Francisco Á P F, Bárbara M C S A, Rafael S S, Rodrigo F L. Analysis of pharmaceutical practice in HIV pre-exposure prophylaxis: contributions to access and equity in Brazil. Pharmacy Practice 2026 Apr-Jun;24(2): 3370.
https://doi.org/10.18549/PharmPract.2026.2.3370

Original Research

Analysis of pharmaceutical practice in HIV pre-exposure prophylaxis: contributions to access and equity in Brazil

Francisco Álisson Paula de França, Bárbara Manuella Cardoso Sodré Alves, Rafael Santos Santana, Rodrigo Fonseca Lima

Received (first version): 30-Oct-2025 Accepted: 05-Mar-2026 Published online: 14-May-2026

Abstract

Despite the expansion of pre-exposure prophylaxis (oral PrEP) in Brazil, the comparative impact of pharmacists on access, continuity, and equity of care among vulnerable populations remains poorly understood. This study aimed to investigate the role of pharmacists in prescribing and monitoring oral PrEP for HIV in Brazil, comparing their performance with other health professionals across different healthcare contexts and analyzing their influence on continuity and equitable access. A cross-sectional analysis was conducted using data from the Medicines Logistics Control System (Siclom) from 2018 to 2023. Variables included users' sociodemographic profiles, type of healthcare service (public or private), and the professional category responsible for PrEP follow-up. Associations were assessed using Pearson's chi-squared test. By December 2023, 57,625 individuals met the inclusion criteria. Pharmacists were responsible for 1.7% of follow-ups, with 99.3% of these users linked to public services. In Testing and Counseling Centers, pharmacists monitored 49.4% of users, compared to 27.9% by other professionals. In Specialized Services, follow-up rates were 46.4% for pharmacists and 61.2% for other healthcare providers. Among users who received PrEP in the past 12 months, 76.3% remained in active follow-up with a pharmacist, while only 54.1% remained active under other professionals. The proportion of pharmacist-led follow-ups was higher among Black individuals (15.5%) and among gay and other cisgender men who have sex with men (MSM), reaching 84.2%. Regionally, 80.4% of users monitored by pharmacists lived in the Southeast, compared to 59.9% of those assisted by other professionals. Among users still on PrEP in 2023, 80.6% were managed by pharmacists and 78.4% by others. These findings reinforce the essential role of pharmacists in expanding access to PrEP and promoting equity, especially among populations most vulnerable to HIV. As the first national study to compare pharmacists to other professionals in a large cohort, the results highlight the need for policies and training to strengthen pharmaceutical practice in Brazil's HIV prevention efforts.

Keywords: access to health; pharmaceutical care; HIV; pre-exposure prophylaxis; vulnerability

INTRODUCTION

The 2024 epidemiological bulletin on Human Immunodeficiency Virus (HIV) infection, which causes Acquired Immunodeficiency Syndrome (AIDS), released by the Brazilian Ministry of Health (MoH), revealed a 4.5% increase in HIV cases in 2023 compared to 2022, which may indicate an expansion of the diagnostic capacity of Brazilian health services. The AIDS mortality rate in 2023 was 3.9 deaths per 100,000 inhabitants, the lowest since 2013. The epidemiological profile shows that 70.7% of cases were reported in males, 63.2% in black and brown individuals, and 53.6% in men who have sex with men. The most affected age group is 20 to 29 years old, accounting for 37.1% of cases, with 41% of male cases in this group. In 2023, 38,000 AIDS cases were recorded, with the North region having the highest detection rate (26%), followed by the South (25%)[1].

In this context, the implementation of oral pre-exposure prophylaxis for HIV (oral PrEP) - a fixed-dose combination of tenofovir 300 mg and emtricitabine 200 mg - represented a significant milestone in Brazil's combined HIV prevention strategy. Since its inclusion in the Unified Health System (SUS) in 2018, oral PrEP has expanded its reach, with approximately 109,000 users in 2024 who received at least one prescription in the past 12 months[2]. This progress reflects the joint efforts of various healthcare professionals, including physicians, nurses, pharmacists, and dentists, who have played key roles in service provision, user monitoring, and health education[3].

Universal access to oral PrEP in Brazil, guaranteed free of charge by the SUS, has been a key element in this expansion, especially populations more vulnerable to HIV, such as men who have sex with men (MSM) and transgender women and travesti. The combination of this public policy and interdisciplinary action has consolidated oral PrEP as an essential tool in the Brazilian response to the epidemic and in the commitment to reduce new infections in the country[4-6].

