



# Behind Prep Decisions: Understanding User Patterns and Discontinuation Factors in Real-World

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## Abstract

This study aimed to characterize the epidemiological aspects of PrEP use and barriers to accessing this prophylaxis. This cross-sectional study was conducted between January 2021 and April 2022, encompassing 140 PrEP users treated at the Testing and Counseling Center (CTA) in Campo Grande, Mato Grosso do Sul. Data on sociodemographic characteristics and factors associated with PrEP discontinuation were obtained using a standardized questionnaire. Most PrEP users were cisgender men (92.00%), predominantly white (51.00%), over 30 years of age (56.50%), homosexual-oriented (76.50%), and had a minimum of 12 years of education (77.50%). Approximately 60.00% admitted to inconsistent condom use in recent sexual encounters, primarily involving anal intercourse. Approximately 88.00% perceived themselves as at risk of contracting STIs in the upcoming year. Regarding new presentation forms, 54.00% indicated a willingness to use “on-demand PrEP,” and 92.00% expressed interest in using “injectable PrEP.” After 6 months of follow-up, 43.60% (95.00% CI: 35.50–52.00) discontinued PrEP use, primarily due to changes in sexual behavior (38.30%) and difficulties accessing healthcare services (21.28%). This study underscores the need to involve diverse key populations and highlights the significance of PrEP as an ongoing monitoring strategy for HIV/STI prevention in addition to the importance of incorporating new formulations such as daily oral PrEP into the Brazilian National Health System (SUS).

**Keywords** Pre-exposure prophylaxis · HIV · Epidemiology · Central Brazil

## Introduction

Since the first reported case of Acquired Immunodeficiency Syndrome (AIDS) worldwide in 1981, the infection caused by the Human Immunodeficiency Virus (HIV) has reached pandemic proportions. According to data from 2022, it is estimated that approximately 39 million individuals are living with HIV globally [1]. In Brazil, since the first HIV infections, 1,124,063 cases of AIDS have been detected. By 2022, the detection rate was 17.1 cases per 100,000

inhabitants. In the state of Mato Grosso do Sul, this rate was 21.5 cases per 100,000 inhabitants. However, in Campo Grande, the rate was higher than that of the state, reaching 28.5 cases [2].

In 2015, the World Health Organization (WHO) recommended daily oral pre-exposure prophylaxis (PrEP) for individuals at substantial risk of HIV infection [3]. PrEP entails the daily use of a combination of two antiretroviral drugs (ARV) before engaging in sexual practices and has demonstrated an efficacy of 96% in protecting against HIV infection [4–10]. In December 2017, the Brazilian National Health System approved and included in the local guidelines free access to daily oral PrEP with emtricitabine and tenofovir disoproxil fumarate (FTC/TDF) for populations at substantial risk for HIV infection including men who have sex with men (MSM) and transgender women, sex workers, and serodiscordant couples.

In the state of Mato Grosso do Sul (MS), Campo Grande was the first city to dispense PrEP in 2019. Currently, PrEP is available in 11 of the 79 municipalities in the state [19].

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Despite the consensus regarding the individual/population benefits and clinical parameters of the safe use of PrEP, there remain inquiries about its compensatory effects on sexual practices (e.g., decreased condom use), the relationship between social vulnerability and adherence, and the operational challenges in ensuring broad, safe, and effective access to this prophylaxis [11–13].

Medication adherence can significantly affect the preventive effect of PrEP. For cisgender women, nearly perfect adherence to pills (six or seven per week) is necessary to ensure maximum protection against HIV. Conversely, for cisgender men, 4–7 pills per week are sufficient, allowing PrEP use on demand. Therefore, it is crucial to identify medication adherence determinants, along with their barriers, and intervene with individuals exhibiting risky behaviors to reduce the likelihood of HIV infection [7, 9, 14–17].

Therefore, this study aimed to describe the sociodemographic and behavioral aspects of PrEP users, identify barriers to access to the prevention strategy as perceived by users, identify factors associated with non-adherence to PrEP in this population, and understand the interest in new PrEP modalities (injectable and on-demand). These findings are essential for implementing strategies by healthcare services, to ensure the success of this preventive method, reduce access barriers, and consequently, decreasing HIV transmission rates.

