Gender Disparity in HIV Seroprevalence and Associated Gender Variables:  
A National-Level Analysis of the association between gender inequality and the feminisation of HIV/AIDS

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Background and motivation:

The HIV epidemic is becoming increasingly ‘feminised’ (UNAIDS, 2009); in 1985 roughly equal numbers of men and women in sub-Saharan Africa were living with HIV/AIDS, however since then the relative number of women in comparison to men living with HIV/AIDS has increased substantially. For the last decade women have comprised around 60% of new infections in sub-Saharan Africa despite significant investment in HIV interventions (UNAIDS, 2011). Whilst it is acknowledged that women are biologically more vulnerable to HIV infection, there is also substantial evidence that the broader social context of women’s inequality and status contributes to the inequality in HIV prevalence between men and women.

Thus far, HIV prevention efforts have been dominated by individual-level behavioural interventions that seek to influence knowledge, attitudes and behaviours. Such interventions frequently fail to address the structural contexts which shape and limit ability to change behaviours, especially for women (Gibbs et al., 2012). Furthermore, Coates et al. (2008) claim that despite several countries in sub-Saharan Africa reporting decreases in HIV transmission related to changes in sexual behaviour, not only has the effect of behavioural interventions been limited, but they may also only be a short-term solution. Structural approaches on the other hand aim to change the factors affecting individual behaviour i.e. the social, economic, political or environmental factors which determine HIV risk and vulnerability (Rao Gupta et al., 2008). Despite the fact that gender inequalities have been identified as a key driver of HIV infections since the 1990’s, the potential impact of structural approaches has only recently started to be appreciated.

Literature:

Whilst other macro-level correlates of infection such as income, school enrolment and location of residence have received much attention at the macro level, much of the evidence for gender inequality as a contributing structural factor come from qualitative studies which describe the barriers women face in adopting safer sexual behaviour (see for e.g. Campbell, 2003; Schatz, 2005). Whilst quantitative studies have found that gender-related structural issues such as economic dependency (Greig and Koopman, 2003), female autonomy (Bloom & Griffiths, 2007) and sexual violence (Dunkle et al., 2004; Jewkes et al., 2003) have an independent significant effect on HIV-related behaviours or HIV sero-positivity at the individual level, these studies are usually limited to one setting and focus on one or two gender-related issues. The overall picture across sub-Saharan Africa has received much less attention. Furthermore, the apparent association between high gender equality and lower HIV prevalence does not seem to hold at a national level within sub-Saharan Africa; it has been noted that several of the most
gender equitable countries in SSA are in Southern Africa (including Lesotho, South Africa, Namibia and Botswana), where HIV prevalence is also the highest. Many countries have implemented female empowerment strategies in an attempt to address the impact of HIV on girls and women, however, the quantitative link between HIV prevalence and gender inequality is not well established at the national level. Whilst a macro-level analysis of the association of structural factors and HIV risk may not be able to establish direct causality, this paper hopes to increase understanding with regard to the factors which help shape the context of vulnerability.

Relatively few studies have examined the relationship between gender-related variables and HIV prevalence at the macro level. Of the two studies identified (Rao Gupta, 1996 and Greig & Koopman, 2003), these analyses have not only reported conflicting results but also have some quite strong limitations. Rao Gupta et al. (1996) found that greater HIV prevalence among pregnant women was associated with lower women’s status and lower gender equality, although possible confounding factors were not controlled for. In contrast, Greig & Koopman (2003) found that the empowerment indicators they used (related to education, employment and representation in parliament) were not associated with lower HIV prevalence after controlling for other factors which contribute to the spread of HIV/AIDS, however, the small sample size used for several of the variables made it difficult to reach conclusions regarding the lack of a statistically significant relationship for these variables. Furthermore, whilst many theoretical papers have highlighted the importance of the gender disparity in HIV prevalence, to the author’s knowledge this has not investigated in any quantitative analysis. This paper therefore intends to extend the work by these authors to overcome these limitations.

Data and Methods:

Country-level data\(^1\) was collected for sub-Saharan African countries which had the requisite data available for key variables. Indicators were selected to reflect the level of women’s power in relation to men in social, economic and political domains following the examples of empowerment indices such as the GDI, GEM, GII, and AGDI. The main areas included health, education, employment and politics.

In addition to the dependent variable ‘level of HIV prevalence’, which is used in both the other analyses cited, this paper also considers the dependent variable ‘ratio of female to male HIV prevalence’. This variable relates to data on those aged 15-24 as this is the age group where the gender disparity is most pronounced. Another benefit of using this age group is that infections are assumed to be recent because the onset of sexual activity in this age group is likely to be recent. Prevalence in this age group can therefore be regarded as a reasonable proxy for assessing trends in HIV incidence (Ghys et al., 2010). Furthermore, mortality effects in this age group are typically small so that trends in HIV prevalence are more likely to reflect trends in incidence rather than trends in mortality (Ghys et al., 2010).

Preliminary findings (see Table 1 below) discuss the bivariate analysis that has already been conducted. Further work will firstly calculate partial correlation coefficients in order to assess the

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\(^1\) From various sources including DHS, WHO, UNICEF, UNFPA, World Bank and UNESCO.
direction and magnitude between the indicators of empowerment and the HIV-related variable whilst controlling for important institutional and socioeconomic differences including population size, health expenditure, yearly population growth and percentage of the population that is living in an urban area. Whilst it is recognized that the factors which affect the spread of HIV/AIDS extend far beyond those controlled for in this analysis, data on several variables (including strength of HIV/AIDS programmes, marriage rates etc.) were not readily available. The second part of the analysis will use linear regression in order to better describe the form of the relationship between HIV prevalence and gender inequality.

**Preliminary Findings:**

Whilst HIV prevalence is higher for women in all countries for the 15-24 age group, there is actually a substantial amount of variation between countries with regard to the extent of this gender disparity. The female to male ratio of prevalence ranges from 1.46 in Rwanda, a country with a fairly low HIV prevalence, to 3.02 in South Africa, which has the 4th highest HIV prevalence in the world.

In table 1 below, we can see examples of key variables from each of the four dimensions examined. Of the four dimensions, female empowerment strategies have focussed mostly on economic participation and education, however, the variable related to political empowerment shows a strong association with both of the dependent variables. The difference in levels of significance for the two dependent variables suggests that the factors driving high HIV prevalence in a country may not be the same as those factors related to the discrepancy in HIV prevalence. Although the extent of the gender disparity does not seem to have a linear association with the severity of the epidemic, the overall level of HIV prevalence will be included as a control variable in further analyses. Further investigation will also include controls for other institutional and socioeconomic differences.

**Table 1:**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Level of HIV prevalence Standardised regression coefficients</th>
<th>Ratio of HIV prevalence Standardised regression coefficients</th>
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<tbody>
<tr>
<td><strong>Economic participation and opportunity</strong></td>
<td>Ratio female/male labour force participation</td>
<td>-0.30</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td>Ratio female/male literacy</td>
<td>0.621***</td>
</tr>
<tr>
<td><strong>Health and Survival</strong></td>
<td>Maternal mortality ratio</td>
<td>-0.386***</td>
</tr>
<tr>
<td><strong>Political empowerment</strong></td>
<td>Percentage female seats in parliament</td>
<td>0.483***</td>
</tr>
</tbody>
</table>

1 Cases were weighted by country population size
References:


