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PrEP Inequities among Black and Latino MSM in the United States:
Identifying Barriers and Opportunities using a Social Ecological Model (SEM) Framework

By

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MPH, Health Promotion and Behavior

GEORGIA STATE UNIVERSITY

A Capstone Submitted to the Graduate Faculty of Georgia State University in Partial Fulfillment
of the Requirement for the Degree

MASTER OF PUBLIC HEALTH

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Author's Statement Page

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Ryan Fisher 11/6/2023

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ABSTRACT

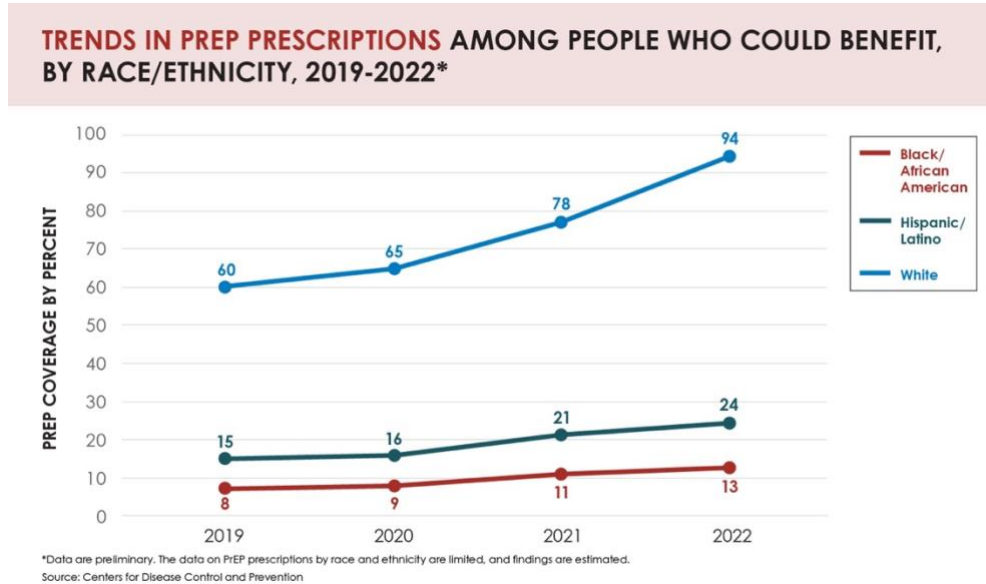
Human Immunodeficiency Virus (HIV) remains a salient public health priority in the United States. While Pre-Exposure Prophylaxis (PrEP) has existed for HIV prevention efforts since 2012, its effectiveness in epidemic control at the population level relies on the ability of vulnerable populations at increased risk of HIV to access this biomedical intervention. In the United States, most of the new HIV infections in 2021 were among gay and bisexual men, the majority of whom were Black or Hispanic/Latino. This disparity for Black and Latino men who have sex with men (BLMSM) is rooted in deeply entrenched social determinants of health. According to CDC preliminary data published in October 2023, estimates from 2022 suggest 94% of White people who could benefit from PrEP have been prescribed it, but only 13% of Black and 24% of Hispanic/Latino people who could benefit have been prescribed PrEP. To capture the social determinants in PrEP inequities, an environmental scan of published literature pertaining to PrEP access for BLMSM in the U.S. was conducted. The Social Ecological Model (SEM) was utilized to evaluate the root causes of PrEP inequities on four levels: microsystem (individual-level), mesosystem (interpersonal-level), exosystem (community-level), and macrosystem (structural-level).

The results from this scan demonstrate the following windows of opportunity across the four ecological levels to advance PrEP access for BLMSM in the U.S.: 1) Targeted and tailored educational materials to improve individuals' perceptions about PrEP 2) PrEP communications delivered by the BLMSM community to eliminate stigma, 3) Provider-targeted LGBTQIA+ affirmative training that is linguistically appropriate with a focus on racial inequities to advance cultural competency and reduce racist biases in medical settings, and 4) Nationwide programs and policies aimed to reduce geographical disparities, alleviate healthcare costs, and address factors associated with immigrant status for foreign-born LMSM.