## Materials and Methods

This is a descriptive cohort study, prospective, based on primary data conducted between January 2021 and April 2022 at the Guidance and Counseling Centers (CTA—*Centro de Testagem e Aconselhamento*) in the municipality of Campo Grande, Mato Grosso do Sul State, in the context of the Brazilian Public Health System (SUS—*Sistema Único de Saúde*). CTA is a testing and counseling center that provides diagnoses for HIV, syphilis, and other STIs, offering orientation and healthcare services.

The study included individuals who initiated the use of Pre-Exposure Prophylaxis at the CTA within the specified research period, aged 18 years or older, and reported one or more high-risk criteria for HIV infection acquisition, such as inconsistent condom use, evidence of sexual contact with an HIV-infected partner, self-reported diagnosis of sexually transmitted infections (STI), and repeated use of Post-Exposure Prophylaxis (PEP) for HIV. Individuals with renal or hepatic abnormalities in laboratory tests or severe medical comorbidities, as per the Clinical Protocol for Therapeutic Guidelines (PCDT) for PrEP in 2018 [18], were excluded. It is important to highlight that the only modality of PrEP offered by Brazil's public policy during the research period was a daily oral regimen. This study

employed a non-probabilistic convenience sampling method based on unit demand.

Of the 208 patients who started PrEP during the research period, 140 agreed to participate in the study after signing an informed consent form. Of these individuals, after 6 months, 61 discontinued PrEP use after 6 months. Through the phone numbers in the patients' records, we were able to contact 47 participants. It was not possible to contact 14 participants because of outdated contact information in the system.

Participants were interviewed using a standardized questionnaire, created by the research team. The questionnaire comprised structured questions covering sociodemographic information, history of drug and alcohol use, medical history, presence of signs and symptoms related to sexually transmitted diseases, sexual behavior, living conditions, income, education, and other variables deemed relevant to the study. We aimed to identify the participants' profiles and assess the behavioral risk and/or protective factors to which the study population is exposed. The evaluated variables were entered into the database using RedCap software. Starting from the sixth month of follow-up, an active search was conducted in the Logistics Control System for Medicines (SICLOM) to identify patients who discontinued prophylaxis (for more than 30 days without withdrawing the medication). We contacted patients via telephone to ascertain the reasons for discontinuation.

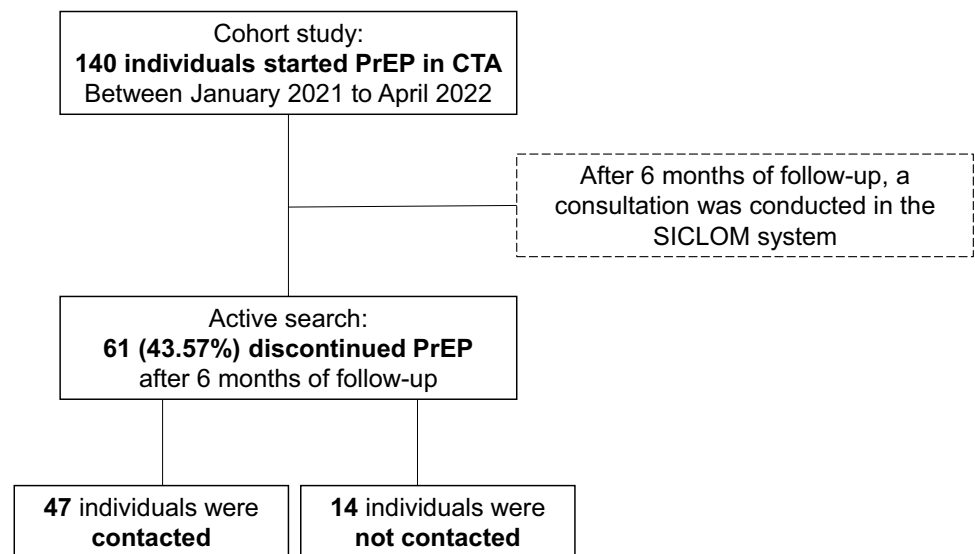
The variables were analyzed using the Stata software (version 13.0; Stata Corporation, College Station, TX, USA). The interview data were presented as categorical variables and as absolute and percentage frequencies. Continuous variables were expressed as medians and ranges. The prevalence was calculated using a 95% confidence interval. Chi-square and Fisher's exact tests were used to evaluate differences between proportions. Logistic regression was used to determine the association between exposure to infection and each independent variable by estimating the odds ratios (OR). Risk factors were estimated using odds ratios in the univariate analysis. Variables with  $p < 0.10$  in the univariate analysis were included in the multiple logistic regression according to the number of events per variable (EPV). Statistical significance was set at  $p < 0.05$ .

