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# Facilitators and barriers to adherence to pre-exposure prophylaxis among young female sex workers

## Facilitadores e barreiras da adesão a profilaxia pré-exposição entre mulheres jovens trabalhadoras do sexo

## Facilitadores y barreras de la adhesión a la profilaxis previa a la exposición entre las jóvenes trabajadoras sexuales

**Amade Sucá[1], Zeca Manuel Salimo[2], Humberto Cláudio Inguane[3], Assucênio Hortêncio Chissaque[3], Wilson Pereira Silva[4], Carlos Eduardo Cuinhane[1]**

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[1]Eduardo Mondlane University. Doctoral Program in Development and Society. Maputo, Mozambique.

[2]Lúrio University. Nampula, Mozambique.

[3]Elizabeth Glaser Pediatric AIDS Foundation. Maputo, Mozambique.

[4]Quantum Saúde - Consultoria, LDA. Maputo, Mozambique

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**Corresponding Author:**
Amade Sucá
Address: Av. Paulo Samuel Kankhomba, número 280, Sommerchield, Maputo, Moçambique.
ZIP Code: 280.
Phone: +258 843124969
E-mail: amade.suca@gmail.com

## ABSTRACT

Introduction: The Mozambican Ministry of Health offers free pre-exposure prophylaxis (PrEP) to people at substantial risk of human immunodeficiency virus (HIV) infection, including HIV-negative young female sex workers (FSWs). However, studies indicate low adherence to this prophylaxis in Mozambique, for reasons still unknown. Objective: To analyze the factors associated with PrEP adherence among young female sex workers in Maputo city. Method: A cross-sectional, quantitative study was conducted in Maputo city, Mozambique, between June and September 2024. The sample consisted of 272 FSWs (18-24 years old), selected by stratified probability sampling from five health centers offering PrEP. Data were collected through a structured questionnaire administered in person. The data were digitized in Open Data Kit (ODK), analyzed in Stata version 17, using descriptive statistics, Pearson's chi-square test and multinomial logistic regression ($p<0.05$) to estimate odds ratios (OR) of PrEP adherence and refusal. Results: Of the 272 respondents, 43.4% refused PrEP. Psychosocial and family support was positively associated with adherence (OR = 5.7; p = 0.002; 95% confidence interval (CI): 2.022-9.380), while social stigma associated with taking prophylaxis (OR = 1.7; p = 0.025; 95% CI: 0.22-3.32) and medication shortages at health centers (OR = 2.95; p = 0.001; 95% CI: 1.13-4.76) increased the likelihood of refusal. Implications: The study results indicate that although prophylaxis is free, not all eligible FSWs adhere to it due to medication shortages and the social stigma associated with taking them. Promoting awareness campaigns on PrEP use among FSWs and in the community, and improvements in the regular supply of medication at health centers can increase adherence to prophylaxis.

## DESCRIPTORS

Medication adherence. Pre-exposure prophylaxis. HIV. Young female sex workers.

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## INTRODUCTION

HIV remains one of the major global public health problems, disproportionately affecting key populations, including female sex workers[1-3]. Pre-exposure prophylaxis (PrEP) has proven to be an effective and safe preventive strategy, significantly reducing the risk of infection when used consistently[4-6]. On the one hand, international studies conducted in the United States[7,8] and Kenya[9] indicate that adherence faces persistent barriers related to social stigma, perceived side effects, limited access, and weaknesses in health systems. On the other hand, factors such as social support, community networks, and the quality of health care have been shown to be determinants of sustained adherence, as demonstrated in studies carried out in the United States[10] and in African contexts, particularly in South Africa[11] and Zimbabwe[12].

In Mozambique, the HIV epidemic remains widespread, with the city of Maputo reporting an estimated prevalence of 16.2% in the general population and about 31% among female sex workers, one of the groups most vulnerable to infection[13-15]. In response, the Ministry of Health adopted the combined prevention strategy, which incorporates PrEP as a priority intervention for key populations16. Despite the free availability of PrEP since September 2021, national evidence shows low adherence[3,17]. Frequent interruptions in use have also been observed, revealing persistent structural and social challenges18. Studies conducted in Mozambique remain limited, with greater emphasis on analyses of initial acceptability[14-17] and little production of quantitative data on factors influencing sustained adherence among FSWs.

