

Black Adolescent Females' Perceptions of PrEP for HIV Risk Reduction

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Abstract

Preexposure prophylaxis (PrEP) for human immunodeficiency virus (HIV) prevention is approved for use in adolescents, though uptake remains low. Black adolescent females experience higher rates of HIV transmission compared to adolescent females of other racial/ethnic groups. Increasing PrEP awareness and education among this population may be an effective strategy to mitigate disparities in HIV transmission among Black adolescent females. Twenty-seven Black adolescent females participated in focus groups which were coded using the constant comparative method of qualitative analysis to identify major themes: (1) PrEP is not commonly framed as an HIV prevention strategy for heterosexual Black adolescent females, (2) PrEP use among peers is perceived as mostly positive, (3) Adoption of PrEP among Black adolescent females is impeded by perceived barriers such as stigma, negative side effects, and adherence concerns. These findings may inform the development of targeted culturally tailored marketing and educational campaigns centered on Black heterosexual adolescent females to increase PrEP awareness and uptake in this population disproportionately affected by HIV.

Keywords

preexposure prophylaxis, Black, adolescent, human immunodeficiency virus, focus group, qualitative, prevention

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Introduction

Although rates of new human immunodeficiency virus (HIV) diagnoses have declined over the last decade in the United States, HIV transmission through heterosexual contact remains a source of risk for women. In 2020, 18% of new HIV diagnoses in individuals 13 or older were among females, with 83% of these diagnoses attributed to heterosexual sex.¹ Among this subgroup, Black females continue to be disproportionately affected by HIV, accounting for 54% of diagnoses of HIV infection among women, despite only accounting for 13% of the female population.¹ Previous literature shows that Black women are no more likely to engage in risky sexual behaviors compared to women of other racial/ethnic groups.²⁻⁴ Black women may experience increased HIV transmission risk due to a lack of HIV prevention education in their communities, lack of access to quality sexual healthcare, higher background prevalence of HIV among their sexual networks, and disparities in HIV screening and treatment within Black communities as a result of systemic racism in healthcare.³⁻⁷

Black adolescent females in the US experience disparities in sexually transmitted infections which can lead to an increased risk of HIV transmission in adolescence.⁸ Sexual exploration is an important aspect to consider in adolescent health, with 52.2% of adolescents reporting sexual activity nationwide.⁹ Among sexually active youth, 18.8% endorsed using drugs or alcohol before engaging in sexual activity and only 53.8% had used barrier protection during their last sexual encounter.⁹ These data highlight a need to initiate HIV prevention efforts for adolescents who experience high risk for infection.

In 2019, preexposure prophylaxis (PrEP) was approved as a method of HIV prevention in adolescents and has been shown to

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be an effective and safe method of HIV prevention when used as prescribed.¹⁰ However, PrEP uptake among adolescents and young adults remains low.¹¹ One factor that may contribute to the low uptake of PrEP in this population is lack of awareness. In a sample of 208 Black or Latinx/Hispanic sexually active adolescents, only 38% of the participants were aware of PrEP.¹² Additionally, in a sample of 43 Black college women, only 33% of participants were aware of PrEP.¹³ Among participants who were aware of PrEP prior to the study, the majority identified PrEP as a drug marketed towards gay men.¹³

Most studies examining the awareness of PrEP and interventions targeted to improve PrEP uptake in adolescents focus on gender and sexual minority youth. In a sample of primarily Black adolescent and young adult females, it was found that gay/bisexual/lesbian participants were almost 4-times more likely to be aware of PrEP compared to heterosexual participants.¹⁴ Considering awareness of PrEP has been linked to the likelihood of uptake of PrEP, it is important to assess awareness of PrEP among populations who experience high risk for HIV infection as well as factors that may limit or facilitate uptake in this community. The purpose of this study was to examine the awareness and perceptions regarding PrEP as a tool for HIV prevention in a sample of heterosexual Black adolescent females.

Methods

We conducted focus groups as part of a larger study funded by the National Institute on Child and Human Development (NICHD). The study was designed to inform the creation of a multiplayer video game HIV-prevention intervention that is culturally tailored for Black adolescent females.^{15,16} Participants were recruited through Instagram ads that linked to a screening survey that asked participants to disclose their self-identified race, age, and sexual orientation. Of the 173 individuals who completed the initial survey, 27 individuals met the inclusion criteria for the study based on self-reported data: (1) Black, (2) female, (3) aged 14 to 18 years, and (4) heterosexual. We attempted to verify self-reported data by cross-checking demographics across several surveys completed by participants over the length of the study to ensure fidelity. Additionally, participants were asked to turn on their video cameras when participating in the focus groups. In addition to recruitment through Instagram, 8 of the participants were recruited through snowball sampling by directly contacting the research team after learning about the study through a friend who had participated in an earlier focus group.