Thus, pharmaceutical prescription has emerged as a strategic component in expanding access to oral PrEP in the country,

Francisco Álisson Paula de França*. University of Brasilia, Faculty of Health Sciences, Pharmacy Department, Evidence and Pharmaceutical Studies Laboratory, Brazil. alissonpetunifor@gmail.com
Bárbara Manuella Cardoso Sodré Alves. University of Brasilia, Faculty of Health Sciences, Pharmacy Department, Evidence and Pharmaceutical Studies Laboratory, Brazil. barbaramsodre@gmail.com
Rafael Santos Santana. University of Brasilia, Faculty of Health Sciences, Pharmacy Department, Evidence and Pharmaceutical Studies Laboratory, Brazil. rafael.santana@unb.br
Rodrigo Fonseca Lima. University of Brasilia, Faculty of Health Sciences, Pharmacy Department, Evidence and Pharmaceutical Studies Laboratory, Brazil. rodrigo.fonseca@unb.br

www.pharmacypractice.org (eISSN: 1886-3655 ISSN: 1885-642X)

supported, among other regulations, by Resolutions 585/2013[7] and 586/2013[8] of the Federal Pharmacy Council (CFF) and by the Guide to Pharmacist Practice in oral PrEP[5], published by this federal authority in 2023. This guide advises pharmacists on best practices in prescribing and monitoring oral PrEP, reinforcing their role in promoting adherence, identifying possible adverse events and drug interactions, as well as educating users about the correct use of prophylaxis.

In addition, since the implementation of oral PrEP in the SUS, states and municipalities have begun to regulate pharmaceutical prescribing through local ordinances and protocols, such as in the city of São Paulo and the state of Ceará, which have formalized the participation of pharmacists in the prescription and monitoring of oral PrEP users. These regulations have not only increased the capillarity of access to prophylaxis in health services, but also consolidated interdisciplinary action, which is essential for the success of combined prevention strategies in combating the HIV epidemic in Brazil[3,9-10].

Therefore, the expansion of pharmaceutical prescribing in Brazil is an urgent need to strengthen the combined HIV prevention strategy, especially given the challenges faced by populations in situations of greater vulnerability. This expansion requires to ensure continuous monitoring of the practice, including the evaluation of the impact on adherence, the safety of prophylaxis and the reduction of new infections. Furthermore, it is essential to verify how the expansion of access to prophylaxis affects different social and geographical contexts, in order to ensure that historically marginalized populations are adequately included[11,12].

Therefore, the aim of this study was to explore the contribution of pharmacists in prescribing and monitoring oral PrEP users for HIV in Brazil, comparing their work with that of other health professionals in different contexts and evaluating their influence on continuity and equity in access to oral PrEP.

METHODS

A cross-sectional study with a descriptive approach was carried out to analyze data from the Medicines Logistics Control System (Siclom) on the monitoring of oral PrEP in Brazil from January 2018 to December 2023[2]. The analysis included all registered users who received at least one dispensation of oral PrEP during this period, and excluded users monitored by more than one professional category during the period. The information used was taken from the national registration forms filled in by users when receiving oral PrEP from SUS pharmacies. These forms include data on sexual orientation and gender identity, which characterizes individuals as: gay men, MSM, travesti, trans women, trans men, cis women, cis and trans heterosexual men, and non-binary people.

The sociodemographic data analyzed included age group, education level and self-declared race/color. The age range was calculated based on the age of the users at the time oral PrEP was dispensed, and was distributed into six groups: 15 to 17 years, 18 to 24 years, 25 to 29 years, 30 to 39 years, 40 to 49 years and 50 years or more. Schooling was classified into four categories: ≥3 years, 4 to 7 years, 8 to 11 years and 12 or more years of study. The self-declared race/color variable was divided into four categories: brown, black, indigenous and white/Asian, the latter two being grouped together due to the small number of Asian individuals and the sociodemographic similarity between these groups in the Brazilian context.

Other data analyzed included the classification of users' care based on the origin of the health service, which was considered public when carried out in SUS units and private when offered by supplementary services, as well as federative unit and region of residence. This is the "service of care" variable, which will be shown in the results in smaller numbers than the others, as it will be monitor by the Ministry of Health at a later date[4].

Absolute and relative frequencies were calculated for each gender identity group, sociodemographic variables, Federative Units (FU) and region of the country, separately for care provided by pharmacists and other professional categories. Patient care was classified according to the origin of the health service, which was considered public when provided by SUS units and private when offered by supplementary services. The analyses considered the absolute and relative frequencies of public and private care in each group analyzed.

According to the Ministry of Health's Oral PrEP Monitoring Report (2024)[4], the professional categories that prescribed and monitored oral PrEP users, with the backing of their professional councils, until 2023, were divided into physicians, dentists and nurses - designated as "Others" in this study - and pharmacists. The dimension and indicators of the variables analyzed can be seen in Table 1.

It should be noted that, with regard to the categories of sexual orientation and gender identity, the self-declared travesti and MSM populations were considered due to their relevance to understanding the dynamics of vulnerability to HIV. The term travesti, specific to Brazil, describes a gender identity distinct from trans or cisgender women, often associated with contexts of social exclusion, violence and stigma, which aggravates their epidemiological vulnerability[13].

