Level of Awareness of PrEP among the General Population and Health Care Providers in Kisumu County

Munala Anangwe Samson[1]*, Odongo Alfred Owino[1], Mungai Samuel[1], Muhinji Arnold[2], and Odhiambo Fredrick Oluoch[3]

[1]Mount Kenya University; School of Public Health, Department of Community Health, Epidemiology & Disease Control, Kisumu, Kenya; [2]Research Care and Training Program, Centre for Microbiology Research, Kenya Medical Research Institute, Kisumu, Kenya, and [3]County Government of Kisumu, Department of Health, Kisumu, Kenya.

***Corresponding author**: Munala Anangwe Samson. Email address: anangwems@gmail.com

DOI*:* https://dx.doi.org/10.4314/ajhs.v37i4.9

Abstract

BACKGROUND

Even though the Human Immune Deficiency Virus (HIV) prevalence has stabilized, the disease continues to pose challenges, with about 1.3 million cases reported globally and over 22,000 reported in Kenya, making it necessary to use Pre-Exposure Prophylaxis (PrEP) as one of the effective ways used to prevent infection among individual at risk. The study aimed to assess the awareness level of PrEP among the general population in Kisumu County, Kenya.

METHODOLOGY

The study used a cross-sectional mixed-methods design where data were collected in January 2024 using a questionnaire and key informant interviews with health care providers (HCPs). We used random systematic sampling to select 435 participants from the outpatient departments of selected facilities in Kisumu. Purposive sampling was used in the selection of eight health care providers in these facilities. Descriptive statistics were used to analyse the quantitative data, while narrative analysis was used to analyse the qualitative data.

RESULTS

Out of the total number of participants, a majority was female (73.79%) and married (63.91%). In addition, 8 health care providers (HCPS) were purposively sampled for in-depth interviews. Most of the participants (97.24%) had ever heard of Prep, with more than half (58.85%) first hearing about it from a healthcare provider. However, this knowledge varied with some participants having poor or scanty knowledge (28.74%), average knowledge (32.64%) and good knowledge (35.86%). Most of the participants (88.97%) would recommend PrEP to others. There was a low proportion of participants (9.89%) who said that their associates had myths concerning PrEP, with some believing that it lowers libido, causes infertility and continual use can make one acquire HIV. Healthcare providers revealed a high level of knowledge and understanding of PrEP and suggested the creation of awareness not only to the PrEP clients but also to the larger community.

CONCLUSION

There was a general high level of PrEP awareness among participants. However, the varying knowledge levels among participants, as well as the existence of myths and misconceptions, emphasise the need for targeted educational campaigns among the general population on this subject.

Keywords*: Pre-Exposure Prophylaxis, Knowledge, Myths, Misconceptions.*

[***Afr. J.*** *Health Sci*. 2024 37 (4):464-473]

Introduction

HIV continues to pose a serious threat to global public health, having caused roughly 40.1 million deaths to date and continuing to spread throughout the world. The WHO African Region documented about 25.6 million deaths, or two-thirds, of the estimated 38.4 million persons who were HIV-positive in their jurisdiction as of the end of 2021 [1].

In Kenya, 1.4 million people were living with HIV as of 2021, giving a prevalence of about 4% among adults. The fact that only about 78% of people living with HIV know their status in Kenya and that not all will disclose it to their sexual partners makes it important to have oral PrEP, especially for the population at risk [2]. Kenya is the third-ranked country in Eastern and Southern Africa for incidence of HIV among people aged 15 and older in 2017 [3] and is still among the countries with high prevalence of HIV [4]. Interventions such as awareness campaigns and prevention strategies such as PrEP use are encouraged [5–7]. In 2020, over 122,000 persons (9,439 children and 112,561 adults) were estimated to be living with HIV (PLHIV) in Kisumu County [8]. Kisumu County in Kenya has a significantly higher HIV prevalence rate than the national average, with an estimated 13.9% of the population living with HIV as of 2021, compared to the national average of 4.1% [9].

