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Barriers to HIV Pre-Exposure Prophylaxis (PrEP) Uptake: Exploring Challenges and Opportunities in High-Risk Populations in Guyana

Samuel Pellew*, Michael Olabode Tomori
Department of Public Health, Texila American University, Georgetown, Guyana

Abstract

This investigation into the barriers and facilitators influencing the adoption of HIV Pre-Exposure Prophylaxis (PrEP) among at-risk and general populations in Regions 3, 4, and 10 of Guyana is of substantial significance. Employing a questionnaire administered to 280 participants, this research explores demographic characteristics, knowledge levels, and perceived obstacles to PrEP accessibility. The findings reveal a gender distribution of male participants (51%), with a notable representation of non-binary individuals (11%). While 60% of respondents have considered utilizing PrEP, the study highlights critical barriers, including stigmatization (50%), insufficient awareness (36%), and affordability concerns (32%). Confidence in PrEP knowledge varies, with only 25% of participants expressing moderate confidence. Healthcare providers play a pivotal role in decision-making for 69% of respondents, indicating the importance of provider-patient interactions in influencing PrEP uptake. This study emphasizes the necessity for targeted awareness campaigns, enhanced healthcare provider education, and the establishment of dedicated PrEP clinics to address these barriers. By identifying and addressing these challenges, this research aims to inform strategies that augment PrEP uptake, ultimately reducing new HIV infections and improving public health outcomes in Guyana.

Keywords: *Barriers, Guyana, HIV, Pre-Exposure Prophylaxis, PrEP Uptake, Stigma.*

Introduction

Human Immunodeficiency Virus (HIV) remains one of the most significant public health challenges globally, with far-reaching impacts on individuals, families, and entire societies [1]. Pre-exposure prophylaxis (PrEP) has emerged as a powerful and effective preventive tool, offering substantial protection to individuals at high risk of acquiring HIV [2]. The potential of PrEP, particularly when adherence is consistently maintained, presents a crucial opportunity to drastically reduce new infections and contribute to the global effort to end the HIV epidemic by 2030 [2]. While PrEP is a powerful preventive strategy, it is essential to emphasize that it only protects against HIV and does not safeguard against other sexually transmitted infections. Therefore, condom use remains vital for overall sexual health [3].

In July 2012, the United States Food and Drug Administration approved PrEP. The two-drug oral combination is central to this approach: Emtricitabine/Tenofovir disoproxil fumarate (FTC/TDF), branded as Truvada®, and Emtricitabine/Tenofovir Alafenamide (FTC/TAF), branded as Descovy® [4, 5]. In 2021, the World Health Organization (WHO) recommended the use of the Dapivirine ring as an additional prevention option for women at substantial risk of HIV. Additionally, in 2022, WHO endorsed the long-acting injectable cabotegravir (CAB-LA) as another choice for people facing substantial HIV risk [5]. Ongoing research is also exploring other products, such as multipurpose prevention options that combine antiretroviral drugs with contraception, to expand the range of PrEP choices.

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****Corresponding Author: samuelpellew@gmail.com***

The World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC) have unequivocally endorsed pre-exposure prophylaxis (PrEP) as a powerful tool for preventing HIV transmission among high-risk individuals [6]. When taken consistently by HIV-negative individuals, the fixed-dose combinations of FTC/TDF or FTC/TAF can reduce the risk of acquiring the virus by up to 90% [7].

In Guyana, a country facing a generalized HIV epidemic with specific high-risk populations disproportionately affected, the uptake of PrEP has been notably limited since its introduction in 2019 [8]. Regions 3, 4, and 10 are particularly burdened by high rates of HIV, making them critical areas for targeted intervention [8]. However, despite the availability of PrEP, multiple barriers hinder its widespread adoption [9]. These barriers include pervasive stigma surrounding HIV, insufficient awareness about PrEP, limited accessibility to healthcare services, and socioeconomic challenges that affect individuals' ability to use PrEP consistently. These issues collectively contribute to the underutilization of PrEP, undermining efforts to reduce new HIV infections in these vulnerable regions [10].

