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Determinants for Pre-exposure Prophylaxis Discontinuation among Perceived Low Risk Populations in Homa Bay and Kisii Counties, Kenya

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Abstract

Pre-exposure prophylaxis (PrEP) effectively prevents HIV, but early discontinuation—especially among those perceiving low risk—reduces its impact. This study explored socio-demographic and contextual factors influencing PrEP discontinuation and assessed healthcare worker engagement in Homa Bay and Kisii counties, Kenya. Using a correlational design, 293 individuals who stopped PrEP within three months were selected via stratified random sampling from LVCT Vukisha95-supported facilities. Data, collected through structured questionnaires and linked to program records, were analyzed using descriptive statistics, chi-square tests, and multivariable logistic regression to identify factors associated with discontinuation. Most participants were female (71.7%), aged 20–34 years, and from Homa Bay (68.3%). County of residence predicted discontinuation, with Kisii residents less likely to stop PrEP than Homa Bay residents (aOR = 0.09; 95% CI: 0.04–0.19; p < 0.001). Formal employment was associated with increased odds of discontinuation (aOR = 2.80; 95% CI: 1.24–6.45; p = 0.014). Individuals aged 25–29 (aOR = 0.26; p = 0.041) and 45–49 (aOR = 0.16; p = 0.038) were less likely to discontinue PrEP than adolescents 15–19 years. Education had a marginal effect, while sex, marital status, income, and HIV risk category were not significant. About 40% cited reasons differing from records, and only 15% consulted healthcare workers before stopping PrEP. PrEP discontinuation driven by perceived low HIV risk is influenced more by contextual and socioeconomic factors than actual risk, highlighting the need for personalized risk assessment, better documentation, and proactive healthcare worker engagement in high-burden areas.

Keywords: *Discontinuation, Engagement, PrEP, Risk Perception.*

Introduction

HIV remains a major global health challenge, with an estimated 39 million people living with the virus in 2022 and about 1.3 million new infections recorded that year. Africa continues to bear the greatest burden, accounting for roughly two-thirds of global cases, more than 660,000 new infections, and 60% of AIDS-related deaths [1]. Although new HIV infections have declined by 38% since 2010, sustaining strong prevention efforts remains essential, particularly in regions with persistently high transmission rates. Pre-Exposure Prophylaxis (PrEP) is a highly effective biomedical intervention that can reduce HIV acquisition by up to 99% when used consistently and correctly [2-4].

Despite its proven effectiveness, maintaining PrEP use over time remains a global challenge. Studies show that up to 40% of individuals initiating PrEP discontinue within six months, and nearly 35% stop within one year [5, 6]. Low perceived HIV risk is among the most frequently cited reasons for stopping, accounting for nearly half of discontinuation

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decisions [3]. Although many clients eventually resume PrEP—nearly 50% within a year—periods of interruption expose users and their partners to renewed risk of infection [7, 8].

African countries show strong PrEP uptake but lower consistency in long-term use. While return visits for early refills reach up to 88% in some settings, biomarker evidence indicates that daily adherence remains suboptimal, with more than one-third of clients showing no evidence of active use at six months [9, 10]. Reported reasons for discontinuation include low perceived HIV risk, side effects, relationship stability, and peer or partner influence. These patterns are reflected in Kenya, where PrEP uptake among women, especially those in serodiscordant relationships, has been substantial. However, only 12% of users remain on PrEP by the sixth month [11]. Among adolescent girls and young women in Homa Bay and Kisumu, clinic attendance was high, yet drug level testing revealed inconsistent use, often linked to low perceived risk [12].

Much of the existing research focuses on PrEP uptake and adherence, whereas the drivers of discontinuation—particularly decisions rooted in perceived low HIV risk—remain understudied. This gap is especially critical in high-prevalence counties such as Homa Bay and Kisii, where ongoing HIV transmission necessitates consistent prevention. Understanding why individuals discontinue PrEP despite residing in high-risk environments is essential for strengthening retention strategies and designing targeted, context-appropriate interventions.

This study therefore examines the factors contributing to PrEP discontinuation among individuals who perceive themselves to be at low risk of HIV infection in Homa Bay and Kisii Counties, Kenya. Specifically, it seeks to: (1) identify socio-demographic characteristics associated with stopping PrEP among people who believe their HIV risk is minimal and (2) assess the nature of support provided by healthcare workers and the health system to those who discontinue.

By addressing these gaps, the study aims to generate evidence that can strengthen PrEP retention, enhance risk-communication strategies, and support the development of responsive HIV prevention approaches in two of Kenya's highest-burden regions.

Materials and Methods

Description of the Site

The study was conducted in Homa Bay and Kisii Counties, focusing on individuals who had initiated PrEP but later discontinued it at LVCT Vukisha95-supported facilities. Data were obtained through interviews conducted in 12 purposively selected high-volume health facilities across both counties.

Homa Bay and Kisii are located in western Kenya. Homa Bay, along Lake Victoria, has approximately 1.31 million residents in 262,036 households and is served by 304 health facilities and 284 community health units staffed by about 2,950 community health volunteers. The county has the second-highest HIV burden nationally, with 109,786 people living with HIV, a 10.6% prevalence, 984 annual new infections, a 7.9% mother-to-child transmission rate, and 1,404 HIV-related deaths.

Kisii County has about 1.27 million people in 312,665 households and operates 156 health facilities supported by 190 community health units and 2,100 volunteers. It ranks tenth nationwide in HIV burden, reporting 48,202 people living with HIV, a 3.8% prevalence, 443 new infections annually, an 11.1% mother-to-child transmission rate, and 663 HIV-related deaths.

Despite strong health systems in both countries, their substantial HIV burden—especially in Homa Bay—highlights the need for focused and sustained prevention efforts.

Research Design

A correlational research design was employed. This design was used because PrEP use, risk perception, and behavioral or structural factors cannot be ethically manipulated. It allowed observation in natural settings, efficient data collection across subgroups, and identification of meaningful relationships and predictive patterns to inform future research, interventions, and policy.

Sampling and Sample Size

A stratified random sampling method was employed to ensure representation across different population groups strata that include high-risk populations, fisher fork, individuals in discordant relationships, adolescents and young persons, plus Pregnant and breastfeeding women. From each stratum, participants were randomly selected to participate in the survey.

Study Population

The study targeted 1,224 individuals from Homa Bay and Kisii Counties who stopped using PrEP after assessing themselves as being at low risk of HIV infection. Participants were identified using a PrEP line list generated from the Kenya EMR database by the LVCT Vukisha95 health informatics team. This line list captured whether clients were still on PrEP or had discontinued, as well as their reported reasons for discontinuation. All individuals had initiated PrEP within LVCT Vukisha95-supported health facilities.

The target population of 1,224 represented the annual average number of PrEP discontinuations recorded by the project in the two counties over the last three years. Homa Bay and Kisii were selected due to their strong involvement in the Vukisha95 program, which focuses on enhancing HIV prevention and care. From this population, the sample size was determined using the formula recommended by Kothari and Garg (2016).

$$n = \frac{Z^2.p.q.N}{e^{2\cdot}(N-1) + Z^2\,p.q}$$

This gives a sample size of 292.87, which is rounded to 293. A stratified random sampling approach was used to ensure proportional representation across various population groups, including high-risk populations, fisherfolk, individuals in discordant relationships, adolescents and young people, as well as pregnant and breastfeeding women, as outlined in Table 1 below. Participants from each stratum were randomly selected to take part in the survey.