INTRODUCTION

Pre-exposure prophylaxis (PrEP) has been an effective biomedical tool for HIV prevention in the United States since its rollout in 2012. PrEP is highly effective for preventing HIV when taken as prescribed. PrEP reduces the risk of getting HIV from sex by about 99% (Centers for Disease Control and Prevention, 2022). PrEP's effectiveness in epidemic control at the population level relies on access by members of vulnerable populations at increased risk of HIV.

Figure 1: PrEP coverage in the U.S. (Centers for Disease Control and Prevention, 2023)



On October 17th, 2023, CDC published preliminary data on PrEP coverage in the U.S. (Figure 1) with PrEP data reported through March 2023. Estimates from 2022 suggest 94% of White people who could benefit from PrEP have been prescribed it, but only 13% of Black and 24% of Hispanic/Latino people who could benefit have been prescribed PrEP (Centers for Disease Control and Prevention, 2023). Differences in PrEP uptake by race/ethnicity are important as Black and Latino men who have sex with men (BLMSM) bear a disproportionate burden in terms of HIV incidence in the United States. Young Black and Latino men who have sex with men have the highest rates of new HIV infections in the U.S. and use PrEP at lower rates than White MSM (Andrade et al., 2023).

In 2016, the Centers for Disease Control and Prevention (CDC) reported that the lifetime risk of HIV infection among Black MSM is one in two, and the lifetime risk of infection for Latino men is one in four, compared to a lifetime risk among White MSM of one in eleven (Lelutiu-Weinberger & Golub, 2016). It is important to note that these estimates assume no changes take place in the uptake of HIV prevention interventions. Improving PrEP access for BLMSM is a critical intervention. Increasing PrEP coverage is one of the key prevention strategies outlined in the *Ending the HIV Epidemic in the U.S.* (EHE) initiative (Centers for Disease Control and Prevention, 2023). It is necessary to prioritize the engagement of BLMSM in PrEP programs to end the HIV epidemic in the US. The purpose of this environmental scan

was to identify barriers for US BLMSM in accessing PrEP and to propose opportunities to improve equity by using the Social Ecological Model (SEM).

In designing health programs that focus on the needs of specific communities, healthcare professionals use environmental scans to organize data for decision making. The diversity of sources and types of data gathered in environmental scans have resulted in effective planning and program implementation in various sectors. As a tool to systematize knowledge, environmental scans can guide health organizations and projects, leading to evidence-based solutions to health care issues (Graham et al., 2018). To better develop effective programs for increased access to PrEP for BLMSM, the Social Ecological Model (SEM) helps examine preventive behaviors on multiple ecological levels beyond the micro-level. The ecological perspective is that behavior is influenced by many factors at multiple social levels and therefore changes directed at multiple levels are needed. A better understanding of how to intervene on social determinants of health may help with reducing HIV and health disparities for all MSM, and in particular, MSM of color (Higa et al., 2020). MSM of color is a vulnerable population with respect to a wide range of structural and social determinants of health that may be important drivers of long-term health disparities (Kipke et al., 2020). Urie Bronfenbrenner suggested that the fit between the person and the environment influences successful development and identified four important system levels: microsystem, mesosystem, exosystem, and macrosystem (DiClemente, 2021). In this work, an environmental scan of published literature pertaining to PrEP access for BLMSM in the U.S. was conducted using the Social Ecological Model (SEM). For the context of this scan, microsystem refers to individual-level, mesosystem refers to interpersonal-level, exosystem refers to community-level, and macrosystem refers to structural-level.

