



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.

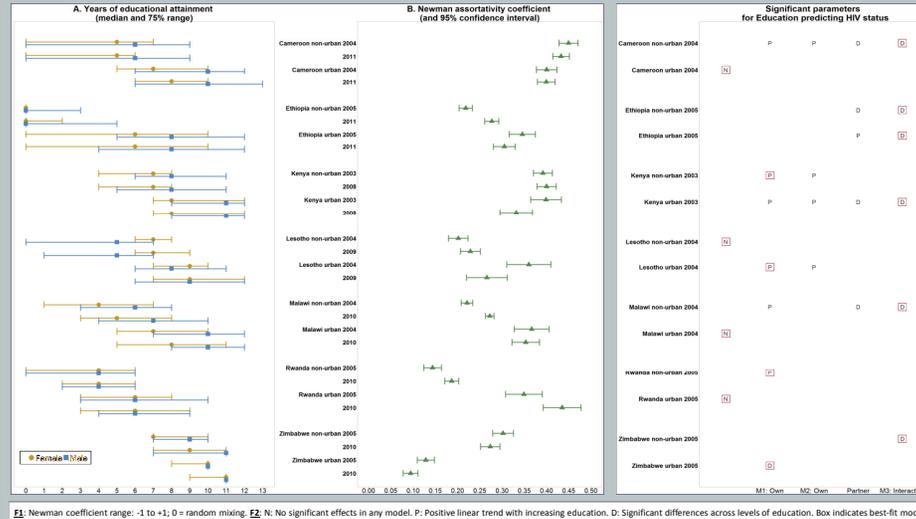


Figure 1: Educational attainment & homophily for women aged 15-34

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

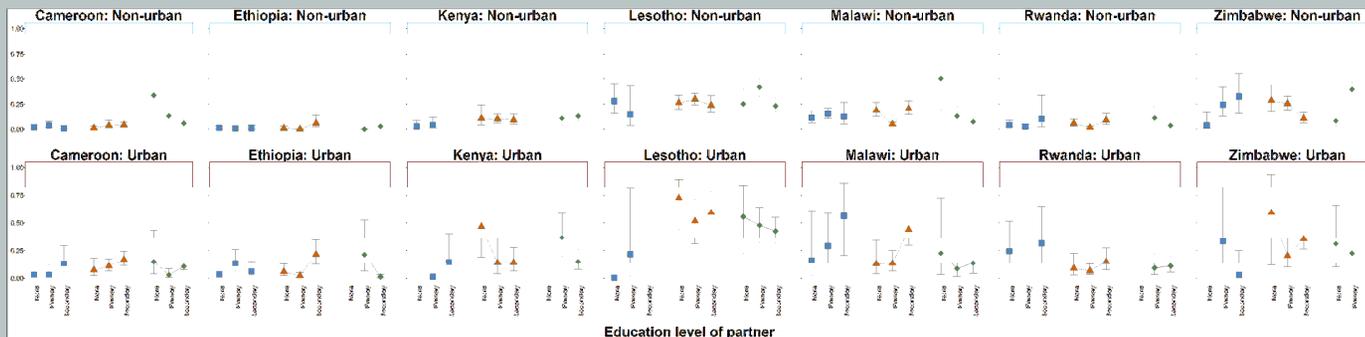


Figure 3: Predicted probability of HIV infection, Model 3 containing interaction of educational attainment terms

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?