In 2016, Kenya revised the national HIV care and treatment guidelines and recommended PrEP for the prevention of HIV. By July 2020, the Kenyan PrEP programme was among the largest in Africa, with over 60,000 persons having initiated PrEP. However, among the barriers in PrEP use is the knowledge concerning the intervention. A number of people do not know about the intervention and some would confuse it with PEP or for an ARV regimen [10].

In Brazil, knowledge of both PEP and PrEP was low [11]. According to their Chandler *et al.*'s (2022) findings, black women were less likely to adopt PrEP and were more likely to have stigma, misconceptions, and incomplete knowledge about the program. In their survey, healthcare professionals also verified that patients frequently have misconceptions and inadequate knowledge [12]. In Florida, among men who have sex with men (MSMs), of those who had heard of it, a small proportion knew of PrEP as a physician-prescribed regimen; most believed it was taken before and/or after sex and acquired on the street or through HIV-positive friends [13].

A study in Western Kenya also identified knowledge gaps in PrEP uptake. The study stated that some of the people in Western Kenya have myths and misconceptions concerning PrEP. There is still a knowledge gap concerning PrEP uptake [14]. Information on this gap will help in tailoring of interventions on PrEP uptake in Kisumu, Kenya. The objective of this study was to assess the knowledge of PrEP among the general population in Kisumu County.

Methodology

Study area

The study was implemented in Kisumu County in Kenya, which has a high HIV prevalence. Kisumu West, Kisumu East, Kisumu Central and Nyando sub counties were selected given their high population contribution to the county; 20%, 15%, 15% and 14%, respectively [15]. Data was collected from high-volume health facilities in the County: Kisumu County Referral Hospital, Gita Dispensary, Chulaimbo County Referral Hospital and Ahero County Referral Hospital.

Study design

The study was conducted in January 2024 using a one-time survey approach to collect data. The design was chosen to provide a snapshot of the current awareness levels and knowledge about PrEP in a region with high HIV prevalence, where the risk of transmission is elevated due to factors like unprotected sex and inconsistent disclosure of HIV status.

Study populations

The population was adults aged 18 years and above, PrEP naïve or experienced, residents of Kisumu County at least for the preceding year and consenting to participate in the study. People aged younger than 18 years with a known HIV positive status on treatment, not residents of Kisumu County for at least one year before the data collection period, and not consenting to participate in the study were excluded from participation in the study.

Sample size calculation

A sample of 435 participants was calculated using the Krejcie and Morgan formula. We substituted the parameters in the sample size determination formula is given by:

$$\boldsymbol{n = \frac{\chi^2 Np(1-p)}{e^2(N-1) + \chi^2 p(1-p)}}$$

Where:

n= is the sample size to be calculated

N= the adult population in Kisumu, which is approximately 567,632 [15].

e= the level of precision given by 0.05

χ^2= Chi-square df=1 at 5% level of significance (χ^2=3.841)

p= Population proportion (taken to be 0.5)

q=1-p

The sample size was therefore calculated as follows:

n= (1.962 x 0.2 x 0.8)/ (0.05) 2

$$\boldsymbol{n=\frac{3.841\times 567632\times 0.5\times(1-0.5)}{(0.05)^2(567632-1)+3.841\times 0.5\times(1-0.5)}}$$

$$\boldsymbol{= 383.86 \approx 384}$$

=384 respondents.

This was adjusted by 10 % to take care of errors and non-response, therefore:

n = 384 + 38.4 = 422.4

n = 422.

The sample size for the study was thus 422.

This sample was an adequate representation of the entire population. During data collection, 435 participants were interviewed (response rate of 103.1%).

Sampling technique

A systematic random sampling approach was used to select the participants. The total number of patients visiting the outpatient department for each facility from August 2022 to August 2023 was computed.