Inclusion and Exclusion Criteria

Eligible participants for this study were individuals who were initiated on PrEP at LVCT Vukisha95-supported health facilities in Homa Bay and Kisii Counties, who were followed up by healthcare workers in these facilities, and discontinued PrEP not more than three months prior to the interview due to a perceived low risk of HIV infection.

Table 1. Distribution of Participants across Various Strata

Population Typology (Strata)	Population Count	Percentage of Population	Calculation (Sample of 293)	Sample Count
Discordant relationship	159	13%	0.13 x 293	38
Dreams Girl	79	6%	0.6 x 293	19
Female Sex Worker	192	16%	0.16 x 293	46
Fisher fork	104	8%	0.8 x 293	25
General Population	468	38%	0.38 x 293	112
MSM	63	5%	0.5 x 293	15

Research Instruments

A structured questionnaire combining open- and closed-ended questions was used to collect quantitative data. It was pilot-tested with 20 respondents to assess its clarity, effectiveness, and reliability, and adjustments were made based on feedback. Validity was ensured through expert review and field testing, which confirmed that the questions accurately captured the intended variables. Ambiguous, complex, or leading questions were avoided, and response scales carefully structured. Standardized administration procedures ensured consistency in questioning and recording, providing reliable and accurate data for the study.

Data Analysis

Quantitative data analysis was done to address the study objectives. Socio-demographic characteristics of participants, including age, gender, education, and occupation, were summarized using descriptive statistics such as frequencies, percentages, means, and standard deviations. Inferential analyses, including chi-square tests and logistic regression, were conducted to identify socio-demographic factors significantly associated with PrEP discontinuation. To evaluate the role of healthcare professional support, descriptive methods were used to categorise the services provided, including counselling, risk reassessment, follow-up, and referrals to alternative prevention strategies, while inferential analyses assessed whether specific types or levels of support were associated with discontinuation. All quantitative analyses were performed using SPSS Version 20, and results were presented in tables, graphs, and charts to enhance clarity and interpretation, providing insights to guide targeted interventions to improve PrEP retention and HIV prevention outcomes. In all analyses, $p<0.05$ were considered statistically significant.

Results

Socio-Demographic Factors Influencing PrEP Discontinuation Among Low-Risk Perceiving Individuals Homa Bay and Kisii

As demonstrated in tables 2, a total of 293 participants were enrolled in the study. The majority resided in Homa Bay County (200; 68.3%), while 93 (31.7%) were from Kisii County. Participants were predominantly young adults, with the largest proportion aged 25–29 years (62; 21.2%), followed by those aged 30–34 years (59; 20.1%) and 20–24 years (58; 19.8%). Adolescents aged 15–19 years accounted for 39 respondents (13.3%). Smaller proportions were aged 40–44 years (34; 11.6%), 45–49 years (20; 6.8%), 50 years and above (13; 4.4%), and 35–39 years (8; 2.7%).

Females constituted the majority of participants (210; 71.7%), while males accounted for 83 (28.3%). Regarding marital status, 133 (45.4%) were married, 113 (38.6%) were single, 35 (11.9%) were divorced or separated, and 12 (4.1%) were widowed. Most respondents had attained secondary education (129; 44.0%), followed by primary education (102; 34.8%). Tertiary education was reported by 51 (17.4%), while 11 (3.8%) had no formal education.

Nearly half of the participants were in formal employment (144; 49.1%), whereas 76 (25.9%) were unemployed, 59 (20.1%) were engaged in informal employment, and 14 (4.8%) were self-employed. The majority reported a monthly income of less than KES 10,000 (202; 68.9%), with 66 (22.5%) earning KES 10,001–20,000. Few participants earned KES 20,001–30,000 (16; 5.5%) or more than KES 30,000 (9; 3.1%).

Based on documented HIV risk assessment, most participants were classified as having low (133; 45.4%) or very low risk (98; 33.4%). Moderate risk was documented among 35 (11.9%), while 13 (4.4%) and 14 (4.8%) were categorized as high and very high risk, respectively. Overall, 231 (78.8%) fell into the

low/very low-risk group, 35 (11.9%) into the moderate-risk group, and 27 (9.2%) into the high/very high-risk group.

Table 2. Demographic Characteristics

Variable	**N = 293**
County of residence	
Homa Bay	200 (68.3%)
Kisii	93 (31.7%)
Age	
15-19 years	39 (13.3%)
20-24 years	58 (19.8%)
25-29 years	62 (21.2%)
30-34 years	59 (20.1%)
40-44 years	34 (11.6%)
45-49 years	20 (6.8%)
35-39 years	8 (2.7%)
50+ Years	13 (4.4%)
Sex	
Female	210 (71.7%)
Male	83 (28.3%)
Marital status	
Married	133 (45.4%)
Single	113 (38.6%)
Divorced/Separated	35 (11.9%)
Widowed	12 (4.1%)
Education level	
No Formal education	11 (3.8%)
Primary education	102 (34.8%)
Secondary education	129 (44.0%)
Tertiary education	51 (17.4%)
Variable	N = 293
Occupation	
Unemployed	76 (25.9%)
Self-employed	14 (4.8%)
Informal employment	59 (20.1%)
Formal employment	144 (49.1%)
Income level	
Less than KES 10,000	202 (68.9%)
KES 10,001 to KES 20,000	66 (22.5%)
KES 20,001 to KES 30,000	16 (5.5%)
More than KES 30,000	9 (3.1%)
Documented Risk	
Very low	98 (33.4%)
Low	133 (45.4%)

Moderate	35 (11.9%)
High	13 (4.4%)
Very high	14 (4.8%)
Risk Group	
High/Very High	27 (9.2%)
Low/Very Low	231 (78.8%)
Moderate	35 (11.9%)

As shown in Table 3, findings varied across the two counties. Notable differences were observed in age distribution. Participants from Homa Bay tended to be older, with the largest proportions aged 30–34 years (49; 24.5%) and 25–29 years (41; 20.5%). In contrast, Kisii had a comparatively younger cohort, with most participants aged 20–24 years (30; 32.3%) and 15–19 years (22; 23.7%).

Females predominated in both counties, comprising 69.0% (138) of participants in Homa Bay and 77.4% (72) in Kisii; however, the difference in sex distribution between counties was not statistically significant ($p = 0.14$). Marital status, on the other hand, differed significantly by county ($p = 0.002$). A greater proportion of respondents in Homa Bay were married (104; 52.0%), whereas over half of those in Kisii were single (49; 52.7%).

Significant differences were also noted in educational attainment ($p < 0.001$). Participants from Homa Bay were more likely to have primary-level education (89; 44.5%), whereas those from Kisii were more likely to have secondary-level education (47; 50.5%) or tertiary education (25; 26.9%). Additionally, Kisii had a higher proportion of individuals with no formal education compared to Homa Bay (8; 8.6% vs. 3; 1.5%).