All focus groups were held via Zoom because participants were recruited nationally, and due to social distance guidelines related to the COVID-19 pandemic. The focus groups were audio-recorded and transcribed by a professional transcription service. Additionally, all comments typed into the chat were recorded and included in the analysis. The research team included a fourth-year medical student (MB) trained in qualitative research who identifies as a White/Latinx woman, an assistant professor of public health that specializes in strengths-based prevention strategies for Black girls (IO), and identifies as a Black heterosexual woman, an early-career researcher (VUW) with a background

in cognitive psychology who identifies as a queer White individual, a postbaccalaureate research assistant (BES) who is trained in qualitative research methods and identifies as a Black heterosexual man, and the principal investigator (KDH) who specializes in the development of tailored videogame interventions for adolescents and identifies as a White woman.

The interview guide included questions pertaining to dating, relationships, sex, sexually transmitted infection (STI) testing, and prevention. To facilitate meaningful discussions around PrEP, participants were provided with a fact sheet providing information on the effectiveness, indications, and side effects of PrEP before the focus group discussions began (Figure 1).

The focus groups were facilitated by 2 members of the research team (VUW and BES). After completion of the 5 focus groups, 4 members of the research team (VUW, BES, KDH, and IO) coded the transcripts individually using the constant comparative method of data analysis.^{14,15} The codebook was reviewed by the research team and codes were discussed and adjusted until the team reached consensus. A fifth member (MB), who was not involved in the data collection or analysis, read the coded transcripts at large to identify salient themes and provide an objective lens to the data. The preliminary themes were reviewed and discussed by the entire research team. Disagreements were discussed until the research team reached concordance on the final themes.

Ethical Approval and Informed Consent

All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The study was approved by the Yale University Institutional Review Board (Yale IRB #2000026487). Written consent was obtained from the parents of all participants under 18 prior to their participation; participants 18 years and older provided written consent. All participants provided verbal consent at the start of each focus group.

Results

Participant Demographics

The study sample consisted of 27 females aged 14 to 18 years ($M = 16.22$; $SD = 1.25$). All participants identified as Black and heterosexual. The geographic location of participants varied, overall representing 12 unique US states: Florida, Texas, New Jersey, Pennsylvania, Wisconsin, New York, Maryland, Connecticut, Massachusetts, Delaware, Tennessee, and Georgia.

Major Themes

We identified 3 major themes: (1) PrEP is not commonly framed as an HIV prevention strategy for heterosexual Black adolescent females, (2) PrEP use among peers is perceived as

PrEPare
YOURSELF

PreP, or Pre-Exposure Prophylaxis, can keep you and your sexual partners safe from HIV, so you can love without fear.

WHAT IS PREP?

A daily pill that's up to **92%** **EFFECTIVE** at preventing HIV transmission through sex

Among people who inject drugs, it reduces HIV risk by **MORE THAN 70%**

Use condoms with PrEP to help protect against STIs

HOW DO I GET PREP?

TALK WITH YOUR DOCTOR to see if PrEP is right for you

HOW DO I PAY FOR PREP?

PREP CO-PAY ASSISTANCE PROGRAMS are available

Most health insurance plans **COVER PREP**

Figure 1. Prep information sheet.

The information sheet was distributed to participants during the focus group.

mostly positive, (3) adoption of PrEP among Black adolescent females is impeded by perceived barriers such as stigma, negative side effects, and adherence concerns. Representative quotes are summarized in Table 1.

Additionally, we identified 2 subthemes: (2a) Use of PrEP in a relationship may impact trust and (3a) PrEP use may lead to riskier behavior among adolescents. Representative quotes are summarized in Table 1.

Theme 1: PrEP Is Not Commonly Framed as an HIV Prevention Strategy for Heterosexual Black Adolescent Females. Among participants who were aware of PrEP prior to the study, there was a consensus that PrEP is not commonly marketed for heterosexual adolescents. A few participants perceived that PrEP was only useful for older individuals or those who are more sexually active. Several participants perceived PrEP as a medication that

was more commonly used by the LGBTQ+ community. Some participants discussed learning about PrEP through media outlets, such as TV commercials. Participants perceived that advertisements for the drug were often targeted toward males or individuals who use injection drugs. Participants commented on the potential benefits of marketing the drug to other populations who experience a high risk for HIV infection.

