Growing up in rural Africa.
The living arrangements and socio-economic status of children in rural Malawi, Tanzania and South Africa, with special reference to the impact of adult HIV/AIDS

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Abstract

In sub-Saharan Africa children are growing up in an era of HIV/AIDS. However, the HIV epidemic is only one of many phenomena that influence their lives. Historical and contemporary socio-demographic factors shape both the pattern of the epidemic and the consequences for children and their families. Thus, comparative analyses can aid our understanding of the impact of HIV/AIDS.

This study uses a life course approach to describe and compare the experiences of children growing up in rural areas of three countries, Malawi, Tanzania and South Africa. We use longitudinal data from population-based studies to explore the effect of parental HIV and adult illness and mortality on the levels and patterns of orphanhood, children’s living arrangements including fostering and caregiving, educational achievement, and household economic status. The data were collected between the 1980s and 2004. We highlight important issues in comparing population-based demographic and social data, for example, inter-site socio-cultural differences.

Introduction

Children in sub-Saharan Africa are growing up in an era of HIV/AIDS. There is considerable concern about the negative impact of HIV/AIDS on children’s physical, emotional and social development and wellbeing. The illness or death of one or both parents will be a traumatic experience for their children. However, there will also be consequences for other children within the same household as a result of changes in household composition, caregiving options, residential stability and economic status.

The HIV epidemic is however, only one of many phenomena that shape the lives of children. The type of family structure and household arrangement in which children live arise from historical and contemporary systems of domestic organization, kinship and marriage. In contemporary Africa, these are subject to modification by changing demographic factors including changes in the level and patterns of mortality and fertility, as well as being influenced by political and economic circumstances, such as employment and labour migration, conflict, and environmental catastrophes.

While the HIV epidemic and these other social, demographic and economic processes may create some diversity in living arrangements for children in Africa today, there are thought to be some elements of traditional family systems that are common in contemporary sub-Saharan African rural societies. These include the acknowledgement of the authority of the family/household head, the fluidity of family boundaries with its openness to members joining and leaving, the strength of sibling solidarity, and the readiness of adults to take on the parenting roles for children of close relative both temporarily and over a longer period(Bledsoe, 1995; Niehaus,1994; Oppong,1992; Spiegel,1996; Spiegel et al,1996). There has been concern that the HIV epidemic may lead to an increase in the number of households consisting only of children (child headed households) or of older people and children (skipped-generation households)(UN,2003). However, such households are atypical in African societies. The emergence of these households as permanent living arrangements would indicate a significant social change.

While considerable research and programme efforts have been directed towards describing and mitigating the consequences of HIV/AIDS in many African countries, our understanding and subsequent development of appropriate policies has been hampered by a lack of empirical and longitudinal studies that have measured the direct and indirect consequences of HIV/AIDS on children. The population-based longitudinal demographic, social, health and economic data collected through demographic surveillance systems and a retrospective cohort study in rural areas of three sub-Saharan African countries, Malawi, Tanzania and South Africa, provides an opportunity to examine life course data on children. In these systems, registered individuals are repeatedly observed over time and information about their survival, migration, fertility, living arrangements and socio-
economic status are recorded. Additional linkages are often available for some of the individuals’ social relationships (household membership, child-parent, child-caregiver, sexual or marital partner).

Two advantages of conducting comparative analyses are:

i) The sites have different experiences of the HIV epidemic. While the HIV epidemic started later in South Africa than in Malawi and Tanzania but the epidemic has been more rapid and severe. Antenatal seroprevalence in the South African study site was 41% in 1999, in contrast to population-based seroprevalence of 13% in Malawi in the late 1990s, and 7% in Tanzania in 1996/7.

ii) Descriptive and analytical findings that are generated for just one site become much more powerful and convincing if replicated in other settings. These initial analyses will also provide insights into the validity of comparing or even pooling such demographic datasets.