Occupational status varied significantly between the counties ($p < 0.001$). Formal employment was more common in Homa Bay (116; 58.0%), whereas unemployment was substantially higher in Kisii (40; 43.0%). Income distribution also differed significantly ($p = 0.006$), with a larger share of Kisii participants earning less than KES 10,000 per month (76; 81.7%) than in Homa Bay (126; 63.0%).

Documented HIV risk profiles showed marked county-level variation ($p < 0.001$). Participants in Kisii were more frequently classified as having very low risk (50; 53.8%), while those in Homa Bay were predominantly categorized as low risk (118; 59.0%). Higher proportions of individuals classified as high or very high risk were observed in Kisii relative to Homa Bay.

Table 3. Demographic Characteristics

Variable	**Homa Bay** N = 200[1]	**Kisii** N = 93[1]	**p-value**[2]
Age			
15-19 years	17 (8.5%)	22 (23.7%)	
20-24 years	28 (14.0%)	30 (32.3%)	
25-29 years	41 (20.5%)	21 (22.6%)	
30-34 years	49 (24.5%)	10 (10.8%)	
40-44 years	31 (15.5%)	3 (3.2%)	
45-49 years	17 (8.5%)	3 (3.2%)	
35-39 years	6 (3.0%)	2 (2.2%)	
50+ Years	11 (5.5%)	2 (2.2%)	
Sex			**0.14**

Female	138 (69.0%)	72 (77.4%)	
Male	62 (31.0%)	21 (22.6%)	
Marital status			**0.002**
Married	104 (52.0%)	29 (31.2%)	
Single	64 (32.0%)	49 (52.7%)	
Divorced/Separated	22 (11.0%)	13 (14.0%)	
Widowed	10 (5.0%)	2 (2.2%)	
Education Level			**<0.001**
No Formal education	3 (1.5%)	8 (8.6%)	
Primary education	89 (44.5%)	13 (14.0%)	
Secondary education	82 (41.0%)	47 (50.5%)	
Tertiary education	26 (13.0%)	25 (26.9%)	
Occupation Status			**<0.001**
Unemployed	36 (18.0%)	40 (43.0%)	
Self-employed	7 (3.5%)	7 (7.5%)	
Informal employment	41 (20.5%)	18 (19.4%)	
Formal employment	116 (58.0%)	28 (30.1%)	
Income level			**0.006**
Less than KES 10,000	126 (63.0%)	76 (81.7%)	
KES 10,001 to KES 20,000	54 (27.0%)	12 (12.9%)	
KES 20,001 to KES 30,000	14 (7.0%)	2 (2.2%)	
More than KES 30,000	6 (3.0%)	3 (3.2%)	
Documented risk			**<0.001**
Very low	48 (24.0%)	50 (53.8%)	
Low	118 (59.0%)	15 (16.1%)	
Moderate	26 (13.0%)	9 (9.7%)	
High	4 (2.0%)	9 (9.7%)	
Very high	4 (2.0%)	10 (10.8%)	
[1]n (%)			
[2]NA; Pearson's Chi-squared test; Fisher's exact test			

Although all participants were initially documented as having discontinued PrEP due to perceived low HIV risk, further review showed inconsistencies between recorded and self-reported reasons. Approximately 39% (111 participants), as indicated in Table 4, provided alternative explanations, underscoring gaps in routine documentation. Among these participants, 40.5% were from Homa Bay, while 59.5% were from Kisii. County of residence was strongly associated with discontinuation due to low-risk perception ($p < 0.001$). The majority of participants who discontinued PrEP because they perceived themselves to be at low risk were from Homa Bay County (155; 85.2%), whereas most participants who discontinued for alternative reasons were from Kisii County (66; 59.5%).

Age distribution did not differ significantly between the two groups (Table 4). However, among those who discontinued due to low-risk perception, higher proportions were observed among participants aged 30–34 years (41; 22.5%) and 25–29 years (34; 18.7%), while discontinuation for alternative reasons was more common among those aged 20–24 years and 25–29 years (each 28; 25.2%).

Sex was not significantly associated with the reason for PrEP discontinuation (p = 0.2). Females constituted the majority in both groups, accounting for 126 (69.2%) of those who discontinued due to low-risk perception and 84 (75.7%) of those who discontinued for other reasons. Similarly, marital status showed no significant association with discontinuation due to low-risk perception (p = 0.7).

Educational attainment was significantly associated with the reason for PrEP discontinuation (p = 0.008). Participants who discontinued due to low-risk perception were more likely to have primary (70; 38.5%) or secondary education (82; 45.1%), whereas those who discontinued for alternative reasons had higher proportions of no formal education (9; 8.1%) and tertiary education (23; 20.7%).

Occupation status differed significantly between the two groups (p < 0.001). Formal employment was more prevalent among participants who discontinued PrEP due to low risk perception (106; 58.2%), whereas unemployment was more common among those who discontinued for other reasons (39; 35.1%). Informal employment was also more frequent among participants who discontinued for reasons other than low-risk perception (Table 4).

Income level was not significantly associated with the reason for PrEP discontinuation (p = 0.14), although a larger proportion of participants in both groups earned less than KES 10,000 per month. Similarly, documented HIV risk group did not differ significantly between participants who discontinued PrEP due to low-risk perception and those who discontinued for alternative reasons (p = 0.11). In both groups, the majority were classified as having low or very low HIV risk.

Table 4. Factors Associated with Stopping PrEP due to Low-Risk Perception

Variable	**Alternative discontinuation reason N=111[1]**	**Discontinued due to low-risk N=182[1]**	**p-value[2]**
County of Residence			**<0.001**
Homa Bay	45 (40.5%)	155 (85.2%)	
Kisii	66 (59.5%)	27 (14.8%)	
Age			
15-19 years	15 (13.5%)	24 (13.2%)	
20-24 years	28 (25.2%)	30 (16.5%)	
25-29 years	28 (25.2%)	34 (18.7%)	
30-34 years	18 (16.2%)	41 (22.5%)	
40-44 years	9 (8.1%)	25 (13.7%)	
45-49 years	8 (7.2%)	12 (6.6%)	
35-39 years	1 (0.9%)	7 (3.8%)	
50+ Years	4 (3.6%)	9 (4.9%)	
Sex			**0.2**
Female	84 (75.7%)	126 (69.2%)	
Male	27 (24.3%)	56 (30.8%)	
Marital Status			**0.7**
Married	49 (44.1%)	84 (46.2%)	
Single	44 (39.6%)	69 (37.9%)	
Divorced/Separated	15 (13.5%)	20 (11.0%)	
Widowed	3 (2.7%)	9 (4.9%)	

