

Studies of HIV in African communities

highlights

Fertility in African communities affected by HIV

Family planning challenges in Uganda in the era of HIV

Uganda is famous for its success in bringing down HIV levels, but has persistently high fertility: on average women have seven children by the time they finish childbearing. The resulting high rates of population growth are detrimental to development and will make it difficult for high quality health and education services to keep up with the growing population.

HIV-positive women usually have low fertility, but in Uganda, high birth rates persisted throughout the 1980s and 1990s during the peak of the HIV epidemic. To understand the drivers of these high fertility rates, the researchers from the Rakai Health Sciences Programme explored population trends using unique data from a community that has been studied continuously for 12 years from 1999 to 2010. Household surveys were used to identify births, and women of reproductive age were asked about their earlier pregnancy histories, listing live births, still birth and miscarriages. The data was explored to understand fertility changes over

time, and differences in fertility rates according to place of residence, age, education level and HIV status. Information was also collected about the use of condoms and other forms of family planning to try to understand why the successful use of condoms in the fight against HIV had not led to reductions in the birth rate.

Findings show:

- Highest fertility rates were observed in married women aged 20-24, in rural areas (those migrating to urban areas had lower fertility desires) and in women with little formal education who had high fertility desires.
- Patterns of contraceptive use showed more use by educated women, although levels of use were generally low (with unmarried women mainly reporting using condoms and married women preferring hormonal methods).
- HIV-positive women experience high levels of sub-fertility with high proportions of miscarriages, confirming the negative impact of HIV on fertility.

These results have implications for the targeting of family planning services. There is a need to promote effective, easy-to-use methods to married couples who remain in rural areas, especially those who have low educational attainment, whilst bearing in mind the continued need for protection against HIV.

- Since fertility is highest in married people, tackling high marital fertility will have the largest impact on national rates.
- Family planning services need to operate effectively in high-fertility rural areas.
- Because fertility peaks at a young age, and is highest in women who leave school early, fertility education needs to be started during early adolescence.
- The promotion of contraceptive methods needs to take account of the needs and preferences of couples at different stages: condoms for HIV protection in young, un-married people, and hormonal methods for married couples with low HIV risk.
- Considering the family planning needs of couples implies studying the attitudes of men, which may be different from those of women.

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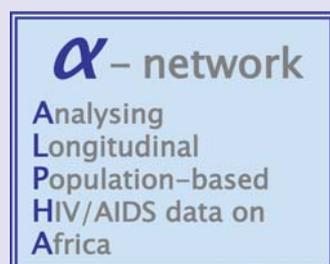
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The ALPHA Network

The ALPHA Network aims to maximise the usefulness of data generated in community-based longitudinal HIV studies in sub-Saharan Africa for national and international agencies involved in designing or monitoring interventions and epidemiological forecasting.

The project links several existing HIV cohort studies and runs training workshops to facilitate replication of analyses of demographic correlates and consequences of HIV infection previously published in just one or two sites. Comparative studies and

meta-analyses are undertaken on comparable data sets, imposing a common format on data collected and stored in a variety of ways.



Mothers wait their turn at the MCH clinic at Kisesa Health centre in Tanzania. The clinic provides ante-natal services, a delivery ward with eight beds, child vaccination services, HIV Voluntary Counselling and Testing, and since 2008, care and treatment for those infected with HIV. © David Sevuri, True Vision, 2009

Dramatic decline in teenage pregnancy

A reproductive health success story from Zimbabwe

HIV infection rates and fertility rates amongst female adolescents fell in Manicaland, Zimbabwe, between 1998 and 2005. This suggests that, against the background of a generalised HIV epidemic, teenage girls in Zimbabwe are able to make life-saving decisions about beginning sexual activity and starting a family.

As in a number of other countries, HIV prevalence rates have been declining in female adolescents aged 15-19 in Zimbabwe (from around 7% in 1998-2000 to around 3% in 2003-05). The Manicaland HIV/STD Prevention Project used three rounds of demographic surveillance data collected in Manicaland, eastern Zimbabwe, to investigate fertility trends amongst HIV-positive and HIV-negative women.

