Extended abstract
Submitted to IUSSP XXVI International Population Conference 2009

Older people's sexual behaviour and HIV risk in five high prevalence sub-Saharan African populations

Nuala McGrath[1,2], Raphael Isingo[3], Ivan Kasamba[4], Ben Lopman[1,5], Dermot Maher[4], Milly Marston[1], Joseph Sekasanvu[6]

Affiliations:
[1] Department of Epidemiology and Population Health, London School of Hygiene and Tropical Medicine, UK
[2] Africa Centre for Health and Population Studies/University of KwaZulu Natal, South Africa
[3] National Institute for Medical Research, Mwanza Branch, Tanzania
[4] Medical Research Council Programme on AIDS, Entebbe, Uganda
[5] Manicaland HIV/STD Prevention Project, Biomedical Research and Training Institute, Harare, Zimbabwe
[6] Rakai Health Science Program, Entebbe, Uganda

Abstract

HIV prevalence in older people is expected to increase rapidly in sub-Saharan Africa due to declining mortality in HIV infected adults. New research also suggests that sexual activity at older ages may cause secondary peaks in HIV incidence. Research and policy in Africa has largely overlooked high risk sexual behaviour in older people. Using data from five population cohorts (Tanzania, Uganda, Zimbabwe and South Africa), we compare sexual behaviour, marriage, partnerships, and condom use patterns and trends in people aged 40-60 years. The majority of older people are sexually active in each site. Preliminary site-specific findings suggest that HIV prevalence is higher in the marital status categories associated with a higher rate of multiple partner acquisition i.e. polygamous marriage, remarriage and being separated, widowed or divorced; that widows and widowers have exceptionally high HIV prevalence; and that older men are significantly less likely to use condoms than younger men.

Introduction

HIV prevalence in older people (40 years and older) is expected to increase rapidly in sub-Saharan Africa due to the declining mortality in HIV infected adults attributable to increased access to public HIV treatment [1, 2]. The 2006/7 Swaziland demographic and health survey found that HIV prevalence in women and men 50 years and older was 14% (12% in women, 17% in men) [3]. In rural South Africa (2003/4), data from a population-based survey estimated HIV prevalence in resident men aged 40-44: 30% (25-36), in men aged 45-49 years: 22% (18-28), and in 50-54 year old men: 19% (15-25). In contrast, HIV prevalence in resident women aged 40-44 years was 26% (23-29) and 21% (18-24) in 45-49 year olds [4].

Studies in Africa and elsewhere have shown that HIV infected older people experience unique health, psychological, social and treatment challenges [5-8]. Furthermore, recent findings from comparative analyses of population-based data in sub-Saharan Africa suggest that patterns of sexual behaviour at older ages may also result in secondary peaks in HIV incidence [9].

In contrast to our knowledge about HIV/STDs sexual risk behaviours in young people in sub-Saharan Africa, little research or intervention efforts have documented or targeted high risk sexual activity behaviour in older people. HIV epidemiology at older ages has received less attention in large part because of the relative scale of the HIV incidence peak in younger ages, however, assumptions about sexual activity in older people and an absence of data on sexual risk behaviour and HIV status in older ages have also contributed to the research and policy gap. This despite previous public health concerns about older people's vulnerability to HIV and STDs in retirement communities in the US [10-12].

In this paper we describe and compare population-based longitudinal survey data from Tanzania, Uganda (two sites), Zimbabwe and South Africa on sexual behaviour, marriage, and partnership in people aged 40-60 years. The study is part of a larger programme of research conducted by the ALPHA Network. The Wellcome Trust-funded collaborative 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 (See www.lshtm.ac.uk/cps/alpha/).

Aim

To explore sexual behavior indicators of HIV risk in men and women aged 40-60 years in five African cohorts (Tanzania, Uganda (two sites), Zimbabwe and South Africa).

Specific Objectives

To compare and contrast sexual behaviour indicators in five populations, subgroups defined by gender, age (40-49 years vs 50-60 years), and marital status (never married, monogamously married (first marriage vs remarriage), polygamously married, and separated/divorced/widowed). The following HIV risk indicators will be explored:

1. Proportion who are sexually active in the past year
2. Proportion reporting condom use at last sex
3. Proportion reporting more than one partner in the last 12 months among sexually active individuals
4. Median age differences and interquartile range within partnerships

Work leading up to the paper

Recent modelling of HIV incidence data from six African cohort studies by Zaba et al, observed secondary peaks (or at least saddle points) in almost all of the age-specific incidence schedules [9]. Figure 1 shows the smoothed hazard rate for HIV incidence for each site, having normalised each curve using the peak incidence value and calculating age relative to the peak incidence age for each specific curve to allow direct comparison. The authors also identified a tendency for the age-schedules of incidence to become wider over time, suggesting older individuals also engage in risky sexual behaviour. They speculate that the cause of the secondary peaks (and the increasing age dispersion in mature epidemics) may be a consequence of the impact of HIV on marital stability.