Education			**0.008**
No Formal education	9 (8.1%)	2 (1.1%)	
Primary education	32 (28.8%)	70 (38.5%)	
Secondary education	47 (42.3%)	82 (45.1%)	
Tertiary education	23 (20.7%)	28 (15.4%)	
Occupation status			**<0.001**
Unemployed	39 (35.1%)	37 (20.3%)	
Self-employed	7 (6.3%)	7 (3.8%)	
Informal employment	27 (24.3%)	32 (17.6%)	
Formal employment	38 (34.2%)	106 (58.2%)	
Income Level			**0.14**
Less than KES 10,000	84 (75.7%)	118 (64.8%)	
KES 10,001 to KES 20,000	20 (18.0%)	46 (25.3%)	
KES 20,001 to KES 30,000	3 (2.7%)	13 (7.1%)	
More than KES 30,000	4 (3.6%)	5 (2.7%)	
Risk group			**0.11**
High/Very High	14 (12.6%)	13 (7.1%)	
Low/Very Low	88 (79.3%)	143 (78.6%)	
Moderate	9 (8.1%)	26 (14.3%)	
[1]n (%)			
[2]Pearson's Chi-squared test; NA; Fisher's exact test			

Table 5 summarizes the crude odds ratios assessing factors associated with discontinuation of PrEP attributed to perceived low HIV risk. County of residence emerged as a strong determinant of this outcome. Participants residing in Kisii County were significantly less likely to discontinue PrEP due to low-risk perception compared with those from Homa Bay County (OR = 0.12; 95% CI: 0.07–0.21; $p < 0.0001$), indicating substantial geographic variation in discontinuation behavior.

Across age categories, no statistically significant associations were observed with PrEP discontinuation due to perceived low risk. Although individuals aged 35–39 years demonstrated higher odds of discontinuation, the estimate was imprecise, as reflected by a wide confidence interval (OR = 4.37; 95% CI: 0.49–39.18; $p = 0.187$), likely attributable to small numbers in this age group. Similar non-significant findings were noted across the remaining age categories.

Sex was not significantly associated with stopping PrEP due to low-risk perception. Male participants showed slightly higher odds compared to females; however, this difference did not reach statistical significance (OR = 1.38; 95% CI: 0.81–2.36; $p = 0.236$). Likewise, marital status did not demonstrate a meaningful association with the outcome, with comparable odds observed among married, single, divorced/separated, and widowed participants.

Educational level was strongly associated with discontinuation due to low-risk perception. Relative to participants with no formal education, those with primary, secondary, and tertiary education had significantly higher odds of stopping PrEP for this reason, with the magnitude of association decreasing as education level increased. These findings suggest a potential link between educational attainment and self-assessed HIV risk.

Occupation status also showed a significant association. Participants engaged in formal

employment were nearly three times more likely to discontinue PrEP due to perceived low risk compared to unemployed participants (OR = 2.94; 95% CI: 1.64–5.27; p < 0.0001), while self-employment and informal employment were not significantly associated.

Although income level was not significantly associated with discontinuation due to low-risk perception, higher income categories demonstrated a trend toward increased odds. Documented HIV risk level was largely not associated with the outcome; however, participants classified as having moderate risk were significantly more likely to discontinue PrEP due to perceived low risk compared to the reference group (OR = 3.11; 95% CI: 1.07–9.07; p = 0.038).

Table 5. Crude Odds Ratios for Factors Associated with Stopping due to Low-Risk Perception

Predictor	**Level**	**OR**	**CI lower**	**CI upper**	**P value**
County	County Kisii	0.12	0.07	0.21	**<0.0001**
Age	Age 20-24 years	0.67	0.29	1.53	0.341
	Age 25-29 years	0.76	0.34	1.72	0.508
	Age 30-34 years	1.42	0.61	3.33	0.416
	Age 40-44 years	1.74	0.64	4.71	0.279
	Age 45-49 years	0.94	0.31	2.82	0.909
	Age 35-39 years	4.37	0.49	39.18	0.187
	Age 50+ Years	1.41	0.37	5.39	0.619
Sex	Male	1.38	0.81	2.36	0.236
Marital Status	Marital Single	0.91	0.55	1.53	0.736
	Marital Divorced/Separated	0.78	0.37	1.66	0.515
	Marital Widowed	1.75	0.45	6.77	0.418
Education Level	Education Primary education	9.84	2.01	48.19	0.005
	Education Secondary education	7.85	1.63	37.87	0.010
	Education Tertiary education	5.48	1.08	27.92	0.041
Occupation	Occupation Self-employed	1.05	0.34	3.30	0.928
	Occupation Informal employment	1.25	0.63	2.47	0.522
	Occupation Formal employment	2.94	1.64	5.27	<0.0001
Income Levels	Income KES 10,001 to KES 20,000	1.64	0.90	2.97	0.104
	Income KES 20,001 to KES 30,000	3.08	0.85	11.16	0.086
	Income More than KES 30,000	0.89	0.23	3.41	0.865
Risk Levels	Risk group Low/Very Low	1.75	0.79	3.90	0.170
	Risk group Moderate	3.11	1.07	9.07	0.038

Table 6 presents the results of the multivariable logistic regression analysis examining factors independently associated with discontinuation of PrEP due to perceived low HIV risk. After adjusting for potential confounders, county of residence remained a strong and statistically significant predictor of PrEP discontinuation due to low-risk perception. Participants from Kisii County had substantially lower odds of stopping PrEP for this reason compared to those from Homa Bay County (aOR = 0.09; 95% CI: 0.04–0.19; p < 0.001).

Age remained independently associated with PrEP discontinuation, attributable to perceived low risk in selected age groups. Compared to adolescents aged 15–19 years, participants aged 25–29 years had significantly lower odds of discontinuing PrEP due to low-risk perception (aOR = 0.26; 95% CI: 0.07–0.92; p = 0.041). Similarly, participants aged 45–49 years were less likely to discontinue PrEP for this reason (aOR = 0.16; 95% CI: 0.03–0.89; p = 0.038). No significant associations were observed in other age categories, and estimates for participants aged 35–39 years were imprecise, likely due to small sample sizes.

Sex was not independently associated with discontinuation due to low-risk perception. Male participants had higher adjusted odds compared to females; however, this association was not statistically significant (aOR = 1.42; 95% CI: 0.70–2.97; p = 0.340). Marital status also showed no independent association with the outcome.

Educational attainment was associated with elevated adjusted odds of discontinuation due to low-risk perception across all education levels relative to no formal education; however, these associations did not reach statistical significance after adjustment, although borderline effects were observed for secondary and tertiary education.

Occupation status remained an independent predictor of PrEP discontinuation due to a low perception of risk. Participants in formal employment had nearly three times higher odds of stopping PrEP due to perceived low risk compared to unemployed participants (aOR = 2.80; 95% CI: 1.24–6.45; p = 0.014). In contrast, self-employment and informal employment were not significantly associated with the outcome.

Income level and documented HIV risk group were not independently associated with discontinuation due to low-risk perception after adjustment. Overall, the findings indicate that geographic location, specific age groups, and formal employment status independently influence PrEP discontinuation due to perceived low HIV risk, highlighting the need for differentiated risk communication and adherence support strategies.