Fertility amongst HIV-negative adolescents declined dramatically between 1998 and 2005 – from 116 births per 1,000 person years in 1998-2000 to 76 births per 1,000 person years in 2004-05. Over the same time period, fertility rates amongst HIV-positive adolescents were higher than the rates amongst HIV-negative adolescents, with the rates amongst HIV-positive young women

remaining stable between 1998 and 2002 (at 147 births per 1,000 person years and 140 births per 1,000 person years respectively) and then increasing around 2003-05 (to 211 births per 1,000 person years).

It is a common finding that HIV-positive adolescents have higher fertility than HIV-negative adolescents because most HIV-negative young women have not yet started sex. The small numbers of adolescents that start sex early tend not to use condoms or other forms of contraception and are at higher risk of HIV infection and teenage pregnancy. However, given the dramatic declines in fertility amongst HIV-negative women and the underlying fall in HIV prevalence, these findings indicate that teenage girls in Zimbabwe are able to make life-saving decisions about becoming sexually active and becoming pregnant.

Key findings include:

- HIV infection rates amongst young women aged 15-19 years in Manicaland declined between 1998 and 2005.
- Fertility rates amongst HIV-negative young women also declined in this period.

Falling HIV infection and fertility rates suggest that young women in Manicaland

are protecting themselves against HIV infection and teenage pregnancy. However, birth rates remain high amongst HIV-positive teenagers. Improved targeting and integration of family planning and HIV prevention services for sexually-active young women is required to help those who are being missed by existing services.

Key policy implications include:

- HIV prevention and family planning services must continue to support adolescent women in Manicaland.
- Improved targeting and integration of adolescent-friendly family planning and HIV prevention services for high risk young women is required.
- Attendance at antenatal clinics providing prevention of mother-to-child transmission services should be promoted amongst pregnant young women.
- Further research is needed to identify the reproductive health needs of high-risk adolescents and the best ways to ensure that these are met by service providers.

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Is high marital fertility causing Uganda's population explosion?

Over the last two decades in Uganda, there has been an expansion in education facilities and health services, and an effort made to extend services to people in rural areas. However, with the country's economy constrained, and social services and infrastructure underfunded, rapid population growth will make it more difficult for service expansion to keep up with need.

While studying the HIV epidemic, the Uganda Virus Research Institute has collected information over 20 years from people in the rural district of Masaka. Every year, researchers ask women about new births, whether they are married, their highest level of education, their religion, the location of their homes and their family planning methods.

The researchers found that the total number of children per woman in this part of rural Uganda has changed very little over the last 20 years. The average of over seven children per married woman is so high that it has spurred an alarming rate of population growth of 2% per annum in this area. Generally, Uganda adds over 1.5 million people each year to the population which will more than double the population in the next 25 years. With an average growth of the economy of only 7% in the last 20 years, the country's social services and infrastructure will be overwhelmed.

Parents with large families have difficulty in ensuring that all of their children complete primary

and secondary education – the larger the family, the more likely for children to be studying in a lower class for their age, and older children in lower classes tend to drop out of school early. Large families experience higher outmigration because of shortages of prime agricultural land to divide amongst the large number of children, thus fuelling rural to urban migration.

Key findings:

- On average, women who reach age 50 have seven children each.
- The majority of women are married, a quarter to men with more than one wife.
- By age 20, half of the women are already married, and have had three children on average. Among the unmarried half, one in five women have had a child.
- Women who have not completed primary education, who are Catholics or Muslims, and who live far from the main road have the largest families.
- Although only 29% of married women use modern family planning methods, among unmarried women, family planning use is even lower at 13%.
- Half of the children whose mothers completed primary education attend secondary school, whereas only a quarter of children of uneducated mothers do.

Women with high fertility (who are mostly uneducated, Catholics or Muslims, living in rural areas, marry early and are not using modern family planning methods) form the majority of

the population. The researchers suggest the promotion of education for girls, since women who attend school postpone marriage, start having children later, have fewer children and provide good education to their children. They emphasise the importance of smaller, manageable family sizes and the promotion of modern family planning methods.