In addition, there are additional benefits in using the type of data available from these three specific sites:

iii) These studies have a wide range of social, demographic and economic data and this permits us to examine the social and residential arrangements of children not simply as a function of parental survival but in the context of other processes such as changing labour participation, migration patterns, marriage and fertility.

iv) Population-based samples allows the comparison of outcomes in sub-samples of children selected by sets of characteristics, such as school enrolment in maternal orphans vs. non-maternal orphans.

Research objectives

1. To describe the life course of children in the three population cohorts with respect to the survival, living arrangements and socio-economic status of children, and examine whether these differ over time, by age and sex of child, by parental survival and residency patterns, and between countries.

2. To examine the impact of a) parental HIV status and b) parental mortality, and, c) the death of other adult household members, on children’s survival, living arrangements and socio-economic status.

3. To describe the development cycles of families and households in which the children were living. At the household level we are interested in family and household formation, dissolution and migration; and the changes in economic status of households.

4. To highlight the important conceptual and methodological issues in comparing or even pooling such longitudinal population-based demographic and social data, for example, aspects related to inter-site socio-cultural differences and/or site specific methodologies and definitions.

Methods

The data used in this study are from the Africa Centre Demographic Information System, the Kisesa cohort study and the Karonga Prevention Study. In Table 1 we characterise the three population-based studies. Prospective and retrospective data is available for children in each study. Follow-up periods range from 4 years (South Africa) to 10 years (Tanzania and Malawi). Parental HIV data is available for Tanzania and Malawi. Population-based HIV testing is ongoing in South Africa and this data should be available before June 2005. Data from these three studies have already been analysed. It is hoped that similar results from Masaka in Uganda and Kilifi in Kenya will be available in the early 2005 and could be included.

A variety of life course analytical methods can be applied to this type of population-based longitudinal data because of the recording of links between subjects, episodes and events. These include event history analyses and the accurate measurement of person-years of exposure in order to describe the impact of HIV/AIDS on the occurrence of critical transitions and adverse events.
Since all three studies are conducted by health researchers, we are able to build upon previous published findings in developing the comparative analyses. The site and some of the published research findings related to the impact of HIV/AIDS on households and children’s living arrangements are briefly described.

**Africa Centre for Health and Population Studies, South Africa**

South Africa is characterised by high levels of instability of marital and non-marital unions because of separation/divorce, high levels of early adult mortality, residential mobility, and the social fluidity of households, particularly in relation to the care of children, mean that many people undergo numerous changes in their living arrangements during their lifetime (Hosegood & Solarsh, 2001; Hosegood & Preston-Whyte, 2002). Consequently, there is considerable diversity in the types of family structures and household living arrangements that exist today. There have also been significant declines in fertility, marriage, and employment opportunities, which have been matched by increases in non-marital fertility, urbanization, and young adult mortality.

Adult mortality has risen in the 1990s and that by 2000, over 50% of adult deaths were due to AIDS (Hosegood et al., 2004a). The death of adult members of households is associated with a significantly increased risk of the household dissolving but not of migrating (Hosegood et al., 2004b). The risk of dissolution is highest in households experiencing multiple deaths and in those who experience sudden adult deaths due to accident or homicide. Residential mobility is extremely high even among women and children. In this paper we show that children are at increased risk of migrating following the death of a parent, in particular their mother. 5% of children less than 18 years are maternal orphans and 12% are paternal orphans. Even among children whose parents are alive, over 50% do not co-reside with their father, 34% do not co-reside with their mother and 28% reside with neither parent. Despite the high rates of adult mortality few child headed households or skipped generation households exist, and where they develop they appear to be vulnerable to compositional change or dissolution (Hosegood and Timaeus, 2004).

