



# The interplay of own and partner's education on HIV risk in sub-Saharan Africa



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## Background

- Relationship between educational attainment and HIV well-investigated in sub-Saharan Africa (SSA):
  - Initially the most-educated at greatest risk;
  - Burden now shifting to the less-educated
- However, risk for infectious disease depends on the prevalence of disease amongst one's contacts.
  - Sexual partnerships typically display educational homophily (i.e. like-with-like).
  - If sexual relationships in SSA are educationally homophilous, and
  - If HIV prevalence is patterned by education,
  - Then partner's education should be a predictor of your risk for HIV infection.
- The association between partner education and own HIV status has not been studied in SSA.
- We therefore conduct an initial assessment in 7 SSA countries with generalized HIV epidemics, measuring:
  - Level of educational homophily;
  - Importance of partner's educational attainment on ability to predict own HIV status.

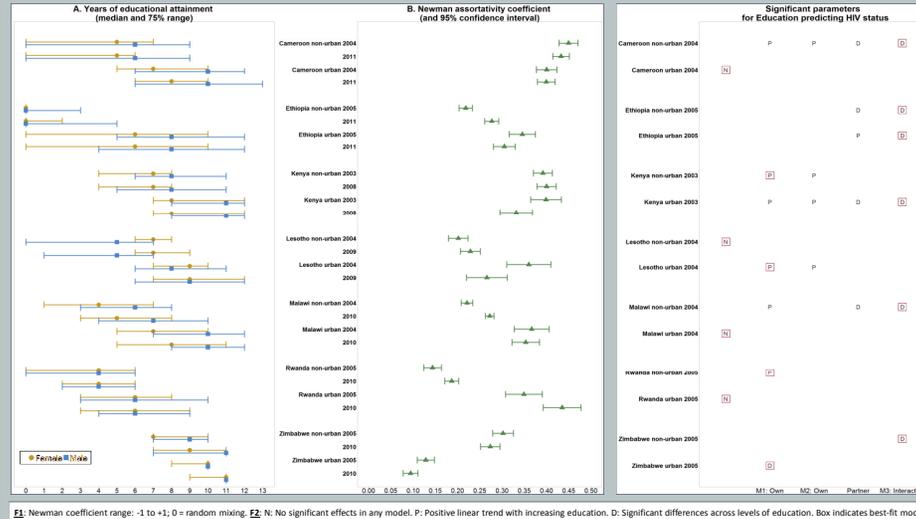


Figure 1: Educational attainment & homophily for women aged 15-34

Figure 2: Model fit comparisons

## Results

### 1. Educational Homophily

- Figure 1.** All strata displayed positive assortativity (partners more similar in education than expected by chance):
  - No clear time or geographic trend;
  - No association with mean educational attainment;
  - No association with district-level HIV prevalence.

### 2. Predicting HIV serostatus

- HIV prevalence ranged from 0.8% in rural Ethiopia to 47% in urban Lesotho
- Figure 2.** Three patterns visible across strata:
  - Education unrelated to HIV (4 strata);
  - Own education predicts HIV (4 strata);
  - Interaction of partner and own education predicts HIV (6 strata).
- Figure 3.** Wide heterogeneity of interaction effects:
  - But tendency towards less-positive associations with increasing female education;
  - I.e., higher education partners associated with increased HIV prevalence for less educated women relative to more educated women.
- Supplementary analyses found no evidence that:
  - Seropositive women seek out educated men
  - Male HIV prevalence by male educational strata, or condom use within the relationship mediated partner educational attainment effects.

## Methods

- Dataset:** Repeated Demographic and Health Surveys in 7 countries with 15-49 HIV prevalence > 2%:
 

|          |                |
|----------|----------------|
| Cameroon | (2004, 2011)   |
| Ethiopia | (2005, 2011)   |
| Kenya    | (2003, 2008-9) |
| Lesotho  | (2004, 2009)   |
| Malawi   | (2004, 2010)   |
| Rwanda   | (2005, 2010)   |
| Zimbabwe | (2005, 2010)   |

- Sample:** Women aged 15-34 years old who:
  - Reported on their own and their partner's education level (n=75,373)
  - Were sampled for, and consented to, an anonymous HIV test (n=38,791)
- Outcomes:**
  - Newman assortativity coefficient
  - Predicted probability of prevalent HIV
- Exposure:** Self-reported educational attainment of respondents & their partners: none; primary; secondary+
- Analysis:** Logistic regression models for 14 strata defined by country and urban/rural residence, adjusted for survey wave and women's age, and:
  - Own education only
  - Own and partner education
  - Own and partner education and interaction of the two

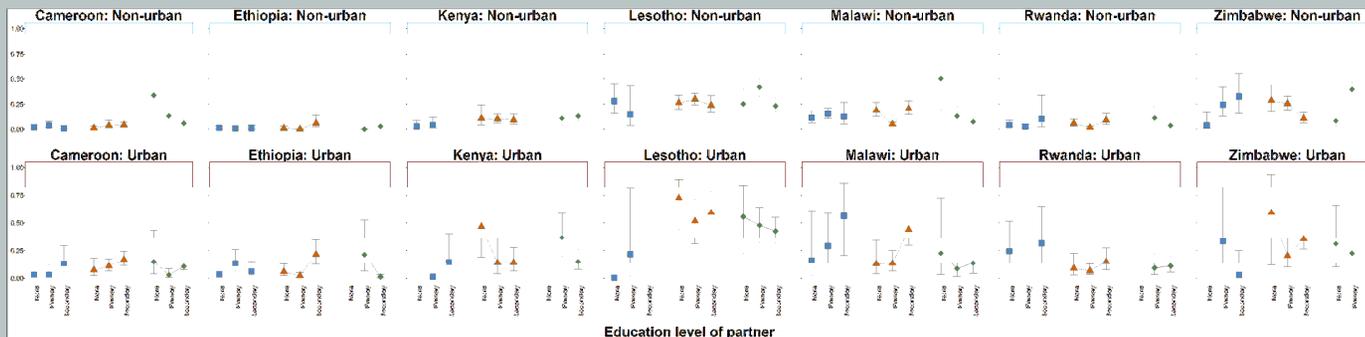


Figure 3: Predicted probability of HIV infection, Model 3 containing interaction of educational attainment terms

Own Education: No education (blue square), Primary (orange triangle), Secondary (green diamond)

## Discussion

- Key finding:** Partner educational attainment predicts women's HIV serostatus in many SSA contexts. This does not appear to reflect:
  - A pathway from HIV to partner education, or
  - Mediation by some partnership characteristics.
- Joint educational status of partners may reflect the couple's position within the broader sexual network.
- Implication:** Knowing partner education can improve the ability to find and target those at raised risk of HIV.
  - The association varies by setting, highlighting the importance of 'knowing your epidemic'.
- Next steps:**
  - does education level predict network position?
  - do other partner characteristics predict HIV?