her own physical health and wellbeing. Reflecting about a year after her HIV diagnosis and the end of the relationship, she acknowledged that she had underestimated her perceived HIV acquisition risk. Thus, despite her access to PrEP services and information about evidence-based prevention interventions, she was not able to engage in prevention-effective adherence practices.

Another participant, a Latina transgender woman, alluded to the symbolic meaning of PrEP when she described her decision to stop using PrEP.

"Fue algo de lo que me di cuenta que no lo necesitaba. Entonces, simple y sencillamente dije, 'No, voy a dejar de hacerlo. No quiero *depender* de esto. Si quiero seguir usándolo, pues sé que tengo acceso a ello, pero no es algo de lo que me interese.'"

"It was something I realized that I didn't need. So I simply said 'No, I'm going to stop using this. I don't want to *depend* on this. If I want to use it again, I know that I have access to it, but it doesn't interest me.'"

Although it was not clearly articulated what PrEP symbolized in this case, it was important to this participant that she wasn't "dependent" on it. What PrEP symbolized or represented varied with some participants seeing PrEP as a "security blanket", a symbol of empowerment and "taking care of oneself" while others saw it as confirmation of their vulnerability to HIV or a symbol of the lack of agency in some aspects of their lives.

The construct of modality-specific factors captures barriers and facilitators that are specific to the delivery mechanism and/or dosing schedule of the PrEP modality rather than the concept of PrEP in general. For instance, one participant described being very interested in injectable PrEP despite discontinuing daily, oral PrEP. Part of her motivation to use injectable PrEP despite having no interest in oral PrEP is because she had been told by a healthcare provider that oral PrEP is only effective in transgender women if taken every single day at the same time each day, and this felt unattainable given her ongoing substance use disorder and unstable housing. Despite her interest, she was not able to initiate injectable PrEP due to lack of financial coverage for this modality at the time of the interview. Another participant described the current PrEP regimen as "a lot" given that she did not feel like she was consistently being exposed to HIV, but she was interested in event-driven modalities (such as douches or topical gels) that could be used to protect her during sex that she perceived to be riskier.

Successful engagement in prevention-effective adherence

Unsurprisingly, no participants used the phrase "prevention-effective adherence" to refer to their HIV prevention strategy or approach to PrEP use. Nonetheless, several participants described consideration of their HIV acquisition risk within a given sexual encounter or partnership, and their recent PrEP adherence when deciding when to use condoms. Further, a few participants reported adjusting their PrEP use to cover periods of time marked by more consistent or higher risk of HIV acquisition, while relying on other HIV prevention strategies during time periods with lower or less frequent HIV acquisition risk. We also heard from transgender women who consistently used PrEP for periods of several years even if acquisition risk varied over that period, with one

participant referring to PrEP as her “security blanket”. All women who described successful engagement in prevention-effective adherence practices were aware of evidence-based HIV prevention strategies and had the capacity to engage in these practices. The capacity to engage in these practices was conceptualized as having the internal and external resources and/or support to adhere to PrEP during periods of elevated HIV acquisition risk. The resources and support needed for a given individual to have “capacity” thus was highly individualized.

One participant, a Black transgender woman from the South, described how her case manager at the clinic where she received gender-affirming care, made her aware of prevention-effective adherence practices and empowered her to use PrEP effectively. She engaged in a pattern of prevention-effective adherence practices sometimes called “PrEP cycling”; she used PrEP when she was sexually active and discontinued when she wasn’t. She explained:

“I stopped using [PrEP] a bit before dating him because I wasn’t really worried about it too much because I wasn’t really sexually active and I was getting tested every 3 to 6 months even when I was not having sex…but then I met him, we talked, everything got deeper and closer and maybe 2-3 months into talking to him I got back onto PrEP…and he ended up getting HIV from somebody else”.