This study aims to explore these challenges in-depth, focusing on understanding the specific barriers to PrEP uptake in Regions 3, 4, and 10 of Guyana. The research seeks to identify the factors that inhibit the adoption of PrEP, including the role of healthcare providers, community attitudes, and the level of knowledge among potential users. While several interventions, such as public health campaigns and the establishment of PrEP clinics, have been proposed to address these barriers, their effectiveness still needs to be improved [10]. Among the potential solutions, increasing community awareness through targeted education campaigns and improving healthcare provider training have shown promise. However, these strategies have limitations, including the variability in community engagement and the inconsistent availability of trained healthcare personnel [10].

This study aims to identify the most effective strategies for overcoming these barriers by examining the experiences and perceptions of high-risk and general populations in the targeted regions. By doing so, the research seeks to inform the development of tailored interventions that could enhance PrEP uptake, reduce new HIV infections, and ultimately improve public health outcomes in Guyana.

The significance of this research extends beyond its immediate impact on public health in Guyana. By addressing the unique sociocultural and structural factors influencing PrEP uptake in this context, the study provides valuable insights that could be applied to similar settings worldwide. Additionally, this research will contribute to the broader global understanding of the challenges associated with PrEP implementation, offering evidence-based recommendations that can inform future public health strategies.

Methods

This study was conducted in Regions 3, 4, and 10 of Guyana, areas identified as having a significant burden of HIV infections according to the National AIDS Program Secretariat (NAPS) 2022 report on the status of HIV care and treatment in Guyana [8]. Region 4, which includes the capital city of Georgetown, is the most densely populated and has the highest rate of HIV prevalence in the country [8, 11]. Regions 3 and 10, while less populated, also face substantial challenges in managing HIV, particularly among key populations such as men who have sex with men (MSM), commercial sex workers (CSWs), and transgender individuals [8]. These regions were selected for the study due to their high HIV burden and the ongoing efforts to expand access to Pre-Exposure Prophylaxis (PrEP) services.

The study employed a cross-sectional survey design to explore the barriers and facilitators to

PrEP uptake among high-risk and general populations in the selected regions [12]. A structured questionnaire was developed and administered to 280 participants who were either accessing or had the potential to access PrEP services. The questionnaire was designed to capture demographic information, levels of knowledge about PrEP, attitudes toward its use, and perceived barriers to accessing PrEP services. Participants were recruited through healthcare facilities offering PrEP services, community outreach programs, and local advocacy groups. Informed consent was obtained from all participants before administering the survey.

The primary focus of the study was to identify the specific factors that hinder PrEP uptake, including stigma, lack of awareness, healthcare accessibility, and socioeconomic barriers. Additionally, the study sought to understand the role of healthcare providers in influencing the decision to use PrEP and to assess the effectiveness of existing public health campaigns and interventions aimed at increasing PrEP awareness and accessibility.

In the context of this research investigation, which was predominantly survey-based and centered around data collection through questionnaires, laboratory methodologies were not utilized. Nonetheless, the gathered data underwent rigorous verification to ascertain its completeness and accuracy before analysis. Participants' responses were anonymized to safeguard privacy, and the data were securely stored to prevent unauthorized access.

The data obtained from the questionnaires were analyzed using descriptive and inferential statistical methodologies. Descriptive statistics were employed to summarize the participants' demographic characteristics and responses to pertinent questions. This involved the calculation of frequencies, percentages, and means [12]. These statistical measures provided an overview of the distribution of variables such as gender, sexual orientation, and the confidence level in PrEP knowledge among the participants.

Inferential statistics were employed to explore the relationships between variables and identify significant PrEP uptake predictors. Chi-square tests were used to examine the associations between categorical variables, such as the relationship between gender and confidence in PrEP knowledge. Additionally, logistic regression analysis was conducted to determine the factors significantly influencing the likelihood of considering or using PrEP, with variables such as stigma, awareness, and healthcare accessibility included in the model.

All statistical analyses were conducted utilizing the Statistical Package for the Social Sciences (SPSS) software, version 26.0. A statistical significance threshold of $p < 0.05$ was employed for all tests [12]. The outcomes of the analyses were utilized to ascertain crucial obstacles to PrEP uptake and guide recommendations for enhancing PrEP accessibility and utilization within the regions under investigation.

