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ADHERENCE WITH ANTIRETROVIRAL THERAPY AMONG RECENTLY PREGNANT HIV-POSITIVE WOMEN IN 8 AFRICAN COUNTRIES

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Women, particularly young women, who initiate antiretroviral therapy during pregnancy require specific attention to enhance their own outcomes and prevent mother-to-child HIV transmission.

Background

Adherence to antiretroviral therapy (ART) is essential for reducing morbidity and mortality among people living with HIV and HIV transmission, including mother-to-child transmission for pregnant and postpartum women.

This study compared self-reported ART use with antiretroviral drug (ARV) detection in blood among HIV-positive women aged 15-49 who had delivered within three years before the survey, using population-based HIV surveys (PHIAs) in Eswatini, Lesotho, Malawi, Namibia, Tanzania, Uganda, Zambia, and Zimbabwe (2015-2019), conducted by the ministries of health in collaboration with ICAP and CDC and funded by the President's Emergency Plan for AIDS Relief (PEPFAR).

Methods

The PHIA surveys were nationally representative, cross-sectional, household surveys with a two-stage stratified cluster sample design. A systematic random sample of the country's enumeration areas (EAs) was drawn based on probability proportional to size in the first stage sampling. Then, a random sample of households was drawn from each selected EA using an equal probability method in the second stage sampling. Adult women and men living in residential households, and visitors who slept in the household the night before the survey, were eligible to participate if they were willing and cognitively able to provide consent.

Consenting participants from randomly selected households provided demographic and clinical information and blood samples for household HIV testing per national guidelines, with HIV+ results confirmed via a supplemental assay. Participants were interviewed at home using a structured questionnaire, while ensuring confidentiality. The questionnaire included a module on HIV testing and treatment.

Viral load suppression (VLS) was defined as VL < 1000 copies/mL. Commonly prescribed ARVs, namely, efavirenz, nevirapine, atazanavir, and lopinavir, were assayed in dried blood spots. All analyses accounted for complex survey design, and Taylor Series Linearization methods were used for variance estimation.

Results

Of all 91,728 female participants in the eight countries, 2,108 HIV-positive women aged 15-49 who had delivered within three years before the survey were included in this analysis. Most women took ARVs before their first antenatal visit, ranging from 46% (95% CI: 44%-49%) in Tanzania to 82% (95% CI: 79%-85%) in Namibia. VLS ranged from 77% (95% CI: 73%-80%) in Lesotho to 88% (95% CI: 85%-91%) in Malawi. ARVs were detected in the blood of most women who initiated ART before their first antenatal visit, ranging from 88% (95% CI: 84%-92%) in Lesotho to 94% (95% CI: 90%-98%) in Malawi. In the pooled data, among those with ARV detected in blood, 91.4% had VLS. Among those with ARV not detected in blood, only 21.5% had VLS. For each of the eight countries, there was a consistent pattern with women in the youngest age group, aged 15-24, had the lowest percentage ARV detection in blood, with incrementally higher percentages in older age groups

Adjusted for other demographic characteristics, HIV-positive women who initiated ART before the first antenatal visit were more likely to have detectable ARVs than those who initiated ART during pregnancy (adjusted odds ratio (aOR): 2.2; 95% CI: 1.7-2.9). Women aged 35-49 were more likely to have detectable ARVs than those aged 15-24 (aOR: 2.2; 95% CI: 1.5-3.1). The logistic regression tested for the "country fixed effect" and found that there were no specific differences between countries.

Conclusions

The findings from these nationally representative samples of population in eight sub Saharan African countries indicate that ART adherence, proxied by ARV detection in blood, was significantly lower among HIV-positive women who initiated ART during pregnancy compared to those who started ART before pregnancy, particularly among women aged 15-24 years. Efforts are needed to enhance ART adherence among HIV-positive women initiating ART during pregnancy and younger women in order to enhance individual benefit and prevent mother-to-child transmission of HIV.