On the other hand, the concept of MSM covers sexual practices regardless of sexual or gender identity, which makes it possible to include both heterosexual men and those who identify as gay or bisexual, as a way of recognizing the behavioral diversity within this group. The inclusion of these variables in the study aims to obtain more representative data, supporting preventive strategies and actions aimed at early diagnosis and treatment, with a focus on equity and reducing the barriers to access faced by these populations[14].

Statistical analyses were carried out using the Statistical Package for the Social Science (SPSS), version 20.0. Pearson's chi-squared test was used to calculate the p-value. Statistically significant results were those whose error was less than 0.05. All the data used is secondary and has been anonymized to guarantee the confidentiality of the individuals. Before analysis, the Ministry of Health (MoH) assigned a unique code to each case in order to safeguard confidentiality and avoid identifying individuals. The data is also oral PrEP panel[4]. The study was

Table 1. Dimensions and indicators of the study variables analysed Brazil, 2023.

Dimension	Indicators
Network of services, dispensations and users	Number of selected services that dispensed oral PrEP by UF
	Number of oral PrEP dispensations
	Number of users with at least one oral PrEP dispensation in the year
	Number of users on oral PrEP in December 2023
	Number of people discontinuing oral PrEP in December 2023
User profile	Total number of people on oral PrEP
	Distribution of users on oral PrEP by population
	Distribution of oral PrEP users by age group
	Distribution of oral PrEP users by education level
	Distribution of oral PrEP users by self-reported race/color
Discontinuity	Number of people who received at least one dispensation of oral PrEP in the year and who were discontinuing in December of that year
	Proportion of users discontinuing oral PrEP by population
Prescription in private health services*	Proportion of users starting oral PrEP whose care was provided in the private sector
Origin of service*	Proportion of oral PrEP treatments, by type of service, per month of treatment

Acronyms: oral PrEP (Pre-exposure Risk Prophylaxis to the Human Immunodeficiency Virus); UF (Federative Unit).
* Variable started to be monitored by the Ministry of Health from 2021.
Source: Adapted from Brasil (2024b).

conducted in accordance with Resolution nº. 466/2012 of the National Health Council[14], which ensured compliance with ethical principles in research with human beings.

RESULTS

By December 2023, 77,455 people had already received oral PrEP, but only 57,625 met the inclusion criteria for the analysis. Pharmacists were responsible for following up 973 individuals. The Specialized Services (SAE) concentrated most of the follow-up 60.9% (n=22,813), of which, among those carried out by pharmacists, 46.4% (n=414) occurred in this service. The Testing and Counseling Centers (CCT) accounted for 28.4% (n=10,661) of PrEP users, of whom 49.4% (n=441) were accompanied by pharmacists; while other professional categories accompanied 27.9% (n=10,220) of individuals (p=0.000). In addition, 92.2% (n=34,949) of users were linked to public services, of which 99.3% (n=892) were accompanied by pharmacists (p=0.000). With regard to the dispensing of oral PrEP in the last 12 months, 54.5% (n=31,401) of individuals received it in that period, of whom 76.3% (n=742) of whom were followed up by pharmacists, compared to 23.7% (n=30,684) by other professional categories (p=0.000) (Table 2).

With regard to the sociodemographic characteristics of the individuals being monitored, the majority declared themselves to be white or Asian (54.5%; n=31,401), while black and brown people accounted for 12.6% (n=7,271) and 32.5% (n=18,701), respectively. The participation of pharmacists was higher in the follow-up of black people (15.5%; n=151 vs. 12.5%; n=7,120; p=0.049) than in other racial categories (p=0.049). As for schooling, 67.7% (n=38,990) had 12 years or more of schooling, with pharmacists working in 66.1% (n=643) of these cases. Among users with lower levels of education, such as those with 8 to 11 years of schooling, pharmacists were involved in 29.8% (n=290), while other professionals were involved in 26.9% (n=15,219).

In the analysis by category of user, gay and other cis MSM made up the majority of the individuals accompanied (79.3%; n=45,666), of which, compared to the professional category "other", 84.2% (n=819) of oral PrEP users were linked to pharmacists (p=0.000). Heterosexual cis men and cis women accounted for 5.7% (n=3,267) and 9.7% (n=5,594), respectively. The 30 to 39 age group accounted for most of the individuals (40.6%; n=23,623), followed by the 25 to 29 age group (23.7%; n=14,215) and the 40 to 49 age group (16.7%; n=9,271). The participation of pharmacists was higher among those aged 30 to 39 (42.3%; n=353 vs. 40.6%; n=23,270) (Table 3).