In this context, it is crucial to understand the facilitators and barriers that shape PrEP acceptance and continuity in this group, particularly in urban settings such as Maputo. Such analysis is essential not only to fill gaps in national scientific literature but also to inform public policies, guide more context-sensitive interventions, and strengthen the national response to HIV.

Thus, the present study aimed to analyze the factors associated with PrEP adherence among female sex workers in the city of Maputo.

## METHODS

This is a cross-sectional, analytical, quantitative study conducted in Maputo, Mozambique, between June and September 2024.

Maputo, the capital of Mozambique, is located in the extreme south of the country, with an estimated population of 1,130,565 inhabitants, of which 51.3% are female[19]. The city has a high HIV prevalence, estimated at 16.2%, with a higher incidence among key populations, including FSWs[20].

Health centers were selected by purposive sampling, based on the criteria of the Maputo City Health Service (MCHS): availability of prevention services combined with PrEP provision, volume of eligible users, and programmatic registration capacity. This approach allowed the inclusion of health centers representative of the urban context of Maputo, ensuring the feasibility of data collection and the relevance of the results for the population group under analysis. Additionally, the health centers selected are those with a high concentration of young women receiving prevention services, in addition to representing different socioeconomic zones of the city.[14] Therefore, five health centers were selected: 1° de Maio Health Center (HC), Xipamanine Health Center, Alto Maé Health Center, Porto Health Center, and Chamanculo Health Center.

The study population consisted of young women residing in Maputo, identified in the programmatic records of the five selected health centers. The inclusion age criterion was set between 18 and 24 years, in line with the objective of analyzing the experiences of young women in early adulthood, a phase in which social and epidemiological vulnerability is most pronounced[15,16].

Eligible women were those who self-identified as such, had a negative HIV status confirmed by routine testing at health facilities before PrEP was offered, and demonstrated the ability to understand and respond appropriately to the questionnaire, with translation support into the Tsonga language whenever necessary. During the interview, a brief screening was conducted regarding alcohol consumption, psychoactive drugs, and mental health. Only women able to respond clearly and voluntarily were included.

Women diagnosed with HIV and those under the influence of alcohol or drugs at levels that prevented reliable responses at the time of the interview were excluded from the study.

The sample size calculation was based on the formula proposed by Hosmer, Lemeshow, and Sturdivant[21] for cross-sectional studies with categorical variables. This formula allows estimating the

minimum number of participants needed to ensure statistical accuracy, considering the confidence level, the maximum absolute error, and the expected proportion. The following formula was applied:

$$n = \frac{N.\hat{p}.\hat{q}.(Z_{\frac{\alpha}{2}})^2}{\hat{p}.\hat{q}.(Z_{\frac{\alpha}{2}})^2 + (N-1).E^2}$$

Where: n is the sample size, Z is the critical value of the normal distribution (1.96 for 95% confidence), p is the expected proportion (assumed to be 0.5 in the absence of prior estimates), and d is the maximum tolerable error (0.05). Based on these parameters, a sample size of 272 participants was obtained, ensuring adequate statistical power and representativeness of the target population.

Sampling was stratified probabilistic, with strata defined according to the four previously established categories of PrEP use among the FSWs (Table 1). Proportional distribution considered the total number of eligible users registered at each health center, ensuring balanced representation of the different socioeconomic zones of Maputo city. Thus, each stratum contributed to the final sample based on its relative size within the universe of eligible FSWs in each of the five selected health centers, as illustrated in Table 1.

**Table 1.** Sample stratified by health center. Maputo, Mozambique, 2025.

| Health Center (HC) | They started PrEP and remain on preventive treatment | They started PrEP and then stopped it | They started, stopped PrEP, and then restarted it | They were offered PrEP and did not accept it | Total for HC |
|---|---|---|---|---|---|
| Xipamanine HC | 46 | 11 | 2 | 22 | 81 |
| Porto HC | 24 | 5 | 7 | 36 | 72 |
| Alto-Maé HC | 5 | 5 | 0 | 26 | 36 |
| Chamanculo HC | 3 | 13 | 20 | 12 | 48 |
| Maio 1st HC | 5 | 5 | 3 | 22 | 35 |
| Grand Total | 83 | 39 | 32 | 118 | 272 |
| % * | 30.5 | 14.3 | 11.8 | 43.4 | 100 |