Figure 1: *Percent of HIV-positive women with ARV detected in blood by ART initiation time*

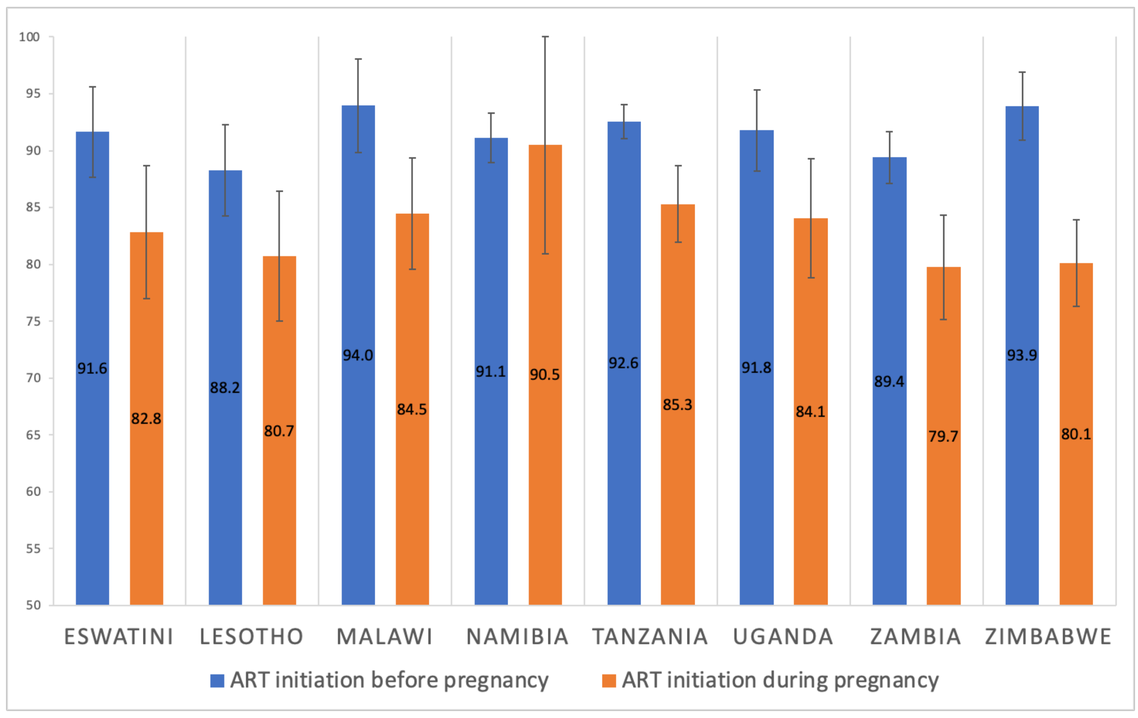

Table 1: *Logistic regression odds ratio estimates for ARVs detected in blood*

Variable	Adjusted Odds Ratio (95%CI)	p-value
ART Initiation Time		
ART initiation during pregnancy	ref	ref
ART initiation before pregnancy	2.2 (1.7-2.9)	**<0.0001**
Age		
Ages 15-24	ref	ref
Ages 25-34	1.0 (0.8-1.4)	0.737
Ages 35-49	2.2 (1.5-3.1)	**<0.0001**
Wealth		
Wealth Bottom 2/5	ref	ref
Wealth Top 3/5	1.3 (1-1.7)	0.104
Urban		
Rural	ref	ref
Urban	0.8 (0.6-1.1)	0.144
Education		
Below secondary education	ref	ref
Secondary and above education	1.1 (0.9-1.4)	0.234
Marital Status		
Not in union (marital status)	ref	ref
In union (marital status)	1.2 (1-1.4)	0.115
Country		
Eswatini	ref	ref
Lesotho	0.8 (0.5-1.2)	0.249
Malawi	1.1 (0.7-1.8)	0.591
Namibia	1.0 (0.7-1.7)	0.856
Tanzania	1.2 (0.8-1.8)	0.343
Uganda	1.0 (0.7-1.6)	0.863
Zambia	0.7 (0.5-1.1)	0.160
Zimbabwe	0.9 (0.6-1.3)	0.509

Additional Resources

ICAP Website

PHIA Project Website

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