

Letter to the Editors

Modelling social reality: limitations to measuring the impact of HIV/AIDS on rural households

Dear Sirs,

In their recent article, Seeley *et al.* (2010) evaluate the predictions made by ample HIV impact studies in the 1980s and 1990s, which foresaw progressive and systematic declines in agricultural production with dire consequences for rural livelihoods. Their research efforts showed that the predicted progressive and systematic decline did not seem to have materialised and come to the conclusion that HIV and AIDS have sometimes thrown households into disarray and poverty, but more often reduced development (Seeley *et al.* 2010).

Their innovative methodological design, employing both qualitative and quantitative methods, combined with their longitudinal approach creates opportunities for triangulation and the assessment of long-term impacts of HIV/AIDS on rural households, which are hardly ever tested in the field. However, the article raises as many questions as it solves, while it does not seem to explicitly question the initial assumptions of the models.

First of all, AIDS was conceptually seen as a shock to the social system. However, HIV/AIDS is not a sudden shock or an event that suddenly occurs. This is a potential shortcoming that seems to neglect some essential epidemiological characteristics of the disease itself and therefore the effect it generates. Being a retrovirus, the impact and effect of HIV in a community, big or small, are spread out in time and space. There is not really a 'point Zero' in time where it started or 'impacted', nor is there a 'ground Zero' of geographical impact. Therefore, modelling HIV as a shock to the system is an intricate affair, especially when using a geographically very limited field of study.

The study only started measuring the impact of HIV/AIDS on rural communities in 1991 (baseline). However, HIV/AIDS already reached epidemic proportions in Uganda and Tanzania in the 1980s, forcing people to cope with the adverse effects well before the baseline assessments. As such, this was probably underestimated by the initial models. This partially explains household's 'resilience': communities can fall back on a certain experience of dealing with the epidemic's effects on household economy. Therefore, predicting the effects of HIV/AIDS as a sudden shock is not reflecting the reality in the field.

As a retrovirus, HIV does not cause 'sudden death'. Therefore, research should not focus too much on mor-

tality in the final stages of the disease but rather on the various 'illness and coping trajectories' of the individuals, households and communities. Two people who are infected at the same moment can develop a totally different 'progress path' with different life expectancies, thus having very different effects and coping strategies even in the long run. Therefore, the use of adult mortality (20–55 yrs) as a proxy has its limitations. Previous research studies indicate that the period *preceding* the death is most resource-intensive for the household when diseased household members are an increasing burden on the household's income and care giving tasks (Bachmann & Booyesen 2003; Mahal *et al.* 2008). Consequently, the comparison between households with and without a death can be strongly distorted as families who did not suffer an adult death may contain a diseased person.

Also, the impact of HIV on communities and households is not only temporally diffuse – i.e. spread over 30 years and different coping trajectories – but also spatially diffuse. In communities where antenatal prevalence is 30%, in one way or another, everyone is affected by the epidemic. Hence, comparing households affected by death (or HIV) with those unaffected does not produce a complete picture of the devastating impact of the epidemic in sub-Saharan Africa, as – almost – all households are most likely to be affected by the epidemic through dynamics of solidarity and reduced economic development. The latter is confirmed by macro-economic studies clearly showing that HIV/AIDS has negatively impacted on economic development, showing that the epidemic has already reduced average national economic growth rates by 2–4% a year across Africa (Dixon *et al.* 2002). For these reasons, predicting the effects of HIV/AIDS as a sudden shock and death is not reflecting social reality.

Secondly, the conceptual framework of the article pays little attention to other factors besides HIV/AIDS affecting the social system. HIV/AIDS does not strike the social system in a vacuum, but is influenced by, interacts with and in its turn affects a wide range of societal processes and dynamics, which in turn produce an impact on the larger social system.

Adult mortality because of causes unrelated to HIV/AIDS potentially disturbed the outcomes of the analyses.

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Although the authors are probably right in assuming that a large proportion of these adult deaths were because of HIV/AIDS, implicitly the deaths not because of HIV/AIDS seem to be underestimated. Both Uganda and Tanzania are countries, which are heavily affected by malaria and tuberculosis epidemics, which undoubtedly produced a considerable impact on both death rates and household economy (WHO 2008a,b).

