



Factors influencing the retention of clients in oral pre-exposure prophylaxis (PrEP) care at 3 months after initiation in the Omusati region of Namibia

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ABSTRACT

Background: The United Nations has set a target of ending the HIV/AIDS epidemic as a public health threat by 2030. The WHO recommended the use of oral pre-exposure prophylaxis (PrEP) for HIV prevention for all people at substantial risk of HIV infection in 2016. In Namibia since the adoption of PrEP in 2016, many clients have been initiated on PrEP.

Objectives: The objectives of this study were to measure clients' rate of PrEP retention at three months and determine factors that influence it in the Omusati region of Namibia.

Methods: An analytical cross-sectional design was used for this study. Three hundred and forty-five participants were selected for this study using a simple random sampling method. The data were collected from the Electronic Patient Monitoring System (EPMS). Chi-square tests and logistic regression were used for data analysis.

Results: The retention rate in PrEP care at three months was 60 %. The Chi-square tests showed significant associations between age, sex, sexually transmitted infection (STI) symptoms, marital status, HIV status and viral load of partner, number of sexual partners, and retention in PrEP care at three months ($p < 0.05$). Logistic regression analysis revealed that females and those with STI symptoms were more likely to be retained in PrEP care, Adjusted Odds Ratio (AOR) = 2.21, 95 % CI (1.36–3.57), and AOR = 4.25, 95 % CI (1.23–14.63), respectively. Participants with HIV-negative/unknown status partners and with multiple/concurrent sexual partners were less likely to continue with PrEP, Crude Odds Ratio (COR) = 0.56, 95 % CI (0.36–0.86), COR = 0.39, 95 % CI (0.16–0.96), respectively.

Conclusion: The findings of this study accentuate the need for increased provision of information on the importance of the continuation of PrEP.

1. Introduction

Globally, there were about 38 million people living with HIV (PLHIV) in 2021. About 650 000 people died from AIDS-related illnesses while 1.5 million people were newly infected with HIV in the whole world in 2021 (UNAIDS, 2022). Of all the PLHIV globally in 2021, 85 % knew their status, 75 % were accessing antiretroviral therapy (ART), and 68 % were virally suppressed (UNAIDS, 2022). Sub-Saharan Africa (SSA) has the majority of PLHIV. It was estimated that there were 21 million PLHIV in 2021, while 280 000 people died of AIDS-related

illnesses in SSA (UNAIDS, 2022). About 78 % of PLHIV in SSA were accessing treatment in 2021. However, of concern is that the region still reports a high number of new infections. In 2021, SSA reported 670 000 new infections (UNAIDS, 2022). About 8.5 % of the general population lived with HIV in Namibia in 2022. There were about 216 000 PLHIV in Namibia in 2022 (PEPFAR, 2022). About 94 % of PLHIV in 2022 in Namibia knew their status, 97 % of those who knew their status were accessing ART, and 93 % of those accessing ART were virally suppressed. There were 3 165 AIDS-related deaths and 5 940 new infections in the country in 2022 (PEPFAR, 2022). Although the number of new

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infections has reduced by half since 2004, the number is still unacceptably high if the country is to achieve HIV epidemic control by 2025 (PEPFAR, 2022).

The United Nations has set a target of ending the HIV/AIDS epidemic as a public health threat by 2030 (UNDP, 2022). In 2022, the WHO set a target to reduce new HIV infections to <560 000 by 2025 (UNAIDS, 2022). To achieve this target, a combination of HIV prevention measures should be implemented. The prevention measures can be divided into behavioural, biomedical, and structural interventions. Biomedical interventions include voluntary medical male circumcision (VMMC), antiretroviral treatment as prevention (TasP), prevention of mother-to-child transmission (PMTCT), pre-exposure prophylaxis (PrEP), and post-exposure prophylaxis (PEP) (Bekker, et al., 2012).