METHODS

EBSCOhost was utilized for this environmental scan. The EBSCOhost interface provides access to a range of databases. The databases are particularly useful for identifying journal articles on a particular topic within the subject areas covered by each database. The first search criteria included peer-review journal articles published between 2005 and 2023 using key words, “men who have sex with men” and “PrEP”. Key words next used in the advanced search include the following: “Black men who have sex with men”, “Latino men who have sex with men”. Last key word used was “United States”. Duplicates and irrelevant studies were excluded. The thirteen studies that fulfilled the inclusion criteria were then placed in Zotero. Zotero is a software that collects, manages, and cites research sources.

Although the injectable cabotegravir (CAB-LA) is a new HIV prevention option, this environmental scan focused solely on the daily oral PrEP pill. This scan also focused only on men who have sex with men (MSM), not transgender, women, nor incarcerated individuals and only within the United States. This environmental scan, in combination with manual searching of other resources, will help inform opportunities to advance PrEP access for BLMSM in the United States. The most cited health equity framework is the Social-Ecological Model (SEM). This framework uses a multi-level approach to illustrate the complex interplay among individual, relationship, community, and societal factors. Figure 2 illustrates the process for identifying the peer-reviewed literature used in this environmental scan. Figure 3 illustrates the SEM framework upon which the inequities of PrEP access among BLMSM can be addressed at the individual-level, interpersonal-level, community-level, and structural-level.

Figure 2: Environmental Scan Process for Identifying Peer-Reviewed Literature Pertaining to PrEP Access for BLMSM in the U.S.