**The Kisesa cohort, Tanzania**

In the Kisesa cohort, HIV has risen from 5.9% in 1994/1995 to 8.1% in 1999/2000 (Boerma et al., 1999; Mwaluko et al., 2003) Adult mortality rates are 15 times higher for those infected. HIV is associated with nearly half the deaths of adults between 15-44 years (Urassa et al., 2001). A large proportion (44%) of households dissolve due to the death of head of household (Urassa et al., 2001). The infant mortality rate of those born to HIV-infected mothers is higher than those born to uninfected mothers 158 compared to 79 per 1000. Infant mortality for those children with mothers who died was 489 per 1000 live births compared to 84 per 1000 for children whose mothers were alive. This high mortality associated with a maternal death would be missed in cross-sectional studies as dead mothers would not report on the survival of their children (Ng’weshemi et al., 2003). In 1994, 6% of children under 15 had lost at least one parent, by 2003 this had risen to 10%. Most orphans are cared for by the extended family usually the maternal grandparents. Households with orphans are more likely to be female headed but not more likely to have a lower economic status compared to non-orphan households. However orphan households have a high dependency ratio. Orphans and foster children have higher mobility and lower school attendance rates. In rural areas such as Kisesa, possibly due to extended family providing foster care, orphans did not seem to be a disadvantaged as a group although some subgroups may be more vulnerable (Urassa et al., 1997), and in the nearby city of Mwanza, the numbers of street children appear to be increasing.

**Karonga Prevention Study, Malawi**

Karonga district is a rural area in northern Malawi, where most of the population are subsistence farmers. HIV prevalence was 0.1% in the early 1980s, 2.0% in the late 1980s, and 13% in the late 1990s (Glynn et al., 2001; Crampin et al, 2003a). A retrospective cohort study with sixteen years of follow-up was conducted. From population –based surveys in the 1980s, 197 "index individuals" were identified as HIV-positive. 396 HIV-negative "index individuals" were selected as a comparison group. These individuals, and their spouses and offspring, were sought in 1998-2000.

Survival since the initial test in HIV-positive individuals was 36% at 10 years, compared to 90% for HIV-negative individuals (Crampin et al., 2002). Among the spouses of HIV-infected individuals survival was 64% at
10 years, compared to 89% for spouses of HIV-negative individuals (Crampin et al, 2002). Mortality by age one was 27%, by age 5 years was 46%, and by 10 years was 49%, among children of HIV-positive mothers (Crampin et al, 2003b). The corresponding figures among children of HIV-negative mothers were 11%, 16%, and 17% respectively. However, among surviving children neither maternal HIV status nor orphanhood were associated with stunting, being underweight, or reported ill-health.

By 10 years after the initial test in HIV-positive men, 26% of their wives had experienced household dissolution precipitated by widowhood, compared to just 5% of wives of HIV-negative men (Floyd et al, unpublished). Thirty percent of the surviving wives of HIV-positive index men were household heads, compared to 5% of such wives of HIV-negative men. Thirty-six percent of children (aged <15 years old) of an HIV-positive index had lived apart from both parents, compared to 12% of children of an HIV-negative index. Around 50% of children living apart from both parents had a grandparent as their guardian; for most of the rest the guardian was an aunt, uncle, or sibling (Floyd et al, unpublished). Among children living in the district at the time of follow-up, 34% of children of an HIV-positive index were living with both parents, and 22% had a female household head. The corresponding figures for children of an HIV-negative index were 77% and 7%. There were no child-headed households. Overall, household assets and housing quality were similar for children of HIV-positive and HIV-negative index individuals. Children of HIV-positive index adults lived in households that owned significantly fewer assets compared with children of HIV-negative index adults. Among children of HIV-positive index adults, those living in households headed by their mother were poorer, as measured by household ownership of assets, than children living in households headed by uncles or male siblings.