The level of sexual activity by age in four of the six cohorts (Zimbabwe, Uganda (two sites) and South Africa) has been described in a cross-site comparative analysis [13]. Todd et al shows the proportion of respondents who reported being sexually active in the past 12 months. In South Africa and Zimbabwe about 90% of men aged 50 years or older reported sexual activity in the past year. In Uganda this proportion decreased with age, with approximately 70% sexually active after age 60 years. The proportion of women who reported being sexually active in the past year declined in all sites after the age of 40. By the age of 50 years, less than 50% of women reported being sexually active in Masaka and Rakai. In Manicaland and Umkhanyakude, a similar, but smaller, decline in the proportion who reported being sexually active at older ages was observed.

Using data from the Tanzanian cohort study, Zaba et al (2008) have highlighted the importance of considering sexual partnership numbers and risk behaviours in the context of marital status because HIV prevalence is higher in the marital status categories associated with a higher rate of multiple partner acquisition i.e. polygamous marriage, remarriage and being separated, widowed or divorced [14]. Differentials in HIV prevalence by marital status are also shown in new findings from the Zimbabwe cohort [15]. Lopman et al (2008) report exceptionally high HIV prevalence in widows (61%, n=413) and widowers (54%, n=31) in rural Zimbabwe.

Marriage rates and patterns are heterogeneous across countries in sub-Saharan Africa. Comparing data from cohorts in Uganda, Zimbabwe, Tanzania and South Africa, Marston et al (2008) have shown that marriage not only varies between populations but that marital states within a population diversify with age [16].

This is illustrated by data from the rural Ugandan cohort. Although marriage by the age of 30 is virtually universal, Kasamba et al (2008) report that 1 in 5 men and women 45 years and older are separated or divorced. As older people move into these marital states, new opportunities for reconnecting to sexual networks with or without remarriage present themselves. Lopman et al have suggested that, at least in Zimbabwe, widows are likely to have a high rate of partner change, and that widowers took new partners with a median age of 10 years younger than themselves.

In South Africa, McGrath et al (2007) using cohort data from a rural population found that men aged 40-54 years were similar to men aged 25-39 years with respect to the proportion who reported sexual intercourse in the last 2 weeks [17]. However, they were significantly less likely to have ever used a condom and to have had protected sex in the last 2 weeks. Men aged 40-54 years were also significantly less likely to have had a new partner in the last 12 months or to be in a concurrent relationship, nonetheless, 24% and 14% reported these HIV-risk behaviours respectively. Very few women aged 40-49 years reported concurrent partnerships and only 3% reported ever having used a condom.

Data Sources

This paper uses data from five cohort studies. Detailed descriptions of the setting and of the study methods used at each of these sites is provided in previous publications [18-22]. Sexual behaviour data has been collected more than once in all sites (Box 1). Data collected includes reported sexual activity in the past year, condom use at last sex, number of partners in the last 12 months, marital status, date of birth, and sex. Although sites asked the questions in a different ways and selected slightly different populations, data are collected consistently within each site. A recent workshop hosted by ALPHA Network supported intra- and inter-site analyses of these sexual behaviour data and culminated in a special issue of Sexually Transmitted Infections. This paper extends the cross-site comparisons and benefits from our knowledge of the strengths and limitations of these datasets.

Box 1. Contributing cohorts and sexual behaviour data collection

Manicaland cohort, Zimbabwe
In the Manicaland cohort, in eastern Zimbabwe, three sexual behaviour survey rounds have been undertaken between 1998 and 2005.
Kisesa Demographic Surveillance System (DSS), Tanzania
In the Kisesa cohort, in the Mwanza region of Tanzania, sexual behaviour surveys were conducted in 1994, 1997, 2000 and 2003.
Masaka DSS, Uganda
In the Masaka cohort in south-western Uganda, behavioural questions have been included in ten annual survey rounds since 1996.
Rakai cohort, Uganda
In the Rakai cohort, in south-western Uganda, sexual behaviour surveys have been conducted annually since 1994. Questions about sexual partners in the past 12 months have been asked using the same protocol between 1999 and 2006.
Umkhanyakude DSS, South Africa
In the Africa Centre Demographic Information System (ACDIS) in Umkhanyakude district, kwaZulu-Natal, South Africa, four behavioural survey rounds have been completed between 2003 and 2007.

