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Investigating Barriers to Pre-Exposure Prophylaxis Uptake to Prevent HIV Among General Population of Sub-Saharan Africa Countries- A Systematic Review

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Abstract

Sub-Saharan Africa is one of the regions were the prevalence of HIV is high. Many strategies have been introduced to fight HIV in these countries including Pre-exposure prophylaxis (PrEP). The uptake of PrEP has been low in these countries thus this review aims to investigate the barriers to PrEP uptake among the general population of Sub-Saharan Africa countries. A systematic review was conducted and the research studies that were used were selected from google scholar and PubMed databases. Twelve (12) studies were analyzed to determine the barriers to Pre-exposure prophylaxis uptake among the general population of Sub-Saharan Africa countries. Majority of the studies revealed that barriers to Pre-exposure prophylaxis were stigma, fear of side effects, lack of knowledge, pill burden, lack of transport to the health facility, distance from the facility, attitude of health care workers and stock out of medications. There is need to increase PrEP awareness in these countries so to reduce the level of stigma attached to PrEP and improve access to health facilities.

Keywords: *Barriers, PrEP, Sub-Saharan African Countries, Uptake.*

Introduction

In 2024 there were 40.8 million people living with HIV globally, 25, 6 million of these people live in Sub-Saharan Africa [1]. The incidence of HIV in 2024 was 1.3 million worldwide. Adolescents account for 11% of the total population living with HIV in the world, the data also show that 44% of the incidence of HIV is adolescents [2]. Many countries in Sub-Saharan Africa like Eswatini, Zambia, South Africa and Zambia have intensified their fight against HIV. They have introduced measures such as voluntary male circumcision, large scale HIV testing, condom usage, prevention of mother to child transmission of HIV through the introduction of lifelong antiretroviral therapy (ART) for pregnant and breastfeeding mothers and Pre-Exposure Prophylaxis (PrEP) [3]. Even with the introduction of such measures, though there is a decline in the incidence of HIV most countries in Sub-Saharan Africa seem to be fighting a losing battle.

In 2015, the World Health Organization (WHO) recommended that PrEP must be introduced as an additional protection measure against HIV for individuals at substantial risk of HIV infection as part of the HIV comprehensive package [4]. Most countries in Sub-Saharan Africa decided to scale up PrEP use to reduce the incidence of HIV in the region in the same year [4]. PrEP is medication that reduces a person's chances of getting HIV, it is only prescribed for individuals who are HIV negative who are at risk of contracting HIV [5]. PrEP if taken correctly has a potential of reducing the risk of getting HIV through sex by 99% and by 74% among people who inject

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drugs [6]. There are two pills that have been approved for PrEP use, a combination of Truvada (Emtricitabine/Tenofovir Dispoxil Fumarate [5]. It can also be available as an injectable, two injectable were approved; Cabotegravir and Lenacapavir [6]. United Nations Programme on HIV/AIDS had a goal of at least 21.2 million people being initiated or should be continuing PrEP in 2023, they seem to have not reached this goal as only 1.5 million persons had been initiated or continuing PrEP [7]. Sub-Saharan Africa accounted for most individuals on PrEP with 82, 077 people, which shows a low uptake of PrEP yet that region has the highest incidence of HIV [7].

It is surprising why there is such a low uptake of PrEP in Sub-Saharan Africa, yet this is a measure that would probably go a long way in reducing the incidence of HIV in this region. In a study conducted in Eastern, Southern and western Africa, the participants stated that the factors affecting their PrEP uptake were fear of side effects, perceived stigma, PrEP use disapproval from parents and partners, healthcare providers stigma, isolated clinic set up.

Lack of resources and lack of partners' support were identified as some of the barriers to PrEP uptake [8]. This study proves that there is need for government to sensitize PrEP and response to such barriers which will allow a good uptake of PrEP. In another study conducted in Uganda, South Africa and Zimbabwe in 2021, the participants stated they encountered some challenges in accessing PrEP, their challenges were more or less the same as the above study [9], they further state that a total of 86.4% of the participants were willing take PrEP but they verbalized that the lacked information on what PrEP is, how to take it and where to find it, poor access to PrEP and financial problem. Both these studies suggest there is need for the government to address the barriers to uptake of PrEP if they wanted to be successful in the fight against HIV.

The purpose of this systemic review is to investigate the barriers to PrEP uptake in Sub-Saharan Africa, examine already existing data and what more needs to be studied. The research question is what are the barriers to PrEP uptake in Sub-Saharan Africa?

Methods

'The objective of this study is to investigate the barriers to Pre-Exposure Prophylaxis uptake among the general population of Sub-Saharan Africa countries. A preliminary search was conducted from three sources: google scholar, science direct and PubMed. Key words used were 'PrEP', 'barriers', 'Uptake, 'Sub-Saharan Africa'. Only studies that have been published in the last 5 years have been used as this allows one to obtain the latest form of data. Qualitative, quantitative and mixed study studies were reviewed in this review. Studies were reviewed based on the year of publication, country of study, study design and language, summary of the inclusion and exclusion criteria is listed on table 1. To conduct the review the PRIMA was used. Summary of PRIMA is illustrated on figure 1.

Inclusion and Exclusion Criteria

Table 1. Inclusion and Exclusion Criteria of Articles used in Review

Criteria	Inclusion Criteria	Exclusion Criteria
Year of publication	2020-2025	Articles published before 2020
Country of study	Articles from Sub-Saharan Africa	Articles outside Sub-Saharan Africa
Study design	Qualitative, quantitative and mixed method.	Experimental studies

Language	Articles written in English	Article written in any other language besides English.

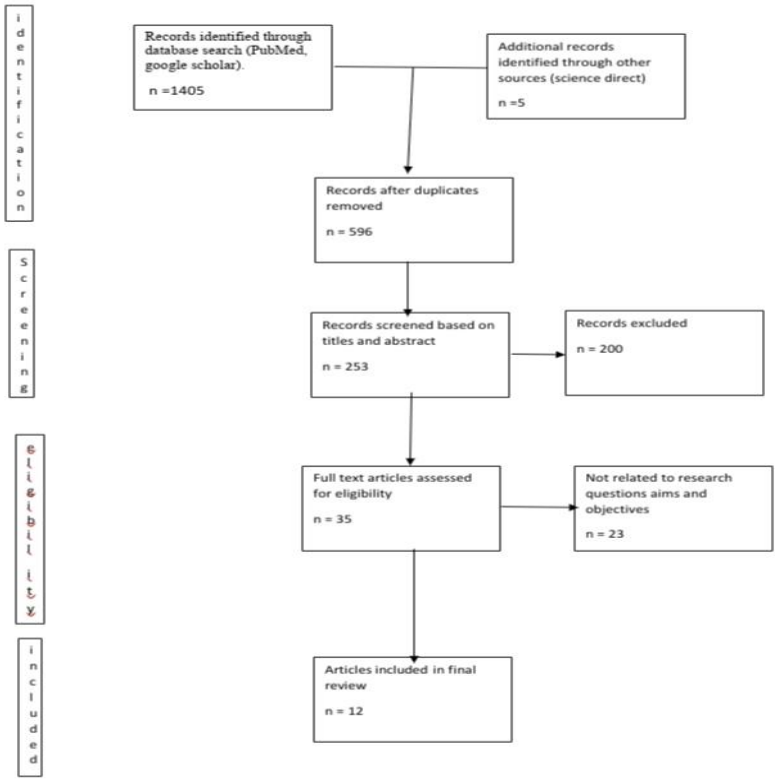

Figure 1. Prima Flow Chart

Results

A systematic review of literature was done, a total number of 1405 studies were found, a total number of 253 studies were eliminated because of their year of publication, and they were systematic reviews themselves. A further 53 studies were left and 41 of them were eliminated because of the country where the study were conducted. Eleven (12) articles were included in this study, 9 qualitative studies, 2 quantitative and one mixed method study. The results of the study were organized in a table with sub-divisions; Author, year of publication, methodology, results and conclusions (Table. 2).

Barriers to PrEP Uptake

In a study conducted in South Africa, Uganda and Zimbabwe, there were 24 group discussions with 6-8 participants, 60 in-depth interviews that were stratified by age, it was reported that barriers to PrEP uptake in this study were divided into individual level barriers; PrEP related stigma, pill burden, doubting PrEP efficiency, the complexity of timing and schedule of taking PrEP and PrEP characteristics [9]. Another study conducted in Namibia [10] where 20 potential PrEP users were interviewed gave different reasons for PrEP barriers from the above. Their study reported that barriers to PrEP uptake were due to lack of understanding, distance from health facility, health department non-compliant [10], though stigma on taking PrEP was reported by both [9-11]. Similarly, another study conducted in Malawi [11] that assessed barriers and facilitators of Oral PrEP uptake among adolescents and women , respondents revealed that their barriers to PrEP were fear of side effects of medication , lack of PrEP knowledge, lack of transportation and lack of conducted privacy, the findings of this study show similar

findings with a qualitative study that was done in Zambia [12],–respondents in this study verbalized that poor uptake of PrEP was due to the fear of side effects and lack of transportation to reach the facility.

