

# Barriers to Effective Uptake of Pre-Exposure Prophylaxis (PrEP) by Pregnant Human Immune Virus (HIV) Negative Women at Tertiary Teaching Hospital in Zimbabwe

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## ABSTRACT

**Objectives:** Explore knowledge of HIV negative pregnant women on PrEP at a tertiary teaching hospital in Zimbabwe.

Establish barriers to uptake of PrEP by HIV negative pregnant women at a tertiary teaching hospital in Zimbabwe.

**Design:** Qualitative study design

**Methods:** Interviews and audio recordings were conducted on 12 HIV negative pregnant women who were purposively sampled and met the inclusion criteria in order to explore their knowledge on PrEP as well establish barriers to effective uptake of PrEP. Qualitative study was conducted between January and June 2024. The audio recordings were transcribed first in the local languages and then translated into English. Thematic Content Analysis was employed to analyse data. Themes were extracted from responses.

**Setting:** Study was conducted at a tertiary teaching hospital maternity centre in Zimbabwe.

**Subjects:** Twelve HIV negative pregnant women who came to the hospital for antenatal care and were willing to participate in the study.

**Results:** Majority, 58% (n=7) respondents had knowledge about PrEP, lacked in-depth understanding of mode of action, efficacy and side effects of PrEP. Lack of knowledge, stigma and misconceptions, healthcare provider barriers, access barriers, pregnancy-related concerns, partner dynamics, prioritization of other health concerns, limited support and resources, negative perception, packaging barriers, fear of being labelled and low perception of risk to acquiring HIV were some of the barriers to uptake of PrEP identified. All the respondents lowly perceived PrEP as an effective strategy for reducing incidence of HIV particularly how ARV's which are not a cure for HIV can then be used to prevent infection in the HIV negative.

**Conclusion:** Study highlights significant gaps in knowledge about PrEP among the respondents. Pregnant women should be given adequate knowledge about PrEP if Sustainable Development Goals (SDGs) 3 is to be attained by 2030.

**Recommendations:** Enhancing knowledge about PrEP would assist in addressing the multifaceted barriers thereby improving the perception of PrEP which ultimately improves its uptake.

**Keywords:** Human Immuno-Deficiency Virus (HIV), Pre-Exposure Prophylaxis (PrEP), Pregnant woman.

## INTRODUCTION

Pre-Exposure Prophylaxis (PrEP) is use of anti-retro viral methods to reduce risk of acquiring HIV among

populations at risk such as pregnant HIV negative women. At a tertiary institution in Zimbabwe, there is a low uptake of PrEP among this group. Low uptake leads to rise in adult and child incidence of HIV. (PrEP) is an evidence-based strategy that involves the use of antiretroviral medicines in order to protect people at substantial risk of Human Immuno-deficiency Virus (HIV) from acquiring the infection (Mayer, Owaraganise, Kabami, Kwarisiima, Koss, Charlebois, Kamya, Petersen, Havlir, and Jewell, 2019: 1). This strategy was adopted by World Health Organization (WHO) in 2015 as an additional HIV prevention choice for people at risk of acquiring HIV through sexual intercourse with an HIV infected partner such as HIV negative pregnant women (Centre for Disease Control (CDC), 2023). PrEP, is part of a combination prevention package which includes condoms, sexually transmitted infection (STI) prevention, and regular HIV testing, as safe and efficacious methods to prevent HIV infections among pregnant women and their unborn babies (Abadan, Hawryluk, Montandon, Flowers, Schueller, Eakle, Patel, Chevalier, Rana, and Amzel, 2022: 1). According to CDC (2023), the use of PrEP was highly effective when taken as prescribed as it reduces the risk of acquiring HIV from sexual intercourse by 99% and from contaminated injection drug use by 74%. Hunt (2019) echoes that the use of Truvada for HIV PrEP in combination with safe sex practices works to reduce the risk of sexually-acquired HIV infection by 99% in at-risk adults such as HIV negative pregnant women and also reducing their potential of transmitting HIV to their unborn babies.

According to WHO (2016) biomedical interventions such as PrEP were an important strategy to reduce maternal acquisition of HIV and subsequently reduce vertical transmission to the foetus. The use of PrEP during prenatal period for HIV-negative women reduced their risk of HIV acquisition as PrEP was effective and had a safety track record therefore there was a need to identify and engage populations at risk of HIV in order to improve demand for the regimen.