With regard to the distribution of care related to oral PrEP between the federative units (FU) and regions of Brazil, São Paulo concentrated most of the individuals (45.8%; n=26,376), of which 74.9% (n=729) were monitored by pharmacists (p=0.000) and 45.3% (n=25,647) by other professionals. Ceará had 3.0% (n=1,739) of individuals on PrEP, of which 6.3% (n=61) were monitored by pharmacists (p=0.000). In the states of Amazonas (3.9%; n=38) and Maranhão (2.1%; n=20) there was a significant participation of pharmacists in care (p=0.000).

In the regional analysis, the Southeast concentrated the majority of individuals (60.2%; n=34,726), with pharmacists responsible for monitoring 80.4% (n=782) of individuals when compared to 59.9% (n=33,944) of the "other" professional category (p=0.000). The North region accounted for 10.3% (n=5,926) of PrEP users, of which 8.7% (n=85) relied on pharmacists. The Northeast recorded 4.8% (n=2,753) of individuals taking PrEP,

Table 2. Care related to HIV pre-exposure prophylaxis according to type of service, sector and professional participation Brazil, 2023. n= 57,625.

	Total	Professional class		p- Value
		Others	Pharmacist	
Type of healthcare service[1]				
Primary care	2,049 (5.5%)	2,021 (5.5%)	28 (3.1%)	**0,000**
Testing and counseling center	10,661 (28.4%)	10,220 (27.9%)	441 (49.4%)*	
Off-site services	100 (0.3%)	95 (0.3%)	5 (0.6%)	
Specialized service	22,813 (60.9%)	22,399 (61.2%)*	414 (46.4%)	
Private service	1,847 (4.9%)	1,843 (5.0%)	4 (0.5%)	
Telehealth	11 (0.0%)	11 (0.0%)	0 (0.0%)	
Public vs Private[1]				
Public	34,949 (92.2%)	34,057 (92.0%)	892 (99.3%)*	**0,000**
Private	2,946 (7.8%)	2,940 (8.0%)	6 (0.7%)	
Dispensing in the last 12 months				
No	26,224 (45.5%)	25,993 (45.9%)	231 (23.7%)	**0,000**
Yes	31,401 (54.5%)	30,659 (54.1%)	742 (76.3%)*	

(1) Variable implemented later by the Ministry of Health, hence the reduced number compared to the others (n=37,895).
*p<0.05, Pearson's chi-square test (n, %).
Source: Research data (2023).

Table 3. Distribution of care related to HIV risk pre-exposure prophylaxis by sociodemographic characteristics Brazil, 2023.

	Total	Professional class		p-Value
		Others	Pharmacist	
Race				
White/Asian	31,401 (54.5%)	30,881 (54.5%)	520 (53.4%)	**0,049**
Indigenous	252 (0.4%)	248 (0.4%)	4 (0.4%)	
Brown	18,701 (32.5%)	18,403 (32.5%)	298 (30.6%)	
Black	7,271 (12.6%)	7,120 (12.6%)	151 (15.5%)*	
Education				
No formal education	521 (0.9%)	514 (0.9%)	7 (0.7%)	0,088
From 4 to 7 years old	2,605 (4.5%)	2,572 (4.5%)	33 (3.4%)	
From 8 to 11 years old	15,509 (26.9%)	15,219 (26.9%)	290 (29.8%)	
12 years or older	38,990 (67.7%)	38,347 (67.7%)	643 (66.1%)	
Users by Population				
Gays and other cis MSM	45,666 (79.3%)	44,867 (79.2%)	819 (84.2%)	**0,000**
Straight cis men	3,267 (5.7%)	3,224 (5.7%)	43 (4.4%)	
Trans men	675 (1.2%)	661 (1.2%)	14 (1.4%)	
Cis woman	5,594 (9.7%)	5,545 (9.8%)*	49 (5.0%)	
Trans woman	2,068 (3.6%)	2,028 (3.6%)	40 (4.1%)*	
Non-binary	67 (0.1%)	67 (0.1%)	0 (0.0%)	
travesti	288 (0,5%)	280 (0.5%)	8 (0.8%)	
Age group				
< 18 years	9 (0.0%)	9 (0.0%)	0 (0.0%)	0,759
18 to 24 years old	6,887 (12.4%)	6,789 (12.4%)	98 (11.8%)	
25 to 29 years old	14,215 (23.7%)	12,915 (23.7%)	199 (23.9%)	
30 to 39 years old	23,623 (40.6%)	23,270 (40.6%)	353 (42.3%)	

40 to 49 years old	9,271 (16.7%)	9,145 (16.8%)	126 (15.1%)	
50 + years	3,620 (6.5%)	3,562 (6.5%)	58 (7.0%)	

*p<0.05, Pearson's chi-square test (n, %).
Source: Research data (2023).

of whom 6.4% (n=62) were accompanied by pharmacists. The South and Center-West regions had the lowest participation of pharmacists, with 3.9% (n=38) and 0.6% (n=6) in the monitoring of individuals, respectively (Table 4).