PrEP is the use of antiretroviral drugs by HIV-negative people at substantial risk to prevent the acquisition of HIV. The WHO recommended the use of oral PrEP for HIV prevention for all people at substantial risk of HIV infection in 2016 (WHO, 2021). This recommendation was informed by a systematic review of twelve randomised controlled trials of tenofovir disoproxil fumarate (TDF)-based oral PrEP (Fonner, et al., 2016). The use of oral PrEP can reduce the risk of acquiring HIV by up to 99 % with good adherence (WHO, 2021). The global uptake of PrEP has been increasing since it was recommended for HIV prevention by the WHO. About 845 000 people in at least 54 countries received PrEP in 2020. This number was a 43 % increase from 2019 and a 182 % increase from 2018 (UNAIDS, 2022). However, it is just 28 % of the United Nations target of 3 million people in low-to-middle-income countries in 2020 (UNAIDS, 2022). Another concern is that PrEP uptake in Africa is still concentrated in a few countries. About 19 % of clients who were initiated on PrEP in 2020 were from Kenya and South Africa only (UNAIDS, 2022). Different organizations and different countries use different definitions of retention in PrEP care (Chan, et al., 2019). According to the Centers for Disease Control and Prevention (CDC), clients are said to be retained in PrEP care if they are attended to at healthcare institutions three months after initiation of PrEP (CDC, 2021). It is advised that once a client has been initiated on PrEP, he/she should continue for at least one month after the last potential HIV exposure (CDC, 2021). Retention in PrEP care is influenced by several factors. These factors differ from one community to another. Some of the factors mentioned in previous studies can be divided into individual, societal, and facility-based factors (Arnold, et al., 2017). Individual factors include the sex and age of the client (Kagaayi, et al., 2020), fear of drug side effects (Rogers, et al., 2022), experiencing drug side effects (Jackson-Gibson, et al., 2021), the perception of risk of HIV infection (Eubanks, et al., 2022), the level of education (Chan, et al., 2019), and the number of sexual partners (Pillay, et al., 2020). Societal factors include the support of partners, relatives, and friends (Rogers, et al., 2022), the HIV status of the partner (Kagaayi, et al., 2020), whether the HIV-positive partner is on treatment or not (Ongolly, et al., 2021), as well as stigma from community or family members (Arnold, et al., 2017). Facility-based factors include the location of the health facility, working hours, refill times, stigma from healthcare workers, and waiting time (Ongolly, et al., 2021).

Namibia adopted the WHO oral PrEP guidelines in 2016. Since the adoption of PrEP, many clients have been initiated on PrEP. People who were put on PrEP increased from 4 702 in 2018 to 10 583 in 2019 (PEPFAR, 2020). In 2021, 18 340 clients were newly initiated on oral PrEP (PEPFAR, 2022). However, it has been reported that the majority of the patients do not continue with the prophylaxis (PEPFAR, 2020). Omusati region is one of the 14 regions in Namibia with high HIV incidence estimated to be between 9 and 15 % (PEPFAR, 2020). In the Omusati region, many clients who are initiated on HIV Pre-Exposure Prophylaxis (PrEP) are not being retained for long periods of time (PEPFAR, 2022). The reasons for the failure to retain PrEP clients in care are unknown and not documented. We conducted this cross-sectional study to measure clients' rate of retention and determine factors that influence retention in PrEP care at three months among clients in the

Omusati region of Namibia. Three months were chosen since the healthcare institutions in Namibia follow the national PrEP guidelines which, like the CDC guidelines, require that clients attend a follow-up consultation at three months (MOHSS, 2021).

2. Methods

2.1. Study area and study period

The study was conducted in the Omusati region of Namibia. Omusati region is one of the 14 regions in Namibia with 4 districts. It is located in the northern part of Namibia bordering Angola. The estimated population of the Omusati region is about 253,000 people with about 27,000 people living with HIV. The facilities chosen were Outapi, Tsandi, Okahao, and Oshikuku district hospitals. These facilities were chosen because they have a greater number of the target population. Data were collected from 1 November to 31 December 2022.

2.2. Study design

An analytical cross-sectional design was used for this study. This design was chosen because it allows for the determination of associations between the dependent variable and independent variables.

2.3. Study population

The target population was the HIV-negative clients receiving PrEP in the four districts of the Omusati region. The population size of clients initiated on PrEP during the study period was 1000.

2.4. Sample size

The sample size was determined using EPI INFO version 7.2. The expected prevalence used in the calculation was taken from the average retention in PrEP care at three months revealed by a systematic review and meta-analysis study conducted in 2020, which was 50 % (Stankevitz, et al., 2020). The confidence interval was assumed to be 95 %, the margin of error 5 %, and an additional contingency of 20 %. Therefore the sample size was 348.

2.5. Inclusion criteria

Participants who were included in this study were clients who were HIV-negative and initiated on PrEP between January 2021 and June 2022 and had records with the complete information required for the study.