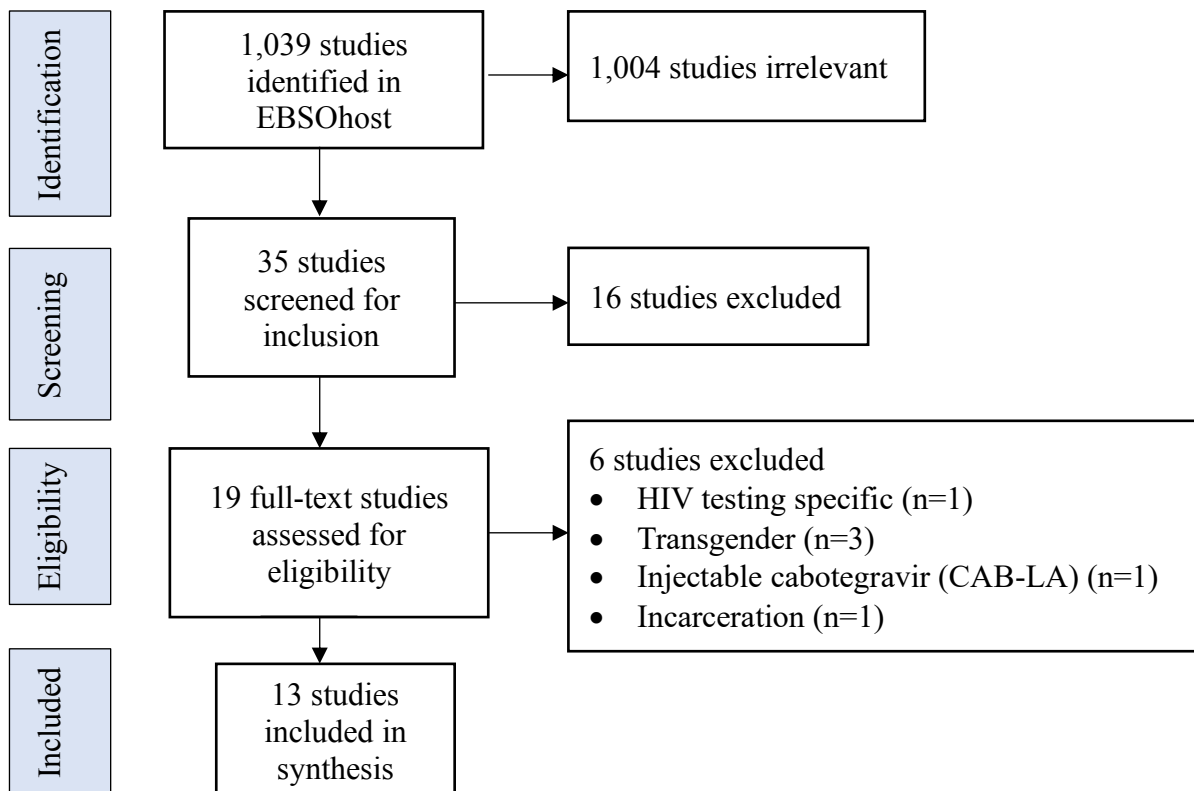
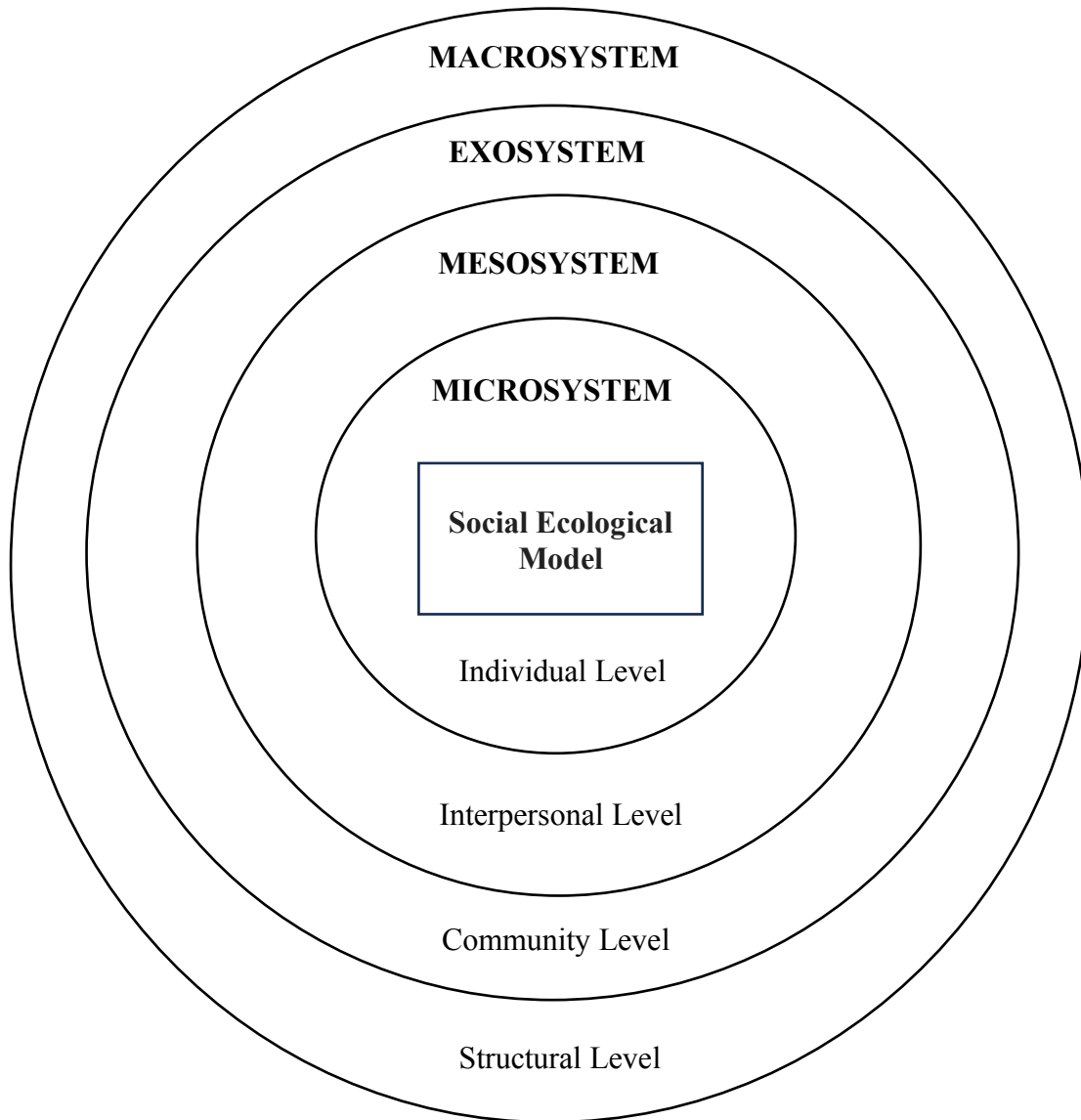


