Title:

What happened with PrEP uptake among female sex workers in Zimbabwe? Implications for future prevention programmes

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What happened with PrEP uptake among female sex workers in Zimbabwe? Implications for future prevention programmes

After much optimism surrounding the introduction of oral pre-exposure prophylaxis (PrEP) there have been many disappointments around its unrealised promise, particularly for high-risk women in sub-Saharan Africa. Even when uptake has been high, adherence and retention often prove low, markedly so when confirmed by biomarkers [1-3]. The main reasons for suboptimal use are anxiety about being mistaken for someone living with HIV, dislike of and difficulty maintaining daily pill-taking, and low risk perception [4]. Among female sex workers (FSW) additional barriers include supply disruptions due to mobility, fear of violence from clients, and discrimination within health settings [5, 6]. Our AMETHIST trial was among studies yielding contradictory results; despite high PrEP uptake among FSW, out of 569 women tested in the endline survey just 2 (0.04%) had protective levels in dried blood samples [7].

With the advent of new PrEP modalities such as CAB-LA and Lenacapavir, both of which are long-acting injectables, there is renewed hope for meeting the needs of FSW and other vulnerable communities [8, 9]. As we stand at the crossroads of PrEP expansion, now is a good opportunity to scrutinise PrEP experiences to date to learn lessons for successful introduction of new innovations.

We summarise secondary analysis of qualitative data collected during implementation research within the AMETHIST trial. We initially experienced rapid and higher than expected PrEP uptake, although continuation proved less impressive [10]. Only later did the extent of low adherence become evident through biomarkers. We thus re-analysed semi-structured interviews with 15 peer educators who provided tailored support, including on PrEP initiation and adherence, to other FSW based on their levels of risk [11] and 15 local FSW to better understand our biomarker results.

Here, we present anxieties that emerged around PrEP use, categorising these according to how they align with the advantages that new PrEP technologies might offer. Table 1 provides illustrative quotes for each identified barrier to PrEP use.

Table 1 here

In terms of **barriers likely to be mitigated by new innovations**, our respondents raised commonly observed dissatisfaction with the need for frequent clinic appointments, and the need to take daily medication. Some longer-acting formulations (those requiring 6-monthly appointments) should remove both these hurdles, and also reduce difficulties faced by highly mobile women who do not always travel with PrEP supplies.

Another misgiving about PrEP was that the tablets resemble ART, risking stigmatisation and negative repercussions from male partners or others due to being perceived to be living with HIV. Concerns about side effects also persisted, some driven by misconceptions about the drug i.e. that it makes you more susceptible to HIV over time. We consider these to be **barriers possibly but not necessarily reduced by emerging technologies**. Whether or not long-acting PrEP options resemble similar ART formulations, are associated with HIV services or targeted FSW clinics, and/or cause discomfort or other perceived negative physiological effects will influence their acceptability. This is likely to vary by specific formulation and means of delivery, and thus will require ongoing monitoring.

Finally, and most importantly, we found **barriers unlikely to be affected by new methods**. These were reluctance to take a medication prior to becoming ill, which was closely bound up with fatalistic attitudes about the likelihood of FSW contracting HIV. We found many FSW believed that HIV was inevitably on their "pathway" and their "fate"; they thus saw no reason to take medication until seroconversion. This also reflected understanding PrEP and ART to be the same drug, and unwillingness to "live like I have HIV" before necessary. It also appeared to result from diminished fears of HIV that was now perceived to be a chronic, manageable condition.

Tackling these underlying beliefs requires efforts that go beyond broadening choice of methods. For example, peer-led and community empowerment approaches should proactively counteract feelings of HIV as inevitable, challenge self-stigma and work to build FSW' self-worth and willingness to believe in a future worth protecting. However, status-neutral programming and an emphasis on HIV as treatable, while important for tackling discrimination against those living with HIV, may inadvertently reduce motivation for prevention.

PrEP has frequently been posited as an aid to empowerment, offering FSW and other vulnerable individuals the possibility of protecting themselves in situations of low self-efficacy for risk reduction, e.g. sexual violence and male resistance to condom use. Initial optimism around oral PrEP in addressing these concerns has been somewhat dampened, with attention

now on new formulations that will undoubtedly help overcome some barriers. Research into women's preferences for different PrEP options across Africa shows offering choices increases overall coverage, demonstrating the importance of not assuming a "one size fits all" approach [12, 13]. However, our research suggests that among FSW, a community in particular need of prevention, there are deep-seated anxieties around PrEP that may not be amenable to changes in mode and timing of delivery. We recommend re-invigorating prevention efforts, particularly condom use for simultaneous protection against unwanted pregnancy and other STI, but also peer support, and community mobilisation to build a strong foundation for the growing diversity of biomedical tools as well as focusing on messages about the preventability of HIV. We also support de-medicalising prevention as much as possible; where oral PrEP proved most popular was when frequent clinic visits were not required. It remains important to avoid complacency and assumptions that because injectables and long-acting methods remove some of the more obvious obstacles, they will naturally result in sustained uptake and use.

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Authorship

JB and FM led the process evaluation of the AMETHIST trial. TK, MM and GMJ collected qualitative data. SC conducted statistical analysis. PM led the intervention implementation. JB, FM, TK, MM and GMJ all contributed to qualitative data analysis. FMC developed the trial protocol and led its implementation. JB wrote the paper and all authors were involved in the review of drafts.

Table 1: Barriers to PrEP use among FSW

Barriers likely to be mitigated by new innovations	
Daily pill burden	They say that they wouldn't want to take pills every day. [Microplanner, Ngundu, age unknown]
Frequent clinic visits	Some don't want the burden of going to collect it [PrEP], taking it every day and also the fact that in sex work, they travel a lot, and it means they have to travel with it. So, they think it will give them unnecessary pressure. [Microplanner, Rusape, age 31]
Barriers possibly but not necessarily reduced by emerging technologies	
Side effects and misconceptions	Someone once told me that PrEP made her have her period more often. Someone else said that it makes her drowsy. [FSW, Chinhoyi, age 25-34] Yeah, I do not want to lie, I just didn't start PrEP. … Some who used it said it can "kukusvota" [make you nauseous] at first, such that you may feel like you want to and may vomit and may even cause stomach problems but only for that morning. [Microplanner, Ngundu, age 34] Some have also heard rumours that if they stop taking the pills, they will be more susceptible to acquiring the virus. [Microplanner, Rusape, age 24]
Resemblance of PrEP and ART leading to assumptions about HIV status	Some are saying packaging for PrEP and ART is the same; can't they make it different? [Microplanner, Rusape, age 21] Most of the time if you take PrEP and you are female, the community does not precisely know the difference between PrEP and ART. People will just say you are on ART. [FSW, Rusape, age 25-34]
Barriers unlikely to be affected by new methods	
Not wanting to take medication while not ill	They are saying that taking PrEP is like taking HIV medication. I'm not sick but I should take PrEP every day; when I get sick, I will take medication till I die so it's just the same. I will just take medication when I get sick. [Microplanner, Chinhoyi, age 20] You know, my sister [fellow FSW] doesn't take the [PrEP] pill because she thinks it's for HIV and says that `I don't want to act like I have AIDS when I don't have it'. … I advised her to take PrEP since she is still HIV negative; she said she would feel like she is HIV positive. [FSW, Chinhoyi, age 31]
Fatalistic attitudes about contracting HIV	It is our pathway as sex workers [to become HIV+] [FSW, Chinhoyi, age 31] Some will tell you that PrEP is similar to ART... they might as well wait until they are HIV positive, since they are sex workers. [Microplanner, Chinhoyi, age 23]

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