2.6. Exclusion criteria

Clients who were initiated on PrEP outside the Omusati region were excluded from the study since it was difficult to obtain their baseline variables at the time they were initiated on PrEP.

2.7. Sampling method

The healthcare facilities that were included in this study were selected purposively. Only facilities that initiated at least 5 clients on PrEP per month were included in the study. A simple random sampling method was used to select the participants for the study. Using the facility's Electronic Patient Monitoring System (EPMS), a list of clients on PrEP who met the set criteria was generated using client unique numbers, leaving out the names. Microsoft Excel was used to generate the random sample from the dataset.

2.8. Data collection

The data were collected from three sources which are the EPMS, PrEP Cards, and the Prep registers. The first tool used was the EPMS which is found in all ART clinics in the region and is used for the storage of information for all clients receiving ART and PrEP. The EPMS was used to generate the list of PrEP clients. Another tool that was used is the PrEP registers, which are facility-based tools used for registering all clients who are initiated on PrEP. The PrEP cards are used to record and track the client while on care. Information from the PrEP cards is then used to update the EPMS. Information retrieved from the EPMS was verified using the registers and PrEP cards. Registers and PrEP cards were used to update incomplete records identified from the list. The information collected included the age, sex, marital status, place of residence, STI symptoms, HIV status of partner, condom use with a partner, viral load of partner, the number of sexual partners, and whether a patient was still on PrEP or not at three months since this was the information collected at the healthcare institutions. The data abstraction tool is attached as Appendix A.

2.9. Reliability

EPMS is a tool that is used to capture and store information for all PrEP clients in the region. The system is made in such a way that when data is entered incompletely, the user will not be able to save the data and or move on to the next client until all information is entered. This inbuilt mechanism helps in the collection of complete data every time a client is reviewed. In addition, user variability is reduced across all users in the region because the system is user-friendly and alerts the user when inapplicable information and/or incomplete information is entered. Universal codes and formats are available to every user and are explained in simple terminology. This implies that all data clerks capture data uniformly making the data more reliable and representative to use. To also ensure that the data collected was reliable, the researcher cross-checked all the data that would have been entered by the data clerks for accuracy.

2.10. Validity

Five experts in HIV were consulted to determine the validity of the data abstraction tool. The experts were requested to determine the relevancy of each item in the tool and an index of content validity (CVI) for each item was calculated. The average of the CVI for all the items was calculated to determine the content validity of the tool. The average was 0.94, which confirmed that the tool had excellent validity. A tool with an excellent validity should have an average CVI of 0.90 (Rodrigues, et al., 2017).

2.11. Data analysis

Data were transferred to IBM SPSS Statistics version 28 for Windows for analysis. Frequencies and percentages were used to determine the retention rate in care. The model's goodness of fit was determined by performing nonparametric Chi-square tests that compared if the observed frequencies of the variables were not statistically significantly different from the expected frequencies. Chi-square tests were used to determine associations between retention in PrEP care at three months and each variable. Logistic regression was used to determine the extent of the associations. The outcome variable was the continuation of PrEP care. Independent variables that had statistically significant associations on crude analysis with retention in PrEP care at three months were included in the adjusted odds analysis. Reference groups for the logistic regression were determined by information from the literature review. Confidence intervals of 95 % and Chi-square test p-values were used to determine the statistical significance of the findings.

2.12. Ethical considerations

The study was approved by the Office of the Executive Director in the Ministry of Health and Social Services of Namibia and the ethics clearance number is REF:22/4/2/3 and the regional director of health for the Omusati region. The ethics committee waived the requirement for the researchers to obtain informed consent from the clients since the data being used was anonymised.

3. Results

3.1. Characteristics of participants

Data were collected from 345 participants. The majority of the participants ($n = 212$; 61.4 %), were females, while fewer ($n = 133$; 38.6 %) were males. The majority of the participants ($n = 331$; 95.9 %), stayed in rural areas, were single ($n = 224$; 64.9 %), inconsistently used condoms with their partners ($n = 344$; 99.7 %), and had one sexual partner ($n = 324$; 93.9 %). The proportion of participants who were retained in PrEP care at three months after initiation was 60 %, 95 % CI (54.8–65.2 %). More details are presented in Table 1.

3.2. Characteristics associated with retention in PrEP care at three months after initiation

The Chi-square tests showed statistically significant associations

Table 1
Characteristics of participants.