**Legend**: *% calculated on the total value.
**Source**: Prepared by the authors, 2025.

Data collection was conducted between June and September 2024 at five selected health centers in Maputo city, in private rooms to ensure confidentiality and privacy. The process was conducted by research assistants previously trained in ethics and structured survey administration. Each survey lasted a mean of 60 minutes and was administered individually in Portuguese, with translation into Tsonga whenever necessary. No financial or material incentives were offered to participants, ensuring their voluntary participation.

The collection instrument consisted of a structured survey, previously tested in a pilot study, which included sociodemographic, economic, and behavioral variables. The dependent variable was PrEP adherence, classified into four categories: initiated and maintained use; initiated and discontinued; discontinued and restarted; and refused PrEP.

The independent variables were distributed into four groups. Sociodemographic variables included age, marital status, education level, and maternity, place of residence (urban or peri-urban), housing type, and household composition. The economic variables covered income sources, estimated monthly income, and monthly expenses. Variables related to experience as a sex worker included length of service, reasons for joining, support networks (friends, family, and partners), additional occupations, and perception of risks associated with sex work. Finally, the health knowledge and practices variables included knowledge about HIV and PrEP, sources of information, participation in educational activities or discussion groups, support received for prevention, previous testing experience, perception of PrEP accessibility, quality of health care, condom use, and changes in sexual behavior after starting prophylaxis.

Data were recorded directly on tablets using ODK (open data kit) and transferred to a secure server, accessible only to the research team. All responses were anonymized at the time of collection to ensure confidentiality and prevent the information from being linked to the participants' identities.

The collected data were exported from ODK software to Stata version 17.0. Initially, a descriptive analysis was conducted with absolute and relative frequencies to characterize the participants in terms of

sociodemographic and economic characteristics, experience as sex workers, and health knowledge.

The study's dependent variable was operationally defined as the decision and behavior to initiate and maintain HIV pre-exposure prophylaxis. This definition is consistent with the World Health Organization[22], which understands adherence as the degree to which a person's medication-taking behavior corresponds to the recommendations agreed upon with healthcare professionals. For analytical purposes, the dependent variable was assessed through self-reported responses from participants during quantitative data collection. The FSWs were asked about their current PrEP use (if they were using it at the time of the survey), their history of use (if they had previously initiated the prophylactic regimen), their continuity or discontinuation (if they continued taking it daily as prescribed or if they had discontinued it), and their refusal (if PrEP had been offered but not accepted at the time of the study).

The choice of this categorization is justified by the fact that PrEP adherence is not limited to a dichotomous decision (adhered/non-adhered), but encompasses different use trajectories that express dynamics of initial acceptance, continuation, temporary abandonment, and refusal. This approach allowed us to capture the complexity of the phenomenon, distinguishing behavioral patterns that have distinct programmatic implications: maintenance represents sustained adherence; interruption indicates barriers to continuity; restarting suggests risk reassessment processes; and refusal reveals initial resistance or stigma associated with prophylaxis use.

The independent variables were treated according to their nature. Categorical variables were described as frequencies and compared with the dependent variable using Pearson's chi-square test, considering a significance level of 5% ($p<0.05$).

To identify factors associated with PrEP adherence, refusal, or discontinuation, multinomial logistic regression was applied[21], estimating crude and adjusted ORs with their respective 95% CIs[21,23]. Multicollinearity between independent variables was assessed using the Variance Inflation Factor (VIF), and highly correlated variables were removed[21].

The study was conducted in accordance with the Declaration of Helsinki and Law No. 06/2023 of Mozambique on Human Health Research[6]. The Institutional Committee for Bioethics in Health of the College of Medicine/Maputo Central Hospital approved the protocol through opinion number 08/2023 of September 13, 2023, ref. CIBS FM&HCM/08/2023. All participants received detailed information about the study objectives and signed the Informed Consent Form (ICF). For those who could not read or write, the information was translated into Tsonga and a trusted representative signed on their behalf.

