

The Effects of the AIDS Epidemic on the Elderly in a High-Prevalence Setting in Sub-Saharan Africa

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Abstract

High morbidity and mortality in rural sub-Saharan Africa is expected to have direct impacts on individuals and their extended families, such as diverting family resources from the elderly to the working-aged and increasing the burdens on the elderly to care for the sick and orphans, with implications for their long-term well-being. Distinguishing between short-term and long-term effects of AIDS on families, however, requires longitudinal data on family characteristics both preceding and following the illness and death of a family member. In this paper, we use longitudinal data from rural Malawi, 1998-2008, to assess the effects of the AIDS epidemic on the elderly. In particular, we examine the relationship between adult children's HIV and health status and (1) intra-familial exchanges, (2) the health status of the elderly and (3) living arrangements and household structure.

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Introduction

High HIV/AIDS morbidity and mortality in sub-Saharan Africa have profound and immediate impacts at multiple levels on individuals and their extended families. In addition to the risk of becoming infected with HIV, individuals also experience indirect effects of HIV/AIDS mortality and morbidity, such as the burden of caring for relatives who are infected with AIDS or children who have been orphaned. It is clear that the dramatic effects of the AIDS epidemic reach beyond individuals of reproductive ages to populations that are less frequently the topic of research, including the elderly in sub-Saharan Africa.

Research in sub-Saharan Africa has shown that the AIDS epidemic has indeed led to dramatic changes in family and household structure. For example, while the levels of mortality differ by county in sub-Saharan Africa, the age patterns are consistent: AIDS mortality is concentrated among men and women of reproductive ages (Timaues and Jasseh, 2004). Due to high mortality for individuals at childbearing ages the elderly are forced to assume some of the activities previously conducted primarily by their adult children or other members of the extended family. Research has shown that the elderly in sub-Saharan Africa are increasingly active in caring for children and sick adults (Agyarko et al. 2000; Ankrah 1994; Williams and Tumwekwase 1999). Such changes in those expected to provide care for the family has led to similar changes in household composition and living arrangements for AIDS-affected countries in sub-Saharan Africa (e.g. Bignami-Van Assche et al, 2006). The responsibility of caregiving to sick children or orphaned grandchildren can affect the health of the elderly in at least two ways: such care can be physically taxing on the elderly, and the death of a child can cause emotional distress.

The expanded role of the elderly is potentially coupled with a loss of income or assets. Evidence from sub-Saharan Africa also shows that the elderly are often supported by their extended families through monetary and non-financial transfers. Overall, working-aged adults are shown to have a net loss of assets in the transfers relationship with their parents (Weinreb 2002, 2006). However, declines in productivity due to AIDS-related morbidity and mortality (e.g. Bignami-Van Assche et al, 2006), it is likely HIV/AIDS infected adults will be less able to provide remittances to the elderly. The loss of these transfers may affect the health status of the parent of an AIDS-infected individual in several ways: first, the elderly individual will be less able to provide the goods necessary to maintain their health status, and they may also be forced to allocate their time more to labor-intensive activities.

In estimating the effects of the AIDS epidemic on the elderly it is important to distinguish between short-term and long-term effects of AIDS on families. For example, while a parent may experience grief immediately after the death of an adult child, the detrimental effect of a loss of financial support may not be felt until the elderly parent experiences an economic shock. Therefore, analysis on the effects of a loss of transfer or exchange requires longitudinal data on family characteristics both preceding and following the illness and death of a family member, features that are available in the data used for this research (as described below).

In this paper, we use data from rural Malawi to examine the effects of adult children's HIV status on intra-familial exchanges, residential arrangements, and the health of the elderly. In doing so, we intend to address the following research questions:

1) How does HIV status affect living arrangements for the elderly? Are individuals who are HIV positive more likely to co-reside with their parents? Are there differences in health status between elderly parents who live with their children and those who reside alone?

2) What is the relationship between living arrangements and transfers involving the elderly? Is the type (e.g. money, goods, work) and amount of intergenerational transfer different by living arrangement or proximity to one's adult children? In AIDS-affected households, is the quantity of intra-familial transfer from parents to adult children greater than transfers from children to parents?

Data

In this research, we use data from the Malawi Diffusion and Ideational Change Project (MDICP), a longitudinal panel survey of approximately 5000 rural Malawians. MDICP started the first wave of data collection in 1998, with interviews of 1,541 ever-married women aged 15-49 and 1,065 of their spouses. Follow-up surveys were conducted in 2001, 2004, 2006 and 2008. In 2004, MDICP added two new components to data-collection: a new sample of approximately 1,500 adolescents; and offered HIV testing and test results to all respondents in 2004. Most recently, MDICP completed the fifth wave of data collection in 2008, for which data collection again included a survey and HIV testing, and added height and weight measures for all respondents. In 2008, MDICP also added a sample of approximately 800 parents of respondents. A description of MDICP data and sample is presented in Watkins et al (2003); Bignami et al (2003) and Anglewicz et al (2007) provide an assessment of MDICP data quality.