Figure 3: Social Ecological Model (SEM) framework upon which the inequities of PrEP access among BLMSM can be addressed



The environmental scan layout depicted in Figure 2 is based the flowchart of the study screening and selection process found in the article, “Artificial intelligence-based methods for fusion of electronic health records and imaging data” by Faroda Mohsen et al. published in 2020.

The SEM framework depicted in Figure 3 is based on the ecological model of factors that impact pre-exposure prophylaxis attitudes and uptake among black MSM found in the article, “The Promise of Pre- Exposure Prophylaxis for Black Men Who Have Sex with Men: An Ecological Approach to Attitudes, Beliefs, and Barriers” by Morgan Philin et al. published in 2016.

RESULTS

Figure 4 provides examples of themes found in the peer-reviewed literature from the environmental scan and the manual search for additional resources for Black MSM and Latino MSM. Additional information on these topics will be described in more detail later in this work. The literature review summary depicted in Figure 4 is based on the table found in the report, “Health Equity and Health Disparities Environmental Scan” by U.S. Department of Health and Human Services published in 2022.

Figure 4: Literature Review Summary from Environmental Scan and Additional Resources

Black MSM Themes	Latino MSM Themes
HIV/AIDS Conspiracy Beliefs	Language Barrier
Sexual Network	Machismo
Historic Mistreatment by the Medical Community	Perceived Discrimination by the Medical Community
Limited access to healthcare payment assistance programs	Immigration Status of foreign-born LMSM

Of the 28 total articles from this environmental scan and the manual search for additional resources that targeted PrEP inequities among BLMSM, 60% of records had a sample that included both Black/African American/non-Hispanic and Latino/Hispanic MSM. Of the 28 total final articles, only 14% (n = 4) of the articles focused directly on Latino MSM and their specific needs. Most of the studies were empirical and had a qualitative study design, such as using semi-structured interviews. Although different methodological approaches were used, this was not an issue as similar recruitment methods were carried out across the pieces of research. This meant that the results could be thematically analyzed as per literature review methodologies. The results from this scan and additional resources highlight the following PrEP access barriers across the four ecological levels for BLMSM in the U.S.: 1) Individual perceptions about PrEP, 2) Stigma within peer network, 3) Medical mistrust, and 4) Limited access to health care. Structural and social determinants may be experienced by MSM of color in general, but the opportunities to address these racial inequities must be examined with an appreciation of the unique cultural contexts in which they may be experienced for Black and Latino MSM separately.

Individual Level Barriers: According to a cross-sectional study between January 2012 and June 2014 of 491 MSM who met the Centers for Disease Control and Prevention criteria, BLMSM were significantly less likely to believe in the efficacy of PrEP compared to other MSM. (Lelutiu-Weinberger et al., 2016). This cross-sectional study examined the impact of PrEP messaging and communication strategies on PrEP knowledge and adoption intentions. These barriers are similar to those identified for HIV treatment among individuals of color, including a

lack of trust in the efficacy of antiretroviral medication in particular, fueled by HIV/AIDS conspiracy beliefs. HIV/AIDS conspiracy beliefs are a barrier to HIV prevention among African Americans, particularly for black men (Bogart & Thorburn, 2005). Individuals use efficacy information to form expectations about how well an HIV prevention strategy will work for them personally. Hispanic/Latino MSM in the United States who prefer using Spanish rather than English may be at a disadvantage for accessing information about PrEP (Mansergh, 2019). Written materials, community campaigns, and other PrEP educational materials for MSM are often in English language only. Low health literate patients perceive poor self-efficacy dealing with their health conditions and are not aware about the determinants of well-being (Palumbo, 2015). Individuals' expectations of PrEP efficacy are shaped by messaging through media outreach and through discussing PrEP with clinicians.