Additionally in a qualitative study conducted in Kenya, the findings in this study concurs with that of [9, 12] reported barriers to PrEP were side effects of medication and stigma associated with PrEP. [13] Further stated other important factors of concern which are limited number of healthcare workers for PrEP distribution and administration limited and limited resources for routine screening and medication monitoring [13]. In a mixed method study [14] conducted in DRC that examined the low retention of PrEP and barriers to PrEP use among key populations in Kinshasa stated that stigma, side effects of medication, shortage of medication, pill burden were a major barrier to PrEP uptake in this study. These findings also concur with other studies [9-11, 13].

Side effects of medication based on misinformation and experience, fear of being mislabeled as having HIV, long waiting period and stock out at local clinic [15], were findings from a study conducted in Zambia they were trying to ascertain the barriers and facilitators to PrEP uptake and persistence of PrEP among key population. A qualitative study conducted in Eswatini also shared the same findings as the respondents also stated side effects of medication and stigma as the key barriers to PrEP [16] in that country.

A qualitative study conducted in Lesotho [17] revealed that barriers to PrEP uptake can be divided by three: individual factors; perceived side effects and PrEP daily regimen. Social factors: Lack of support and HIV related stigma. Structural factors; PrEP access, distance from facility and transportation cost. These findings are consistent with a finding of another study [18] which is done in multiple settings of Uganda among potential PrEP users assessed the knowledge and barriers of PrEP among diverse groups of potential PrEP users in Central Uganda.

A survey findings revealed that low perceived risk for HIV (76%), partners known HIV (72%), pill burden (2%), fear of side effects (8%), fear partner will find out (2%) and fear of intimate partner (2%) [19], were barriers to PrEP. The researcher examined the high awareness, yet low uptake among adolescent girls and young women.

Table 2. Summary of Articles on Barriers to PrEP

Author, year, country	**Title of study**	**Methodology**	**Major findings**	**Conclusions**
Nabunya et al (2023) Uganda	Barriers and Facilitators to oral PrEP uptake among high-risk men after HIV testing at workplace: A qualitative study.	Explorative and qualitative study comprising of in-depth interviews. Data was collected via telephone calls and manually analyzed by inductive content analysis.	Fifty-six (56) men participated. Barriers were Inaccessibility of PrEP services, misinformation, lack knowledge, Medication-related barriers, Potential for increased risky sexual behavior, and Perceptions about PrEP use.	The findings suggest the need for healthcare providers to offer information regarding PrEP and HIV prevention services and mass sensitization campaigns to facilitate uptake.

Sila et al (2020) Kenya	High awareness, Yet low uptake, Pre-exposure prophylaxis among Adolescents girls and young women with family planning clinics in Kenya.	Quantitative study (n= 470). Data was analyzed using STATA 15.0.	Barriers identified are low perceived risk (76%), partner known HIV negative (72%), pill burden (51%), fear of side effects (8%), fear partner will find (2%), fear of partner violence (2%).	PrEP counseling should be tailored to AGYW to guide appropriate PrEP decision-making in this important population.
Barnighausen et al (2020) Eswatini	"We know this will be hard at the beginning, but better in long-term: Understanding PrEP uptake in the general population in Eswatini.	Qualitative study. Semi-structured in-depth interviews were done,(n = 106).	Healthcare workers fear that PrEP will reduce condom usage and cause drug resistance. The clients feared side effects of medication and reaction of family members,	There is need for community PrEP promotion and delivery, shortening the PrEP initiation process and target men and adolescent girls in use of PrEP.
Gombe et al (2020) Zimbabwe	Key Barriers and Enablers associated with PrEP uptake and continuation of oral PrEP in public sector Zimbabwe: Qualitative perspective of general population clients at high risk.	Qualitative study. Semi-structured interviews were conducted among clients who agreed follow up (n=55), 42 from rural youth center, 13 from family planning clinic. The interviews were recorded, transcribed and coded thematically.	Respondents verbalized that the poor uptake of PrEP was due to the fear of side effects and lack of transportation to the healthcare facility.	Refine training materials for healthcare workers to be able to educate clients on PrEP use. Program advertisements should also be targeted with messages that speak to client's experience.
Stoebenau et al (2024) Zambia	Barriers and facilitators to uptake and persistence on PrEP among key population in Southern Province Zambia: A thematic analysis.	The study used a qualitative case study that followed sero0discorded couples, female sex workers, man that have sex with men in Livingstone. In-depth interviews were conducted (n=43). Guided by socio-ecological model and	Respondents had concerns about side effects based on misinformation and experience, fear of being mislabeled as having HIV, long waiting periods and stock outs at local clinics.	The recommendation for programming efforts going forward such as include PrEP awareness campaigns, expanding population sensitivity training and related thwart PrEP stigma while expanding access.