This study was approved by the Ethical Committee on Human Research of the Universidade Federal de Mato Grosso do Sul (CEP/UFMS), using the protocol CAAE number 3798562.2.0000.0021.

## Results

In total, 140 PrEP users were included in this study (Fig. 1). Approximately 65,000 individuals use PrEP regularly in Brazil, with 701 individuals in Campo Grande, MS [18]. The most prevalent age group among the participants

**Fig. 1** Flowchart of PrEP users included in the study (N = 140) and users who discontinued after 180 days of follow-up (N = 61), Campo Grande-MS



was over 30 years old, representing 43.57% of the sample. Most users self-identified as cisgender men (92.00%) and reported homosexual orientation (76.43%). Regarding education, 77.44% of the participants had more than 12 years of schooling. Regarding income, 57.14% earned between one and three times the minimum wage, whereas 40.71% earned more than three times the minimum wage. Among participants, 7.14% identified themselves as sex workers. Self-reported racial identification indicated that 50.71% of participants were non-white. Furthermore, most patients were single (80.29%) (Table 1).

The research revealed that irregular condom use was prevalent, affecting 59.69% of participants. Unprotected anal intercourse was reported by 58.46% of respondents, while 93.08% did not employ condoms during oral sex. The reasons for not using condoms were trust in partners (25.38%), lack of availability (11.54%), perceived unnecessary use (10.77%), and dislike for usage (9.23%). Furthermore, 19.29% of the participants reported experiencing symptoms of STI in the last six months. Concerning substance consumption, a noteworthy finding is that 86.43% of interviewees reported frequent alcohol use, ranging from “occasionally” to “daily.” Moreover, 18.57% of participants acknowledged the use of illicit drugs.

Most respondents (87.86%) acknowledged the risk of acquiring STIs in the coming years. The research revealed that information and experiences regarding PrEP were primarily shared through friends (35.71%), the Internet (33.57%), and healthcare services (27.86%). Among the barriers to PrEP adherence, embarrassment (36.43%), lack of awareness (30.71%), and fear of side effects (16.43%) were most common. Surprisingly, 12.86% of interviewees stated that they would discontinue using condoms after

commencing PrEP and 10.00% would contemplate increasing the number of sexual partners.

Regarding the new modalities of PrEP, only 10.00% of the participants were aware of PrEP on demand, and 46.00% expressed a willingness to adopt it if available through the SUS. Injectable PrEP was unknown to 88.50% of the respondents, yet 92.00% showed interest in using it if provided by the SUS, meaning that it would be free of charge and approved by the country's health regulatory agency.

After six months of follow-up, 43.57% of the participants ceased using PrEP. The primary reasons for discontinuation included changes in sexual behavior (38.30%), challenges in attending appointments (21.28%), relocation without access to PrEP (14.89%), and side effects (nausea, headache, and genital itching) (6.38%) (Table 2).

## Discussion

To the best of our knowledge, this is the first study to identify the reasons for and predictors of PrEP discontinuation in Central Brazil. Characteristics such as irregular condom use, history of STIs, and alcohol and substance use provide evidence that PrEP is reaching gay/cisgender men who face a higher risk of HIV seroconversion. However, significant challenges remain in reaching individuals under 30 years of age, transgender, and non-white populations.