## RESULTS

Table 2 presents the main sociodemographic characteristics of the 272 FSWs included in the study. The mean age was 21.7 years (standard deviation [SD] = 3.1). Of the participants, 255 (93.7%) were single and 208 (76.5%) had children.

Regarding education, 51.5% (n=140) had completed only primary school, 35.3% (n=96) had secondary education, 8.8% (n=24) had pre-university education, and 4.4% (n=12) had no formal education.

Residence was concentrated in peri-urban areas, with 71.0% (n=191) residing, and 95.2% (n=259) in conventional housing. Regarding housing, 44.9% (n=122) lived in rented or shared homes, 35.3% (n=96) in family homes, and 19.9% (n=54) in their own homes.

Sex work was the main source of income for 85.7% (n=233), while 14.3% (n=39) combined this activity with other jobs. The monthly income of 86 participants (44.1%) was between 5,000 and 10,000 meticais, of 55 (28.2%) between 10,000 and 20,000 meticais, and of 27 (13.8%) between 20,000 and 50,000 meticais. Regarding expenses, 72 (26.5%) reported values between 5,000 and 10,000 meticais and 63 (23.1%) between 10,000 and 30,000 meticais.

**Table 2.** Sociodemographic and economic characteristics of the population. Maputo, Mozambique, 2025.

| Characteristics | N = 272 | %** |
|---|---|---|
| **Marital status** | | |
| Single | 255 | 93.7 |
| Married or in a civil partnership | 16 | 5.9 |
| No response | 1 | 0.4 |
| **Age in years*** | | |
| Mean (min. – max.) | 21.7 | (18.1–24.4) |
| Median (SD) | 21.8 | (3.1) |
| **Motherhood** | | |
| Yes | 208 | 76.5 |
| No | 64 | 23.5 |
| **Education level** | | |
| No formal education | 12 | 4.4 |
| Primary | 140 | 51.5 |
| Secondary | 96 | 35.3 |
| Pre-university | 24 | 8.8 |
| **Location of residence** | | |
| Peri-urban | 191 | 71.0 |
| Urban | 78 | 29.0 |
| No response | 3 | - |
| **Type of residence** | | |
| Conventional | 259 | 95.2 |
| Wood and zinc | 13 | 4.8 |
| **Residence** | | |
| Rented or owned by friends | 122 | 44.9 |
| From parents/relatives | 96 | 35.3 |
| Owned | 54 | 19.8 |
| **Lives with..** | | |
| Children | 77 | 28.3 |
| Parents | 74 | 27.2 |
| Friends | 49 | 18.0 |
| Grandparents | 32 | 11.8 |
| Husband or boyfriend | 26 | 9.6 |
| Alone | 14 | 5.1 |
| **Sources of income** | | |
| Sex work | 233 | 85.7 |
| Sex work and other jobs | 39 | 14.3 |
| **Estimated monthly income** | | |
| Less than 5.000 | 27 | 13.8 |
| Between 5.000 and 10.000 | 86 | 44.1 |
| Between 10.000 and 20.000 | 55 | 28.3 |
| Between 20.000 and 50.000 | 27 | 13.8 |
| No response | 77 | - |
| **Estimated monthly expenses** | | |
| Less than 5.000 | 53 | 28.2 |
| Between 5.000 and 10.000 | 72 | 38.3 |
| Between 10.000 and 30.000 | 63 | 33.5 |
| No response | 84 | - |

**Legend**: *In the case of age. n = 268 (4 missing); ** % calculated based on valid responses.
**Source:** Prepared by the authors. 2025.

Almost all participants, 99.3% (n=270), had heard of HIV, and 87.0% (n=235) knew how infection occurs. Testing was widely reported: 99.6% (n=269) had taken at least one HIV test, all of which were negative in their last test.

Regarding PrEP, 98.9% (n=269) reported knowledge of the method, primarily through healthcare professionals, as indicated by 75.0% (n=204). The majority, 82.4% (n=224), participated in educational

activities about prophylaxis, including lectures, of which 53.6% (n=120) attended at least one and 33.9% (n=76) attended between two and four.

Regarding knowledge about PrEP use, 83.8% (n=228) knew how to take the medication. Participation in HIV discussion groups or associations was reported by 50.4% (n=137) (Table 3).