		focus group discussion n =4 with clinic and community-based provider and eligible clients. Thematic analysis was used to analyze data using codes derived both deductively and inductively.		
Zotova et al (2024) DRC	Low retention on PrEP and barriers to PrEP use among the key population in Kinshasa, DRC: a mixed method study.	A mixed-method study was conducted at key population friendly centers in Kinshasa, DRC. Data collected included programmatic data, extraction of routine and clinical records and qualitative interviews with female sex workers and man who have sex with men. Logistics regression was used to identify factors associated with PrEP retention. Qualitative data were analyzed thematically.	The barriers to PrEP were stigma, side effects of medication, dislike of daily medication shortage of key population friendly facilities.	There is need to raise awareness among Congolese general population which may help to avoid stigmatization of PrEP user and improve PrEP acceptance among key population at risk.
Muhumuza et al (2021) South Africa, Zimbabwe, Uganda	Exploring perceived barriers and facilitators of PrEP among young people I Uganda, Zimbabwe and South Africa	24 group discussions and 60 in-depth interviews, males and females aged 13-24, Uganda, South Africa, and Zimbabwe between Sep 2018 – February 2019.Framework approach to generate themes and key concepts for analysis by social ecological model.	Young people expressed willingness to use PrEP and identified potential barriers and facilitators of PrEP uptake. Barriers to PrEP were individual factors (fear of HIV, fear of side effects, PrEP characteristics), Interpersonal (parental influence, social stigma), Institutional (long waiting period,	The study showed that PrEP is an acceptable HIV prevention method. PrEP uptake is linked to personal and environmental factors that need to be considered for successful PrEP roll-out, multiple interventions needed to promote PrEP uptake should consider the society and structural drivers and focus on ways that inspire PrEP uptake and limit barriers.

			attitudes from healthcare workers, Structural (cost of PrEP, mode of administration, accessibility concerns) levels.	
Ashipala et al (2024) Namibia	Exploring factors hindering the uptake of HIV Pre-exposure prophylaxis by potential users in Namibia	This was a qualitative, exploratory, descriptive and contextual design. Peri-urban setting of Okongo District Hospital, Namibia. A purposive sampling method was used, were semi-structed interviews were conducted with 20 participants. Data was analyzed using thematic analysis	The results revealed that barriers to PrEP uptake were level of understanding, distances, insufficient stock, attitudes of health care workers, on-compliance on the part of the health department	Despite the PrEP roll-out, multiple obstacles continue to hinder PrEP uptake, especially on the outskirts of Okongo district. The study recognizes that there is need to word hand in hand with the support system of both potential users.
Nicholas et al (2025) Malawi	Barriers and Facilitators to oral PrEP uptake among adolescents' girls and young women at elevated risk of HIV acquisition in Lilongwe, Malawi: A qualitative study.	Exploratory qualitative study conducted at Kawale Healthcare center in Lilongwe, Malawi, February 2023, and phenomenological design was used. Semi-structured in-depth interviews were recorded digitally. Data managed using Nvivo software and analyzed using thematic approach.	The barriers to PrEP included side effects of medication, lack of PrEP knowledge, lack of privacy, stigma and lack of transportation.	There is need to create demand to increase the uptake of PrEP.
Gibson et al (2021) Kenya	Facilitators and barriers to PrEP uptake through community-based intervention strategy among adolescent girls and young woman in seme-sub country, Kisumu, Kenya.	This is a qualitative study involving adolescent girls and young women enrolled in the DREAMS Initiative at Pamoja Community Based Organization in Kisumu, Kenya. Informant interviews (n = 15) with Pamoja Community Based Organization staff, health care providers and community leaders.	Barriers to PrEP included stigma associated with the use of anti-retroviral drugs, drug side effects, frequent relocation of beneficiaries, limited resources for routine screening and medication monitoring, and a	The identified barriers should be addressed so that a larger scale-up of PrEP roll-out is possible in the future.