The average total number of patients who visit the facility's outpatient department per month was determined by dividing this total by 12 months, then dividing further by 30 days to derive the average daily number of patients. The sampling interval (k value) for each facility was calculated based on the expected number of participants and the facility's daily target. A random starting point was selected, and every k^{th} patient was systematically sampled until the target was achieved.

Table 1

Systematic Random Sampling of Participants per Healthcare Facility

		Facility-specific systematic random sampling approach					
Selected Hospital	**Average no. of patients (13 months)**	**Monthly average patients**	**Daily average patients**	**Daily target**	**Study target per facility**	**K value per facility**	**Facility sampling interval**
Gita Sub County Hospital	30,282	2,329	78	8	131	17	Every 17th Individual
Ahero County Hospital	58,767	4,521	151	15	93	6	Every 6th Individual
Chulaimbo County Hospital	34,853	2,681	89	9	97	11	Every 11th Individual
Kisumu County Referral Hospital	127,845	9,834	328	33	101	3	Every 3rd Individual

This approach ensured proportional representation across study sites while maintaining randomness in participant selection. Information for the total workload was sourced from the Kenya Health Information System (KHIS). Table 1 indicates the participant selection.

Data collection

The research assistants were trained for two days, especially on research ethics. We administered questionnaires to participants and conducted interviews with Key informants. Data was collected for two weeks from 3rd January 2024 to 16th January 2024. Before data collection, the questionnaires were pretested at Kombewa County Referral Hospital in a pilot study with a sample of 30 participants. A Cronbach's reliability coefficient of 0.814 indicated that the tool was reliable. Face validity was ensured by reviewing the tool with subject matter experts in HIV prevention and public health, who evaluated whether the questions adequately covered the key aspects of PrEP uptake and continuity. Content validity was assessed by ensuring the questionnaire captured all relevant dimensions, including awareness, accessibility, adherence barriers, and facilitators of PrEP use. This included a thorough literature search on previously used questionnaires.

Ethical considerations

Ethical clearance was obtained from the Institutional Scientific Ethics Review Committee of Mount Kenya University (Ref: MKU/ISERC/3374). Further permission to conduct research was sought from the National Commission for Science, Technology and Innovation (NACOSTI) (Ref: 281606). The participants were guided through a consenting process, being informed of the aim of the study, their privacy and confidentiality, and that there would be minimal risk and benefits associated with participating. We only administered questionnaires to participants who indicated their consent by signing the consent forms. The privacy of participants and the confidentiality of the collected data were ensured.

Results

Socio-demographic characteristics

A total of 435 respondents were interviewed, out of which 74 (17.01%) were from Kisumu West, while 160 (36.78%) were from Kisumu Central. Most of the respondents were female, 321 (73.79%). Only a few were formally employed, 37 (8.51%). Others were either informally employed (14.94%), self-employed (28.28%), students (16.09%) or unemployed (32.18%). Similarly, at the highest level of education attained, various levels were indicated. The most common highest level of education attained was the secondary level, attained by 170 participants (40.46%). Most of the participants (63.91%) were married (Table 2).

Knowledge of PrEP among adults in Kisumu County

The knowledge of PrEP among participants was also assessed. Almost all the participants, 423 (97.24%), had ever heard of PrEP, with over half, 256 (58.85%), first hearing about it from a healthcare provider. The high knowledge of PrEP among respondents resulted in a lack of variation, hence no statistically significant inference was found. However, this knowledge varied with some participants having poor or scanty knowledge (28.74%), average knowledge (32.64%) and good knowledge (35.86%). Most participants (88.97%) would recommend PrEP to others. It is noteworthy that only 79 participants (18.16%) had ever heard of or experienced side effects related to PrEP utilisation. The 79 participants specified the adverse events they knew of. Some of the mentioned side effects include but not limited to nausea (41.77%), headache (51.9%), fatigue (26.58%), abdominal discomfort (13.92%), diarrhoea (16.46%), weight loss (11.39%) and dizziness (22.78%). Some participants (9.89%) said that their friends had myths concerning PrEP.