Although she reported few structural barriers (e.g., she had stable housing and employment) and was connected to gender-affirming, affordable healthcare, she identified her case manager, also a Black trans woman, as the key influence on her decision to start PrEP. This personal connection equipped her with the information and self-efficacy required to engage in prevention-effective adherence practices. For other participants, central factors determining capacity to engage in prevention-effective adherence included reluctance to engage with particular healthcare providers or prioritization of other, urgent health issues over preventative care.

Discussion

Our conceptual framework captures salient factors shaping transgender women’s engagement in prevention-effective adherence. For some transgender women, a single factor within one domain shaped prevention-effective adherence. For others, factors across domains combined to facilitate or inhibit prevention-effective adherence. Many factors, such as gender-affirming care and affordability, echo prior work,[6-8,10-13,16,17] while others, specifically the symbolic meaning of PrEP and awareness of prevention-effective adherence practices, have rarely been described as salient factors shaping PrEP use for transgender women in the United States.

Our framework contributes to literature by specifying how factors of prevention-effective adherence relate to one another. This relational structure distinguishes our framework from other models of PrEP engagement, most of which apply established behavioral or implementation frameworks to categorize determinants by level or construct.[16-20,45,46] Additionally, using prevention-effective adherence rather than discrete PrEP care cascade steps situates the outcome more closely to context by recognizing PrEP cycling or discontinuation during periods of lower HIV risk as success.[21] Our framework also complements existing work describing the tasks PrEP users must perform, such as vetting clinics, managing program closures, and concealing or disclosing PrEP, by explaining the conditions under which that work is feasible or worthwhile.[47] Finally, the symbolic meaning of PrEP construct extends prior emphasis on PrEP stigma to include positive and relational meanings, such as PrEP as a “security blanket” or stopping PrEP as an expression of intimacy.[20,46]

Our use of life history methods revealed how experiences over the life course shape current PrEP engagement. Women who were denied healthcare as children or whose serious health issues were minimized described deprioritizing preventative care, consistent with the habituation of maladaptive coping described by Protection Motivation Theory.[24] The Behavioral Model for Vulnerable Populations similarly explains how competing demands can reduce engagement in preventative care even when threat perception and response efficacy are high.[22-24]

Our findings have direct implications for long-acting PrEP. Long-acting modalities may resolve compatibility barriers such as daily pill burden and discreet storage; however, capacity-domain factors may become more important when PrEP requires recurrent clinic visits and sustained insurance coverage. The participant who wanted injectable PrEP but lacked coverage illustrates how a modality-specific facilitator can be negated by a capacity barrier, consistent with low real-world persistence on injectable PrEP.[21,33] Realizing the promise of long-acting PrEP will require addressing healthcare capacity and distal structural factors alongside expanding modality choice.[38]

The distal domain has also become more salient in the United States since our data were collected. Following 2025 federal executive orders restricting healthcare access and non-discrimination protections for transgender and nonbinary individuals, nearly two-thirds of transgender adults using HIV prevention services in a multi-state survey reported disruptions such as delayed or denied PrEP, lost coverage, or increased healthcare stigma.[48] Our participants’ accounts of discontinuing PrEP when a free program ended, and of the effort required to vet a new clinic for safety, illustrate how such disruptions may translate into lapses in prevention-effective adherence and HIV acquisition.

The framework of prevention-effective adherence practices among transgender women can inform multi-level interventions and be used in individual PrEP counseling, navigation, and shared-decision making about PrEP modality as a starting point for discussing transgender women’s experiences and preferences. Future research describing the mechanisms through which these factors operate could further inform intervention design.

Strengths and limitations

Interviews were conducted in 2022, before lenacapavir was available and when injectable cabotegravir was not widely accessible, so perspectives on long-acting PrEP were largely anticipatory. However, the framework’s domains derive from accounts spanning several years and are largely modality-agnostic. Participants were predominantly Black and Latina women from a cohort in the eastern and southern United States, which may limit transferability. Interviews were conducted over Zoom, which may have limited the ability of the interviewer to establish rapport. Strengths include purposive sampling informed by

longitudinal cohort data to recruit those indicated for PrEP and with varied PrEP histories, Spanish-language interviews, inclusion of women who acquired HIV after discontinuing PrEP, and life history methods that captured experiences over time.

