

Abstract

Introduction: HIV reduces fertility through biological and social pathways, and antiretroviral treatment (ART) can ameliorate these effects. In northern Malawi, ART has been available since 2007 and lifelong ART is offered to all pregnant or breastfeeding HIV-positive women.

Methods: Using data from the Karonga Health and Demographic Surveillance Site in Malawi from 2005 to 2014, we used total and age-specific fertility rates, and Cox regression to assess associations between HIV and ART-use and fertility. We also assessed temporal trends in *in utero* and breastfeeding HIV- and ART-exposure among live-births.

Results: From 2005 to 2014 there were 13,583 live-births during approximately 78,000 person years of follow-up of women aged 15-49 years. The total fertility rate (TFR) in HIV-negative women decreased from 6.1 (95% CI=5.5-6.8) in 2005-06 to 5.1 (4.8-5.5) in 2011-14. In HIV-positive women the TFR was more stable, although lower, at 4.4 (3.2-6.1) in 2011-14. In 2011-14, compared to HIV-negative women, the adjusted (age, marital status and education) hazard ratio was 0.7 (95% CI 0.6-0.9) and 0.8 (95% CI 0.6-1.0) for women on ART for at least 9 months and not (yet) on ART, respectively. The crude fertility rate increased with duration on ART up to 3 years, before declining. The proportion of HIV-exposed infants decreased, but the proportion of ART-exposed infants increased from 2.4% in 2007-10 to 3.5% in 2011-14.

Conclusions: Fertility rates in HIV-positive women are stable in the context of generally decreasing fertility. Despite a decrease in HIV-exposed infants, there has been an increase in ART-exposed infants.