Interpersonal Level Barriers: According to the previously mentioned cross-sectional study, BLMSM were significantly more likely to endorse stigma-related concerns related to PrEP, including concerns that people will want to know why they are taking a pill as well as people thinking they are HIV-positive. Specific to BMSM, a mechanism has been termed as “network hypothesis” where HIV-negative Black MSM are at increased risk for infection because they have more partners who are Black MSM, who in turn are more likely to be HIV positive (Matthews et al, 2016). Stigma-related concerns related to PrEP within the BMSM network is a layered barrier as the networks created by Black MSM are themselves a structure that exists in response to social inequities. According to a survey administered in 2017 to 159 Latino MSM in San Antonio, TX, a majority of Latino MSM reported that taking PrEP would cause people to stigmatize them as gay, HIV positive, and promiscuous (García et al., 2017). There is a need to explore additional approaches to raise PrEP awareness as a benefit for society and mitigate stigmatization of highly marginalized populations.

Community Level Barriers: Systemic racism and historic discrimination encountered in medical settings cause medical mistrust for MSM of color. BMSM explicitly refer to historical abuses by pharmaceuticals and research, such as the Tuskegee Syphilis Study and its extent of mistreatment on African American participants. Due to a high level of mistrust, even when patients attend primary care appointments, they may be reluctant to disclose their sexual history to their provider leading a missed opportunity to learn about PrEP (Watson et al., 2022). According to the San Antonio survey, Latino MSM unaware of PrEP reported at higher rates that their doctor had no information related to PrEP and reported that they were more concerned that their doctor would discover that they engaged in sexual activity with other men (García et al., 2017). Medical mistrust and perceived discrimination create barriers for sexual behavior disclosure to clinicians, which could impede PrEP access (Philpin et al., 2016).

Structural Level Barriers: Structural factors affecting PrEP access include limited access to healthcare payment assistance programs, geographical disparities, and factors associated with immigrant status for foreign-born LMSM. According to the previously mentioned cross-sectional study, even after adjusting for education and income, BLMSM were significantly less likely to have private health insurance and more likely to have public insurance and BLMSM were significantly more likely to access health care via public clinics (Lelutiu-Weinberger et al., 2016). In addition to concerns about costs, geographic availability may also impact PrEP access. Southern states, areas of lower income, areas with higher African American and Hispanic

populations, and areas with less insurance coverage all represent areas disproportionately impacted by new HIV diagnoses and are conversely under-represented in PrEP clinic density (Siegler et al., 2018). In regards to LMSM, immigration status is an additional barrier and may discourage highly marginalized LMSM to access PrEP.

DISCUSSION

The results from this scan and additional resources demonstrate the following windows of opportunity across the four ecological levels to advance PrEP access for BLMSM in the U.S.: 1) Targeted and tailored educational materials to improve individuals' perceptions about PrEP 2) PrEP communications delivered by the BLMSM community to eliminate stigma, 3) Provider-targeted LGBTQIA+ affirmative training that is linguistically appropriate with a focus on racial inequities to advance cultural competency and reduce racist biases in medical settings, and 4) Nationwide programs and policies aimed to reduce geographical disparities, alleviate healthcare costs, and address immigration status of foreign-born LMSM.