Individuals belonging to different key populations, who are already considered vulnerable and are in other complex or unfavorable situations, can see their vulnerabilities compounded, leading to what Richard Parker categorized as a “synergy of vulnerabilities” [18]. This can significantly increase the risk of exposure to various infections, such

**Table 1** Associations with discontinuation risk among PrEP users in Campo Grande, Mato Grosso do Sul (N = 140)

Variable	N (%)	Odds ratio (95% CI) <sup>1</sup>	p-value	Adjusted Odds ratio (95% CI) <sup>1</sup>	p-value
Age (years)					
≥ 31	61 43.57	Reference		Reference	
26–30	40 28.57	1.14 (0.50–2.62)	0.75	0.94 (0.36–2.47)	0.91
18–25	39 27.86	3.40 (1.46–7.88)	<0.01**	2.80 (1.03–7.61)	<0.05*
Sexual orientation					
Homosexual	107 76.43	Reference		Reference	
Bisexual/pansexual	21 15.00	1.16 (0.45–2.99)	0.75	0.81 (0.27–2.43)	0.72
Heterosexual	12 8.57	7.73 (1.61–37.08)	<0.05* <sup>4</sup>	5.44 (0.93–31.97)	0.06
Education (years)					
> 12	108 77.14	Reference		Reference	
≤ 12	32 22.86	3.24 (1.41–7.42)	<0.01**	1.83 (0.70–4.82)	0.22
Monthly household income <sup>2,3</sup>					
> 6 MW	29 20.86	Reference		Reference	
4–6 MW	28 20.14	3.32 (1.03–10.65)	<0.05*	3.11 (0.88–10.95)	0.07
≤ 3 MW	82 58.99	4.02 (1.48–10.91)	<0.01**	3.36 (0.75–7.42)	0.13
Ethnicity					
White	69 49.29	Reference			
Not white	71 50.71	1.27 (0.65–2.48)	0.48		
Relationship status <sup>3</sup>					
Steady partner	27 19.71	Reference			
Single	110 80.29	0.93 (0.39 – 2.17)	0.87		
Sex work					
No	130 92.86	Reference		Reference	
Yes	10 7.14	5.81 (1.18–28.45)	<0.05* <sup>4</sup>	2.85 (0.46–17.78)	0.26
Condom use <sup>3</sup>					
Always	59 42.45	Reference			
Irregular use	80 57.55	1.72 (0.86–3.43)	0.12		
STI history					
No	113 80.71	Reference			
Yes	27 19.29	1.25 (0.54–2.91)	0.59		
Previous use of PEP					
No	98 70.00	Reference			
Yes	42 30.00	0.54 (0.25–1.15)	0.11		
History of drug use					
No	114 81.43	Reference		Reference	
Yes	26 18.57	3.00 (1.23–7.32)	0.01	2.26 (0.79–6.41)	0.12

<sup>1</sup>95% CI: 95% confidence interval; OR: Odds ratio

<sup>2</sup>One minimum wage (MW) was based on the national minimum wage that in the period of study was approximately U\$ 285.00 USD

<sup>3</sup>The total represents the number of individuals who answered the question

<sup>4</sup>Fisher value. A p-value less than 0.01\*\* and 0.05\* is statistically significant

STI sexually transmitted infection, PEP post-exposure prophylaxis

as HIV and other sexually transmitted infections [19]. By recognizing the “synergy of vulnerabilities,” more comprehensive and effective approaches can be adopted to address public health challenges. This involves not only focusing on individual vulnerabilities but also understanding the complex interactions among social, economic, and health factors

that contribute to the greater exposure of these groups to different diseases [20, 21]. Thus, interventions can be targeted more precisely and holistically to reduce risks and promote health in complex and multifaceted contexts.