Table 6. Adjusted Odds Ratios for Factors Associated with Stopping due to Low-Risk Perception

Variable	aOR	95% CI	95% CI	p-value
County				
Homa Bay	—	—	—	
Kisii	0.09	0.04, 0.19	0.04, 0.19	<0.001
Age				
15-19 years	—	—	—	
20-24 years	0.39	0.12, 1.16	0.12, 1.16	0.096
25-29 years	0.26	0.07, 0.92	0.07, 0.92	0.041
30-34 years	0.38	0.09, 1.47	0.09, 1.47	0.168
40-44 years	0.40	0.08, 1.94	0.08, 1.94	0.253
45-49 years	0.16	0.03, 0.89	0.03, 0.89	0.038
35-39 years	2.07	0.16, 60.8	0.16, 60.8	0.611

50+ Years	0.34	0.05, 2.44	0.05, 2.44	0.273
Sex				
Female	—	—	—	
Male	1.42	0.70, 2.97	0.70, 2.97	0.340
Marital				
Married	—	—	—	
Single	1.64	0.76, 3.64	0.76, 3.64	0.214
Divorced/Separated	0.94	0.35, 2.59	0.35, 2.59	0.905
Widowed	2.11	0.39, 15.9	0.39, 15.9	0.413
Education				
No Formal education	—	—	—	
Primary education	6.13	0.84, 66.0	0.84, 66.0	0.095
Secondary education	7.57	1.08, 80.9	1.08, 80.9	0.059
Tertiary education	7.48	0.96, 87.1	0.96, 87.1	0.073
Occupation				
Unemployed	—	—	—	
Self-employed	1.39	0.18, 10.6	0.18, 10.6	0.749
Informal employment	1.37	0.52, 3.65	0.52, 3.65	0.522
Formal employment	2.80	1.24, 6.45	1.24, 6.45	0.014
Income				
Less than KES 10,000	—	—	—	
KES 10,001 to KES 20,000	0.93	0.43, 2.04	0.43, 2.04	0.850
KES 20,001 to KES 30,000	1.93	0.40, 12.5	0.40, 12.5	0.445
More than KES 30,000	0.77	0.08, 8.91	0.08, 8.91	0.825
Risk group				
High/Very High	—	—	—	
Low/Very Low	0.59	0.20, 1.71	0.20, 1.71	0.332
Moderate	1.30	0.36, 4.94	0.36, 4.94	0.692
Abbreviations: CI = Confidence Interval, OR = Odds Ratio				

Table 7 presents county-stratified multivariable logistic regression models examining factors associated with discontinuation of PrEP due to perceived low HIV risk in Homa Bay and Kisii counties. The county-specific analyses reveal distinct patterns, with several associations approaching significance in Homa Bay, while estimates in Kisii were largely unstable due to small sample sizes and sparse data.

Table 7. County-Specific Logistic Models

County	Variable	aOR	P value	n
Homa Bay	Age 20-24 years	0.29	0.308	200
Homa Bay	Age 25-29 years	0.21	0.206	200
Homa Bay	Age 30-34 years	0.24	0.258	200
Homa Bay	Age 40-44 years	0.37	0.450	200
Homa Bay	Age 45-49 years	0.13	0.143	200
Homa Bay	Age 35-39 years	0.70	0.850	200
Homa Bay	Age 50+ Years	0.31	0.440	200

Homa Bay	Sex Male	1.58	0.344	200
Homa Bay	Marital Single	2.32	0.118	200
Homa Bay	Marital Divorced/Separated	4.32	0.063	200
Homa Bay	Marital Widowed	3.60	0.277	200
Homa Bay	Education Primary education	1.61	0.779	200
Homa Bay	Education Secondary education	2.02	0.679	200
Homa Bay	Education Tertiary education	4.37	0.418	200
Homa Bay	Occupation Self-employed	0.95	0.966	200
Homa Bay	Occupation Informal employment	1.27	0.709	200
Homa Bay	Occupation Formal employment	2.84	0.056	200
Homa Bay	Income KES 10,001 to KES 20,000	0.86	0.763	200
Homa Bay	Income KES 20,001 to KES 30,000	1.76	0.557	200
Homa Bay	Income More than KES 30,000	0.21	0.255	200
Homa Bay	Risk group Low/Very Low	5.77	0.057	200
Homa Bay	Risk group Moderate	7.38	0.053	200
Kisii	Age 20-24 years	0.17	0.062	93
Kisii	Age 25-29 years	0.14	0.079	93
Kisii	Age 30-34 years	0.40	0.500	93
Kisii	Age 40-44 years	0.00	0.997	93
Kisii	Age 45-49 years	0.00	0.995	93
Kisii	Age 35-39 years	-	0.995	93
Kisii	Age 50+ Years	0.00	0.998	93
Kisii	Sex Male	0.70	0.712	93
Kisii	Marital Single	0.32	0.178	93
Kisii	Marital Divorced/Separated	0.05	0.032	93
Kisii	Marital Widowed	0.00	0.998	93
Kisii	Education Primary education	-	0.996	93
Kisii	Education Secondary education	-	0.995	93
Kisii	Education Tertiary education	-	0.996	93
Kisii	Occupation Self-employed	0.00	0.995	93
Kisii	Occupation Informal employment	4.29	0.228	93
Kisii	Occupation Formal employment	2.93	0.188	93
Kisii	Income KES 10,001 to KES 20,000	0.56	0.623	93
Kisii	Income KES 20,001 to KES 30,000	-	0.997	93
Kisii	Income More than KES 30,000	-	0.994	93
Kisii	Risk group Low/Very Low	0.13	0.036	93
Kisii	Risk group Moderate	0.35	0.480	93

In Homa Bay County (n = 200), none of the age categories were significantly associated with discontinuation due to low-risk perception, although lower odds were consistently observed across most age groups relative to the reference category. Sex was not significantly associated with the outcome; however, males demonstrated higher odds of discontinuation compared to females (aOR = 1.58; p = 0.344). Marital status showed stronger associations, with divorced or separated participants exhibiting more than fourfold higher odds of stopping PrEP due to low-risk perception, although this association narrowly

missed statistical significance (aOR = 4.32; p = 0.063). Similarly elevated, but non-significant, odds were observed among widowed participants.

Educational attainment was not significantly associated with PrEP discontinuation in Homa Bay, although higher levels of education were associated with increased odds. Occupation status showed a notable pattern: participants in formal employment had nearly three times higher odds of discontinuing PrEP due to perceived low risk than unemployed participants, with the association approaching statistical significance (aOR = 2.84; p = 0.056). Income level was not significantly associated with the outcome.

Risk perception emerged as an important factor in Homa Bay. Participants classified as having low/very low or moderate documented risk showed substantially higher odds of discontinuation due to perceived low risk, with both associations approaching statistical significance (aOR = 5.77; p = 0.057 and aOR = 7.38; p = 0.053, respectively).

In Kisii County (n = 93), most covariates were not significantly associated with discontinuation due to low-risk perception. Several estimates were extreme or undefined, reflecting quasi-complete separation and sparse cell counts. Marital status showed a significant association only for divorced or separated participants, who had markedly lower odds of discontinuation compared to married participants (aOR = 0.05; p = 0.032). Notably, participants classified as having low or very low documented HIV risk had significantly lower odds of discontinuing PrEP due to perceived low risk (aOR = 0.13; p = 0.036). No significant associations were observed for age, sex, education, occupation, or income.