Results

The analysis of the questionnaire responses reveals significant insights into the demographic characteristics, attitudes, and barriers related to PrEP among the 280 participants. The gender distribution shows a predominance of male respondents (51%), followed by females (35%), with a notable presence of non-binary or third-gender individuals (11%) (Table 1). This diversity is further reflected in the sexual orientation of participants, with 43% identifying as heterosexual. In comparison, 57% represent various other sexual orientations, including homosexual, bisexual, and pansexual, indicating a broad spectrum of identities within the sample (Table 1).

Table 1. Demographic Characteristics of Participants

Characteristic	Frequency (n)	Percentage (%)
Gender		
Male	143	51
Female	97	35
Non-binary/Third gender	30	11
Prefer not to say	5	2
Other	5	2
Sexual Orientation		
Heterosexual	121	43
Homosexual or Gay	49	18
Lesbian	30	11
Bisexual	40	14
Pansexual	19	7
Asexual	6	2
Queer	9	3
Other	6	2
Region		
Region 3	60	21
Region 4	173	62
Region 10	47	17
Educational Background		
Primary	50	18
Secondary	143	51
Tertiary	87	31
Employment Status		
Employed	165	59
Unemployed	115	41

Legend: Demographic characteristics of the 280 participants surveyed in Guyana in Regions 3, 4, and 10.

Regionally, most participants accessed services in Region 4 (62%), with smaller proportions in Regions 3 and 10. More than half of the respondents had secondary education (51%), with 31% attaining tertiary education, suggesting a relatively educated sample. Employment status indicates that a majority (59%) were employed, which may influence their access to healthcare resources, including PrEP (Table 1).

Regarding PrEP awareness and confidence, the data indicates a mixed level of knowledge, with only 25% of participants expressing moderate confidence and a smaller percentage (7%) feeling extremely confident (Table 2 and Figure 2). Despite this, 60% had considered taking PrEP, highlighting an openness to this preventive method, though barriers remain. The most prominent barriers identified include stigma (50%) and lack of awareness (36%), underscoring the significant social and informational hurdles that must be addressed (Table 2 and Figure 2).

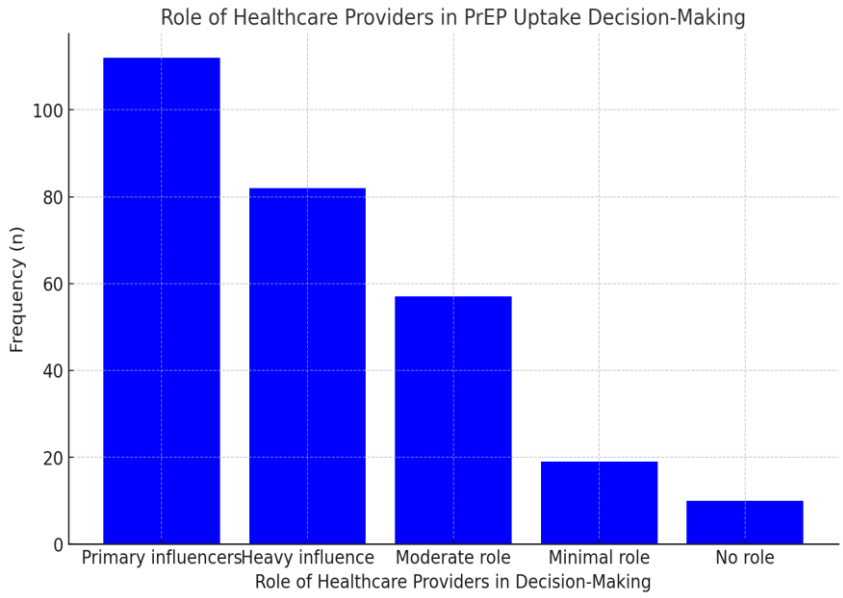

Figure 1. The Role of Healthcare Providers in Decision-Making for PrEP Uptake. It Shows the Frequency of participants who perceive healthcare providers as primary influencers, heavy influencers, having a moderate role, minimal role, or no role at all in their decision-making process