It’s important to highlight that restricting access to HIV prevention and treatment during the COVID-19 pandemic

**Table 2** Descriptive characteristics of PrEP users after 180 days of preventive use in Campo Grande, MS (N = 140)

Variable	Total	
	N	%
Keep in use of PrEP		
No	61	43.57
Yes	79	56.43
Reasons for stopping the use		
Adverse effects	3	6.38
Change in sex behavior	18	38.30
End serodiscordant relation	3	6.38
Complexity for follow-up	1	2.13
Difficulty with an appointment	1	2.13
Did not like the service	1	2.13
Difficult in attending an appointment	10	21.28
Health problems	3	6.38
Change of location	7	14.89

has resulted in changes in the living and health conditions of individuals [22, 23]. COVID-19 intensified and exacerbated existing vulnerabilities and invisibilities in the LGBTQIA + population [24]. The pandemic has led to loss or reduction in income, suspension of medication use, increased engagement in high-risk sexual activities, missed medical appointments, barriers to accessing healthcare services, and other challenges faced by this population [25].

The majority of PrEP users in Brazil are cisgender Gay/MSM individuals (82.00%) of Caucasian ethnicity (56.00%), with an average age of 30–39 years (42.00%), and educational attainment exceeding 12 years (98.00%) [26], corroborating the characteristics found in our study. This pattern has also been observed in other studies, indicating that most PrEP users are highly educated, Caucasian, and gay/MSM [27, 28]. This warrants attention, as PrEP, as a public policy, should be accessible to all priority groups, especially marginalized populations, to ensure greater service equity. For example, in large cities with only one distribution point for prophylaxis in the central area, access to people from peripheral regions is hindered. Glidden et al. reported that individuals with higher educational attainment exhibit greater engagement with prophylaxis, underscoring the importance of catering to populations with lower educational backgrounds [29]. Individuals with less social power and legal protection are at a higher risk of HIV infection [30].

Only 7.14% of the participants identified themselves as sex workers. Sex workers represent an exceedingly vulnerable group to STIs and HIV [31]. Recent Brazilian epidemiological data indicate that cisgender female sex workers have an HIV prevalence rate of 5.30% [32]. They face an HIV acquisition risk that is 30 times higher than that of adult women (aged 15–49 years) in the general population [30]. In

a study conducted in India, sex workers exhibited a favorable inclination toward the use of oral PrEP, primarily attributed to engaging in unprotected intercourse with regular partners/spouses, affluent clients, or often due to coercion and duress [33]. Initiating campaigns to enhance awareness and engage this group in PrEP is crucial.

Another disconcerting finding was that only 1.50% of participants identified themselves as transgender. A systematic review encompassing data from 15 countries revealed an HIV prevalence rate of 19.10% among transgender women [34]. More recently, a meta-analysis estimated a prevalence of 25.90% for HIV among transgender women [35]. The UNAIDS [30] underscores that this heightened risk is 14 times greater for HIV acquisition than for adult women. In Brazil, these numbers are even more alarming. The Transcender Project reported an HIV prevalence of 31.20% among cross-dresser and transgender women in Rio de Janeiro and Baixada Fluminense [36]. PrEP has proven to be effective among transgender women, not only increasing life expectancy but also demonstrating high cost-effectiveness [37, 38]. A review by Pacifico de Carvalho et al. unveiled substantial interest in using oral PrEP among transgender women, yet significant barriers to adherence persist, particularly among transgender women [39].

Veloso et al. found an early loss to follow-up of 8.40% in MSM and transgender women in Latin America [40]. The risk was higher in transgender women, participants aged 18–24 years, and those with a lower educational attainment. They further emphasized that by implementing PrEP on the same day, eligibility was confirmed to strengthen adherence to prophylaxis [40, 41].

In this study, we observed that approximately 60.00% did not consistently use condoms, with the primary reason being “trust in the partner” (25.00%). The literature suggests that these unprotected sexual encounters often occur within contexts of greater intimacy and trust, frequently involving individuals in long-term relationships [42, 43]. Nevertheless, it is imperative to underscore the importance of condom use, irrespective of emotional or sexual bonds, because individuals' narratives are influenced by diverse factors and contexts. A Brazilian study indicated that the majority of the Brazilian population reported not using condoms during sexual encounters, with the main reasons associated with trust in the partner, the use of alternative methods, or a preference for condom use during sex [44]. Emphasizing the significance of combined prevention is essential for providing alternative protection options for those facing challenges in condom use.