At the end of 2023, 78.5% (n=24,645) of the users initially analyzed remained on oral PrEP, of which 80.6% (n=598) and 78.4% (n=24,047) were monitored by pharmacists and other professional categories, respectively. Among those who discontinued use in the same period, which represented 21.6% (n=6,771), the proportion of follow-ups carried out by pharmacists was 19.4% (n=144). Although the participation of pharmacists was slightly higher among users who remained on oral PrEP, this difference was not statistically significant (p=0.150).

Table 4. Distribution of care related to HIV risk pre-exposure prophylaxis by federative unit and region, with comparison between pharmacists and other professionals Brazil, 2023.

	Total	**Professional class**		**p-Value**
		Others	**Pharmacist**	
Federative Unit				
Acre	101 (0.2%)	101 (0.2%)	0 (0.0%)	**0,000**
Alagoas	203 (0.4%)	203 (0.4%)	0 (0.0%)	
Amazonas	1,341 (2.3%)	1,303 (2.3%)	38 (3.9%)*	
Amapá	109 (0.2%)	104 (0.2%)	5 (0.5%)	
Bahia	1,446 (2.5%)	1,446 (2.6%)	0 (0.0%)	
Ceará	1,739 (3.0%)	1,678 (3.0%)	61 (6.3%)*	
Federal District	995 (1.7%)	995 (1.8%)	0 (0.0%)	
Espírito Santo	751 (1.3%)	744 (1.3%)	7 (0.7%)	
Goiás	2,165 (3.8%)	2,162 (3.8%)	3 (0.3%)	
Maranhão	331 (0.6%)	311 (0.6%)	20 (2.1%)*	
Minas Gerais	2,338 (4.1%)	2,328 (4.1%)	10 (1.0%)	
Mato Grosso do Sul	1,028 (1.8%)	1,027 (1.8%)	1 (0.1%)	
Mato Grosso	678 (1.2%)	676 (1.2%)	2 (0.2%)	
Pará	665 (1.2%)	663 (1.2%)	2 (0.2%)	
Paraíba	409 (0.7%)	409 (0.7%)	0 (0.0%)	
Pernambuco	728 (1.3%)	724 (1.3%)	4 (0.4%)	
Piauí	297 (0.5%)	297 (0.5%)	0 (0.0%)	
Paraná	3,153 (5.5%)	3,148 (5.6%)	5 (0.5%)	
Rio de Janeiro	5,261 (9.1%)	5,225 (9.2%)	36 (3.7%)	
Rio Grande do Norte	596 (1.0%)	596 (1.0%)	0 (0.0%)	
Rondônia	201 (0.4%)	201 (0.4%)	0 (0.0%)	
Roraima	2,819 (4.9%)	2,794 (4.9%)	25 (2.6%)	
Rio Grande do Sul	3,602 (6.3%)	3,593 (6.3%)	9 (0.9%)	
Sergipe	177 (0.3%)	177 (0.3%)	0 (0.0%)	
São Paulo	26,356 (45.8%)	25,627 (45.3%)	729 (74.9%)*	
Tocantins	136 (0.2%)	120 (0.2%)	16 (1.6%)	
Region	**Total (%)**	**Other (%)**	**Pharmacist (%)**	**p-Value**
Midwest	4,846 (8,4%)	4,840 (8.6%)	6 (0.6%)	**0,000**
North	5,926 (10,3%)	5,841 (10.3%)	85 (8.7%)	

www.pharmacypractice.org (eISSN: 1886-3655 ISSN: 1885-642X)

Northeast	2,753 (4,8%)	2,691 (4.8%)	62 (6.4%)	
Southeast	3,4726 (60,2%)	33,944 (59.9%)	782 (80.4%)*	
South	9,374 (16,3%)	9,336 (16.5%)	38 (3.9%)	

*p<0.05, Pearson's chi-square test (n, %).
Source: Research data (2023).

DISCUSSION

The results highlighted the importance of pharmacists in monitoring individuals who were taking oral PrEP, especially in specialized services. Most of the care provided took place in these settings, highlighting the central role of these units in the implementation of prophylaxis. The participation of pharmacists was particularly significant compared to other professional categories, which may indicate their importance in the ongoing monitoring of users on prophylaxis. These data indicate that, in Brazil, oral PrEP has been widely accessed through public services, reinforcing the role of the health system in offering this preventive strategy[1,15].

In this scenario, the Testing and Counseling Centers (CCT) represented a relevant component in the implementation of oral PrEP, with a significant proportion of individuals linked to this service[2,6]. The presence of pharmacists in the CCT was noteworthy, with almost half of the users monitored by this professional category. According to Greenwell et al. (2023)[16], this participation reinforces the importance of pharmacists in providing guidance, managing possible adverse events and monitoring users on oral PrEP, which are fundamental aspects for ensuring adherence to prophylaxis. In addition, the pharmacist helped to establish trust in the services, which favored the continuity of follow-up, a result that is similar to that found by Alohan et al. (2023)[17].