Policy implications:

- Understanding of family planning and the benefits of smaller families should be promoted among religious leaders as some beliefs favour high fertility.
- Community leaders (such as local, religious and opinion leaders) should be involved in family planning advocacy as they have access to the population.
- Efforts should be made to keep girls in school for longer, as this will not only postpone marriage but allow them to achieve higher education.
- Health education messages emphasising the advantages of a small manageable family should be promoted.
- Support should be given to educating girls through universal primary and secondary education.

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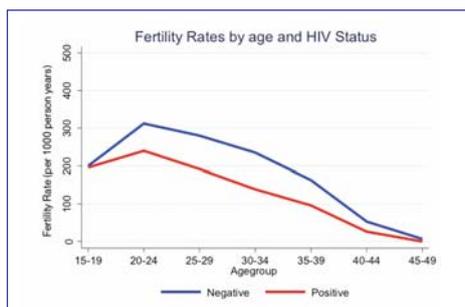
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Educated Malawian women delay childbearing and have lower HIV risk

In Malawi today, women bear on average six children during their life. This high fertility level has changed little over the last 50 years and places a strain on household and national resources. Throughout Africa, girls with secondary education start childbearing later and ultimately have smaller families, yet access to secondary education in Malawi remains limited. A later start to sexual activity also provides extra years of protection against HIV infection.

Researchers at Karonga Prevention Study in rural northern Malawi examined birth records and education data collected regularly in households in their study area to understand better the factors that drive high fertility rates and early childbearing in the region. The findings will help inform government policies and development partners' strategies to address the problems caused by sustained high fertility, early childbearing and HIV infection in vulnerable young women.

Their findings show that it is not uncommon for women to start their families in their early teens, with 40% of girls giving birth by the age of 18. Amongst women aged 20-45, those with primary education have two to three more children during their lifetime than those with some secondary education. Women with at least four years of secondary education are more likely to delay their families until the ages of 25-29, compared to those with lower levels of education, who are more likely to start



Births per thousand women per year observed in women of different ages in the Karonga study in Northern Malawi, between 2002 and 2010, by HIV status of the mother. The graph shows that HIV infected women have lower birth rates than uninfected women in all but the youngest (under 20) age group. Similar results have been observed in the other ALPHA Network studies. Compared to uninfected women, HIV infected women suffer higher rates of miscarriages and still births, and higher proportions of them are widowed and separated. © ALPHA Network

between the ages of 20-24. This highlights that the high fertility rate is being driven by women with lower levels of education.

The girls who become sexually active early are not only at risk of a teenage pregnancy, which carries a high risk of early infant death, but they are also exposed to the risk of HIV infection. Amongst these teenage girls, 2% of those who had at least one child were HIV-positive, but only 0.4% of those who had not yet started childbearing were HIV-positive.

Further findings include:

- Women continue to bear children up to their late forties.
- Higher fertility levels are observed among women living in more remote regions compared to women living near trading centres.
- At older ages, HIV-positive women have fewer children than HIV-negative women, mainly because many of them become widowed before they reach the end of their childbearing years.

The smaller family size and better health of young women with higher levels of education in this rural region highlights the need to promote and facilitate methods to retain girls in school.

Recommendations include:

- Improve school infrastructure in order to retain in school girls who have reached puberty, including the provision of adequate sanitation to serve the needs of girls who are menstruating.
- Develop community awareness of the tangible benefits of female education and strengthen the capacity to support the education of female children through the provision of awareness campaigns, mentoring of young women and grants to help support women in education.
- Provide accessible and well maintained health facilities and promote community-based family planning services, free contraception and counselling services.
- Further research activities into:
 - the incentives and disincentives for young women to complete education rather than embarking on early sex, childbearing and marriage
 - the cultural acceptability of family planning education at school and access to modern family planning methods.

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Field interviews and house-to-house HIV counselling and testing in northern Malawi. Every month village representatives report births and deaths to staff working at the Karonga Prevention Study, who then visit affected household to interview new mothers or bereaved family members. Every other year staff visit all the households in the study area to find out about household changes in land cultivation, outside employment, health and education.