Conclusion

The conceptual framework presented here clarifies how barriers are reinforced among those who could most benefit from PrEP, illustrating the centrality of healthcare access, PrEP's compatibility with individual values and preferences, and the upstream influence of stigma, marginalization, and oppression. Newer PrEP modalities may resolve some barriers, but transgender women's capacity to safely engage with healthcare, and structural conditions which shape it, will continue to determine prevention-effective adherence. This framework identifies modifiable targets for interventions to reduce HIV inequities rather than reinforcing them.

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Table

Table 1. Sociodemographics and PrEP engagement history of participants (n=18)

ID	Age Group*	Ethnoracial identity	Interview language	US Census Region*	Summary of PrEP engagement	HIV s
1	18-25	Black and Latina	Spanish	South	PrEP naïve at enrollment Never initiated while enrolled	Seron
2	18-25	Black	English	South	PrEP naïve at enrollment Initiated PrEP 15 months after enrollment Consistently used PrEP through 42 months of enrollment	Seron
3	18-25	Black and American Indian or Alaskan Native	English	South	Using PrEP at enrollment Discontinued within 6 months Did not reinitiate while enrolled	Seron
4	18-25	White	English	Northeast	Using PrEP at enrollment Discontinued within 9 months Did not reinitiate while enrolled	Seron
5	18-25	Black	English	South	Former PrEP user at enrollment Reinitiated PrEP 15 months after enrollment Discontinued within 6 months Did not reinitiate while enrolled	Seron
6	26-35	Latina	Spanish	Midwest	PrEP naïve at enrollment Never initiated while enrolled	Seron
7	26-35	White	English	South	PrEP naïve at enrollment Initiated PrEP 12 months after enrollment Lost to follow-up from 12 month visit until qual interview	Serop
8	26-35	Black	English	South	Using PrEP at enrollment Consistently used PrEP through 42-month visit	Seron
9	26-35	Black	English	South	PrEP naïve at enrollment Initiated PrEP 18 months after enrollment Discontinued within 3 months Did not reinitiate while enrolled	Serop
10	26-35	Black	English	South	Former PrEP user at enrollment Never initiated while enrolled	Seron
11	26-35	Black	English	South	PrEP naïve at enrollment Initiated PrEP 9 months after enrollment Discontinued within 3 months Did not reinitiate while enrolled	Serop
12	36-45	Latina	Spanish	South	PrEP naïve at enrollment Initiated PrEP 3 months after enrollment Discontinued within 3 months Did not reinitiate while enrolled	Seron
13	36-45	Latina	Spanish	South	Using PrEP at enrollment Discontinued and reinitiated on three occasions while enrolled Using PrEP at last follow-up (4th spell of use with each spell lasting 3-6 months)	Seron
14	36-45	Latina	Spanish	Northeast	PrEP naïve at enrollment Never initiated while enrolled	Seron
15	36-45	Black	English	South	Former PrEP user at enrollment Reinitiated PrEP 9 months after enrollment Discontinued within 6 months Did not reinitiate while enrolled	Seron

16	36-45	Black	English	South	Using PrEP at enrollment Consistently used PrEP through 48 months of enrollment	Seron
17	46-50	Latina	Spanish	South	PrEP naïve at enrollment Initiated PrEP 18 months after enrollment Discontinued within 3 months Did not reinitiate while enrolled	Seron
18	46-50	Latina	Spanish	South	PrEP naïve at enrollment Never initiated while enrolled	Seron

*Participants ranged in age from 18-50 and were drawn from seven distinct metropolitan areas. Age and city were aggregated into age category and US Census region to protect anonymity given small numbers of participants from some geographic areas.