In addition, the pharmacist's work has expanded the possibilities of maintaining people on oral PrEP, considering that more than three quarters of the individuals who received the drug in the last 12 months were accompanied by pharmacists. This proportion indicates that the pharmacist's role goes beyond simple dispensing, encompassing educational actions and technical support[17]. In this way, the active presence of pharmacists in health services may have contributed to reducing the risk of discontinuation, strengthening the impact of oral PrEP as an HIV prevention strategy in Brazil[18].

With regard to sociodemographic aspects, the majority of oral PrEP users in Brazil declared themselves to be white or Asian, while black and brown people represented a smaller proportion. The participation of pharmacists was more significant among self-declared black people, suggesting a possible targeting or greater demand from this group for pharmaceutical services compared to other professional categories. With regard to schooling, the majority of users had 12 years or more of schooling, with pharmacists predominantly working in this segment. Among those with less schooling, although not statistically significant, the presence of pharmacists may indicate their comprehensive role in serving different educational levels[19].

In addition, the studies by Pimenta et al. (2022)[15] and Zucchi et al. (2018)[19] corroborate these findings, as they showed that, since the implementation of oral PrEP in Brazil, there has been an increase in the number of users, especially among individuals with more more schooling and self-declared white or Asian. However, access to prophylaxis among black and less educated populations still faces challenges, possibly due to structural and socio-cultural barriers, such as poverty, racism and discrimination. Thus, the work of pharmacists, especially among groups most vulnerable to HIV, is crucial to increasing access and continuity of oral PrEP, contributing to equity in HIV prevention[20].

The results also highlighted the profile of the main users of oral PrEP in Brazil, with a predominance of gay and other cis MSM, characterized as populations in a situation of increased vulnerability to HIV due to the greater risk of infection. The participation of pharmacists in monitoring this group, as well as transgender women, has reinforced their contribution to promoting adherence to oral PrEP and offering technical support, especially in a context where stigma and discrimination have limited access to health services. Studies such as those by McCree et al. (2020)[21] and Molina et al. (2018)[22] corroborated that the implementation of oral PrEP prioritized these populations, with an emphasis on the importance of health professionals in strengthening adherence. However, these same studies identified significant barriers to the expansion of prophylaxis to other groups, such as cis women and cis heterosexual men, as well as challenges associated with the inclusion of people with lower levels of education and greater social vulnerability.

In addition, the analysis by age group showed a concentration of individuals aged between 30 and 39, followed by those aged between 25 and 29. These groups probably have a higher perception of risk and greater stability when it comes to accessing health services. However, the low participation of younger people, especially those under 24, points to a significant challenge in expanding the reach of oral PrEP, especially in Brazil, since new infections have been occurring especially in young people below this age group[1]. In addition, data from the study by Molina et al. (2018)[22] indicated that barriers related to insufficient information, difficulty of access and lack of risk perception disproportionately affected younger people. The active involvement of pharmacists and targeted campaigns can be effective strategies to address these gaps, promoting greater access and adherence among young people, who remain a priority group for HIV prevention. In addition, strengthening the integration between education and health policies can increase awareness and access to oral PrEP among younger and more vulnerable populations[23].

Furthermore, with regard to the distribution of users taking oral PrEP and the FUs, the city of São Paulo, in the state of São

Paulo, has shown that it is a pioneer in the implementation of prophylaxis strategies. Oral PrEP was regulated in this municipality through Municipal Health Department (SMS) Ordinance No. 364/2020[10], which led to the involvement of pharmacists in this context, in order to strengthen the clinical practice of these professionals.

This initiative reinforced the actions of the Brazilian CFF, which had already provided for pharmaceutical prescription since the publication of CFF Resolution No. 586/2013[8]. However, until then, this possibility was little explored. In other regions of Brazil, such as Ceará, Amazonas and Maranhão, the participation of pharmacists in prescribing and monitoring oral PrEP users was observed, albeit to a lesser extent. This scenario highlighted the potential for expanding pharmaceutical practice in states with less presence of this type of care. Documents and actions promoted by the CFF, such as Official Letter No. 015567-2021/CTEC/CFF[24] and the Guide to Pharmacist Practice in Oral PrEP[5], have served as important tools for training and guidance, and have contributed to decentralizing access to prophylaxis and consolidating the role of pharmacists in different regions of the country.

The regional distribution of oral PrEP-related care highlighted the leading role of the Southeast, with São Paulo playing a leading role. However, regions such as the North and Northeast had a smaller share of oral PrEP cases and a less significant presence of pharmacists. This disparity may be associated with structural barriers, such as the unequal distribution of resources and the lower availability of specialized professionals. The lack of targeted local policies and specific actions to decentralize prophylaxis limits the reach of oral PrEP in more vulnerable areas[25]. In this scenario, strategies aimed at training professionals and expanding coverage are essential to reduce regional inequalities and promote equitable access to oral PrEP throughout the country[26].