I think most people think about STDs that you can fix like chlamydia or stuff like that. When it comes to HIV, mostly my friends in the LGBTQ community are the ones who really focus on HIV and AIDS and stuff and if they have access to or have the privilege to go get PrEP then they'll do that. But usually, a lot of my heterosexual friends just don't. They're like if it's a problem that comes up, I'll deal with it, but I'm not going to actively prevent it.

Table 1. Additional Representative Quotations Illustrating Major Themes.

Theme	Representative Quotations
1. PrEP is not commonly framed as an HIV prevention strategy for heterosexual Black adolescent females	<p>“But I thought, I mean, I always think of drugs like those like you only use if you’re highly sexually active, not something that you may use as a teenager, because what are the odds you’re going to be with somebody that’s been with that many people that would need it?”</p> <p>“Yes, so I see them all the time, maybe because I watch a lot of Comedy Central. That’s when they pop up. But I know it’s for males or people assigned to male at birth which is great but I was like this doesn’t apply to me.”</p> <p>“I think in terms of CDC terms, like men having sex with men, it is specifically marketed towards them. But when it comes to ... Also like the modern HIV crisis, specifically in the South and also in South Florida which has been overlooked but it’s big at the moment. It could be marketed towards people who they don’t really get tested frequently or they’re really unaware of those who they have sexual intercourse with, but it’s not really done.”</p> <p>“And it’s typically marketed towards those who happen to be queer or happen to be specifically involved in sex or happen to be known to take intravenous drugs.”</p>
2. PrEP use among peers is perceived as mostly positive	<p>“I would think they’re smart for trying to be safe and watch out for themselves.”</p> <p>“I feel like it’s a good way to keep you safe. Same way at 14, when I was 14, I got the HPV shot. That’s the same thing, keeping yourself safe.”</p> <p>“I personally wouldn’t think anything of it. I would be proud of them because you’re being proactive.”</p> <p>“If their doctor is allowing them and they had conversations about this, and they understand everything, that would be fine.”</p>
2A. Use of PrEP in a relationship may impact trust	<p>“It is the real responsible and mature thing to do because that’s you taking a big step and not being grossed out by the fact that it says it’s HIV prevention. You want to do that. You want to keep them safe. You are making the world a better place.”</p> <p>“So, I would be like, for PrEP I would be like, how often are you engaging in sex that you feel like that would be needed?”</p>
3. Adoption of PrEP among Black adolescent females is impeded by perceived barriers such as stigma, negative side effects, and adherence concerns	<p>“I think if I were to want to take it, I would have to check the cost. Check the side effects and [see if like] some birth control, it helps also with your hormones or your acne or something like that.”</p> <p>“I wouldn’t consider it just because I think, I don’t know. I wouldn’t be open to it. That’s birth control too. I just don’t think ... It just don’t seem natural. It’s not something I would be interested in. I would rather stick to old fashioned condoms and stuff like that.”</p> <p>“A lot of people will make rumors. Like they have an STD or something like that. Or they’re so promiscuous.”</p> <p>“Is it like if you forget to take it like the birth control pill, if you forget to take it one day, it messes it up and you’re still at risk? ... That’s probably the downside.”</p>
3A. PrEP use may lead to riskier behavior among adolescents	<p>“No, because it’s better to be safe than sorry. Even though [PrEP is] 92% effective, it still has a chance of not working.”</p> <p>“So many people are really impatient with this. And they really want to rush into it. When they’re not waiting the mandatory time to take it so their partner doesn’t get harmed, they don’t want to listen to it. They just want to get into the thing and get it over with.”</p>

Theme 2: PrEP Use among Peers Is Perceived as Mostly Positive.

When asked to consider how participants would respond to one of their friends using PrEP, the majority perceived it as a safe and responsible choice. Some participants framed it as an important tool to protect oneself. One participant compared the use of PrEP to other preventative health measures employed among adolescent females. Others viewed PrEP as an effective strategy to protect others while engaging in sex.

It’s like they care and they know that maybe they’re sexually active a lot and this would help protect them and their partner or partners. I think it’s very responsible.

Subtheme 2a: Use of PrEP in a Relationship May Impact Trust.

When discussing the perception around one’s partner using PrEP, there were mixed perceptions about how this would impact trust in their romantic relationships. Multiple participants noted that they would feel favorably about their partners using PrEP. Another participant framed PrEP use as a responsible choice that can be used to keep your partner safe. However,

some participant noted that their partner using PrEP would negatively impact the trust in their relationship.