Regarding the history of STIs, 19.29% reported experiencing symptoms in the last 6 months, and approximately 88.00% perceived themselves as being at risk of acquiring an STI in the coming year. The diagnosis of STIs significantly increases the risk of HIV seroconversion [45]. One of the

key issues related to the use of PrEP is risk compensation, which refers to the potential decrease in condom use owing to a reduced perception of HIV risk. This could lead to an increase in STI acquisition of sexually transmitted infections [11, 13, 46].

Available information on sexual behavior and STI incidence among MSM using PrEP is conflicting. Most studies reported a reduction in condom use; however, some indicated an increase in STI incidence, particularly anorectal STI [12, 47, 48], whereas others did not identify significant changes in this regard [8, 49, 50]. It is important to consider that the regular testing required by PrEP protocols may lead to an apparent increase in STI. Hence, services offering PrEP should have essential requirements, such as ongoing education to maintain condom use, testing, and treatment of highly prevalent STI, including syphilis, chlamydia, and gonorrhea. The need for further research to evaluate biomedical strategies for preventing bacterial STIs, such as PrEP and antibiotic PEP (doxycycline) [51, 52], as well as the use of mouthwash with antimicrobial activity [53], should also be emphasized.

The abuse of alcohol and other drugs, even when sporadic, can represent a risk factor for health issues, especially concerning sexual transmission, as it often leads to the relaxation of preventive methods [54–57]. Alcohol use was reported by 86.43% of the participants in this study, with 18.57% using illicit drugs. In a Brazilian study, excessive alcohol, tobacco, and illegal drug use were more prevalent among participants who had engaged in unprotected sexual intercourse than among those who had used condoms [58]. HIV prevalence rates among people who use drugs are high and distinct from those in the general population, with rates of 5.90% in 2009 and 5.00% among crack cocaine users [59]. For people who use injectable drugs, the risk of acquiring HIV is 35 times higher than that for non-users [30]. In our research, one person (0.71%) reported the use of injectable drugs.

When multivariate analysis was performed, only the age group between 18–25 years (AOR: 2.80; CI 1.03–7.61) remained statistically significant. Every day, four thousand people—including 1100 young people aged 15–24, are infected with HIV [30]. It is worth noting that between 2011 and 2021, a total of 52,513 young people with HIV, aged 15–24 years, of both sexes, progressed to AIDS, highlighting the importance of disease development in this age group and the need to make efforts to link to services and adhere to HIV prevention [60].

The discontinuation rate of PrEP found in this study was 43.57%, which is higher than the current rate in Brazil, reported as 27% by the Ministry of Health [26]. Other studies reported varying discontinuation rates. In the Demo Project, 22.00% discontinued after 12 months of use [55]. Studies in community clinics in the United States have reported

discontinuation rates of 21.00% [28] and 43.00% [61]. In the Combina Study, the rate was slightly higher than 12.00% after six months of use [10]. In a cohort study in Canada, approximately 40.00% of participants were lost to PrEP follow-up after six months, with factors such as greater distance from residence, younger age, and lower income associated with lower PrEP care retention [27].

The Implementation PrEP (ImPrEP) study conducted in Brazil, Mexico, and Peru also aimed to investigate the barriers and difficulties associated with its use. Concerning barriers, lack of information, fear of side effects, and doubts about the effectiveness of prophylaxis emerged as the main concerns [50, 62]. In this context, participants reported that before starting PrEP, their main fears were “shame” (36.43%), “lack of publicity” (30.71%), and “fear of side effects” (16.43%). There are gaps in HIV prevention campaigns and dissemination directed at MSM in Latin America, resulting in low utilization of biomedical prevention methods [63]. These data highlight, once again, that knowledge of drug safety and efficacy improves adherence and increases interest in PrEP.