**Note on challenges of comparative analyses**

There are many conceptual and methodological differences in the family and household data obtained from different studies. These reflect the primary scientific interests of the initial researchers, the extent to which biological and social relationships were linked and followed longitudinally and, choice and application of definitions and coding categories for attributes such as marriage and caregiving. In this preliminary work we explore whether how these conceptual and methodological differences can be overcome through the restructuring of data, the use of alternative definitions and categories and careful interpretation of differential findings. Since these three study populations live in three different countries with different ethnic, linguistic and economic populations and consequently, there are important dissimilarities in social, demographic and cultural structures and processes. The emergence and pattern of the HIV/AIDS epidemic as well as its impact on children, their families and the wider community, has its origins in these historical and contemporary social differences and need to be illuminated by comparative work.
<table>
<thead>
<tr>
<th></th>
<th>South Africa</th>
<th>Malawi</th>
<th>Tanzania</th>
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<tbody>
<tr>
<td><strong>Site description</strong></td>
<td>Demographic surveillance system</td>
<td>Retrospective cohort study</td>
<td>Demographic surveillance system</td>
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<td></td>
<td>2000 – current</td>
<td>Two population surveys in 1980s</td>
<td>1994-current</td>
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<tr>
<td></td>
<td>Households visited 3 times per year</td>
<td>Follow-up survey in 1998-2000</td>
<td>Households visited every 4-11 months.</td>
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<td></td>
<td>All births, deaths, in- and out-migrations identified</td>
<td></td>
<td>Approx. 28,000 individuals and 4,500 households.</td>
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<td></td>
<td>Approx. 89,000 household members</td>
<td></td>
<td>Round 16 (med int jun 2003)</td>
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<tr>
<td></td>
<td>11,000 households</td>
<td></td>
<td>26,304 individuals</td>
</tr>
<tr>
<td><strong>Sample selected for this study</strong></td>
<td>Prospective cohort</td>
<td>593 &quot;index&quot; individuals (197 HIV+ and 396 HIV-) identified from initial surveys. 582 traced in 1998-2000, together with all their spouses and children. 1980 children aged &lt;18 years at time of baseline survey</td>
<td>Prospective open cohort. Approx. 28,855 children aged 0-18 entered between 1994 and 2003 Median follow-up 2 years (range 0 – 9 years)</td>
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<td>Approx. 40,000 children aged 0-18 in 2000 followed for 4 years</td>
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<td></td>
<td>Women 58%</td>
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<td>Women 46%</td>
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<td>Men 75%</td>
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<td>Men 49%</td>
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<tr>
<td><strong>HIV epidemic, HIV prevalence (%)</strong></td>
<td>Antenatal HIV seroprevalence:</td>
<td>Community HIV seroprevalence</td>
<td>Community HIV seroprevalence</td>
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<tr>
<td></td>
<td>4% in 1992</td>
<td>0.1% in early 1980s</td>
<td>5.8% 1994/1995</td>
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<td>14% in 1995</td>
<td>2.0% in late 1980s</td>
<td>6.6% in 1996/1997</td>
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<td></td>
<td>41% in 1999</td>
<td>13% in late 1990s</td>
<td>8.1% in 1999/2000</td>
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<tr>
<td><strong>Linked HIV status available for sample</strong></td>
<td>Population-based HIV testing ongoing, not yet available</td>
<td>Available</td>
<td>Available</td>
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<tr>
<td><strong>Socio-economic data</strong></td>
<td>Household level surveys in 2001 and 2003</td>
<td>Individual data on education 1998-2000</td>
<td>Baseline 1994 household data</td>
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<td></td>
<td>Individual data on government grants in 2002</td>
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<tr>
<td><strong>Proportion maternal and paternal orphans &lt;15 years</strong></td>
<td>Maternal orphans (2000-2002)</td>
<td>-</td>
<td>Maternal orphans present (June 2003)</td>
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<tr>
<td></td>
<td>4% maternal orphans, survival status of mother unknown for 2%</td>
<td></td>
<td>4.0% (n=433)</td>
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<tr>
<td></td>
<td>9% paternal orphans, status survival status of father unknown for 4%</td>
<td></td>
<td>7.9% (n=614)</td>
</tr>
</tbody>
</table>
References

**General references**


**Africa Centre references**


**Kisesa references**


**Karonga references**