Figures

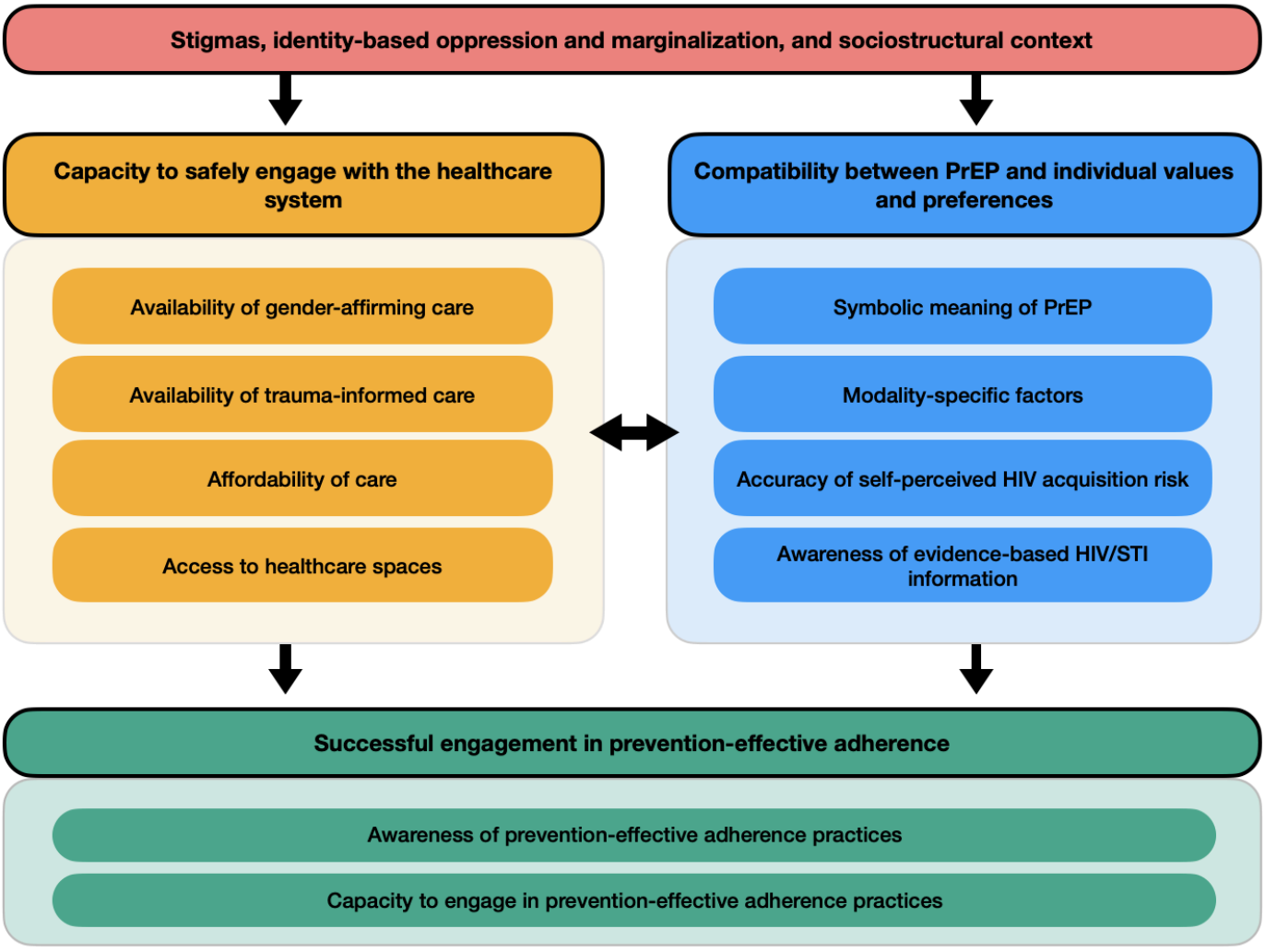


Figure 1

Conceptual framework of prevention-effective adherence among transgender women in the United States