References

1. Antiretroviral Therapy Cohort Collaboration. **Life expectancy of individuals on combination antiretroviral therapy in high-income countries: a collaborative analysis of 14 cohort studies**. *Lancet* 2008,372:266-267.
2. Jahn A, Floyd S, Crampin AC, Mwaungulu F, Mvula H, Munthali F*, et al.* **Population-level effect of HIV on adult mortality and early evidence of reversal after introduction of antiretroviral therapy in Malawi.** *Lancet.* 2008,371:1603-1611.
3. Central Statistical Office, Macro International Inc. **Swaziland Demographic and Health Survey 2006/7**. In. Mbabane: Central Statistical Office and Macro International Inc.; 2008.
4. Welz T, Hosegood V, Jaffar S, Batzing-Feigenbaum J, Herbst K, Newell M. **Continued very high prevalence of HIV infection in rural KwaZulu-Natal, South Africa: a population-based longitudinal study**. *AIDS* 2007,21:1467-1472.
5. Kassu A, Mekonnen A, Bekele A, Abseno N, Melese E, Ota F. **HIV and syphilis infection among elderly people in Northwest Ethiopia**. *Japanese Journal of Infectious Diseases* 2004,57:264-267.
6. Lieberman R. **HIV in older Americans: an epidemiologic perspective**. *J Midwifery Womens Health* 2000,45:176-182.
7. Manfredi R. **HIV disease and advanced age: an increasing therapeutic challenge**. *Drugs Aging* 2002,19:647-669.
8. Williams A, Tumwekwase G. **Multiple impacts of the HIV/AIDS epidemic on the aged in rural Uganda**. *Journal of Cross-Cultural Gerontology* 2001,16:221-236.
9. Zaba B, Todd J, Biraro S, Shafer LA, Lutalo T, Ndyanabo A*, et al.* **Diverse age patterns of HIV incidence rates in Africa. Abstract TUAC0201**. In: *XVII International AIDS Conference, 3-8 August 2008*. Mexico City, Mexico; 2008.
10. Agate LL, Mullins JM, Prudent ES, Liberti TM. **Strategies for reaching retirement communities and aging social networks: HIV/AIDS prevention activities among seniors in South Florida.** *J Acquir Immune Defic Syndr.* 2003,33:S238-242.
11. Drummond T. **Never too old. Sexually active seniors are one of the fastest-growing HIV-infected populations in the U.S.** *Time* 1999:84.
12. Marcus MB. **Aging of AIDS. The silent risk group for HIV infection: senior citizens.** *US News World Rep.* 2002:40-41.
13. Todd J, Cremin I, McGrath N, Bwanika J, Wringe A, Marston M*, et al.* **Reported number of sexual partners: comparison of data from four African longitudinal studies**. *Sex Transm Infect.* 2009 Apr; 85 Suppl 1:i72-80.
14. Zaba B, Isingo R, Wringe A, Marston M, Slaymaker E, Urassa M. **The influence of timing of sexual debut and first marriage on sexual behaviour in later life: findings from four survey rounds in the Kisesa cohort in northern Tanzania**. *Sex Transm Infect.* 2009 Apr;85 Suppl 1:i20-6.
15. Lopman B, Nyamukapa C, Hallet TB, Mushati P, Spark-du Preez N, Kurwa F*, et al.* **The role of widows in the heterosexual transmission of HIV in Manicaland, Zimbabwe, 1998/2003**. *Sex Transm Infect.* 2009 Apr;85 Suppl 1:i41-8.
16. Marston M, Slaymaker E, Floyd S, Cremin I, Mupambireyi Z, Todd J*, et al.* **Trends and patterns in Marriage and time spent single and sexually active in Sub Saharan Africa, a comparative analysis of six community based cohort studies**. *Sex Transm Infect.* 2009 Apr; 85 Suppl 1:i64-71.
17. McGrath N, Hosegood V, Newell M. **Sexual behaviour in older people (40+ years) in rural KwaZulu Natal, South Africa: implications for prevention and surveys**. *South African AIDS conference 5-8th June 2007.* Durban 2007.
18. Boerma JT, Urassa M, Nnko S, Ng'weshemi J, Isingo R, Zaba B, Mwaluko G. **Sociodemographic context of the AIDS epidemic in a rural area of Tanzania with a focus on people's mobility and marriage**. *Sexually Transmitted Infections* 2002,78(Suppl. 1):S97-S105.
19. Gregson S, Garnett GP, Nyamukapa CA, Hallett TB, Lewis JJ, Mason PR*, et al.* **HIV decline associated with behavior change in eastern Zimbabwe**. *Science* 2006,311:664-666.
20. Mulder DW, Nunn AJ, Wagner HU, Kamali A, Kengeya-Kayondo JF. **HIV-1 incidence and HIV-1-associated mortality in a rural Ugandan population cohort**. *AIDS* 1994,8:87-92.
21. Tanser F, Hosegood V, Barnighausen T, Herbst K, Nyirenda M, Muhwava W*, et al.* **Cohort Profile: Africa Centre Demographic Information System (ACDIS) and population-based HIV survey**. *International Journal of Epidemiology* 2007,doi: 10.1093/ije/dym211.

22. Wawer MJ, Gray RH, Sewankambo NK, et al. **A randomized, community trial of intensive sexually transmitted disease control for AIDS prevention, Rakai, Uganda**. Aids 1998; 12(10): 1211-25.

Figure 1. Smoothed, normalised age-specific incidence hazard rates by sex and study site (Reproduced from Zaba et al, 2008)