Regarding condomless sex since starting PrEP, 42.3% (n=63) reported never using it, 38.3% (n=57) sometimes using it, and 19.5% (n=29) rarely using it.

**Table 3.** Experience as a FSWs and knowledge about HIV and PrEP. Maputo, Mozambique, 2025.

| Variable | N = 272 | %* |
|---|---|---|
| **Time working as a FSW** | | |
| Up to 12 months | 56 | 29.3 |
| Between 1 and 3 years | 84 | 44.0 |
| Between 3 and 5 years | 36 | 18.8 |
| More than 5 years | 15 | 7.9 |
| No response | 81 | |
| **Main reasons for becoming a FSW** | | |
| Financial need | 129 | 47.5 |
| Lack of alternative employment | 110 | 40.4 |
| Help support family | 33 | 12.1 |
| **Who supported me in this profession** | | |
| My friends | 234 | 87.0 |
| My family | 13 | 4.9 |
| My partner | 10 | 3.7 |
| Health agent | 3 | 1.1 |
| No one | 9 | 3.3 |
| No response | 3 | |
| **Additional occupation** | | |
| No | 115 | 42.3 |
| Yes | 157 | 57.7 |
| **Risks that identify as a FWS** | | |
| HIV exposure | 209 | 76.8 |
| Stigma/discrimination | 18 | 6.6 |
| Sexual violence | 18 | 6.6 |
| Exposure to Sexually Transmitted Infections (STIs) | 17 | 6.3 |
| Physical or verbal violence | 10 | 3.7 |
| **Has heard about HIV** | | |
| Yes | 270 | 99.3 |
| No | 2 | 0.7 |
| **Knows how a person becomes infected with HIV** | | |
| Yes | 235 | 87.0 |
| No | 35 | 13.0 |
| No response | 2 | |
| **Has taken an HIV test** | | |
| Yes | 269 | 99.6 |
| No | 1 | 0.4 |
| No response | 2 | |
| **Last HIV test result** | | |
| Negative | 268 | 99.6 |
| I don't remember | 1 | 0.4 |
| No response | 3 | |
| **People who support you in HIV prevention** | | |

| | | |
|---|---|---|
| Friends | 130 | 47.8 |
| My partner | 24 | 8.8 |
| Community organizations | 63 | 23.2 |
| Healthcare professional | 55 | 20.2 |
| **Support you receive from people close to you for HIV prevention** | | |
| Emotional support | 192 | 70.5 |
| Practical support in taking medication | 57 | 21.0 |
| Other | 23 | 8.5 |
| **Is part of a group/association where HIV is discussed** | | |
| Yes | 137 | 50.4 |
| No | 135 | 49.6 |
| **Has heard about PrEP** | | |
| Yes | 269 | 98.9 |
| No | 3 | 1.1 |
| **Knows how to take PrEP** | | |
| Yes | 228 | 84.8 |
| No | 41 | 15.2 |
| No response | 3 | - |
| **How got information about PrEP** | | |
| Schoolmates or work colleagues/family/neighbors | 39 | 14.5 |
| Healthcare professional | 204 | 75.8 |
| Social media/TV/radio | 26 | 9.7 |
| No response | 3 | - |
| **Has participated in events about PrEP** | | |
| Yes | 224 | 83.3 |
| No | 45 | 16.7 |
| No response | 3 | - |
| **Has attended lectures about PrEP** | | |
| None | 1 | 0.4 |
| One | 120 | 53.6 |
| Between 2 and 4 | 76 | 33.9 |
| More than 4 | 27 | 12.1 |
| No response | 48 | - |
| **Has taken PrEP at least once** | | |
| Yes | 154 | 57.2 |
| No | 107 | 39.8 |
| I don't remember | 8 | 3.0 |
| No response | 3 | - |
| **What has changed in the sexual relationships since starting PrEP** | | |
| I have increased the number of partners I have had. | 90 | 62.9 |
| I have stopped using condoms. | 8 | 5.6 |
| I have reduced the number of partners I have had. | 45 | 31.5 |
| No response | 129 | - |
| **Frequency of condom use after starting PrEP** | | |
| Rarely use | 3 | 2.0 |

| | | |
|---|---|---|
| Always use | 135 | 91.2 |
| Occasionally use | 10 | 6.8 |
| No response | 124 | - |
| **Number of times you have had condomless sex since starting PrEP** | | |
| Never have | 63 | 42.3 |
| Sometimes | 57 | 38.3 |
| Rarely | 29 | 19.4 |
| No response | 123 | - |