Characteristic	Total n (%)
Age	
10–19	6 (1.7)
20–29	89 (25.8)
30–39	119 (34.5)
40–49	90 (26.1)
50–59	26 (7.5)
60–69	13 (3.8)
70–79	2 (0.6)
Sex	
Male	133 (38.6)
Female	212 (61.4)
Place of residence	
Rural	331 (95.9)
Urban	14 (4.1)
STI symptoms	
No symptoms	332 (96.2)
Vaginal discharge	1 (0.3)
Urethral discharge	1 (0.3)
Others	11 (3.2)
Marital status	
Single	224 (64.9)
Married	63 (18.3)
Cohabiting	55 (15.9)
Separated	3 (0.9)
HIV status of partner	
Positive	165 (47.8)
Negative	2 (0.6)
Unknown	178 (51.6)
Condom use with a partner	
Frequent	1 (0.3)
Inconsistent	344 (99.7)
Viral load of partner	
Undetectable	148 (42.9)
Detectable	17 (4.9)
Non-applicable	180 (52.2)
Number of sexual partners	
One	324 (93.9)
Multiple/Concurrent	21 (6.1)
PrEP status at 3 months after initiation	
Retained in care	207 (60.0)
Not retained in care	138 (40.0)

between age, sex, STI symptoms, marital status, HIV status of partner, viral load of partner, number of sexual partners, and retention in PrEP care at three months after initiation ($p < 0.05$). Using the age group 40–49 years as the reference group, the odds of retention in PrEP care at three months after initiation were statistically significantly less likely in crude analysis but the association did not hold in adjusted analysis for the age group < 30 years, crude odds ratio (COR) = 0.49, 95 % CI (0.27–0.89). Participants in age groups 30–39 years and greater than 49 years were statistically significantly more likely to be retained in PrEP care compared to those in the age group 40–49 years in adjusted analysis, adjusted odds ratio (AOR) = 2.94, 95 % CI (1.29–6.73) and AOR = 1.99, 95 % CI (1.10–3.73), respectively. Using males as the reference group, the odds of retention in PrEP care at three months after initiation were statistically significantly more likely in both crude and adjusted analysis for females, AOR = 2.21, 95 % CI (1.36–3.57). Using no symptoms as the reference group, the odds of retention in PrEP care at three months after initiation were statistically significantly more likely in adjusted analysis for those with STI symptoms, AOR = 4.25, 95 % CI (1.23–14.63). Using participants with HIV-positive partners as the reference group, those with HIV-negative/unknown status partners were statistically significantly less likely to continue with PrEP at three months after initiation, crude odds ratio (COR) = 0.56, 95 % CI (0.36–0.86), but the association did not hold in adjusted analysis. In addition, using participants with partners with a detectable viral load as the reference group, those with partners with undetectable viral load were not statistically significantly different in their retention rate in PrEP care at three months after initiation, COR = 1.19, 95 % CI (0.40–3.56). Furthermore, using participants with partners with one sexual partner as the reference group, those with multiple/concurrent sexual partners were statistically significantly less likely to continue with PrEP at three months after initiation, COR = 0.39, 95 % CI (0.16–0.96), but the association did not hold in adjusted analysis. More details are presented in Table 2.

4. Discussion

This study revealed that 60 % of the participants were still in PrEP care three months after initiation. The proportion of participants who were retained in PrEP care at three months in this study was lower than that reported in a study conducted in Durban, South Africa among women who were enrolled in the Evidence for Contraceptive Options and HIV Outcomes (ECHO), which was 80 % (Beesham, et al., 2022). The proportion of participants retained in PrEP care in this study may have been lower because data for this study were collected in a real-world setting instead of a clinical trial setting. Generally, participants have higher rates of adherence to medical interventions in clinical trials compared to real-world settings (van Onzenoort, et al., 2011). Furthermore, this study included both men and women, instead of just women used in the study nested within the ECHO trial (Beesham, et al., 2022). However, the retention rate at three months in the current study was higher than the 37 % reported by a study conducted among adolescent girls and young adult women enrolled in the Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe (DREAMS) initiative in Kenya (de Dieu et al., 2021). The retention rate difference might reflect the differences in risk perception and PrEP knowledge among the participants in the different settings.