Overall, the county-specific models highlight meaningful contextual differences between Homa Bay and Kisii. While patterns in Homa Bay suggest that socio-economic position and documented risk influence PrEP discontinuation due to perceived low risk, findings from Kisii should be interpreted with caution given model instability. These results underscore the importance of county-tailored PrEP counselling and risk communication strategies, as well as the need for larger samples to support stable sub-national analyses.

Healthcare Professional Support and Its Influence on PrEP Discontinuation in Homa Bay and Kisii Counties, Kenya

Table 8 presents data on the healthcare professional support and its influence on PrEP discontinuation in Homa Bay and Kisii counties, Kenya. Among the 182 participants who indicated that they discontinued PrEP because they perceived themselves to be at low risk of HIV infection, engagement with healthcare workers (HCWs) during the discontinuation process was generally minimal. Only 27 participants (15%) sought advice from an HCW before stopping PrEP, suggesting that most decisions were made independently and without provider involvement. Marked county-level differences were observed: in Homa Bay, just 12 participants (7.7%) consulted an HCW, compared with 15 (56%) in Kisii, a statistically significant difference ($p < 0.001$). These findings underscore a pronounced disparity in provider engagement between the two counties.

The nature and adequacy of HCW support also varied as shown in Table 8 below. Among those who consulted providers, most (86%) reported that the guidance did not directly address their reasons for discontinuing PrEP. Only a small proportion received encouragement to continue (2.7%), additional counselling (4.4%), or alternative HIV prevention strategies (7.1%), revealing missed opportunities to correct misperceptions of risk and promote continued prevention. County-level differences were notable ($p < 0.001$): in Homa Bay, 92% reported that support was not applicable, while only small numbers received encouragement to continue PrEP (1.3%), counselling (2.6%), or alternative prevention options (3.9%). In contrast, Kisii participants

reported higher levels of meaningful support, with 11% encouraged to continue, 15% receiving counselling, and 26% offered alternative prevention options.

Table 8. Support among Low-risk Prep Discontinuers

Characteristic	**Homa Bay** (N=155[1])	**Kisii (N=27[1])**	**p-value**[2]
Consult _ HCW	**12 (7.7%)**	**15 (56%)**	**<0.001**
Supported _ by _ HCW			**<0.001**
Encouraged to continue PrEP	2 (1.3%)	3 (11%)	
Not Applicable	143 (92%)	13 (48%)	
Provided additional counselling	4 (2.6%)	4 (15%)	
Provided prevention alternative	6 (3.9%)	7 (26%)	
Ease of PrEP access			**0.2**
Difficult	0 (0%)	1 (3.7%)	
Easy	41 (26%)	7 (26%)	
Very easy	114 (74%)	19 (70%)	
HCW _ Support _ rating			**0.3**
Excellent	89 (57%)	18 (67%)	
Fair	2 (1.3%)	1 (3.7%)	
Good	64 (41%)	8 (30%)	
Counselling Provided During Refill	**150 (97%)**	**27 (100%)**	**>0.9**
Concerns Addressed During Refill	**150 (97%)**	**27 (100%)**	**>0.9**
[1]n (%)			
[2]Fisher's exact test			

Despite low consultation rates at discontinuation, participants consistently reported high satisfaction with HCW interactions during routine PrEP services as shown in table 5 above. Nearly all participants (97–100%) stated that counselling during refill visits was adequate, their concerns were addressed, and all PrEP-related questions were answered. Ratings of HCW support were comparable between counties (p = 0.3), with most participants describing support as excellent or good. Similarly, access to PrEP was reported as straightforward by nearly all participants, with most rating it as easy or very easy, and only a few (0.5%) reporting difficulties.

However, some participants experienced practical barriers that affected consistent access, including distance to facilities, long waiting times, privacy concerns, and inconvenient clinic hours, underscoring ongoing structural challenges.

Overall, the findings suggest that while HCWs provide high-quality routine counselling and services, there is a clear gap in engagement during critical moments such as PrEP discontinuation. Low interaction in Homa Bay may contribute to premature cessation, as opportunities for tailored counselling, risk reassessment, and alternative prevention advice are missed. Kisii demonstrated stronger engagement, though only about half of participants consulted providers. Strengthening proactive, structured HCW involvement at decision points, particularly in Homa Bay, is essential to support informed decision-making, reinforce accurate HIV risk perception, prevent unnecessary discontinuation, and improve PrEP continuity and overall HIV prevention outcomes.

Discussion

Socio-Demographic Factors Influencing Prep Discontinuation Among Low-Risk Perceiving Individuals Homa Bay and Kisii

This analysis explored the socio-demographic factors associated with PrEP discontinuation among individuals in Homa Bay and Kisii who believed they were at low risk of HIV infection. Although program records indicated that all participants stopped PrEP because they perceived themselves as low risk, nearly 40% later reported different motivations, revealing discrepancies between documentation and clients' actual experiences. Overall, county of residence, education level, and formal employment were significant predictors of discontinuation, while age, sex, marital status, and income did not show meaningful associations. These findings both align with and differ from evidence reported in previous research.

County of residence was the strongest determinant of stopping PrEP due to perceived low risk. Participants from Kisii were substantially less likely to discontinue for this reason than those from Homa Bay. Such geographic variation may reflect differences in local HIV burden, community norms, counselling quality, and how risk is communicated. Similar regional influences on PrEP retention have been documented elsewhere [13, 14]. County-specific models also highlighted contrasting patterns: in Homa Bay, low perceived risk and formal employment increased discontinuation, whereas in Kisii, being divorced or separated and having a low RAST classification were associated with reduced discontinuation. These patterns echo findings from multi-country adherence studies showing that local context shapes decision-making [15, 16].

Educational attainment also showed a significant association in both crude and adjusted analyses, with individuals who had primary, secondary, or tertiary education more likely to discontinue PrEP than those with no formal schooling. This contrasts with literature suggesting that higher education promotes adherence and health-seeking behavior [17, 18]. A possible explanation is that more educated clients may independently evaluate their HIV risk—such as having fewer partners or increased condom use—and discontinue PrEP based on personal judgement, even when biomedical risk remains. A similar pattern was observed in France, where people in stable relationships stopped PrEP due to assumed reduced risk [17]. Unlike the French study, loss of confidence in PrEP was not identified as a major factor in our population.

Formal employment was another significant predictor. Employed individuals were more likely to discontinue due to perceived low risk, possibly due to work schedules, mobility, or lower perceived vulnerability. Work-related barriers to retention are well documented [13, 14]. Income, however, did not predict discontinuation, diverging from studies in Tanzania and Nigeria [13, 18]. The lack of association may reflect Kenya's free PrEP services, which reduce the effect of financial barriers.

Age, sex, and marital status did not significantly influence discontinuation, differing from studies in Namibia, France, and the U.S., which reported higher discontinuation among younger individuals, women, and unmarried clients [16, 17, 19]. Nonetheless, adjusted models suggested that clients aged 25–29 and 45–49 were less likely to stop compared with adolescents, partially consistent with evidence that adolescents face unique adherence challenges [15]. Marital patterns also differed by county; for example, divorced/separated clients in Kisii were less likely to discontinue, contrary to findings from Nigeria and France [13, 17].

