

**Factors associated with pre-exposure prophylaxis (PrEP) uptake and continuation
among adolescent girls and young women in the uMhlathuze Municipality, KwaZulu-
Natal South Africa**

ABSTRACT

Background

Despite the notable advancements in preventing human immunodeficiency-virus (HIV) globally, South Africa (SA) continues to report the largest epidemic of HIV in the world. Furthermore, adolescent girls and young women (AGYW) in SA carry the unequal burden of infection in SA. Studies have reported that AGYWs find it difficult to negotiate condom use placing them at a direct risk of contracting HIV. Pre-exposure prophylaxis (PrEP) was identified as a novel preventative intervention with uptake and continued use offering the potential to decrease HIV incidence. In SA, guidelines, and strategies to provide of PrEP to high-risk groups, which include AGYW have been developed. This study aimed to describe the characteristics of the AGYW initiating PrEP services and determine the factors associated with PrEP uptake and continued use among AGYW enrolled in an HIV prevention combination program in the uMhlathuze Municipality in KwaZulu-Natal South Africa.

Methods

This is a retrospective cohort study involving secondary data analysis of programmatic data from an HIV combination prevention program for AGYW in 5 Department of Health community primary health clinics the uMhlathuze Municipality in KwaZulu-Natal. We sampled participants from a population of HIV uninfected AGYW between the ages 15 -24 that initiated the program between the 1st of June 2020 and the 31st of June 2021. Our primary outcome of interest was PrEP initiation at baseline defined as the number of AGYW who were

offered PrEP and initiate its use during at their first visit. Our secondary outcome of interest was PrEP continuation at follow-up visit defined as having at least 1 record of follow up after PrEP initiation.

Categorical variables were expressed as frequencies and proportions. Bivariable analysis was carried out to determine associations between PrEP initiation and the categorical variables using the Chi-squared (χ^2) test. Log-binomial regression was utilised to evaluate risk factors associated with our primary outcome (PrEP initiation) and our secondary outcome (PrEP continuation). Risk ratios (RRs) and their 95% CI were used as the measure of effect. Variables with $p < 0.1$ were included in the multivariable analysis for both PrEP initiation and PrEP continuation to ascertain factors associated with each outcome. A cut off $p < 0.05$ was used in the multivariable model to identify factors associated with both the primary (PrEP initiation) and secondary outcome (PrEP continuation). All statistical analyses were performed using Stata (V.15) statistical software and RStudio.

Results

Between the 1st of June 2020 and the 31st of June 2021, 3324 AGYW were enrolled in the HIV prevention combination program and were offered PrEP services. Overall, 1609 (48%) initiated PrEP services. Majority (71%) were aged 19 - 24 and 6.5% of PrEP initiates reported having an STI in the 6 months prior to initiating PrEP pills. Among those that initiated PrEP only 8% (N=125) had at least 1 record of follow-up post initiation. Factors that remained significantly associated with PrEP initiation in the multivariable analysis were had STI in the last 6 months (RR:2, CI: 1.5-2.8, $p < 0.001$); currently on STI treatment (RR:1.6, CI: 1.2-2.3, $p = 0.004$); used condom at last sexual encounter (RR:1.8, CI: 1.2-2.8, $p = 0.007$). For our secondary outcome of interest PrEP continuation, factors associated with continued use of PrEP in our univariable analysis were age category 19-24 (RR:0.7, CI:0.5-1.0, $p = 0.036$); used condom at last sex (RR:

1.7, CI:0.9-3.2, $p=0.092$). However, none of these factors remained statistically significant predictors of PrEP continuation in the multivariable model.

Conclusion

This study had moderate uptake of PrEP and poorer continuation than other studies. It is possible that lockdown restrictions implemented to curb the transmission of COVID-19 at the time of the study may have hampered the success of the PrEP intervention for AGYW enrolled in the HIV combination prevention program. This finding calls for more innovative PrEP service delivery models for programs and interventions in real clinic settings to ensure AGYW have uninterrupted access to PrEP when access to clinics is restricted. Our findings demonstrate important differences between PrEP uptake and key sexual and HIV risk behaviours. Our unadjusted analysis showed positive associations between PrEP uptake and the use of condoms at last sexual encounter, current STI diagnosis and STI diagnosis in the last 6 months, pregnancy, HIV discordant relationships, and having heterosexual anal sex. We continued to observe positive associations between the PrEP uptake and the use of condoms at last sexual encounter, current STI diagnosis and STI diagnosis in the last 6 months in our adjusted analysis. Condom use at last sexual encounter was common among PrEP initiates, and many AGYW currently taking STI treatment and those who had an STI in the last 6 months also elected to use PrEP pills. Our findings indicate programs offering PrEP should also integrate STI services with appropriate testing approaches and targeted vaccination for AGYW.

Key words: Oral pre-exposure prophylaxis, adolescent girls, young women, HIV prevention, sexually transmitted infections, COVID-19, South Africa