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High fertility rates among young HIV-positive women in Kenya

While the Kenya Demographic and Health Survey (KDHS) has demonstrated an overall decline in Kenya's fertility rate, among HIV-positive females aged 15-19 in the Kisumu Health and Demographic Surveillance System (HDSS) during the period 2006-10, fertility has been 1.5 times higher than among those who are HIV-negative. Teenage girls who engage in regular sexual activity are exposed to the risk of HIV infection and to becoming pregnant before their bodies are mature enough for safe childbearing.

Researchers from the Kisumu and Nairobi HDSS have observed a declining fertility rate over time among women aged 15-49, within their study region. Although this agrees with the national trends, and indicates a welcome fall in the population growth rate, it is notable that this declining fertility pattern is not consistent nationally across all age groups. Whereas birth rates for women aged 20 and over fell by 11% since 2006, birth rates for women under 20 rose by 9%.

These studies also collected community-based data on HIV status, which show that for women under 20, fertility is higher in HIV-positive women than in HIV-negative women. For women aged 20-24, fertility is approximately the same in HIV-positive and HIV-negative women. However, the fertility rates among women aged 25-55 are considerably lower in those who are HIV-positive compared to those who are HIV-negative.

The fertility rates of the Kisumu and Nairobi HDSS bring the following issues to the fore:

- Fertility rates are especially high for HIV-positive teenage girls (aged 15-19), since all the girls who are not yet sexually active are HIV-negative.
- Fertility rates are lower among HIV-positive women aged 25-55, as many of

these women are already widowed, and have low rates of sexual activity.

- Unprotected sex is a known risk factor both for becoming pregnant and for acquiring HIV, thus sexually-active teenage girls face both of these consequences.
- High fertility rates among HIV-positive girls translate into high rates of mother-to-child transmission and impact infant mortality rates.

A declining fertility rate is regarded as a positive sign of a country's progress towards development, while HIV infection continues to be a burden. When coupled with high fertility levels, HIV further strains the health care resources as both babies and mothers may need HIV care and treatment. This worsens poverty levels in the community because more money is devoted to their health care as opposed to other family needs.

There is a need to decrease the incidence of HIV and unwanted pregnancies amongst teenage girls. Recommendations include:

- Partner with health facilities, school clinics and NGOs with fertility/youth programmes to develop projects that will educate

See also

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'Adjusting ante-natal clinic data for improved estimates of HIV prevalence among women in sub-Saharan Africa', Zaba, B. et al., *AIDS* 2000, 14:2741-50
http://journals.lww.com/aidsonline/Fulltext/2000/12010/Adjusting_ante_natal_clinic_data_for_improved.14.aspx

'Measuring the impact of HIV on fertility in Africa', Zaba, B. and Gregson S., *AIDS* 1998, 12 (suppl 1):S41-S50

- women, particularly teenage females, about HIV/AIDS and pregnancy.
- Increase access to youth-friendly reproductive health services and actively promote the use of services among girls and young women.
- Promote policies that facilitate the achievement of universal access to reproductive health services.

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The ALPHA Network

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Africa Centre for Health and Population Studies, South Africa:

www.africacentre.ac.za

Karonga Prevention Study, Malawi

www.lshtm.ac.uk/eph/ide/research/kps

Kisesa Cohort Study, NIMR, Tanzania:

www.tazamaproject.org

Masaka District Cohort Study, MRC-UVRI, Uganda:

www.mrcuganda.org

Manicaland Panel Study, IC-BRTI, Zimbabwe

www.manicalandhivproject.org

Rakai Longitudinal Study, Makerere-UVRI, Uganda:

www.jhsph.edu/rakai

Nairobi urban cohort study, Africa Population Health Research Centre, Kenya:

www.aphrc.org

Kisumu study site, CDC/KEMRI, Kenya

<http://cdckemri.org>

Kilombero cohort study, Ifakara Health Institute, Tanzania:

www.ihl.or.tz

Agincourt study, Mpalunga Province, Wits University, South Africa:

www.wits.ac.za/Academic/Health/PublicHealth/Agincourt

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