The mismatch between recorded and self-reported reasons suggests gaps in counselling or documentation, similar to issues described in

other African contexts [14, 15]. While perceived low risk is a major global driver of discontinuation, few studies explore how socio-demographic factors shape that perception [17, 20]. This analysis shows that perceived low risk is closely tied to contextual factors—such as employment, county dynamics, and education—rather than basic demographics.

Together, these findings reinforce that PrEP discontinuation is influenced by complex interactions between socio-demographic characteristics, contextual factors, and personal interpretations of HIV risk. Strengthening individualized risk counselling, improving documentation, adapting interventions to county-specific patterns, and developing workplace-friendly service models align with best-practice guidance from Kenya, Nigeria, and South Africa [13-15].

This study examined socio-demographic and contextual factors associated with PrEP discontinuation due to perceived low HIV risk in Homa Bay and Kisii counties, situating the findings within existing evidence on PrEP adherence and healthcare professional support. Overall, the results demonstrate that discontinuation driven by low-risk perception is strongly shaped by local context, socioeconomic position, and client–provider dynamics, rather than by documented HIV risk alone.

County of residence emerged as the most consistent and robust predictor of PrEP discontinuation across bivariate, multivariable, and county-specific analyses. Participants from Kisii were significantly less likely to discontinue PrEP due to perceived low risk compared to those from Homa Bay. This finding aligns with literature showing that PrEP use and persistence are heavily influenced by contextual and programmatic factors, including local HIV prevalence, service delivery models, and sociocultural norms [5]. In high-burden settings such as Homa Bay, normalization of HIV risk and familiarity with prevention messaging may paradoxically reduce perceived vulnerability among some clients, leading to premature discontinuation despite ongoing exposure. Similar observations have been reported in other high-prevalence settings where perceived risk does not always align with actual behavioral risk [21, 23].

Education level was strongly associated with discontinuation due to perceived low risk, with individuals who had primary, secondary, or tertiary education exhibiting higher odds of stopping PrEP compared to those with no formal education. Although these associations were attenuated in the adjusted model, their direction remained consistent. Previous studies have shown that higher educational attainment may increase confidence in self-assessment of HIV risk and foster autonomous decision-making around PrEP use, sometimes resulting in early discontinuation [21, 23]. This finding highlights a critical gap in counseling: while educated clients may better understand PrEP, they may still underestimate dynamic or partner-related risks, underscoring the importance of provider-led risk re-evaluation and prevention-effective adherence counseling [25].

Formal employment emerged as the most consistent socioeconomic predictor of discontinuation, remaining significant after adjustment. This finding is consistent with evidence from diverse settings showing that work-related constraints, stigma, fear of disclosure, and rigid clinic schedules contribute to interruptions and discontinuation of PrEP [22, 5]. Formally employed individuals may also perceive themselves as socially and economically stable, which can lower perceived HIV risk even in the presence of ongoing exposure. These findings support calls for differentiated service delivery models, including flexible clinic hours, multi-month dispensing, and community- or workplace-friendly PrEP services [5].

Age, sex, marital status, income, and documented HIV risk category were not consistently associated with discontinuation

due to low-risk perception. However, the reduced odds observed among individuals aged 25–29 and 45–49 years may reflect greater life experience and more cautious health decision-making. The lack of association between documented risk group and discontinuation is particularly concerning and mirrors findings from prior studies showing that individuals who discontinue PrEP due to perceived low risk often continue to engage in behaviors associated with HIV acquisition [24, 23]. In the Boston cohort, for example, 25% of individuals who seroconverted after stopping PrEP had previously believed they were at low risk, highlighting the danger of misaligned risk perception [23].

County-specific analyses revealed further heterogeneity. In Homa Bay, trends toward higher odds of discontinuation were observed among divorced or separated individuals, those in formal employment, and those reporting low or moderate risk, although many associations did not reach statistical significance. These patterns are consistent with evidence suggesting that relationship transitions and perceived reductions in risk can trigger PrEP discontinuation [21, 25]. In Kisii, several estimates were unstable due to small sample sizes, yet low or very low risk perception was significantly associated with reduced odds of discontinuation. This may suggest better alignment between perceived and actual risk or more effective healthcare worker engagement, though further qualitative research is needed to explore these dynamics.

A critical programmatic finding was the discrepancy between documented and self-reported reasons for PrEP discontinuation. Nearly 40% of participants initially classified as having stopped PrEP due to perceived low risk later reported alternative reasons, pointing to gaps in routine documentation and counseling. Similar gaps have been noted in other studies, where discontinuation reasons are often oversimplified, limiting opportunities for targeted follow-up and re-engagement [5, 22].

Collectively, these findings reinforce the pivotal role of healthcare professionals in supporting informed PrEP use and discontinuation. Evidence from randomized trials and observational studies shows that ongoing counseling, adherence support, and structured follow-up can reduce discontinuation and modify risk behaviors, even when PrEP is stopped [25, 26]. Approaches such as the Knowledge, Communication, and Choice (KCC) framework offer promise for supporting clients who discontinue PrEP by strengthening condom use, partner communication, and risk awareness, although empirical evidence remains limited [24].

In conclusion, PrEP discontinuation due to perceived low HIV risk in Homa Bay and Kisii counties is strongly influenced by county context, education level, and employment status, rather than by objective risk measures alone. These findings align with previous studies and underscore the need for county-specific, healthcare worker–led interventions that emphasize prevention-effective adherence, dynamic risk assessment, accurate documentation, and sustained engagement beyond PrEP initiation. Strengthening provider support before, during, and after PrEP discontinuation is essential to maintaining HIV prevention gains in high-burden settings.

Healthcare Professional Support and Its Influence on PrEP Discontinuation in Homa Bay and Kisii Counties, Kenya

This study demonstrates that limited engagement with healthcare workers (HCWs) plays a significant role in PrEP discontinuation among individuals who perceive themselves at low HIV risk in Homa Bay and Kisii. Only 15% of participants consulted an HCW before stopping PrEP, indicating that most decisions were made independently and without structured clinical support. County-level variation was pronounced: in Kisii, 56% of clients engaged with HCWs compared to just

7.7% in Homa Bay ($p < 0.001$). These findings suggest substantial gaps in proactive provider involvement during periods when clients reassess their HIV prevention needs.

Among the small proportion who consulted HCWs, the support received was often insufficient to address concerns or guide clients through alternative prevention strategies. Few were offered additional counseling (4.4%), encouragement to continue PrEP (2.7%), or advice on other prevention methods (7.1%). Kisii clients were more likely to receive meaningful engagement—15% received additional counseling and 26% discussed alternative options—while most Homa Bay participants reported no applicable HCW support. These county disparities point to structural or programmatic differences that influence how clients are supported.

These findings align with broader evidence showing that continuous, client-centered support is crucial for sustained PrEP use. Studies across Sub-Saharan Africa, North America, and Asia highlight the importance of personalized counseling, reminders, and flexible service models in reducing discontinuation, particularly among individuals with low perceived risk [5, 21-23]. For example, elevated HIV incidence has been documented among clients in Los Angeles who stopped using PrEP [22], as well as among men who have sex with men in the United States who experienced repeated interruptions in PrEP use due to inaccurate risk perception and challenges with adherence [23].