Participants who were younger than 30 years were less likely to be retained in PrEP care in this study compared to those who were between 40 and 49 years. This finding is similar to that revealed in a study conducted among key populations in Cameroon, which showed that older participants were more likely to continue with PrEP compared to those who were younger (Ndenkeh, et al., 2022). These findings may be due to the fact that younger people have a lower risk perception compared to older people. Moreover, younger people may have lower knowledge of PrEP compared to older people. This study also revealed that females were more likely to be retained in PrEP care compared to males. This result is similar to that revealed in a study conducted in

Table 2
Crude and adjusted odds ratios by characteristics of the participants.

Characteristics	Crude Odds ratios (**COR)	95 % CI*	p-value of COR	Adjusted Odds ratios (***AOR)	95 % CI*	Chi-square test p-value
Age						0.045
<30 years	0.49	0.27–0.89	0.02	1.42	0.81–2.50	
30–39 years	0.74	0.42–1.31	0.30	2.94	1.29–6.73	
40–49 years	Reference	Reference		Reference	Reference	
>49 years	1.21	0.54–2.70	0.64	1.99	1.10–3.73	
Sex						<0.01
Male	Reference	Reference		Reference	Reference	
Female	1.92	1.23–2.98	<0.01	2.21	1.36–3.57	
Place of residence						0.824
Rural	Reference	Reference		Reference	Reference	
Urban	0.88	0.30–2.61	0.82	NI	NI	
STI symptoms						0.028
No symptoms	Reference	Reference		Reference	Reference	
Symptoms	0.28	0.09–0.94	0.03	4.25	1.23–14.63	
Marital status						<0.01
Single	Reference	Reference		Reference	Reference	
Married	1.69	0.94–3.04	0.08	NI	NI	
HIV status of partner						<0.01
Positive	Reference	Reference		Reference	Reference	
Negative/ Unknown	0.56	0.36–0.86	<0.01	0.55	0.23–1.32	
Viral load of partner						0.03
Detectable	Reference	Reference		Reference	Reference	
Undetectable	1.19	0.40–3.56	0.76	NI	NI	
Not applicable	2.10	0.71–6.21	0.17	NI	NI	
Number of sexual partners						0.034
One	Reference	Reference		Reference	Reference	
Multiple/ concurrent	0.39	0.16–0.96	0.03	0.49	0.19–1.29	

*CI is the 95 % confidence intervals. NI – Not included in adjusted logistic regression analysis.

**COR – Effect measure from the binary logistic regression model.

***AOR – Effect measure from the multivariate logistic regression where the effect measure is adjusted according to age, sex, STI symptoms, HIV status of partner, and the number of sexual partners.

Ethiopia which reported that males were more likely to stop their antiretroviral therapy compared to females (Bucciardini, et al., 2017). These findings may reflect the differences in the healthcare-seeking behaviours of males and females. Females usually have greater healthcare-seeking behaviour compared to males (Thompson, et al., 2016).

This study revealed that participants who had partners who were HIV-negative or whose HIV status was unknown were less likely to be retained in PrEP care compared to those whose partners were HIV-positive. This result concurs with that reported in a study conducted in rural Uganda and Kenya which also revealed that participants in a sero-discordant partnership were more likely to be retained in PrEP care (Koss, et al., 2020). This study also revealed that the PrEP retention rate at three months was similar for participants with partners whose viral load was undetectable and those whose partners had a detectable viral load. These findings make sense because clients might not have had the information about the meaning of viral load, making it unlikely that they would use this information to decide on whether to be retained or not. Furthermore, clients who do not know the HIV status of their partners may assume that the partners are not HIV-positive and therefore they are not at risk of HIV infection.

This study revealed that participants with STI symptoms were more likely to be retained in PrEP care compared to those who did not have STI symptoms. These findings differ from those reported in a study conducted at an HIV prevention clinic which revealed that clients who had STIs and those who did not have STIs at the initiation of PrEP had similar retention rates at three months (Burns, et al., 2022). The results of the current study are understandable because clients who have STI symptoms may be afraid of acquiring HIV and therefore may remain in PrEP care. In addition, this study revealed that participants who had multiple/concurrent sexual partners were less likely to be retained in PrEP care compared to those who had a single partner. This finding is similar to that of another study conducted in South Africa, which showed that women with more than one partner were less likely to be retained in PrEP care (Beesham, et al., 2022). These findings may reflect the risk-taking behaviour of the clients. Clients with STI symptoms and multiple/concurrent partners may be risk takers and therefore may not be retained in PrEP care because of their behaviour, even if they may still be at risk of HIV infection. They may also not be retained in PrEP care because they may perceive themselves as being at low risk of HIV infection. Another reason may be that clients with STI symptoms may avoid going to healthcare institutions for fear of being discriminated against by healthcare providers.

