Background

In low- and middle-income countries (LMICs), HIV-related stigma has been associated with:

- Reduced uptake of voluntary counseling and testing [1,2]
- Increased sexual risk-taking behavior [3]
- Decreased adherence to antiretroviral therapy among people living with HIV (PLWH) [4,5]

Although the likelihood of HIV status disclosure [6,7] and ART scale-up may reduce HIV-related stigma, improvements in public health among PLWH, which lead to economic rehabilitation and social reintegration [8,9], the extent to which levels of HIV-related stigma in the general population have changed during the current era of ART scale-up in sub-Saharan Africa is not well-understood.

In a previous analysis of 18 African countries, we demonstrated an association between ART coverage and declines in HIV-related stigma in the general population [10]. This association appeared to be more pronounced in countries with relatively high HIV prevalence.

However, in an analysis of data from Uganda, we found that while prevalence of stigmatizing attitudes decreased over time, prevalence of anticipated stigma increased [11].

Whether this pattern of increasing anticipated stigma in the setting of decreasing stigmatizing attitudes holds true in other African countries is unknown.

To help answer this question, we examined trends in stigma during ART scale-up in sub-Saharan Africa (2003-2013), using data on HIV-related stigma from the Demographic and Health Surveys (DHS) and AIDS Indicator Surveys (AIS) [12].

Methods

The DHS and AIS are nationally representative, population-based surveys conducted approximately every five years in over 90 LMICs worldwide.

Individual-level data on HIV-related stigma from people aged 15-49 were drawn from the DHS and AIS of 31 sub-Saharan LMICs worldwide based surveys conducted approximately every five years in over 90 LMICs worldwide.

Data on HIV prevalence for each DHS/AIS country-year were obtained from the Joint United Nations Programme on HIV/AIDS (UNAIDS) [13].

Methods (continued)

- **Primary outcomes of interest:**
  - **Stigmatizing attitudes,** defined as a negative response to at least one of three questions:
    - "Would you buy fresh vegetables from a shopkeeper or vendor if you knew that this person had the AIDS virus?"
    - "If a member of your family got infected with the AIDS virus, would you want it to remain a secret or not?"
    - "If you knew that this person had the AIDS virus, would you tell your friends or relations?"
  - **Anticipated stigma,** defined as a positive response to the question, "If a member of your family got infected with the AIDS virus, would you want it to remain a secret or not?"

We fitted linear regression models with robust standard errors and country fixed effects, alternatively specifying stigmatizing attitudes and anticipated stigma as the dependent variable and year of DHS/AIS as the explanatory variable.

Adjusted for age, gender, educational attainment, marital status, household asset wealth, and employment status.

Assessed whether changes in knowledge of HIV explained changes in stigma by adding an HIV knowledge variable to the models and re-assessing the statistical significance of the year indicator.

We conducted a stratified analysis by national HIV prevalence (> or ≤ 1%).

Results

- **715,319 women and 334,256 men from 63 DHSs/AISs were included in the analyses.**
- **There was a statistically significant negative association between year and stigmatizing attitudes (adjusted β = 0.019; 95% CI, -0.024 to -0.013) and a statistically significant positive association between year and anticipated stigma (adjusted β = 0.024; 95% CI, 0.018 to 0.030).**
- **Compared to the baseline mean across countries in 2003 (Figure 1), these regression coefficients suggested an approximately 4% reduction in prevalence of stigmatizing attitudes and 4% increase in prevalence of anticipated stigma with each year.**
- **The statistical significance and magnitude of the regression coefficients remained unchanged with the addition of HIV knowledge to the models.**
- **In stratified analyses, declines in stigmatizing attitudes over time were only noted among countries with an HIV prevalence above 3.3%. Increases in anticipated stigma were found in both high and low prevalence countries.**

**Figure 1:** Percentage of DHS/AIS respondents across 31 African countries endorsing HIV-related stigma, by year

**Figure 2:** Trends in prevalence of stigmatizing attitudes, by country

**Figure 3:** Trends in prevalence of anticipated stigma, by country

**Table:** Regression estimates for the association between stigmatizing and anticipated stigma

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Conclusions

During a period of ART expansion in sub-Saharan Africa, anticipated stigma in the general population increased despite a decrease in stigmatizing attitudes towards PLWH.

A decline in stigmatizing attitudes over time was found only in countries with high HIV prevalence, in support of the “contact hypothesis” wherein personal contact with PLWH results in decreased fear, misunderstanding, and characterization of PLWH as the “other” [14-16].

Our findings suggest that ART expansion alone is insufficient to reduce HIV-related stigma. Further study is needed to understand the reasons for worsening anticipated stigma in the general population and to develop effective anti-stigma interventions.

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References