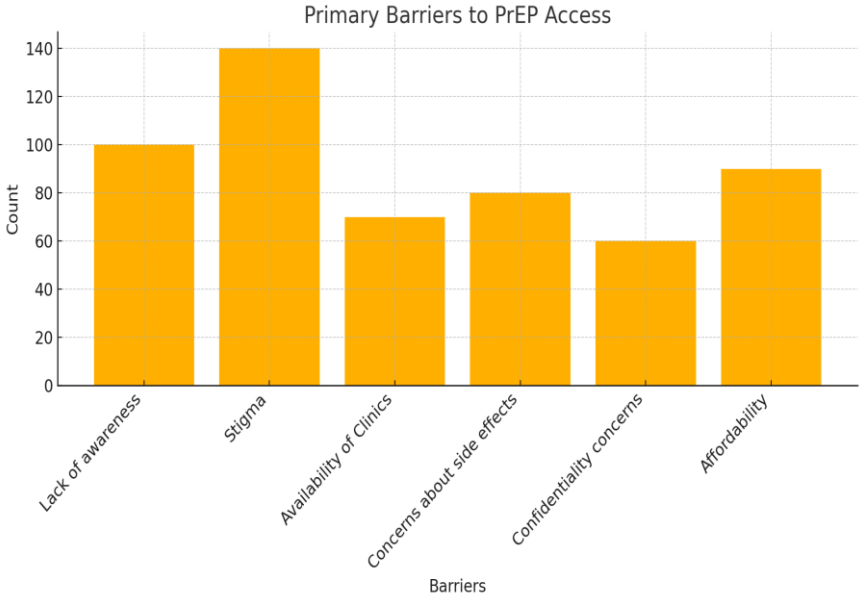

Figure 2. The Primary Barriers to Accessing HIV Pre-Exposure Prophylaxis (PrEP). It Shows that Stigma and lack of awareness are the most prevalent issues affecting PrEP uptake in Regions 3, 4, and 10

Table 2. Attitudes Towards PrEP

Attitude	**Frequency (n)**	**Percentage (%)**
Confidence in PrEP Knowledge		
Not at all confident	20	7
Slightly confident	120	43
Moderately confident	70	25
Very confident	50	18
Extremely confident	20	7

Considered Taking PrEP		
Yes	169	60
No	111	40
Primary Barriers to PrEP Access		
Lack of awareness	100	36
Stigma	140	50
Availability of Clinics	70	25
Concerns about side effects	80	28
Confidentiality concerns	60	21
Affordability	90	32

Legend: Summary of participant attitudes towards PrEP and the primary barriers to its uptake.

Affordability also emerged as a critical factor, with 64% of respondents agreeing or strongly agreeing that cost impacts their willingness to access PrEP. Moreover, while 61% reported no personal experience of stigma or discrimination, the 39% who did face such challenges underscore the persistent societal obstacles to PrEP uptake. Healthcare providers play a crucial role in the decision-making process, with 69% of respondents indicating that providers significantly influence their PrEP decisions (Table 2).

The role of healthcare providers in the decision-making process regarding PrEP uptake was significant, with 40% of respondents indicating that healthcare providers are primary influencers in their decisions. An additional 29% reported that healthcare providers have a heavy influence, while 20% acknowledged a moderate role. Only a small portion of respondents, 7%, indicated that healthcare providers played a minimal role, and 4% stated that healthcare providers had no role in deciding to consider or use PrEP (Figure 1).

In conclusion, the approaches to augment access to Pre-Exposure Prophylaxis (PrEP) were articulated, with participants advocating for the expansion of awareness campaigns (50%), the provision of training for healthcare professionals (39%), and the establishment of specialized PrEP clinics (32%). The data indicate that targeted interventions, such as community-based programs and affordability measures, are paramount in enhancing PrEP uptake, particularly among high-risk populations. Overall, the responses underscore the potential of PrEP as a preventative tool and emphasize the necessity for multifaceted approaches to surmount existing obstacles.

Discussion

Our quantitative study showed clear barriers to the uptake of PrEP in Regions 3, 4, and 10: stigma, low level of awareness, and high level of concern about affordability and access. These issues are key study objectives and have provided the necessary context to advance research and evidence-based informational practices in this area to improve PrEP uptake.