In an open-ended questionnaire, respondents mentioned some myths and misconceptions concerning PrEP. Table 3.

Notably, among the myths noted was that PrEP affected the fertility of both sexes. One participant said that:

"They are not good for men since they negatively affect sexual libido" – [Respondent 294].

Another similar response was that:

"The continual use of PrEP reduces sexual drive among men"- [Respondent 17].

Yet another participant said that:

"PrEP can prevent one from becoming pregnant" – [Respondent 161].

Another misconception was on the role of PrEP. Some of the participants' associates did not clearly understand the importance of PrEP. A participant said:

"One of my friends often says that when you use PrEP continually, you will get infected with HIV"- [Respondent 88].

Another said:

"One of my friends said that they cannot use PrEP since it is supposed to be used by those who are already infected" – [Respondent 19].

Table 2:
Socio-Demographic Characteristics of Participants

Variables	Characteristic (n=435)	n	%
Sub County	Nyando	78	17.93
	Kisumu Central	160	36.78
	Kisumu East	123	28.28
	Kisumu West	74	17.01
Gender	Female	321	73.79
	Male	114	26.21
Occupation	Formal employed	37	8.51
	Informal employed	65	14.94
	Self-employed	123	28.28
	Student	70	16.09
	Unemployed	140	32.18
Religion	Christian	426	97.93
	Muslim	8	1.84
	None	1	0.23
Level of Education	None	12	2.76
	Primary level	115	26.44
	Secondary level	176	40.46
	College/University	132	30.34
Income Range	Less than 5000	280	64.37
	5000-9999	73	16.78
	10000-19999	50	11.49
	20000-49999	29	6.67
	Above 50000	3	0.69
Marital Status	Divorced/Separated	6	1.38
	Married	278	63.91
	Never Married	143	32.87
	Widowed	8	1.84

Health Care Providers' Knowledge of PrEP

Findings revealed that PrEP is simply an antiretroviral drug that helps prevent the contraction of HIV AIDS. This was a common response from almost all the respondents, as referenced. One of the health care providers said:

"So PrEP is just an ARV drug. Is a drug which helps those who are HIV negative."- [HCP 005].

Another stated that:

"PrEP is Pre-Exposure Prophylaxis that's used to prevent people who are yet to be exposed but at risk of HIV from getting infected from HIV" – [HCP 007].

Table 3:
Knowledge of PrEP among Adults in Kisumu

Variables (n=435)		n	%
Heard of PrEP	Yes	423	97.24
	No	12	2.76
Source of first information about PrEP services	Electronic media	13	2.99
	Friends	130	29.89
	From healthcare workers	256	58.85
	Print media	5	1.15
	Social media	19	4.37
	N/A	12	2.76
Knowledge of PrEP	Poor	125	28.74
	Average	142	32.64
	Good	156	35.86
	N/A	12	2.76
Would recommend PrEP	N/A	12	2.76
	No	36	8.28
	Yes	387	88.97
Ever Discussed PrEP with HCP	Yes	288	66.21
	No	135	31.03
	N/A	12	2.76
Heard of or experienced PrEP side effects	N/A	12	2.76
	No	344	79.08
	Yes	79	18.16
Prevalence of side effects PrEP side effects (n=79)	Nausea	33	41.77
	Headache	41	51.9
	Fatigue	21	26.58
	Abdominal discomfort	11	13.92
	Diarrhoea	13	16.46
	Weight loss	9	11.39
	Weight gain	1	1.27
	Dizziness	18	22.78
	Loss of appetite	2	2.53
	Swelling of body parts	3	3.8
	Infertility issues	6	7.59
	Vomiting	6	7.59
	kidney problems	3	3.8
Close associates have myths concerning PrEP	Never discussed with associates	87	20
	No	305	70.11
	Yes	43	9.89