**Legend:** * % calculated based on valid responses.
**Source**: Prepared by the authors, 2025.

Among the 272 participants, 42.3% (n=115) reported adhering to and restarting PrEP, while 57.7% (n=157) refused to either initiate or restart use. Of the 154 participants who had already initiated PrEP, 53.8% (n=83) maintained use. Another 25.4% (n=39) discontinued it, and 20.8% (n=32) restarted it after discontinuation (Table 1).

Among the 143 participants who initiated PrEP, 62.9% (n=90) reported an increase in the number of partners, 31.5% (n=45) reported a decrease, and 5.6% (n=8) indicated discontinuation of condom use. Among the 148 participants who responded about condom use after starting PrEP, 91.2% (n=135) reported always using it, 6.8% (n=10) occasionally using it, and 2.0% (n=3) rarely using it. There were 124 non-responses (Table 4).

In the multinomial logistic regression (Table 4), 37.5% (n=102) reported psychosocial and family support (OR = 5.7; 95% CI: 2.022–9.38; p = 0.002). Perceived accessibility of PrEP was reported by 26.1% (n=71) and participation in discussion groups on the topic by 19.1% (n=52). Good care provided by healthcare professionals was reported by 17.3% (n=47). Among the barriers, the following stood out: stigma and discrimination related to prophylaxis, mentioned by 59.6% (n=162), medicine shortages in health centers by 19.1% (n=52), non-participation in HIV discussion groups by 19.1% (n=52) and residence in urban areas by 2.2% (n=6).

**Table 4.** Facilitators and barriers to PrEP adherence. Maputo, Mozambique, 2025.

| | Total n=272 | | OR; 95% CI | *p* value |
|---|---|---|---|---|
| | N | % | | |
| **Facilitators** | | | | |
| Psychosocial and family support | 102 | 37.5 | 5.7; 2.022 – 9.38 | 0.002 |
| Perception of PrEP accessibility | 71 | 26.1 | 4.6; 1.44 – 7.89 | 0.005 |
| Participate in PrEP discussion groups | 52 | 19.1 | 1.3; 0.77 – 3.3 | 0.001 |
| Receive good care from healthcare providers | 47 | 17.3 | 2.1; 1.02 – 4.81 | 0.000 |
| **Barriers** | | | | |
| Stigma and discrimination | 162 | 59.6 | 1.7; 0.22 – 3.32 | 0.025 |
| Medication shortages in health facilities | 52 | 19.1 | 2.95; 1.13 – 4.76 | 0.001 |
| Not participating in HIV discussion groups | 52 | 19.1 | 3.1; 2.44 – 6.74 | 0.000 |
| Living in urban areas | 6 | 2.2 | 2.19; 0.49 – 3.89 | 0.011 |

**Source:** Prepared by the authors, 2025.

## DISCUSSION

The results of this study showed that less than half of the participants adhered to prophylaxis, demonstrating that refusal and discontinuation continue to constitute important barriers to combination HIV prevention[24-25]. Psychosocial and family support stood out as central facilitators of adherence, while social stigma and disruptions in medication supply emerged as critical barriers. Accessibility of prophylaxis, participation in discussion groups, and the quality of health care were also positively associated with PrEP continuation.

These results indicate that adherence is not limited to an individual decision, but rather results

from the interaction of factors at different levels[26]. At the individual level, motivation, knowledge about HIV, and the perception of the medication's effectiveness were found to be decisive in initiating and maintaining prophylaxis, in line with the World Health Organization's definition[22].

At the interpersonal level, psychosocial and family support strengthened participants' confidence and encouraged continued use, confirming the results of studies conducted in Zimbabwe and South Africa, which demonstrated that interpersonal support networks are determinants of sustained adherence[12,27].