This study reinforces previous findings that clients often inaccurately assess their HIV risk. As reported elsewhere, individuals frequently misjudge vulnerability despite ongoing high-risk behaviors [24]. In this analysis, perceived low risk often conflicted with documented behavioral risk, emphasizing the need for routine risk reassessment and targeted counseling during PrEP follow-up.

The framework of "prevention-effective adherence" further contextualizes these results. This approach supports discontinuing PrEP safely during periods of genuinely low risk, but it requires accurate self-assessment and HCW engagement [25]. Evidence from Uganda illustrates that even when discontinuation is clinically appropriate—such as in virally suppressed discordant partnerships—clients rely heavily on HCW reassurance and guidance.

Structural barriers also shaped client experiences. Although PrEP access was generally rated positively, challenges such as distance, long waits, and privacy concerns persisted, consistent with previous studies [5], Shover et al., 2020). Enhancing flexible delivery models could help overcome these constraints.

Overall, the study shows that while PrEP services offer quality counseling, insufficient proactive HCW engagement during key decision points contributes to premature discontinuation. Strengthening provider involvement, improving risk reassessment processes, and offering tailored prevention alternatives are essential to support informed and prevention-effective PrEP use in high-prevalence settings like Homa Bay and Kisii.

Conclusion

This study demonstrates that PrEP discontinuation among individuals who perceive themselves to be at low risk of HIV infection in Homa Bay and Kisii counties is shaped by a complex interaction of socio-demographic, contextual, and health system factors. County of residence emerged as the strongest predictor of discontinuation, highlighting substantial geographic variation in how risk is perceived, communicated, and acted upon. Education level and formal employment were also significant predictors, suggesting that individuals with greater social and economic capital may be more likely to independently reassess their HIV risk and discontinue PrEP, even when objective risk may persist.

The findings further reveal important gaps in routine documentation and counseling. Nearly 40% of participants provided alternative reasons for discontinuation that differed from program records, indicating weaknesses in client-provider communication and data capture. Such discrepancies limit the ability of programs to accurately understand drivers of discontinuation and to respond with appropriate interventions.

Healthcare worker engagement during PrEP discontinuation was notably limited, particularly in Homa Bay, where very few clients consulted providers before stopping PrEP. Although routine PrEP services were generally rated as high quality, missed opportunities during critical decision points—such as when clients consider discontinuation—undermine prevention-effective adherence. Kisii demonstrated relatively stronger provider engagement, yet even there, only about half of discontinuers sought HCW input.

Overall, the study underscores that perceived low HIV risk is not merely an individual judgment but is strongly influenced by local context, employment patterns, education, and the extent of provider engagement. To improve PrEP continuation and ensure safe, prevention-effective discontinuation, programs should strengthen individualized risk reassessment, enhance proactive HCW involvement at discontinuation points, improve documentation practices, and tailor interventions to county-specific realities. Such strategies are essential to sustain the protective impact of PrEP in high-burden settings like Homa Bay and Kisii.

Recommendation

Based on the findings of this study, several programmatic and policy recommendations can be made to enhance PrEP continuity and support prevention-effective adherence in Homa Bay and Kisii counties. A key priority is to strengthen structured engagement between healthcare workers (HCWs) and clients at the point of PrEP discontinuation. Evidence from this study indicates that many participants stopped PrEP independently, with minimal consultation from HCWs, particularly in Homa Bay. Formalizing provider consultations prior to discontinuation is therefore critical. Such consultations should include standardized exit counseling that addresses risk reassessment, clarifies misconceptions about HIV risk, and explores alternative prevention strategies. By ensuring that clients receive tailored guidance at the moment they consider stopping PrEP, programs can prevent unnecessary discontinuation and promote informed decision-making.

Another important recommendation is to enhance routine HIV risk assessment and counseling approaches. Integrating simplified, client-centered risk assessment tools into follow-up and refill visits can help clients accurately evaluate their vulnerability to HIV infection. These tools should be context-specific and consistently applied to guide decisions on whether to continue, pause, or restart PrEP. Routine and systematic risk reassessment can also identify clients who may underestimate their risk, allowing HCWs to intervene early and provide appropriate counseling or prevention alternatives.

Improving documentation and data quality is also essential. The study found discrepancies between program records and participants' self-reported reasons for discontinuation, highlighting gaps in routine documentation. Strengthening training and supportive supervision for HCWs on accurate recording of PrEP discontinuation reasons within health information systems will enhance program monitoring and enable more targeted interventions. Aligning client-reported reasons with program records will support data-driven decision-making and improve the ability of programs to respond effectively to challenges in PrEP retention.

Programs should adopt county-specific, context-responsive strategies given the strong

influence of geographic location on discontinuation patterns. In Homa Bay, where provider engagement was particularly low, intensified follow-up by HCWs and community-level communication about HIV risk may be required. In Kisii, successful engagement practices should be maintained and scaled up to ensure sustained adherence. Tailoring interventions to local dynamics ensures that programmatic responses are relevant and effective.

There is also a need to expand workplace- and youth-friendly PrEP delivery models. Many formally employed clients and younger populations face challenges in adhering to traditional clinic schedules. Flexible options such as extended clinic hours, community-based refills, differentiated service delivery models, and multi-month dispensing can help reduce discontinuation in these groups.

Prevention-effective adherence messaging should be reinforced, emphasizing that PrEP may only be safely paused during periods of genuinely low HIV risk and ideally under provider guidance. Messaging should normalize stopping and restarting PrEP while highlighting the importance of HCW consultation. Finally, continuous capacity building for HCWs is critical. Training should focus on client-centered counseling, motivational interviewing, and management of perceived low-risk scenarios, ensuring that providers are well-equipped to support informed decision-making and sustained HIV prevention.

Taken together, these strategies can reduce unnecessary PrEP discontinuation, improve alignment between perceived and actual HIV risk, and enhance the overall effectiveness of PrEP programs in high-burden settings like Homa Bay and Kisii counties. By addressing both structural and individual-level factors, these recommendations support more informed, context-sensitive, and prevention-effective use of PrEP.

Conflict of Interest

The author reports no conflicts of interest associated with this study and affirms that the research, analysis, and reporting were conducted with full impartiality and objectivity.

Ethical Clearance

The protocol was submitted to the Amref Ethics and Scientific Review Committee (ESRC) and the Kisii Teaching and Referral Hospital Institutional Scientific and Ethics Review Committee (KTRH–ISERC). Both committees reviewed the evaluation for technical rigor and ethical compliance. After receiving ethical clearance, permission to carry out the study was obtained from the National Council for Science, Technology and Innovation (NACOSTI) and the County Health Management Teams (CHMTs), following stakeholder engagement meetings that introduced and explained the research. Key personnel with ethics certification also completed an online ethics course before the evaluation began.

Data Availability

De-identified raw data supporting the conclusions of this manuscript will be made available by the authors, without undue reservation, to any qualified researcher. Requests to access these datasets should be directed to the corresponding author.

Author Contributions

Polycarp Musee Muchele conceptualized and designed the study, carried out data collection and analysis, and prepared the initial manuscript. Professor Collins Ouma offered technical oversight on the study design and interpretation of results. All authors reviewed and approved the final version of the manuscript

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