Health care providers' decision-making process for PrEP-eligibility

The respondents from the study each presented a decision-making process they used to determine whether their clients were eligible to be administered with PrEP. It was evident from the respondents that educating the clients on PrEP was the first step, followed by an eligibility test, and finally letting the clients make a decision depending on the information they had obtained from the counselling and teaching sessions. One of the health care providers said:

"So, giving information to a client is very key and checking, also assessing whether the client is eligible for PrEP or not during Pre-Test Counselling, and the risk assessment, you can tell the client is at risk or not. And also, you inform them about PrEP and the PrEP options available in our facility. – [HCP 005].

And yet another said:

"First, you assess the risk of HIV infection on the client. After assessing the risk of infection, then you discuss it with the client if the client is eligible and is ready to take PrEP. At the same time, you also rule out any contradictions on PrEP before you start the PrEP. – [HCP 001].

And yet another said:

"You have to elicited a client and ensure that they are really in need of the PrEP, before you dispense them with the PrEP. So, you have to screen them. Majorly, we use the RAST to screen these clients. Apart from RAST, we also access other indicators of risk exposure. So, it's these risk exposures that can make a client eligible. So, it's from assessment that we know that this client is really eligible or is not eligible. So, it's only those who are eligible that we initiate on PrEP. Yeah." – [HCP 007].

Counselling and awareness to the general population

Awareness creation, counselling sessions and literacy programs emerged as one of the key ways used to improve the PrEP knowledge and its uptake. Health care workers in Kisumu County were committed to the creation of awareness among the general population and especially those who had enrolled on PrEP. Some among the opinions provided by health care workers are as given below:

"We do try to look for ways of talking to them…the literacy part that we give from initiation" – [HCP 002].

On support programs and literacy, some HCPs said:

"Sensitization by giving health…health talks and one-on-one education to clients, even support groups" – [HCP 005].

"Yes, especially young men, young population. Adolescent and young population, I do talk to them about PrEP on individual basis" – [HCP 001].

"The specific thing I tell you about. I have to tell the client what PrEP is. What it means. The kind of drug it is. After saying that you go to the eligibility criteria" – [HCP 006].

"We talk about PrEP, the overview of PrEP. After talking about the overview of PrEP, we usually encourage people, anybody interested, now to come to the room so that we can discuss further. And at the same time, consent or verify the eligibility of that client to start PrEP" – [HCP 001].

This indicates the dedication of the healthcare providers in awareness programs for PrEP.

Discussion

Nearly all (97.24%) of participants had heard of Pre-Exposure Prophylaxis (PrEP), indicating a widespread awareness of this HIV prevention method. The findings agree with those from a study conducted in Western Kenya [16] in which it was found that there was a high awareness of PrEP and about 89% had heard of it, of whom 59% had accurate information of the prophylaxis. In recent years, the national government of Kenya has had strong support for

PrEP-related awareness campaigns, especially in geographic regions where there is a high case load of HIV, such as Kisumu [14]. Likely, this is the reason for the high PrEP awareness in Kisumu County. Most respondents (58.85%) first learned about PrEP from healthcare providers. This was congruent with the information given by the health care providers concerning PrEP awareness creation. This suggests the importance of healthcare professionals in disseminating accurate information about PrEP.

However, considering the high awareness of PrEP among the general adult population, results indicated that knowledge levels varied among participants, with 28.74% having poor or scanty knowledge, 32.64% having average knowledge, and 35.86% having good knowledge. This distribution underscores the need for targeted education and awareness campaigns to address gaps in understanding. Qualitative insights further revealed that healthcare providers play a critical role in not only informing clients about PrEP but also ensuring that clients comprehend the eligibility criteria and benefits of PrEP use. Respondents emphasised the need for risk assessment, thorough counselling, and screening procedures before initiating PrEP to ensure that clients are adequately informed and eligible. This highlights the structured approach healthcare providers use in guiding PrEP uptake and their commitment to ensuring informed decision-making among clients.