At the community level, social stigma proved to be a cross-cutting barrier. Many women feared being seen as living with HIV simply because they used PrEP, a finding already described in studies conducted in the United States and Kenya, which identified stigma as a cause of refusal or discontinuation of prophylaxis[7,9]. This stigma, as a symbolic and social phenomenon, goes beyond the individual and reinforces gender inequalities and social exclusion, as documented in Uganda[28].

At the institutional level, drug shortages and failures in the quality of care have undermined trust in the health system, confirming evidence from studies in South Africa that demonstrate that the continuity of PrEP depends heavily on the stability of drug supply and the quality of clinical interactions[10-11].

These results demonstrate that, despite the free availability of PrEP in Mozambique, its effective use remains limited by barriers that go beyond the individual user's sphere, including interpersonal, community, and structural factors. The decision to adhere to, maintain, discontinue, or refuse PrEP is a complex process. FSWs simultaneously manage the risk of HIV infection[26], the social stigma associated with its use[4], and institutional failures in the continuous provision of the drug[29]. In this context, risk management depends not only on individual motivation but is profoundly influenced by interpersonal and community support networks and the capacity of the national health system to guarantee continuous and reliable access to prophylaxis [26]. Given this reality, it is recommended to strengthen community awareness campaigns aimed at reducing stigma surrounding PrEP, involving local leaders, support networks, and the FSWs themselves as protagonists in promoting adherence. At the same time, it is essential to ensure a stable medication supply in health centers to consolidate trust in the health system and ensure continued prophylaxis use, positioning PrEP as one of the pillars of combined HIV prevention in Mozambique [13,14,17].

The results show that adherence and refusal mechanisms are interdependent and non-linear. Interpersonal support mitigates individual weaknesses but is limited by community stigma and institutional inefficiency. These findings align with international literature, which highlights the importance of interconnecting clinical, psychosocial, and community factors to strengthen PrEP adherence [12,30,31].

Regarding behavioral changes, ambivalence was observed: some participants reported an increase in the number of partners after starting PrEP, a phenomenon described as risk compensation in France and other European contexts[32-33], while the majority maintained regular condom use, suggesting the incorporation of prophylaxis into combined prevention strategies, as observed in South Africa [5,30,31,34]. This heterogeneity confirms that PrEP is appropriated in different ways, sometimes functioning as a partial substitute for, sometimes as a complement to, preventive practices, always situated in contexts of social vulnerability and inequality.

This study has some limitations that should be considered. Data were obtained through self-reporting, which may introduce recall and social desirability bias, particularly regarding questions about sexual practices and PrEP use. The sample was restricted to five health centers in the city of Maputo, limiting the generalizability of the results to other regions of the country and to women of different age groups. Nevertheless, the results are internally robust and offer relevant evidence for understanding, from a multilevel perspective, the factors associated with PrEP adherence and refusal among FSWs in an urban context[7,10,12,35].

## CONCLUSION

This study analyzed the factors associated with PrEP adherence among FSWs in Maputo city and showed that less than half of the participants adhered, confirming refusal and discontinuation as persistent barriers to combination HIV prevention.

Adherence was found to be conditioned by factors at multiple levels: individual motivation and knowledge; psychosocial and family support; community stigma; and institutional failures in medication provision and the quality of clinical care. To address these barriers, it is essential to promote community awareness campaigns about PrEP, strengthen support networks, and ensure regular medication supply with

quality health services, consolidating this prophylaxis as a central component of HIV prevention in Mozambique.

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## AUTHOR CONTRIBUTIONS

Study conception or design: Sucá A, Cuinhane CE. Data collection: Sucá A. Data analysis and interpretation: Sucá A, Cuinhane CE, Inguane HC, Salimo ZM, Chissaque A. Article writing or critical review: Sucá A, Cuinhane CE, Inguane HC, Salimo ZM, Chissaque A, Silva WP. Final approval of the version to be published: Sucá A, Cuinhane CE, Inguane HC, Salimo ZM, Chissaque A, Silva WP.

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## ETHICS APPROVAL

The research project was approved by the Institutional Bioethics Committee in Health of the Faculty of Medicine/Maputo Central Hospital approved the protocol through opinion number 08/2023 of September

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## CONFLICT OF INTEREST

The authors declare no conflict of interest.