Despite the clear benefits and recommendations from WHO and other health organizations worldwide, PrEP uptake among pregnant women and other key populations in Africa remained low and below the set target despite the fact that it was high on a global scale (Mullick, 2023: 2). The low uptake created a significant public health concern because it left a vulnerable population such as the unborn baby unprotected against HIV.

The reasons for this low uptake were not easily understood and could be attributed to a wide range of factors such as individual, interpersonal, community, institutional, and structural factors (Muhumuza et al, 2021: 1730). It was therefore imperative that barriers to the uptake of PrEP be understood in order to devise strategies that will protect HIV negative pregnant women and subsequently their unborn babies from getting HIV.

## METHODOLOGY

A qualitative study was conducted starting from the month of June 2024 with a sample population of 12 women who were selected from the HIV-negative pregnant women booked at a tertiary Antenatal Clinic through purposive sampling. According to Cresswell and Cresswell 2018, a sample size of 10-12 can be considered adequate in a qualitative study despite that generalizability of the findings may be limited. The data was collected from consenting adults using semi structured interviews which took place in person, in a private space at Mpilo Antenatal Clinic and each interview typically lasted 30- 45 minutes. Audio recordings were transcribed first in verbatim in either IsiNdebele or Shona then translated into English by the researcher. Data analysis was by Thematic Content Analysis in order to establish the themes from the responses. This section presents the discussion of the findings.

The major themes that came out were lack of knowledge and awareness, stigma and misconceptions, healthcare provider barriers, access barriers, pregnancy-related concerns, partner dynamics, prioritization of other health concerns, limited support and resources, negative perception, packaging barriers, fear of being labelled and low perception of risk to acquiring HIV.

The study drew responses from HIV negative women aged between 23 years 39 years. A frequency of 10 (83%) was married whilst only 2(17%) were single. Most respondents (5, 42%) had Ordinary level qualifications as their highest academic qualification. Occupations of respondents included housewives, self-employed, unemployed, vendors, cross border traders, shop assistants, a teacher, and a student. The study

noted that 7(58%) of the sample completely rejected the idea of PrEP and outrightly denied being initiated on PrEP. The denial came even after a thorough discussion of the benefits of PrEP to pregnant women.

### **Objectives of the study:**

To explore the knowledge that pregnant women, have on PrEP.

To explore barriers to the effective uptake of Pre-Exposure Prophylaxis by HIV negative pregnant women.

To explore the women's perception about effectiveness of the uptake of PrEP in reducing incidence of HIV.

### **The knowledge that HIV negative pregnant women have on PrEP**

The study found that although most 9 (75%) respondents knew that PrEP exists, they lacked an in-depth understanding of the three methods of PrEP available in Zimbabwe, their mode of action, efficacy and side effects. Seven (58%) respondents merely recalled that PrEP were anti-retroviral drugs used to protect to a large extent their unborn babies and themselves to a lesser extent from acquiring HIV. However, their knowledge on the correct uses of PrEP was shallow, and, in some cases, actually uninformed. Respondents who knew of PrEP 8 (66.7%) only knew of the oral pill's method. The other two methods, injection and vaginal ring, were completely unknown and were also not included as part of the health education sessions. The little knowledge on PrEP that respondents had was mainly obtained from ANC visits.

These findings were in contrast with the results from Pintye et al (2018: 5) in their study on defining gaps in PrEP delivery for pregnant and breastfeeding women in high burden settings using an implementation science framework who found that most pregnant women were not even knowledgeable of PrEP in Uganda. This also contradicted with the findings of the study by Scott et al (2022: 2) in Washington DC where only 13.9 % of the study respondents had prior awareness of PrEP. According to Moran, Mashele, Mvududu, Gorbach, Bekker, Coates, Myer, Joseph (2021:205) there was need to create more awareness around PrEP and anticipated stigma to the use of PrEP. This went on to suggest that PrEP awareness campaigns were needed in most African countries, including Zimbabwe.