		Focus group discussions with young women receiving PrEP and peer mentors ($n = 40$). Data was analyzed using the Consolidated Framework.	limited number of qualified health care workers for PrEP distribution and administration.	
Chebert et al (2023) Lesotho	Motivation for PrEP-exposure prophylaxis uptake and decline in an HIV hyperendemic setting finding from qualitative implementation study in Lesotho.	In-depth interview, n=97(current PrEP users = 55, former PrEP users = 36, and PrEP decliners (n = 6)). Data was analyzed using thematic analysis.	Barriers to taking PrEP were divided into 3: individual factors; PrEP daily regime and side effects of PrEP. Social factors; lack of support and HIV related stigma. Structural factors; distance from facility and transportation costs.	Strengthening health provider counseling capacity; and (3) addressing societal and structural HIV-related stigma.
Muwonge et al (2020) Uganda	Knowledge and barriers of Pre-exposure prophylaxis among diverse groups of potential PrEP uses in Central Uganda.	A quantitative survey to potential PrEP users in multiple settings in Central Uganda. Sample size 250. Data was analyzed using Chi- square test and ANOVA.	The barriers to PrEP identified were stigma, transportation	Demand creation and HCW training will be critical for increasing PrEP awareness among key populations, with support to overcome barriers to PrEP use

Discussions

The findings of this review brought out different factors that are at play in the barriers of PrEP uptake from individual to social and structural factors. Individual level barriers identified significant barriers in this study, these included lack of knowledge, lack of awareness, misinformation about PrEP, fear of side effects, and fear of violence from partner. These study finding are consistent with a study done in USA, where they were assessing individual, social and structural factors influencing PrEP uptake among cisgender women. They further stated that if they were in violent relationships their partners will interfere with them taking PrEP [20]. Yet another study done in the USA again concurred that they feared the side effects attached to PrEP including vomiting, fever, and they lacked knowledge about PrEP the only knowledge they had was from social media [21]. These findings also prove that there is need for providing more education on PrEP at heath facilities, radios and communities, some information that are obtained from social media might not be necessarily true and they might lead to misinformation this leading to poor uptake of PrEP.

Societal factors were also evident, family reaction, reaction from friends and stigma. Participants feared their friends and family members would think that they were HIV positive if they saw them taking PrEP, again they feared the stigma attached to PrEP as most people would think they had more than on partner [21]. Another study highlighted the stigma with PrEP was real as people always say that you are having sex with HIV positive people [22]. The participants feared they would be labeled as promiscuous due to sexual stereotyping that they endured [21]. The stigma attached to PrEP seems to be the main reason to poor PrEP uptake, people need to be educated more about the importance of PrEP and what it is. Taking PrEP does have to necessarily mean you are being promiscuous, it is just an attempt to protect self from contracting HIV. There is need to increase PrEP awareness in the communities and interventions to reduce stigma.

Additionally identified structural factors as another barrier to PrEP uptake. These include lack of transport to the health facility, distance from the clinic, stock out and lack of trained professionals. In study conducted in Pakistan, participants revealed that it was difficult for them to reach the health care facilities due to lack of transportation, they went on to further state that they did not have the funds to assess PrEP [22]. There is need for training and support for healthcare workers to address the shortfall of lack of knowledge on providing PrEP. Health care facilities should be assessed by everyone if there is need, the service should be brought closer to the people through mobile clinics. Policy makers should create policies that allow PrEP to assess all individuals. There is also needed to sensitize PrEP to the population through health education to reduce the stigma and discrimination attached to PrEP. Addressing these barriers will help reduce the incidence of HIV as the uptake of PrEP will increase. Future studies should be done to explore the stigma experienced by PrEP users and one that would assess the knowledge and awareness about PrEP.

Conclusions

This systematic review highlighted the most important barriers to PrEP uptake. A comprehensive approach is required to be able to address these issues. These findings will assist policy makers in identifying the gaps that the ministry of health needs to cover by developing interventions that will improve access to PrEP such as training more healthcare workers on provision of PrEP, providing outreach services and building more health facilities that are closer to the population.

Limitations

Only studies published in Sub-Saharan Africa were reviewed, which might mean that there is a possibility of excluding rich information that might have been obtained from articles done in other parts of the world.

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Conflict of Interest

There is no conflict of interest.

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