In addition, the maintenance of a high proportion of users on oral PrEP at the end of 2023 reflects the positive impact of follow-up strategies, particularly those conducted by pharmacists when compared to the other health professionals involved in prescribing and monitoring users of prophylaxis. The involvement of these professionals, who are responsible for a portion of the visits, reinforces their role in technical support, health education and the management of potential challenges associated with adherence. This may have contributed to the continued use of prophylaxis, especially in a context where adherence is essential for oral PrEP to be effective[16].

On the other hand, the proportion of discontinuation observed, although expected in long-term programs, suggests the need for more targeted actions to mitigate this problem. Among those who discontinued use, the participation of pharmacists was considerably lower and not statistically significant. Previous studies, such as those by Unger et al. (2022)[27] and Nieto et al. (2020)[28], have pointed out that factors such as lack of risk perception, stigma associated with HIV and barriers to accessing health services are among the main reasons for discontinuing oral PrEP. In this sense, strengthening the role of pharmacists and other health professionals as a link between users and the health system, combined with educational strategies and personalized monitoring, could be a promising approach to reducing discontinuation rates and increasing the impact of oral PrEP on HIV prevention.

Although the study used a robust and representative database, it is important to note that it is subject to the limitations inherent in cross-sectional studies, such as the impossibility of establishing cause and effect relationships. In addition, the reliance on information self-reported by users and recorded on forms can introduce biases related to the accuracy and completeness of the data.

Despite these limitations, this study is unprecedented in Brazil in that it systematically compares the role of pharmacists with that of other health professionals in monitoring a significant number of users taking oral PrEP. The comprehensive and detailed analysis of national data offers relevant contributions to understanding the role of pharmacists in expanding access and adherence to oral PrEP, especially in populations with increased vulnerability to HIV.

For future research, we recommend a longitudinal study, following oral PrEP users over time, to assess the impact of pharmaceutical action on continuity of use and prevention of new HIV infections, comparing different configurations of health services and populations in situations of greater vulnerability to HIV. This would help to build a broader view of the long-term effectiveness of the strategy and its influence on the epidemiological scenario in Brazil.

CONCLUSION

The findings of this study reinforce the central and strategic role of pharmacists in prescribing and monitoring individuals using oral PrEP in Brazil, especially in the public sector and in specialized services and CCT, where their work proved essential to promote the continuity of prophylaxis prophylaxis by users. As the first national study to carry out a detailed comparative analysis between pharmacists and other health professionals, covering a significant number of oral PrEP users, this research demonstrates that pharmacists play a multifaceted role, which goes beyond dispensing, encompassing educational, technical and support actions, which are fundamental to the success of oral PrEP. By expanding access, reducing barriers and promoting equity in care, the role of pharmacists has proven indispensable in the response to HIV, highlighting the need to strengthen public policies and training to further enhance their contribution to combined prevention strategies.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest in relation to this article.

ACKNOWLEDGMENTS

The authors thank the University of Brasília (UnB), through the Dean's Office for Research and Innovation (DPI) and the Central Library (BCE), for the financial support granted under call no. 001/2025 DPI/BCE/UnB.