The majority of participants (88.97%) expressed a willingness to recommend PrEP to others. This positive attitude indicates potential community acceptance and support for PrEP. The findings concur with a study conducted among Kenyan women, which found that these women were willing to be engaged in peer referral programs for PrEP, implying that they would recommend PrEP [17]. A relatively low percentage (18.16%) of participants reported having heard of or experienced side effects associated with PrEP. This could be perceived as a positive aspect, suggesting that PrEP is generally considered safe by the majority. Among those who reported side effects, common mentions included nausea, headache, fatigue, abdominal discomfort, diarrhoea, weight loss, and dizziness. Healthcare providers in this study acknowledged that continuous counselling and awareness creation were fundamental in promoting PrEP uptake. They noted that structured sensitisation programs, including health talks, one-on-one counselling sessions, and support groups, were critical in ensuring that clients understood the purpose and efficacy of PrEP. This aligns with findings from previous studies that suggest that comprehensive and repeated education on PrEP can significantly influence uptake and adherence [18,19]. Additionally, healthcare providers emphasised that special efforts were made to educate young men, adolescents, and young adults, who were identified as a priority population for PrEP interventions. This suggests that targeted awareness campaigns, particularly for vulnerable groups, could enhance knowledge and promote adherence.

Some participants (9.89%) mentioned that their associates held myths concerning PrEP. Notably, misconceptions included beliefs that PrEP affects fertility, reduces sexual drive among men, and can prevent pregnancy. These misconceptions indicate the importance of addressing misinformation and promoting accurate knowledge about PrEP. Participants also reported that some of their associates did not clearly understand the role of PrEP, with misconceptions such as believing that continual PrEP use could lead to HIV infection. Healthcare providers also acknowledged that addressing these myths during counselling sessions was a key component of their work. They reported that clients often approached them with misinformation, necessitating targeted messaging to dispel fears and correct misconceptions. This

further supports the idea that healthcare workers are essential in tackling misinformation and ensuring clients have accurate knowledge about PrEP.

This emphasises the need for comprehensive education to clarify the purpose and effectiveness of PrEP. There are still gaps in knowledge of PrEP which need to be addressed, as suggested by the findings of this study. The findings agree with those from a study conducted in western Kenya, which also identified gaps in knowledge in PrEP uptake [14].

Limitations of the study

Selection of healthcare workers was by purposive sampling, which may have introduced bias in the study. However, this was countered by focusing on PrEP service providers in key informants' selection. The study sites were not selected randomly but purposively, considering the three most highly populated sub-counties of Kisumu West, Kisumu East, Kisumu Central and Nyando. Further, the study sample emanated from clients selected at the facility level.

Conclusion

There is a commendable level of awareness of PrEP among participants. However, a few participants still hold myths and misconceptions about the prevention method that could hinder its usage when a person is at risk. The influence of healthcare providers is evident, as most of the participants first learned about PrEP from them. The positive attitude of most participants is also revealed as many expressed a willingness to recommend PrEP.

Recommendations

There is a need for health care practitioners-led awareness campaigns on the importance of PrEP. Health care workers showed willingness and competence in delivering information to the general population on PrEP uptake.

Acknowledgement

We acknowledge the contributions of everyone who gave productive feedback and encouragement during this undertaking.

Conflicts of interest. Authors affirm no conflicts of interest.

Source of funding. This research received no external funding.

References

[1] World Health Organisation. HIV and AIDS 2023. https://www.who.int/news-room/fact-sheets/detail/hiv-aids (accessed May 1, 2023).

[2] At a glance: HIV in Kenya. Be KNOW 2021. https://www.beintheknow.org/understanding-hiv-epidemic/data/glance-hiv-kenya (accessed May 1, 2023).