Several features of MDICP make the data well-suited for our analysis. First, in 2008 MDICP added a sample of approximately 800 parents of respondents. By drawing the sample of parents from 2006 respondents' reports of family and household structure, we are able to link some MDICP respondents with their parents. Similarly, due to the nature of the 2004 sample of adolescents, we also have existing intergenerational linkages for our sample prior to 2008. We also include in our analysis approximately 800 individuals over age 50 by 2008 who were drawn in the initial MDICP sample from 1998. Thus, the elderly sample we use in the present analysis consists of (1) elderly respondents in the core sample of the MDICP and (2) elderly parents of younger adults in the MDICP.

Distinguishing between short-term and long-term effects of AIDS on families requires longitudinal data on family characteristics both preceding and following the illness and death of a family member. To address this consideration, we will use data from multiple waves of MDICP to (1) examine the long and short-term effects of HIV/AIDS morbidity and mortality on the elderly, and (2) employ methods of longitudinal data analysis, such

as fixed and random effects, to address selection issues related to health status, transfers, and household composition.

Next, MDICP also collected extensive information about family and household structure and living arrangements in 2006 and 2008. The elderly sample added in 2008 includes parents who live in the same household, village and compound as MDICP respondents, which allows us to investigate the relationship between living arrangements (i.e. proximity of parents and children's households) and health of both the adult children and parents of MDICP respondents.

MDICP has collected several subjective and objective measures of health for respondents, which allows us to evaluate household structure, transfers and remittances by both perceived health status (such as perceived likelihood of HIV infection and self-rated health), and actual health status measures (HIV status and BMI).

The 2006 and 2008 MDICP data includes extensive information on transfers given and received from family members, most prominently children and parents, including (1) money given and received, and expectations of repayment of monetary transfer, (2) non-financial assistance given, such as farm production or help with domestic activities, and (3) the number of hours spent caring for someone who is ill.

Analysis

We begin with introductory tabulations that include basic characteristics of the both adult children and the elderly in the MDICP sample, such as:

- Age structure: percentage of the MDICP sample that is over age 60.
- Living arrangements: percentage of elderly co-reside with their children, compared with those who live in the same compound or village; percentage of parents living alone.
- HIV status: for MDICP respondents from the 1998 sample, elderly parents added in 2008, and all elderly in the MDICP sample.
- Self-reported health status: measured by perceived likelihood of HIV infection, self-assessed health status, and health status for past 12 months.
- Anthropometric measures: height and weight measurements for MDICP adults and elderly.

We next present tabulations of intra-familial transfers, measured in terms of:

- Monetary transfers (both given and received),
- Non-financial transfers (e.g. farm production or domestic assistance), and
- Time (number of hours caring for someone who is ill).

Following the introductory tabulations we estimate several regression models to investigate the relationship between HIV status, household composition, intra-family transfers, and the health status of the elderly; while controlling for factors such as age, marital status, and region of residence that may influence these relationships.

References

- Agyarko, R. D., A. K. Graft, and P. Kowal (2000). Older People, Children and the HIV/AIDS Nexus. *Int Conf AIDS*. 2000 Jul 9-14; 13: abstract no. MoPeD2547.
- Anglewicz, P., J. Adams, F. Obare, S. Watkins, and H.-P. Kohler (2007). The Malawi Diffusion and Ideational Change Project 2004–06: Data collection, data quality and analyses of attrition. Unpublished working paper, Population Studies Center, University of Pennsylvania, Philadelphia, PA. Available online at <http://www.malawi.pop.upenn.edu>.
- Ankrah, E. M. (1994). The impact of HIV/AIDS on the family and other significant relationships: The African clan revisited. In R. Bor and J. Elford (Eds.), *The Family and HIV*, pp. 23–44. New York: Cassell.
- Bigname-Van Assche, S., G. Reniers, A.A. Weinreb (2003). An Assessment of the KDICP and MDICP Data Quality. *Demographic Research* S(1):29-76.
- Bigname-Van Assche, Simona, Peter Fleming, Ari Van Assche, Catherine van de Ruit, and Philip Anglewicz 2006. The Impact of HIV/AIDS on Intra-household Time Allocation in Rural Malawi Poster session, Population Association of America Annual Meeting, Los Angeles.
- Timaeus, Ian M, and Momodu Jasseh. 2004. Adult Mortality in Sub-Saharan Africa: Evidence from Demographic and Health Surveys. *Demography* 41(4) pp. 757--772.
- Watkins, S., Behrman, J.R., Kohler, H.P., and Zulu, E.M. (2003). Introduction to research on demographic aspects of HIV/AIDS in rural Africa. *Demographic Research*, S1(1), 1-30.
- Weinreb, A. A. (2002). Lateral and vertical intergenerational exchange in rural Malawi. *Journal of Cross-Cultural Gerontology* 12, 1–38.
- Weinreb, A. A. (2006). Substitution and substitutability: The effects of kin availability on intergenerational transfers in Malawi. In A. H. Gauthier, C. Chu, and S. Tuljapurkar (Eds.), *Riding The Age Waves: The Distribution of Resources Across Generations*, pp. forthcoming. Berlin: Springer Verlag.
- Williams, A. and G. Tumwekwase (1999). "An Elephant Has to Carry Its Tusks": grandparent's efforts to educate their grandchildren in rural Uganda. In P. Thomas and S. Bissell (Eds.), *Education for Sustainable Development*, pp. 51–56. Canberra: Development Studies Network and Australian National University.