I would actually feel more trusting and comfortable of them just because they’re doing that. It shows me that you care about your health.

I guess that would mess with trust. Because they think you have STDs.

Theme 3: Adoption of PrEP Among Black Adolescent Females Is Impeded by Perceived Barriers Such As Stigma, Negative Side Effects, and Adherence Concerns. Although many participants discussed the potential benefits of PrEP, the participants also noted that there are several reasons an adolescent may choose not to take PrEP. Several participants were concerned about the potential side effects associated with the drug. Potential side effects that participants wanted more information about included the drug’s effects on mood/personality, effects on fertility, and potential interactions with other medications. One participant compared the use of PrEP to other medications, noting that they would not be willing to try it due to concerns that the drug is unnatural

compared to barrier methods of contraception. Another participant also reflected on the fact that PrEP is commonly prescribed as a daily medication as a potential barrier to using the medication. Eight out of 27 participants mentioned the stigma attached to the use of PrEP as a potential barrier, noting that using PrEP may affect the way one is perceived by their peers.

And I feel like the side effects are something that you need to take into account, if that's something you want to risk ... So, maybe that's something you should wait until you're older, I don't know.

There's also the stigma. There was a term that trended. It was, excuse my language, but a "Truvada whore." So it's basically a stigma associated with the drug. So it was everything that happened, that's related to just sexual health it does have a stigma. I think there could be a growing stigma that could be attached to it. So you might be accused of being promiscuous or something like that.

Subtheme 3a: PrEP Use May Lead to Riskier Behavior Among Adolescents. Although participants note it might provide a sense of security for adolescents, multiple participants commented that this may lead adolescents to engage in risky sexual behavior. Despite the concern that other adolescents may engage in more risky sexual behavior following PrEP initiation, several members of the focus group emphasized the importance of using barrier contraception in addition to PrEP in order to prevent HIV. Another participant reflected on the fact that adolescents may not use the drug properly, engaging in unprotected sex before the drug has reached its maximum effectiveness.

I think it gives a little bit more security. But when I hear a solution like this, I automatically think that people are going to start thinking "I don't have to use a condom. I don't have to protect myself as much because I got PrEP" or whatever. I think it might be beneficial, but for younger people who still think that, I don't know.

Discussion

This study examined self-identified Black heterosexual adolescent females' awareness and perceptions surrounding the use of PrEP for HIV prevention. Although some participants were aware of PrEP prior to participating in the focus groups, most of these participants perceived that the drug was more commonly used by other populations including older individuals, men, members of the LGBTQ+ community, and injection drug users. Previous studies have highlighted HIV risk perception as an important factor that may contribute to an adolescent's interest in taking PrEP.¹¹ This highlights the need for clinical providers and other adults who work closely with adolescents (ie, health teachers and school counselors) to frame PrEP as an important prevention tool among heterosexual Black adolescent females, in addition to other groups that are commonly perceived to experience a high risk for HIV transmission.

Additionally, our results suggest that the low uptake of PrEP among Black adolescent females may also be related to the lack of representation of this population in social marketing

campaigns. Culturally tailored marketing campaigns have the potential to increase awareness of PrEP among sexual and gender minorities,¹⁷ but require an intersectional approach that integrates the interplay between race, gender, sexual orientation, and age.^{18,19} Given that Black adolescent females are exposed to unique risk factors for HIV that may differ from other ethnic minority adolescent females and are different from adolescent boys and men, marketing campaigns have to take such nuances into consideration when introducing the benefits of PrEP to Black adolescent females.²⁰ Social media platforms may also offer a convenient way to reach Black adolescent females. However, a review of social media campaigns to increase PrEP awareness and uptake found that Black adolescent females were underrepresented compared to young Black MSM.²¹ Thus, our results support the need to develop and implement marketing campaigns for Black adolescent females.

Overall, the majority of the participants reflected positively on the use of PrEP to prevent HIV transmission among their peers. However, a few participants noted they would not be open to this intervention themselves. Participants described several barriers that may prevent adolescents from using this medication including unwanted side effects, adherence concerns, and associated stigma. Our results are consistent with findings that stigma associated with PrEP may impact the uptake of the drug.²² Although participants generally had favorable attitudes towards their friends using PrEP, others raised concerns that they may be labeled as promiscuous or it might impact trust within their romantic relationships. Studies in adult women have shown that concern about PrEP stigma among family, friends, and peers may impact PrEP uptake and is linked to less comfort discussing PrEP with a medical provider.²³ Additionally, Taggart et al described concern about judgment from the provider as a potential barrier to PrEP uptake among adolescent females.¹² Taken together, these results emphasize the importance of providers, sexual health educators, and other adults working with youth to destigmatize PrEP use by actively providing education to all sexually active youth. One approach may be to frame PrEP use as a means of empowering adolescents to take a proactive approach to improving and maintaining their health and comparing this approach to other forms of preventative health including the HPV vaccine.

Additionally, our results support previous findings that adherence to a daily medication may be a significant perceived barrier for adolescents.^{14,24} In a meta-analysis investigating PrEP adherence among adolescents and young adults, 64% of individuals demonstrated adequate PrEP adherence, however, adherence was lower in young cisgender women.²⁵ This highlights the importance of close follow-up with adolescent patients who initiate PrEP, as well as consideration of injectable forms of PrEP which were approved by the FDA for use in adolescent and adult patients in December of 2021.²⁶ Considering women and younger populations have been found to show less adherence to daily PrEP regimens, and the level of adherence is associated with efficacy of the drug,²⁷ an integrated approach

among providers, parents, educators and adolescents themselves is needed to promote and remove barriers to daily adherence.

Although PrEP was generally seen as a safe and effective option to prevent HIV transmission, some participants highlighted the importance of coupling PrEP with barrier contraception to maximize protection against sexually transmitted diseases. This has been seen in studies of adult women, in which PrEP has been described as another tool for protection, rather than a substitute for condoms.²⁸ Additionally, a few participants raised concerns that adolescents may in turn engage in riskier sexual behavior due to the perceived protection offered through PrEP use. These results emphasize the importance of discussing the limitations of PrEP when initiating therapy and providing sexual health education to adolescents to ensure that they are adequately protected against HIV and other forms of sexually transmitted infections.

There are a few limitations of our study that are important to note. The use of social media as a recruitment strategy may have led to the inclusion of participants that did not fulfill the target demographics. We attempted to minimize this by crosschecking the demographic data provided by participants over the course of the study and asking participants to use their video cameras throughout participation. Additionally, we did not specify the inclusion criteria on social media ads used for recruitment. However, it is possible not all the participants identified as Black, heterosexual adolescent females. Given the small sample size and geographic limitation of participants, our results may not be generalizable to all Black adolescent females in the United States. Specifically, our study sample did not include any participants from the mid-west or west coast, thus our results may not reflect perceptions of adolescents living in these geographic regions. This may have been partially mitigated by the fact that recruitment continued until the research team determined we had reached thematic saturation. Additionally, several participants in the study, and at least one participant in each focus group had a broad base of knowledge in relation to PrEP prior to the focus groups, which was not representative of the population at large. Participants who had greater baseline knowledge about PrEP were more active participants during the portion of the focus group that explored PrEP awareness and acceptability. Thus, our results may overestimate the acceptability of this intervention. This may have been partially mitigated by providing a fact sheet about PrEP for participants to review prior to the focus group. Finally, our study methods did not allow us to determine how many of the participants were sexually active at the time of the groups, which may impact previous awareness and perceptions of the use of PrEP.

Overall, our findings suggest that there are several factors that should be addressed in order to increase PrEP awareness and uptake among Black adolescent females. Our results suggest the need for a systems-based approach through sexual health education, medical recommendations, social marketing campaigns, and tailored interventions to increase awareness and reduce stigma associated with PrEP use. This study contributes to the literature by examining the PrEP perceptions of

heterosexual Black adolescent females, a population whose PrEP perceptions have been understudied in previous qualitative studies.

Author Contributions

VUW and BES cofacilitated the focus groups with input from KDH and IO. VUW, IO, BES, and KDH coded each of the focus group transcripts and met to ensure consensus on assigned codes. MB selected codes relevant to the themes chosen by all authors for inclusion in the manuscript. MB drafted the manuscript and IO and KDH revised and critically reviewed the manuscript for important intellectual content. All authors approved the final manuscript as submitted and agreed to be accountable for all aspects of the work.

Declaration of Conflicting Interests

Dr. Hieftje is the Principal Investigator for this study and has a significant relationship with the videogame prototype company, PreviewLabs, Inc. that is currently developing the videogame intervention based on the findings of this research study. All other authors declare that they have no conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Trial Registration

ClinicalTrials.gov NCT04108988; <https://clinicaltrials.gov/ct2/show/NCT04108988>.

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