Closely connected to this, the areas under study have been struck by poverty, famine and various diseases decades before the advent of HIV/AIDS. This explains their resilience: even if the disease is new, people can fall back on a certain experience of dealing with disasters. The authors do mention resilience as a resource in the fight against various adversities, but they only mention resilience and the other adverse events retrospectively as an explaining ground for the relatively limited impact of HIV/AIDS on households which they recorded. However, these various factors affecting the social system and the resulting family resilience should be incorporated into the conceptual framework of such a modelling exercise from the very start.

Moreover, the study did not incorporate the intensive efforts made by national governments, NGOs and international funding agencies in Uganda and Tanzania, not only in the field of HIV/AIDS, but also in Health Care or Aid in general. For example, between 1993 and 2003, the percentage of health and population commitments from all donors for HIV/AIDS increased from 3.1% to 35.1% or in absolute numbers from 92 to 3116 in millions of constant dollars (2004 as base year) (Shiffman 2008). This vast amount of monetary and human resources and energy invested undoubtedly attenuated the destructing impact of the above-cited factors on the social system and contributed to Seeley *et al.*'s conclusion that "the progressive and systematic decline predicted in earlier work has not come to pass" (Seeley *et al.* 2010).

More specifically, the study did not incorporate the effect which highly active antiretroviral therapy has had on HIV/AIDS trajectories. The introduction and scale-up of antiretroviral treatment especially – which admittedly only started on a large scale in 2004 in sub-Saharan Africa – has produced a considerable positive effect on both the HIV/AIDS epidemic and its impact on rural communities. Ample studies have shown that ART provided by public health care services drastically reduced AIDS-related morbidity and mortality, thereby increasing patients' quality of life and economic productivity (Wouters *et al.* 2009). However, one must be careful as costs associated with long-term ART care can potentially negatively impact household income. It is therefore clear that further longitudinal research is

needed to incorporate the mitigating impact of recent funding efforts and the resulting ART programs in such assessments of the impact of HIV/AIDS on rural communities.

The study of Seeley *et al.* (2010) is valuable as it forces us to question long-standing scientific convictions and to reassess the long-term economic aspects of HIV/AIDS. However, its limitations indicate that further research is needed to fully disentangle these interrelationships and further refine the statements made. It is evident that the complex reality of HIV/AIDS and poverty necessitates interdisciplinary research efforts to model all factors affecting it. Future research and modelling should incorporate the different factors affecting the social system and the resulting family resilience into the conceptual framework from the very beginning of the research set up. This letter only touches some of the aspects of the complex social reality of HIV/AIDS and poverty and thus has its limitations too, rendering the topic one of our – and many researchers' – focal research interests for the years to come because, even if the predicted adverse effects did not materialise as predicted, there certainly is reason to warrant against a 'normalisation' of HIV/AIDS as a disease. High prevalence areas are not reducing in size and the impact of HIV/AIDS therefore remains a problem of dramatic scope.

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References

- Bachmann M & Booyens F (2003) Health and economic impact of HIV/AIDS on South African households: a cohort study. *BMC Public Health*, 3, 14.
- Dixon S, McDonald S & Roberts J (2002) The impact of HIV and AIDS on Africa's economic development. *British Medical Journal* 324, 232–234.
- Mahal A, Canning D, Odumoso K & Okonkwo P (2008) Assessing the economic impact of HIV/AIDS on Nigerian households: a propensity score matching approach. *AIDS* 22, S95–S101.
- Seeley J, Dercon S & Barnett T (2010) The effects of HIV/AIDS on rural communities in East Africa: a 20-year perspective. *Tropical Medicine and International Health*, 15, 329–335.

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Shiffman J (2008) Has donor prioritization of HIV/AIDS displaced aid for other health issues? *Health Policy and Planning*, **23**, 95–100.

World Health Organisation (WHO) (2008a) *Global Tuberculosis Control*. WHO, Geneva.

World Health Organisation (WHO) (2008b) *World Malaria Report 2008*. WHO, Geneva.

Wouters E, Van Rensburg HCJ, Van Loon F & Meulemans H (2009) State of the ART programme: clinical effectiveness and physical and emotional quality-of-life improvements in the Free State Province, South Africa. *AIDS Care*, **21**, 1401–1411.