The study also found that women had, in some cases, correct knowledge of PrEP. Some HIV negative pregnant women knew that PrEP protects the mother and the unborn child, was an ARV drug, and should be taken daily same time and had some known possible side effects. The same was also supported in extant literature regarding the true and correct information about PrEP. Mayer, Agwu, and Malebranche (2020) who cited that PrEP is an evidence-based strategy that involved the use of antiretroviral medicines in order to protect people at substantial risk of HIV from acquiring the infection.

HIV negative pregnant women had incorrect information regarding PrEP where in some of the study participants thought that PrEP was mandatory, could make one feel sick and look sick, could be withdrawn without informing the clinic and HIV negative mothers had no need to take it. The expecting mothers were not aware of the effectiveness rates of taking ARV. According to CDC (2023), the use of PrEP was highly effective when taken as prescribed as it reduced the risk of acquiring HIV from sexual intercourse by 99% and from contaminated injection drug use by 74%. According to Hunt (2019) the use of Truvada for HIV PrEP in combination with safe sex practices worked to reduce the risk of sexually acquired HIV infection by 99% in at-risk adults such as HIV negative pregnant women and also reduced their potential of transmitting HIV to their unborn babies.

### **The barriers to the effective uptake of Pre-Exposure Prophylaxis by HIV negative pregnant women.**

The study found that there were a number of barriers to the uptake of PrEP among HIV negative women and these were lack of knowledge about PrEP and thus some participants felt that they could not be enrolled because it was still a new phenomenon to them. This finding supported the results from the study by Scottee et al (2023) who cited that lack of knowledge about PrEP was one of the barriers to its effective uptake.

Stigma was identified as another barrier echoing the findings from Whellan et al (2020) where stigma against PrEP was identified as a major barrier to the effective uptake of PrEP in Philippines. Healthcare provider attitudes against PrEP were identified as another barrier. The other identified barriers included limited accessibility of PrEP where alternate methods such as the CAB-LA injection and Dapivirine ring were not readily available at the tertiary Maternity Hospital and could only be accessed at other centres. This finding resounded with the findings from Muhumuza et al (2021: 1734) who found that the unavailability of the preferred method of PrEP was a barrier to its effective uptake. Furthermore, these findings echoed those from Whellan et al (2020) who cited that reduced availability of the CAB-LA and Dapivirine in health care centres limited the number of women who initiated PrEP.

The fear of side effects was identified as another barrier where some participants verbalised concern that side effects of PrEP could overlap with minor disorders of pregnancy and thus worsen them for example nausea and vomiting. This mirrored the findings from a study by Sekhon and Van der Straten (2021: 2) who found that fear of the side effects inhibited the effective uptake of PrEP.

Additionally, partner dynamics were also identified as a barrier where the women had limited autonomy in deciding whether or not to take up PrEP but had to seek permission from their partners; echoing the findings from Muhumuza et al (2021: 1734) and Wyatt (2022: 212).

The study also found that prioritization of other health concerns over enrolment into PrEP was a barrier to its effective uptake. In this study, some interviewees stated that they could not be enrolled into PrEP because of the fear of pill burden as they were currently on treatment for other conditions for example anaemia and also a fear that PrEP may exacerbate the pre-existing minor disorders of pregnancy such as nausea and vomiting and this reaffirmed the findings by Sekhon and Van der Straten (2021: 2) where women were wary of enrolling into PrEP because of concern about how it may exacerbate the minor disorders of pregnancy.

A negative perception to PrEP was found to be another barrier to the effective uptake of PrEP among HIV negative pregnant women at Mpilo ANC where some of the participants indicated a dislike for oral tablets as a factor that bars them from enrolling. This confirmed the finding from a study by Sekhon and Van der Straten (2021: 2) who cited that the physical characteristics of oral PrEP deterred women from initiating because they felt the tablets were too big to swallow

Packaging of PrEP itself was a barrier where concerns were raised about how the current packaging of the tablets would make them be mistaken for ART for HIV positive people thus contributing to another identified barrier which is fear of labelling. This hindered effective uptake where the women hid their pills from view leading to poor adherence.