The barriers listed above are similar to those identified by other studies nearly around the world – for example, among high-risk men in Uganda, barriers to PrEP use reported included stigma, side-effect concerns, and lack of knowledge about PrEP; and in both studies, stigma seems to be a major deterrent to PrEP use [13]. Community-specific anti-stigma interventions are much needed.

Similarly, in an asset-based study of CPIP conducted in the UK with the communities most directly affected by HIV, low perceived HIV risk and concerns about other STIs were identified as common barriers to PrEP uptake (as well as access) [14]. The study authors also identified the need for increased knowledge about PrEP's effectiveness at preventing other STIs and for more effective communication

strategies that enhance dissemination and support PrEP uptaking and use – both areas, to some extent, where the Guyanese experience seems to mirror what was found in the UK sample [14].

In a PrEP study among Black female adolescents and young adults in the US, socioeconomic status and behavioral incentives also emerged as key elements in the uptake of PrEP [15]. Similar to this study's findings, all participants are important influencers in considering or using PrEP. However, the inconsistent confidence in PrEP knowledge among providers demonstrates the need for more provider training and education so that providers can advocate for PrEP [15].

These consistent results notwithstanding, there are limitations to the present study. A cross-sectional design confers only a time-based snapshot of the present rather than changes over time; furthermore, the self-report aspects of the study cannot account for whether participants may have underreported or overreported certain specific behaviors or attitudes due to a social desirability or recall bias [12].

These findings raise questions that can only be answered by research moving forward. For instance, longitudinal studies could shed light on whether attitudes and behaviors related to PrEP uptake change over time and in response to targeted interventions. Qualitative research could also help us better understand the reasons for prejudice directed towards PrEP and people with HIV, possibly revealing a level of nuance that might get lost in quantitative assessments [12]. Research would also be needed to assess how effective interventions, such as programs that train physicians and nurses or community-based awareness programs, are at decreasing barriers to PrEP uptake.

To conclude, this research brings to the forefront the importance of a multi-pronged approach to increase PrEP uptake in Guyana that addresses structural barriers to PrEP access and adherence (i.e., access to care, trip costs, and affordability of medications), as well as more intrinsic, humanistic barriers to PrEP uptake such as stigma and limited awareness. By focusing on these areas, public health initiatives would be positioned to increase the utilization of PrEP and reduce new HIV infections among these populations who remain vulnerable. These results complement evidence highlighting the importance of a tailored behavioral approach that addresses the specific nuances of unique populations and areas.

Conclusion

This study has provided critical insights into the barriers and facilitators affecting the uptake of PrEP among high-risk and general populations in Regions 3, 4, and 10 of Guyana. The findings confirm that stigma, lack of awareness, concerns about affordability, and limited accessibility are significant obstacles that hinder the widespread adoption of PrEP in these regions. These barriers not only prevent individuals from accessing a potentially life-saving intervention but also perpetuate the ongoing challenges in reducing new HIV infections.

The justification for this research lies in its contribution to understanding the unique sociocultural and structural factors that influence PrEP uptake in Guyana. By identifying these barriers, the study provides a foundation for developing targeted interventions that can effectively address the challenges faced by high-risk populations. For instance, increasing community awareness through education campaigns, enhancing healthcare provider training, and improving the availability and accessibility of PrEP services are all critical strategies that could significantly improve PrEP uptake.

Furthermore, the study's findings have broader implications beyond the local context of Guyana. They contribute to the global understanding of the challenges associated with PrEP implementation, offering valuable insights that can inform public health strategies

in similar settings worldwide. The results underscore the importance of a multifaceted approach that combines community engagement, healthcare provider involvement, and structural improvements to overcome the barriers to PrEP uptake.

In conclusion, this research provides a clear justification for addressing the barriers to PrEP adoption in Guyana and similar contexts. By implementing the recommended strategies, public health efforts can be more effective in increasing PrEP usage, reducing new HIV infections, and ultimately improving health outcomes for vulnerable populations. The study also sets the stage for future research that could further explore the effectiveness of specific interventions and expand the understanding of PrEP uptake in diverse populations.

Conflict of Interest Statement

The authors declare that there is no conflict of interest regarding the publication of this thesis. The research was conducted independently, and no financial, personal, or professional influences impacted the design, data collection, analysis, or reporting of the findings in this study on barriers to PrEP uptake in Guyana.

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