The PrEP strategy can have a pattern of intermittent use that varies according to individual perceptions of HIV infection risk [27, 64]. However, it is important to emphasize that these intervals were associated with the use of other methods. Nevertheless, a significant number of HIV infections occur during these intervals, suggesting that risky practices persist after discontinuing PrEP [14, 65]. Many recent studies have shown that the main reasons for discontinuation are side effects, stigma, entering a monogamous relationship, difficulty accessing services, and a reduced perception of HIV risk [27, 66–68]. In our analysis, a change in sexual behavior (reduction in sexual partnerships or starting a monogamous relationship) stood out, accounting for 38.3%. Difficulty attending the clinic (schedule incompatibility or lack of time) was the barrier found in 21.28%, and moving to a city/country that did not offer PrEP accounted for 14.89%. The variable of medication cost was not considered because in Brazil, since 1996, all antiretroviral drugs have been provided free of charge through the Unified Health System (SUS).

Studies involving potential PrEP users indicate that many individuals do not consider daily oral medication an acceptable option and would prefer alternative methods of PrEP administration, such as implants, microbicides, or injectables [69, 70]. Saray et al. also highlighted the preference for “injectable” PrEP among sex workers [33]. In our study, we found that 92% of the participants would use “injectable” PrEP if it were available through the public health system. Long-acting injectable cabotegravir may further contribute to HIV infection prevention compared to oral PrEP. However, for its economic viability in low and middle-income countries, it must be affordable [71]. To a lesser extent,

46.00% would opt for “on-demand” PrEP, corroborating the findings of Broussard et al. [72].

From the analysis of the reasons for discontinuation found in this study, those linked to user behavior and structure stand out. We can observe some weaknesses in service provision (limited service hours, inadequate publicity of prophylaxis, and extensive territory of the city, which hampers user mobility). This set of aspects is crucial for comprehensive care [72]. We must create potential adjustments and plan methods that can reach the target audience more effectively, always proposing greater comprehensiveness, equity, and strengthening of PrEP, thereby confronting and overcoming the HIV epidemic.

The impact on healthcare services limits access to HIV testing and prevention technologies (PrEP and PEP), particularly in vulnerable populations [73]. Thus, COVID-19 further exposed the LGBTQIA + population to rights denial, violence, discrimination, and other forms of injustice, contributing to the creation of health inequalities and inequities, and consequently influencing the sample size of the present study. In addition, approaches aimed at improving risk perception, such as the use of online risk assessment tools [74] and sexual activity logs [75], have the potential to positively influence decisions related to the initiation and discontinuation of PrEP. Printed and digital media such as social networks and dating apps are essential tools for reaching younger audiences. Facilitating access to healthcare services with flexible and extended hours, teleconsultations, and medication delivery could reduce the barriers identified in this study. The idea of offering “itinerant” PrEP could reach populations in vulnerable situations, such as sex workers or transgender individuals. Furthermore, continuous education of healthcare professionals is fundamental, as they are potential prescribers and recruiters of PrEP users.

It is important to acknowledge certain limitations. Unfortunately, the COVID-19 pandemic prevented us from enrolling more participants in this study, thereby restricting our sample size. Additionally, there is a potential for underreporting of risk behaviors during the interviews, which serves as another limitation of this cross-sectional study.

In conclusion, to succeed with PrEP in public health, we need to combine interventions to promote acceptance, support adherence, and prevent increases in risky behaviors. PrEP is not solely concerned with distributing antiretrovirals; it is a comprehensive monitoring strategy. Healthcare services should view each encounter as an opportunity to instill an accurate perception of risk to the user. Therefore, if patients decide to discontinue prophylaxis, alternative methods may be used to maintain protection against HIV and other STI.

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**Author Contributions** Conceptualization and designed the experiments: RPBJ, GAC, ARCMC; performed the experiments: RPBJ, CA, GAC; analyzed the data: ARCMC, CA; contributed materials/analysis tools: ARCMC, LMB; writing—original draft preparation, review, and editing: RPBJ, GAC, CA, ASPS, ARCMC. Supervision: ARCMC. All authors have read and agreed to this version of the manuscript.

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**Data Availability** All relevant and original data presented in this study have been included in this article.

## Declarations

**Conflict of Interests** The authors declare no conflicts of interest.

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