

# The impact of pregnancy on adherence to and defaulting from antiretroviral therapy

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## Introduction

Adherence to antiretroviral therapy (ART) is important to prevent virologic failure and death. Pregnancies may reduce adherence due to nausea in early pregnancy, heartburn in later pregnancy, and stresses post delivery. However, the motivation of women to adhere to ART to protect their babies might counteract these problems. Younger age and being pregnant when starting ART (but not baseline CD4 count or viral load) has been associated with higher rates of loss to follow-up (LTFU) <sup>1</sup>. Being pregnant has been associated with relatively higher ART adherence was compared with 6 months post-partum and the risk of virologic failure was reduced <sup>2,3</sup>. We analysed the impact of pregnancy on adherence to and defaulting from ongoing ART.

## Methods

We conducted a retrospective cohort study of women on antiretroviral therapy (ART) enrolled in a private sector managed care HIV program (Aid for AIDS) in South Africa. First line ART regimens were based on non-nucleoside reverse transcriptase inhibitors and CD4 criterion for starting ART was <350 cells/μL on two occasions - in keeping with current WHO guidelines for developing countries. Adherence was assessed by monthly pharmacy refill data. Defaulting was defined as no ART claimed for 6 months or more. We divided the patients into 3 groups:

- (1) never pregnant
  - (2) pregnant when starting ART
  - (3) pregnant after starting ART
- control**  
**prevalent pregnant**  
**incident pregnant**

We looked at two outcomes: (a) Defaulting ART using multiple Cox proportional-hazard regression, and (b) ART adherence by pharmacy refill using multiple logistic regression. Covariates included in the models were age on starting ART, baseline CD4 count, time relative to starting ART, and time relative to delivery.

## Results

We included 4970 patients with 9247 years of follow-up in this analysis. Baseline age was lower and CD4 count was higher in the pregnant groups (prevalent and incident pregnant) compared with the never pregnant group (see table 1).

### Adherence never versus prevalent pregnant groups:

Median overall adherence was significantly higher in the never pregnant group: 79% versus 54% (p<0.001).

### Adherence in never versus incident pregnant groups:

Multiple regression analysis found increased adherence with: shorter time on ART (0 to 5 and 6 to 12 months), ≥25 years old, being on a second line regimen (although wide confidence intervals), pregnancy, and for 6 months post-partum. Baseline CD4 count was excluded as it was not associated with any effect.

Variable	Never pregnant	Prevalent pregnant	Incident pregnant
Overall numbers	4549	293	128
Median (IQR) baseline CD4 count (cells/μL)	128 (50 to 207)	173 (99 to 230)	162 (86 to 223)
Median (IQR) age (years)	37 (32 to 42)	31 (28 to 34)	30 (28 to 33)

Table 1: Baseline characteristics of groups within the cohort

Variables	Odds Ratio	95% CI	
Time since starting ART (months)	0 to 6	1.35	1.27 to 1.43
	6 to 12	1.15	1.08 to 1.21
	>12	Referent	
Age (years)	<25	Referent	
	≥ 25	1.68	1.38 to 2.04
Time relative to delivery (months)	0 to 5	1.68	1.29 to 2.19
	6 to 12	1.38	1.03 to 1.86
	Other	Referent	
Line of therapy	First line	Referent	
	Second line	1.1	0.95 to 1.27

Table 2: Monthly pharmacy refill analysis using logistic regression

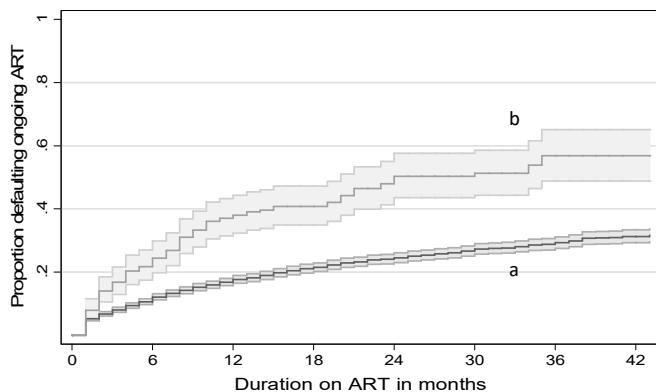


Figure 1: Kaplan-Meier curves for defaulting ongoing ART in (a) never pregnant (control) and (b) prevalent pregnant (pregnant when starting ongoing ART)

## Discussion

In the incident pregnant group, adherence is improved during pregnancy and for 6 months post-partum compared with the never pregnant group. However, the prevalent pregnant group had poor adherence and were more likely to default ongoing ART in keeping. In both analyses, women below 25 years old were associated with poorer adherence and higher rates of defaulting ART. Our findings were consistent with and expanded on previous studies. More counselling and support should be directed towards younger woman and pregnant woman starting ongoing ART to improve outcomes.

### Time to default in never versus prevalent pregnant groups:

The Kaplan Meir curves differed markedly between the two groups with significantly higher rates of defaulting care within the prevalent group – see figure 1. On multiple regression analysis, the adjusted relative hazard of defaulting ART was 2.19 (95% CI: 1.81 to 2.64) in the prevalent pregnant group. Being <25 years old at starting ART was associated with 1.44 (95% CI: 1.15 to 1.81) adjusted relative hazard of defaulting ART. Baseline CD4 count was not influential and therefore excluded from the analysis.

## References

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