Based on these findings, we recommend that information on the importance of retention in PrEP care be made easily available in places where young adults are found, such as high schools, colleges, universities, and bars since they are less likely to be retained in PrEP care. The Omusati region should also consider providing PrEP at the clinics during weekends and holidays to increase accessibility to people who are employed who might not find time during working days. Integrating PrEP services with other sexual and reproductive health services like family planning, antenatal care, and postnatal care can potentially increase retention in PrEP care since clients will be able to attend their follow-ups while accessing other services (Abdool Karim & Baxter, 2021). In addition, the region should also make sure that the clinics that offer PrEP are youth-friendly and that the healthcare providers are trained to prevent discrimination and stigmatization of young people who seek PrEP (Ekwunife, et al., 2022). Mass media and sporting events can also be used to disseminate information. The information should also cover issues of HIV risk perception and reduction. It should be communicated to people that although HIV-positive partners on antiretroviral therapy who have undetectable viral load cannot transmit HIV

to them, the frequency of these tests is low, so there might be periods where the viral load may be detectable leading to a higher risk of HIV infection. It should also be communicated to the public that people who think that they may still be at risk of HIV infection should continue taking PrEP until one month after there is no longer any risk of HIV infection. This information should be communicated in all local languages and should be easily understandable (Sullivan, et al., 2019).

This study had several strengths. One of the strengths is that the quantitative data were collected from the clinics where the patients received their PrEP, which made it possible to verify the accuracy of the data by comparing it with the clients' paper files. Since the study was quantitative, the findings can be reproducible, making the findings believable. It is also possible to generalise the results to other regions in Namibia and Southern Africa which are largely rural like the Omusati region. The study also had several limitations. One of the limitations is that the study used secondary data, which made it impossible to determine the reasons why some clients discontinued taking PrEP. The other limitation is that the information was self-reported, making it difficult to verify its correctness. It is, therefore, important that a qualitative study be conducted in the Omusati region to determine the clients' knowledge about PrEP and the reasons why some of them are discontinuing PrEP.

5. Conclusion

The current study revealed that the retention rate in PrEP care in the Omusati region was low. Clients who were less likely to be retained in PrEP care were males, those younger than 30 years of age, not having STI symptoms, having partners who were HIV-negative or whose HIV status was unknown, and having multiple/concurrent sexual partners. It is therefore important that strategies are put in place to ensure that information on the importance of PrEP reaches young people and males. Furthermore, strategies to increase the accessibility of PrEP such as opening on weekends and holidays should be promoted. A future qualitative study is also required to determine reasons for discontinuing PrEP among clients.

6. What this study adds

This study was able to determine the PrEP retention rate in Namibia and the factors that influence the retention rate. These results can be used to inform policy on the strategies that can be used to improve the PrEP retention rate in Namibia and other countries in the region which have clients with similar profiles.

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CRediT authorship contribution statement

Trevor Dzenga: Conceptualization, Methodology, Writing – original draft. **Enos Moyo:** Conceptualization, Methodology, Writing – original draft, Supervision. **Perseverance Moyo:** Writing – review & editing. **Jacques Kamangu:** Writing – review & editing. **Tafadzwa Dzinamarira:** Supervision, Writing – review & editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Data abstraction tool

Variable	Response
1. Age (years)	
2. Sex	Male (1) Female (2)
3. Place of residence	Rural (1) Urban (2)
4. STI symptoms	No symptoms (1) Vaginal discharge (2) Urethral discharge (3) Anal discharge (4) Genital ulcers (5) Others (6)
5. Marital status	Single (1) Married (2) Co-habiting (3) Separated (4) Widowed (5)
6. HIV status of partner	Positive (1) Negative (2) Unknown (3)
7. Condom use with a partner	Frequent (1) Inconsistent (2) Never (3)
8. Viral load of partner	Undetectable (1) Detectable (2) Non applicable (3)
9. Number of sexual partners	One (1) Multiple/concurrent (2)
10. PrEP status at 3 months after initiation	Continued (1) Stopped (2)

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