[3] UNAIDS U. UNAIDS data 2017. Jt U N Program HIVAIDS 2017:1–248.

[4] National AIDS Control Council. Kenya HIV estimates report 2018. Ministry of Health Kenya, 2018.

[5] Haldane V, Chuah FLH, Srivastava A, et al. Community participation in health services development, implementation, and evaluation: A systematic review of empowerment, health, community, and process outcomes. PLoS ONE 2019;14:e0216112. https://doi.org/10.1371/journal.pone.0216112.

[6] Sircar NR, Saoyo TG, Maleche AA. Assessing a Human Rights-Based Approach to HIV in Kenya. Health Hum Rights 2019; 21:26781.

[7] Musyoki H, Bhattacharjee P, Sabin K, et al. A decade and beyond: learnings from HIV programming with underserved and marginalized key populations in Kenya. J Int AIDS Soc 2021;24:e25729. https://doi.org/10.1002/jia2.25729.

[8] Onyango DO, van der Sande MAB, Musingila P, et al. High HIV prevalence among decedents received by two high-volume mortuaries in Kisumu, western Kenya, 2019. PLoS ONE 2021;16:e0253516. https://doi.org/10.1371/journal.pone.0253516.

[9] Ministry of Health, National AIDS and STI Control Programme (NASCOP). Kenya AIDS Response Progress Report 2021. 2021.

[10]Irungu EM, Odoyo J, Wamoni E, et al. Process evaluation of PrEP implementation in Kenya: adaptation of practices and contextual modifications in public HIV care clinics. J Int AIDS Soc 2021;24:e25799. https://doi.org/10.1002/jia2.25799.

[11]Sousa LRM, Elias HC, Fernandes NM, et al. Knowledge of PEP and PrEP among people living with HIV/aids in Brazil. BMC Public Health 2021;21:64. https://doi.org/10.1186/s12889-020-10135-3.

[12]Chandler R, Guillaume D, Wells J, et al. Let Me Prep You to PREP Me: Amplifying the Voices of Black Women and Their Providers to Consider PrEP as an HIV Prevention Option. Int J Environ Res Public Health 2022;19:1414. https://doi.org/10.3390/ijerph19031414.

[13]Kurt DS. Social Learning Theory: Albert Bandura. Educ Technol 2019. https://educationaltechnology.net/social-learning-theory-albert-bandura/ (accessed August 11, 2023).

[14]Masyuko S, Mukui I, Njathi O, et al. Pre-exposure prophylaxis rollout in a national public sector program: the Kenyan case study. Sex Health 2018;15:578 86. https://doi.org/10.1071/SH18090.

[15]Kenya Population and Housing Census Reports - Kenya National Bureau of Statistics, 2019 2020. https://www.knbs.or.ke/2019-kenya-population-and-housing-census-reports/ (accessed April 4, 2025).

[16]Begnel ER, Escudero J, Mugambi M, et al. High pre-exposure prophylaxis awareness and willingness to pay for pre-exposure prophylaxis among young adults in Western Kenya: results from a population-based survey. Int J STD AIDS 2020; 31:4549. https://doi.org/10.1177/0956462420912141.

[17]McGowan M, Casmir E, Wairimu N, et al. Assessing young Kenyan women's willingness to engage in a peer-delivered HIV self-testing and referral model for PrEP initiation: A qualitative formative research study. Front Public Health 2022;10:932948. https://doi.org/10.3389/fpubh.2022.932948.

[18]Sundareshan V, Swinkels HM, Nguyen AD, et al. Preexposure Prophylaxis for HIV Prevention. StatPearls, Treasure Island (FL): StatPearls Publishing; 2025.

[19]Irine C. Determinants of Pre-exposure Prophylaxis (Prep) Services Uptake: the Case of Ahero County Hospital, Kisumu County, Kenya. 2019.