Individual Level Opportunities: Targeted educational materials should be tailored to the BLMSM community to improve individuals' perceptions about PrEP. Message framing decisions may influence message credibility and overall PrEP acceptability (Underhill et al., 2016). Message believability is connected to individuals' ability to derive meaning from the PrEP efficacy data (Mimiaga et al., 2016). There is a distinction between clinical trial efficacy and personal effectiveness. According to 56 individual interviews from focus groups of MSM, a majority of MSM believed that generalized estimates of PrEP efficacy would not apply to all PrEP users due to a variety of factors, such as sexual risk behaviors and racial differences (Underhill et al., 2016). Trial results alone may not provide adequate information for BLMSM trying to formulate their own expectations of PrEP effectiveness. Clinicians and media outreach should be prepared to address these distinctions when promoting PrEP to BLMSM and country HIV/AIDS conspiracy beliefs. Specific to LMSM, targeted and tailored PrEP educational materials are needed for Spanish-preferred Hispanic/Latino MSM in local communities, given their relatively low awareness of PrEP compared with their English-preferred peers (Mansergh, 2019). Although the Centers for Disease Control and Prevention offers Spanish language information and media resources regarding PrEP, more resources need to be developed for Spanish-speaking Hispanic/Latino MSM.

Interpersonal Level Opportunities: PrEP communications should be delivered by the BLMSM community to eliminate stigma. This strategy aligns with previous literature that highlights the need for public policy and social marketing sources to address stigma associated with PrEP use in order to promote PrEP uptake (Arnold et al., 2017). PrEP messaging can be effective if it is delivered through and by influential messengers within the BLMSM community. Mobilizing through peer networks is an effective method to build awareness of critical health issues through a collective and engaging process. For example, when public health officials failed to warn and engage the gay community at the beginning of the Mpox outbreak, gay and bisexual men took informed the public about the severity of Mpox through social and mainstream media (Park, I., & Savage, D., 2023). The gay community listened and communications teams at the C.D.C. began using the actual language gay men use when discussing sex with each other. Innovative strategies need to be developed to better reach and address the life context of all Hispanic/Latino MSM, including PrEP education through Spanish-language social media outlets and community-based venues for MSM (Mansergh, 2019). Culturally informed PrEP promotion and messaging should reinforce the role of Latino MSM in the community. Research has demonstrated that MSM peer testimonials about PrEP have been an effective approach for community education on HIV transmission (García et al., 2017). Having members of the BLMSM community who are on

PrEP share their experiences and insights on PrEP usage through various social media platforms, such as Instagram and TikTok, to other BLMSM considering PrEP helps eliminate stigma as communication is coming from people who share similar lived experiences.

Community Level Opportunities: Provider-targeted LGBTQIA+ affirmative training that is linguistically appropriate with a focus on racial inequities to advance cultural competency and reduce racist biases in medical settings. PrEP education for medical providers that assesses sexual health is essential to improve PrEP coverage. Among studies measuring changes in health professionals' attitudes toward LGBTQ+ individuals, programs that included LGBTQ+ co-trainers tended to have statistically significant improvements in trainee attitudes compared to programs which did not include them (Yu et al., 2023). National health professional associations, including the American Medical Association and American Nurses Association have advocated for improved training for health professionals to ensure clinically and culturally appropriate care for LGBTQ+ patients. Stigma and medical mistrust are barriers to PrEP use by Black and Hispanic/Latino MSM and educating clinical and community-based organization staff can result in better health outcomes for patients and clients (Iqbal, 2022). For Latino MSM, providers have emphasized the need for comprehensive information that is both culturally and linguistically appropriate regarding biomedical interventions, as well as the need for a holistic provider-client-relationship. Beyond speaking Spanish, a provider must be caring to clients and meet their needs and be culturally competent (Martinez et al., 2016). Specific to PrEP, a PrEP collaborative model can be facilitated through meetings with health care providers and engagement of administrators and clinic staff already dedicated to serving an underserved population (Clement et al., 2019). Clinicians should consider the disruptive role of stigma (both biphobia and anticipated PrEP stigma) in PrEP care and adherence (Watson et al., 2022). PrEP providers can address medical mistrust, discuss side effects, and emphasize positive aspects of PrEP use to increase uptake (Gelaude, D., & Denson, 2021). This LGBTQ+ affirmative training for medical providers with a focus on racial inequities will bring awareness of racist biases present in medical settings.