References

1. Brazil. Ministry of Health. Health Surveillance Secretariat. Department of Chronic Conditions Diseases and Sexually Transmitted Infections. HIV/AIDS Epidemiological Bulletin 2024. Brasília: Ministry of Health; 2024.
2. Brazil. Ministry of Health. PrEP Panel: Pre-Exposure Prophylaxis. Brasília: Ministry of Health; 2024.
3. Brazil. Ministry of Health. Health Surveillance Secretariat. Guide for the Implementation of Pre-Exposure Prophylaxis (oral PrEP) in Primary Health Care. Brasília: Ministry of Health; 2024a.
4. Brazil. Ministry of Health. Department of Health and Environmental Surveillance. HIV pre- and post-exposure prophylaxis monitoring report 2023. Brasília: Ministry of Health; 2024b.
5. Federal Pharmacy Council. Guide to Pharmacist Practice in PrEP. Brasília: Federal Pharmacy Council; 2023.
6. Brazil. Ministry of Health. Clinical Protocol and Therapeutic Guidelines for HIV Pre-Exposure Prophylaxis (PrEP). Brasília: Ministry of Health; 2022.
7. Federal Pharmacy Council. Resolution no. 585, of August 29, 2013. Federal Official Gazette. Brasília: Federal Pharmacy Council; 2013.
8. Federal Pharmacy Council. Resolution no. 586, of August 29, 2013. Federal Official Gazette. Brasília: Federal Pharmacy Council; 2013.
9. Ceará. State Health Department. Technical Note – Pharmaceutical Care in Pre-Exposure Prophylaxis (PrEP) and Post-Exposure Prophylaxis (PEP) to the Risk of HIV Infection. Fortaleza: SESA; 2024.
10. São Paulo (Municipality). Municipal Health Department. SMS Ordinance No. 364, of May 28, 2020. São Paulo: São Paulo City Hall; 2020.
11. Grant A, Trenaman S, Stewart S, Liu L, Fisher J, Jeffers E, et al. Uptake of community pharmacist prescribing over a three-year period. Explor Res Clin Soc Pharm. 2023;7:100180.
12. Ramos DC, Ferreira L, Santos Júnior GA, Ayres LR, Esposti CDD. Pharmaceutical prescription: a review of perceptions and attitudes of patients, pharmacists and other stakeholders. Cien Saude Colet. 2022;27(9):3531–3546.
13. Lima RRT, Flor TBM, Noro LRA. Systematic review on health care for transvestites and transsexuals in Brazil. Rev Saude Publica. 2025;57:19.
14. Brazil. National Health Council. Resolution no. 466, of December 12, 2012. Federal Official Gazette: section 1. Brasília: Ministry of Health; 2013.
15. Pimenta MC, Bermúdez XP, Godoi AMM, Maksud I, Benedetti M, Kauss B, et al. Barriers and facilitators for access to PrEP by vulnerable populations in Brazil: the ImPrEP Stakeholders Study. Cad Saude Publica. 2022;38:e00290620.
16. Greenwell K, Fugit R, Nicholson L, Wright JA. Retrospective comparison of HIV pre-exposure prophylaxis outcomes between a pharmacist-led telehealth clinic and in-person clinic in a veteran population. AIDS Behav. 2023.
17. Alohan DI, Evans G, Sanchez T, Harrington KRV, Quamina A, Young HN, et al. Examining pharmacies' ability to increase pre-exposure prophylaxis access for Black men who have sex with men in the United States. J Am Pharm Assoc. 2023;63(2):547–554.
18. Zhao A, Dangerfield DT II, Nunn A, Patel R, Farley JE, Ugoji CC, et al. Pharmacy-based interventions to increase use of HIV pre-exposure prophylaxis in the United States: a scoping review. AIDS Behav. 2022;26:1377–1392.
19. Zucchi EM, Grangeiro A, Ferraz D, Pinheiro TF, Alencar T, Ferguson L, et al. From evidence to action: challenges for SUS to offer pre-exposure prophylaxis to HIV to the most vulnerable people. Cad Saude Publica. 2018;34:e00206617.
20. Khosropour CM, Backus KV, Means AR, Beauchamps L, Johnson K, Golden MR, et al. A pharmacist-led, same-day, HIV pre-exposure prophylaxis initiation program to increase PrEP uptake and decrease time to PrEP initiation. AIDS Patient Care STDS. 2020;34(1):1–6.
21. McCree DH, Byrd KK, Johnston M, Gaines M, Weidle PJ. Roles for pharmacists in the "Ending the HIV Epidemic: A Plan for America" initiative. Public Health Rep. 2020;135(5):547–554.
22. Molina JM, Charreau I, Spire B, Cotte L, Chas J, Capitant C, et al. Efficacy, safety, and effect on sexual behavior of on-demand pre-exposure prophylaxis for HIV in men who have sex with men: an observational cohort study. Lancet HIV. 2017;4(9):e402–e410.
23. Wilby KJ, Smith AJ. A Narrative Review of Continuing Professional Development Needs for Pharmacists with Respect to Pre-exposure Prophylaxis (PrEP) for Human Immunodeficiency Virus (HIV). Pharmacy (Basel). 2020 May 11;8(2):84.
24. Federal Pharmacy Council (CFF). Letter No. 015567-2021/CTEC/CFF. Guidelines and recommendations for pharmaceutical practice in pre-exposure prophylaxis (PrEP). Brasília: Federal Pharmacy Council; 2021.
25. Silva J, Pereira A, Oliveira C. From evidence to action: challenges for SUS to offer PrEP to vulnerable people. Cad Saude Publica. 2018;36(4):e00012345.
26. Bessa MM, Freitas RJM, Pessoa DMS, Dias AF, Ferreira VO, Rego Neto VJ, et al. Training for health professionals on PrEP and PEP: experience report. J Arch Health. 2024;5(1):2–10.
27. Unger ZD, Golub SA, Borges C, Edelstein ZR, Hedberg T, Myers J. Reasons for PrEP discontinuation after navigation at sexual

health clinics: interactions among systemic barriers, behavioral relevance, and medication concerns. J Acquir Immune Defic Syndr. 2022;90(3):316–324.
28. Nieto O, Brooks RA, Landrian A, Cabral A, Fehrenbacher AE. PrEP discontinuation among Latino/a and Black MSM and transgender women: a need for PrEP support services. PLoS One. 2020;15(11):e0241340.

www.pharmacypractice.org (eISSN: 1886-3655 ISSN: 1885-642X)