Low perception of risk to HIV was another barrier for the effective uptake of PrEP among the HIV negative pregnant women. Some participants verbalised that their partners did not cheat on them, they were ok, there was no need for them to take PrEP and offered this as a reason why they refused to be enrolled into PrEP. Amongst these, some had their partners being of unknown HIV sero-status. Scott et al (2023) reiterated the same findings and stated that a low perception of risk to HIV among the HIV negative individuals was among the factors that inhibited its effective uptake. **The perceived effectiveness of the uptake of PrEP in reducing incidence of HIV.**

The study found that respondents lowly perceived PrEP as an effective strategy towards reducing the incidence of HIV among pregnant women; particularly how ARV's which were not a cure for HIV could then be used to prevent infection in the HIV negative. Furthermore, the study found that the perceptual effectiveness of PrEP was reduced by no adherence behaviour or improper use of PrEP, and perceived low trust in health care systems, patriarchal influence and negative perception by partners, perceived low safety of the drug. Research from Scott et al (2023) and Young et al (2014) reiterated that the study participants were wary of the effectiveness of PrEP in reducing the risk of acquiring HIV.

Previous empirical studies, contrary to findings in this study, demonstrated that the uptake of PrEP among pregnant women significantly contributed to a reduction in the incidence of HIV (Kinuthia et al., 2020).

Research by Khumalo et al. (2020) highlighted that accessibility, education, and support systems played crucial roles in

influencing the perception of PrEP's effectiveness. The same study showed that when pregnant women were provided with comprehensive information about the benefits and safety of PrEP during pregnancy, their willingness to adopt the medication increased. Furthermore, Moran et al. (2020) provided evidence which suggested that community engagement and targeted outreach programmes were effective in addressing stigma and misinformation surrounding PrEP, thereby enhancing its uptake and effectiveness among this vulnerable population.

### **Discussion of findings in relation to International and Zimbabwean policies**

The WHO which is the global health governing body advocated for robust public health campaigns where PrEP should be offered as an additional prevention strategy for populations at substantial risk of acquiring HIV. This policy was according to the study, being upheld at the tertiary ANC where pregnant women as one of the identified key populations were offered PrEP as an additional prevention strategy. However, because of the low uptake of PrEP observed (only 1 out of 12 HIV negative pregnant women opted in to be initiated on PrEP), the institution was found to be off the mark with regards to HIV eradication. In contrast to the WHO (2024) recommendations, only the oral Tablets for PrEP were available at the tertiary Antenatal Clinic and this created an unmet need in women who would have otherwise preferred the CAB-LA or the Dapivirine ring

WHO (2024) also encouraged countries to integrate PrEP into broader health education programs and this was evident in the study where women at the tertiary Antenatal Clinic were taught about PrEP every day during health education sessions. Community outreaches to disseminate information on PrEP were also being done as evidenced by interviewees who reported hearing of PrEP through mass media campaigns, New Start Centre community engagement, and posters at healthcare centres.

The barriers identified in the study resonated with challenges that international policies need to address such as knowledge and awareness, accessibility, stigma and misconceptions and healthcare provider barriers.

In Zimbabwe, where the HIV prevalence remain a public health concern, national policies need to reflect the educational imperatives indicated by the study findings. The Zimbabwe National AIDS Council has developed various strategies that incorporate community engagement and education, yet there appeared to be a disconnection between policy intent and public understanding.

It was found to be imperative therefore that the tertiary institution enhances its efforts to effectively communicate not only that PrEP exists but also explain its mechanisms, benefits, and limitations clearly.

The tertiary teaching hospital had a policy to improve male involvement into Sexual and Reproductive Health by prioritizing them for care at the ANC that is they did not queue for services and were attended to first. This strategy was found to be particularly useful where women needed consent from their male partners and this could be obtained onsite and the couple or women initiated on PrEP. However, the study found that this policy was not being clearly communicated to all women at ANC because the majority of women were not knowledgeable about this policy hence there was need to inform the women and their partners about it.

Zimbabwe adopted the use of ARV medicines in order to reduce the risk of acquisition of HIV among the populations at substantial risk of contracting HIV (PrEP). Amongst those at risk were the pregnant and lactating women. In this study, most of the respondents (75%) knew that PrEP exists, however they lacked an in-depth understanding of the three methods available in Zimbabwe, their mode of action and side effects. These findings echo the results from a similar study done in Scotland by Young et al (2014: 2) who found that there was limited understanding about PrEP. Similarly, in Uganda, Zimbabwe, and South Africa, Muhumuza et al (2017: 1729) also found that there existed a limited understanding about PrEP particularly its mode of action, effectiveness and general knowledge. Respondents who knew about PrEP (8, 66.7%) only knew of the oral tablets, with the Dapivirine ring and injection being completely unknown.

In South Africa, a similar study by Moran et al (2021 205) cited stigma to the use of PrEP as one of the chief reasons why PrEP was not being utilized in the cohort of women under study during their first antenatal visit. The study elaborates that 53 % of the study participants did not enrol into PrEP care at baseline contact due to internalized stigma where the women felt that enrolling into PrEP was tantamount to taking medications that was solely for HIV positive individuals. A further 38% also did not initiate PrEP at baseline due to anticipated stigma where the women feared being commenced on PrEP because of how their families and friends would again perceive them as HIV positive. This is the same in Zimbabwe where stigma was identified as one of the major barriers to effective uptake of PrEP by HIV negative pregnant women.

Findings from a study by Mayer et al (2019, pp. 2) in rural Uganda on “Distance to clinic as a barrier to PrEP uptake and visit attendance” indicates that, the distance to health care centres is a barrier to PrEP uptake. According to this study, the increased distance to health care centre is significantly associated with decreased odds of both PrEP uptake and the stipulated four-week retention after exposure to HIV. Consequently, the subjects reported lower odds of clinic attendance the further they were from the clinics in 10% of the participants. This was also coupled with fear of pill burden and low risk perception of HIV.

In Zimbabwe, the use of PrEP was one of the biomedical interventions designed to achieve SDG 3.3 which aimed to eradicate epidemics such as AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases. The “Test all Treat all” strategy in the management of HIV entailed HIV positive individuals being commenced on ART in order for them to become virally suppressed thus unable to transmit HIV. The epidemic of HIV could be eradicated if populations most at risk of HIV gained access to a combination of prevention services which included the use of PrEP and condoms (male and female) to reduce new HIV infections. However, the number of new infections was on the rise, with approximately 1.3 million individuals worldwide acquiring HIV in 2023, with the highest number coming from eastern and southern Africa (HIV.gov, 2024). Pregnant women were one group which were vulnerable, yet at a tertiary teaching hospital in Zimbabwe, there was a low uptake of PrEP services among the HIV negative pregnant women and this low uptake contributed significantly to a rise in adult and child incidence of HIV.

The researcher therefore embarked on this study to establish the barriers to the effective uptake of PrEP by HIV negative pregnant women at Mpilo maternity hospital and also explore the women’s perception on the effectiveness of PrEP in reducing incidence of HIV. Other strategies could then be utilized to reduce the barriers to effective uptake of PrEP amongst the HIV negative pregnant women and thus reduce incident vertical and horizontal transmission of HIV. **Implementation strategies to address the barriers**

Mandatory training of health care providers on a regular basis including new staff at the tertiary teaching hospital can help in addressing barriers to use of PrEP such as lack of knowledge by people most at risk such as HIV negative pregnant women. Regular training can also be implemented as continuous professional development to assist health care providers to be up to date with current PrEP guidelines. This would assist in strategies leading to initiation and maintenance of PrEP at the tertiary institution. Community outreach programs can also be done by caregivers to educate and sensitize communities on the importance of PrEP. Issues of stigma and discrimination can be addressed through education to communities as well as formulating and implementing policies that address HIV stigma. Health care providers at the teaching tertiary institution and globally should play an active role in promoting the use of PrEP especially on HIV negative pregnant women as they are a high risk population if SDGs are to be attained by 2030. PrEP has been found to be effective in the prevention of HIV transmission.

## CONCLUSION

This study highlights significant gaps in knowledge and awareness surrounding pre-exposure prophylaxis (PrEP) among HIV-negative pregnant women, revealing that while there is a general recognition of PrEP, understanding of its critical role in HIV prevention remains limited. Notable barriers to effective uptake include deep-seated stigma, misconceptions, and healthcare provider-related obstacles, alongside personal concerns such as pregnancy and partner dynamics. The findings underscore a pervasive low perception of PrEP’s effectiveness, further compounded by challenges like nonadherence, lack of trust in healthcare systems,

and societal influences, indicating an urgent need for targeted educational interventions and support systems to enhance the awareness and perceived efficacy of PrEP. Addressing these multifaceted barriers will be essential for increasing the adoption of PrEP and ultimately improving health outcomes for pregnant women at risk of HIV.

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