Structural Level Opportunities: Nationwide programs and policies should be implemented to reduce geographical disparities, alleviate healthcare costs, and address factors associated with immigrant status for foreign-born LMSM. There is a need to develop new strategies to make PrEP accessible not only more broadly, but also to those groups most at-risk who currently experience lower levels of access to health services (Siegler et al., 2018). PrEP programs must take into consideration legal and governmental policies when developing culturally informed interventions for Latino MSM in highly conservative areas. Targeted interventions that address Latino immigrant MSM's barriers to PrEP access are critical for curbing the HIV epidemic. Increased screening for HIV and STIs is particularly important for Latino immigrant men who have sex with men, a group disproportionately at risk for HIV that also encounters barriers to health access due to factors associated with immigrant status (CenterWatch, 2023). Most insurance plans and state Medicaid programs cover PrEP. Under the Affordable Care Act (ACA), PrEP must be free under almost all health insurance plans. Interventions to address disparities should also include structural interventions, such as Florida's use of county-health clinics to provide PrEP at no-cost. Such innovative programs and policies have the promise to decrease disparities in PrEP access, and to support continuation of the overall expansion of PrEP as a highly effective HIV prevention strategy (Siegler et al., 2018). Gilead Sciences, the manufacturer of Truvada, has demonstrated a willingness to consider offering PrEP to low-

income individuals at reduced or no cost (Kubicek, 2015). In addition to state-level PrEP programs and partnerships, a nationwide program or policy could also be beneficial to reach the BLMSM population at a larger scale. A proposed National PrEP Program includes provisions to increase PrEP access for BLMSM. President Biden's FY 2023 budget proposal included funding for a national PrEP program. This initiative would expand provider training, increase community awareness of both the national program and PrEP more generally through campaigns, and specifically leverage telehealth to ensure that even non-clinical sites can participate and serve their key populations (Johnson et al. 2022). If not addressed, PrEP geographic and other access disparities may exacerbate existing disparities in the overall HIV epidemic in the United States.

LIMITATIONS

Findings from this environmental scan should be interpreted with consideration of its limitations. Environmental scans of HIV prevention research can be complicated as they may miss the nuances that are significant within certain populations, such differences between BMSM and LMSM. Most of the scientific literature used in this scan pertained to BMSM subgroup only, therefore leaving potential gaps of identifying barriers that are specific to LMSM. Geographical considerations include the fact that this scope of this work was confined to the United States. Proposed interventions may not be applicable to other countries due to differences in national healthcare systems and/or policies. Additionally, PrEP as a daily pill may not be the preferred HIV prevention biomedical tool for individuals. Individuals may prefer to use only condoms or the new injectable PrEP option. Therefore, proposed interventions for the daily PrEP pill may not be applicable to other HIV prevention biomedical tools. Despite these limitations, environmental scans help reveal important avenues for health promotion and the application of the Social Ecological Model (SEM) can help inform tailoring of future programming so that interventions enhance equity among BLMSM at multiple ecological tiers.

CONCLUSION

In conclusion, individual, social, and structural barriers require a multi-layered response to advance PrEP access for BLMSM. CDC's recently published preliminary data on PrEP coverage in the U.S. highlights the stark differences in PrEP uptake by race/ethnicity among people who could benefit. Severe and widening inequities persist. Differences in PrEP uptake by race/ethnicity are important as BLMSM bear a disproportionate burden in terms of HIV incidence in the United States. The opportunities to address racial inequities must be examined with an appreciation of the unique cultural contexts in which they may be experienced for Black and Latino MSM separately. More scientific literature focused directly on Latino MSM and their specific challenges and recommendations are needed. To end the HIV epidemic, we must ensure equitable access to PrEP. This will require a multi-level approach to address the individual, relationship, community, and societal barriers that contribute to PrEP inequities.

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