

Trends of HIV Morbidity and Mortality in Lesotho: A Joinpoint Regression Analysis of Trends over the Last Two Decades

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Abstract

Background: Lesotho has one of the highest HIV disease burdens in the world. Recent estimates show a decreasing trend in morbidity and mortality. The decrease associated with various programmatic interventions were studied using Joinpoint regression analysis.

Methods: This was a retrospective cross-sectional study of the HIV programmatic between 2000 and 2021. Data was analysed using the Joinpoint regression analysis of trends based on the grid search method. Assuming constant homoscedasticity. The Annual percentage Change (APC) and the Annual Average Percentage Change (AAPC) were estimated by parametric and permutation methods at 95% significance level.

Results: The incidence AAPC decreased by 5.9-6.3% in both sexes and between 5.6 - 8.6% for all age groups with the larger decreased being observed more in children than adults between 2000 and 2021. The antenatal clinic HIV incidence AAPC decreased by 17.5% (CI 95%: -22.00 to -12.7%, $p < 0.001$) between 2015 and 2021 with all districts showing varying declines. The HIV prevalence APC increased by 15.6% (CI 95%: 11.5 to 19.8%, $p < 0.001$) from 2003 to 2006, and rapidly declined by 9.8% (CI 95%: -12.9 to -6.5, $p < 0.001$)

from 2006 to 2009 a small but significant decline in the last decade (-1.48% , CI 95%: -1.1 to 1.9%, $p < 0.001$). However, HIV prevalence APC increased by 3.4-6.1% among females aged 40-49 years while it decreased among males aged 20-34 years by 6.7-8.0% in the same period. The overall mortality decreased for both sexes in the last 20 years with a greater and significant decrease of 11.9-17.4% in the last 7 years. However, the AAPC statistically increased for the age group 15-19 years (5.1%, CI 95%: 3.8 to 6.4%, $p < 0.001$) and for 10-14 years.

Conclusions: The study shows that the HIV incidence, prevalence, and mortality have been generally on the decline over the past 20 years in Lesotho. The decline was associated with the introduction of ART and the test and treat policy for prevention and treatment and option B+ in antenatal clinics. Despite this, HIV mortality among 10-14 year-olds increased between 2004 and 2021 and among 0-4 years from 2017 to 2021. The increase in mortality among under-five year olds and 10-14-year-olds indicates the lack of paediatric-specific formulations of ART in the early response and delayed roll-out of dolutegravir in the last 5 years.

Key words: HIV, Incidence, Prevalence, Mortality, Trends, Joinpoint regression