Knowledge and uptake of HIV intervention and prevention services in Manicaland, Zimbabwe: Current determinants of coverage and progress over time

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Zimbabwe has experienced one of the world’s most severe HIV and AIDS crises since the first reported case of AIDS in the country in 1985. HIV prevalence in the adult population rapidly increased till the mid-1990s from around 10% in 1990 up to an estimated peak at 29% in 1997. After 2000, the disease was on a steady decline with an estimated prevalence of less than 15% at the end of the decade. This decline has been attributed to several factors including high mortality rates and reduced levels of risky sexual behaviour.

The Manicaland HIV/STD Prevention Project is a collaborative scientific research initiative in the rural areas of eastern Zimbabwe which aims to investigate trends in the spread of the HIV epidemic and its impact, and to evaluate the effects of intervention and control programmes. A large prospective population-based open cohort study was implemented in July 1998 covering 12 different communities in the Manicaland province which recently started its sixth round of data collection. Initially, the respondents answered questions relating to demographic characteristics, sexual behaviour, knowledge and awareness of HIV/AIDS, and HIV prevention. With the development of the study, additional questions on health and access to treatment were included coupled with questions relating to uptake and adherence of services. Blood samples are obtained from each study participant and tested for HIV throughout all rounds.

At the first round of the survey, an adult HIV prevalence of 25.9% in females and 20.5% in males was observed (Figure 1). The prevalence constantly decreased during the following rounds while mortality in HIV positives peaked at 9.9 per 100 p/ys in 2003 compared to a baseline of 8.1 per 100 p/ys which was observed at round two. At the fifth round, 16.0% of females and 11.9% of males were positive for HIV and mortality among the infected was reduced to 6.2 per 100 p/ys. Despite these encouraging changes, the number of people infected and dying from HIV remains unacceptably high.

Over the last decade, the government of Zimbabwe has implemented a number of different national services to prevent new infections and to support people living with HIV. These services include male circumcision (MC), HIV testing and counselling (HTC), anti-retroviral treatment (ART) and prevention from mother-to-child transmission (PMTCT). It is important to study the relationships between trends and patterns of awareness, uptake and adherence for such services and socio-demographic characteristics and behavioural factors to understand which factors are associated with greater levels of coverage and equitable access. This is of particular interest for determining whether individuals that are likely to acquire or transmit infection are covered by the services.

The objectives of this study are to compare the levels of knowledge and uptake of different HIV prevention and treatment services and to examine the determinants of knowledge and uptake of
services among the adult population in Manicaland province using data from the fifth round of the Manicaland HIV/STD Prevention Study’s general population cohort (2009-2011). We also aim to study trends in awareness and uptake of services over different rounds of the project to observe specific patterns and to analyse shortfalls in order to predict potential future developments.

The outcome variables on knowledge of services in adults (individuals aged 15 years or above) will be defined as whether (i) a man knows an MC service and can provide estimate of its proximity, (ii) a person knows of any place where (s)he can go for HTC services out of the adult population, (iii) a person has ever heard of drugs for treating people who have HIV/AIDS, and (iv) a female who gave birth to at least one child or is currently pregnant knows if the clinic she attended for ANC services during her most recent pregnancy offered PMTCT or whether she knows a different clinic where PMTCT would have been available. Uptake of services will be defined by whether (i) an adult man is currently circumcised, (ii) a person had at least one HIV test in life, (iii) a self-reported HIV positive person has ever taken any drugs that stop HIV causing AIDS, (iv) a self-reported HIV positive woman who gave birth to at least one child has received PMTCT for herself or her baby. Further potential outcome variables might include uptake of health services generally and STI treatment.

Univariate logistic regression models will be fitted to analyse associations between the outcome variables and a set of dependent variables, such as sex, age, educational level, marital status, study site type, proximity to health services, HIV infection status, health history, socio-economic or behavioural factors. Significant factors will be further analysed within multivariate models to assess for confounding and temporal bias due to the two-year period covered by the survey round. The results of these analyses will be compared with data from previous rounds.

Preliminary analyses using univariate logistic regression models suggest that the level of awareness differed by sex and varied a lot between the different services (Figure 2). While PMTCT services are very well known among women (90.1%, 95% confidence interval (CI): 88.9-91.2), only 8.4% (95% CI: 7.7-9.2) of men have heard about places where MC services are available. About 82.3% (95% CI: 91.6-82.9) of the study population are aware of HTC services and significantly more women (87.9%, 95% CI: 87.2-88.5) report to know about a place where they can receive HTC than men (73.4%, 95% CI: 72.2-74.5). Awareness of ARTs is relatively low in the general population (40.1%, 95% CI: 39.3-40.9) and is significantly lower in men (29.3%, 95% CI: 28.1-30.5) than in women (46.9%, 95% CI: 45.9-47.9). However, ARTs are known to 88.9% (95% CI: 86.8-90.8) in the self-reported HIV positive study population.

Age is also one of the major factors contributing to the level of awareness for most services. For example, knowledge on ARTs is highest among the group of 40-44 year-olds (49.4%, 95% CI: 46.5-52.4) and significantly reduced in older individuals as well as relatively young people (below 25 years
of age). However, no significant difference on the influence of age on the awareness of PMTCT was observed.

Uptake of services is highest for PMTCT (86.4%, 95% CI: 79.3-91.7) but coverage for ARTs in the self-reported HIV positive population is also very high (79.8%, 95% CI: 76.9-82.5) almost reaching universal coverage which is defined at 85% in Zimbabwe. Nevertheless, only about half of the general population (49.6%, 95% CI: 48.7-50.4) report to have had at least one HIV test in their lifetime. This proportion varies a lot by sex and age-group (Figure 3) and is highest in females (61.9%) and 25 to 29 year-olds (64.0%) and lowest in males (30.0%) and 15-19 year-olds (17.0%). Compared to the other services studied, MC is least taken up with only 3.2% (95% CI: 2.7-3.7) of men reporting have been circumcised.

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Multivariate logistic regression analyses will show whether the observed associations are still significant when accounting for multiple factors. Our results will hopefully provide a guide on how to scale up on the different services in the future, e.g. MC services for which awareness and uptake is strikingly low. Comparisons with data from earlier rounds of the Manicaland study will further assist in understanding the dynamics of awareness and uptake over time and in identifying previous and current shortfalls. This will further assist us in providing guidelines on how to improve awareness and uptake especially for those individuals who are at high risk of acquiring or transmitting HIV.

Figure 3: Uptake of HIV intervention and prevention services by sex (left-hand figure) and age (right-hand figure)