# Correlates of Self-reported Sexually Transmitted Infections among older persons in rural Uganda: A Cross-Sectional Survey

Stephen Ojiambo Wandera[1], Ronald Naitala[2], Peter Kisaakye[1] and Betty Kwagala[1]

## Background

The United Nations (UN) and the African Union framework on Ageing (AU-Plan) define older persons (OPs) as those age 60 years and older (UNECA, 2007). In Uganda, during the drafting of the policy for older persons in 2009, age 60 years and older was used (MoGLSD, 2009; UBOS, 2010). However in this study, we employ the World Health Organization (WHO) recommendation of using age 50 and older to define older persons (WHO, 2015). This is in line with other studies that adopted age 50 and older, as an appropriate definition of old age in sub-Saharan African (SSA) countries such as Kenya (Ezeh, Chepngeno-Langat, Abdhalah, & Woubalem, 2006; Kyobutungi, Ezeh, Zulu, & Falkingham, 2009); Uganda (MRC & UVRI, 2011) and South Africa (Gómez-Olivé, Thorogood, Clark, Kahn, & Tollman, 2013) and those of the WHO Study on global AGEing and adult health (SAGE) and the INDEPTH network (Debpuur, Welaga, Wak, & Hodgson, 2010; Gómez-Olivé, Thorogood, Clark, Kahn, & Tollman, 2010; HAI, 2010; Hirve, Juvekar, Lele, & Agarwal, 2010; Kowal et al., 2010; Kyobutungi, Egondi, & Ezeh, 2010). However, the reporting of ageing statistics is based on age 60 years and older.

Literature on STIs in Africa focuses on HIV/AIDS among older persons (Negin and Cumming, 2010, Mahy et al., 2014, Kuteesa et al., 2012, Negin et al., 2016, Siedner, 2019). Research concerning sexually transmitted infections (STIs) excluding HIV focuses greatly on young people than older persons. There is limited research about the correlates of STIs (excluding HIV) among older people in Uganda. Therefore, the aim of this study is to investigate the correlates of self-reported STIs among older persons in rural Uganda.

## Data and methods

### Study design and inclusion criteria

The study used a cross-sectional survey data. Following the recommendation by the World Health Organisation (2015), we considered older persons who are 50 years and above who had the capacity to provide informed consent.

## Sampling procedures

We adopted a two-stage stratified cluster sampling design. We randomly selected two regions in Uganda namely: central and western regions out of the four administrative regions. Simple random sampling was used to select one district from each region: Masaka (central) and Hoima (western). We used the sampling frame of the 2014 Uganda Population and Housing Census

[1] Makerere University
[2] Baylor College of Medicine Children's Foundation

(UBOS, 2016). Two sub-counties from Masaka and three sub-counties from Hoima districts were selected using simple random sampling. Masaka has 9 sub-counties namely: Bukakata, Buwunga, Kabonera, Katwe/Butego, Kimanya / Kyabakuza, Kkingo, Kyanamukaaka, Mukungwe, and Nyendo / Senyange, with a total of 399 villages (LCMT, 2017b). Hoima has 13 sub-counties and 653 enumeration areas. The sub-counties are: Bugambe, Buhanika, Buhimba, Buseruka, Busiisi, Hoima TC, Kabwoya, Kigorobya, Kigorobya TC, Kitoba, Kiziranfumbi, Kyabigambire, and Kyangwali (LCMT, 2017a). From each sub-county, four enumeration areas or villages were selected using systematic sampling. From each village, a sampling frame of older persons and their households was constructed in consultation with local leaders and systematic sampling was used to select participants for the survey. In households where older men and women live as couples, both of them were interviewed separately.

Kish's formula (Anderson & Kish, 1966) was applied to generate a sample size of 649 older persons for the survey. The prevalence of HIV testing for those age 50-59 years was 45% among men and 49% among women (UBOS & ICF International, 2017). We used the lower bound of HIV testing (45%), the p=0.45 and the q=0.55. The level of confidence was set at 95% (z=1.96) and the error at 8% (e=0.008). The expected sample size was 148.5. The sample size was multiplied by the design effect of two (D=2). Therefore, the expected sample size was 297. The final sample size after adjusting for a response rate of 90% became 330.

To allow for small area (district) estimations, the sample size was multiplied by two since the study covered two districts. The overall sample size was 660 older persons. Due to non-response, the final sample size was 649 older persons. The number of older persons selected from each enumeration area was determined by probability proportionate sampling (PPS) from the 2014 Uganda census sampling frame (UBOS, 2016).

**Data management using SurveyCTO**

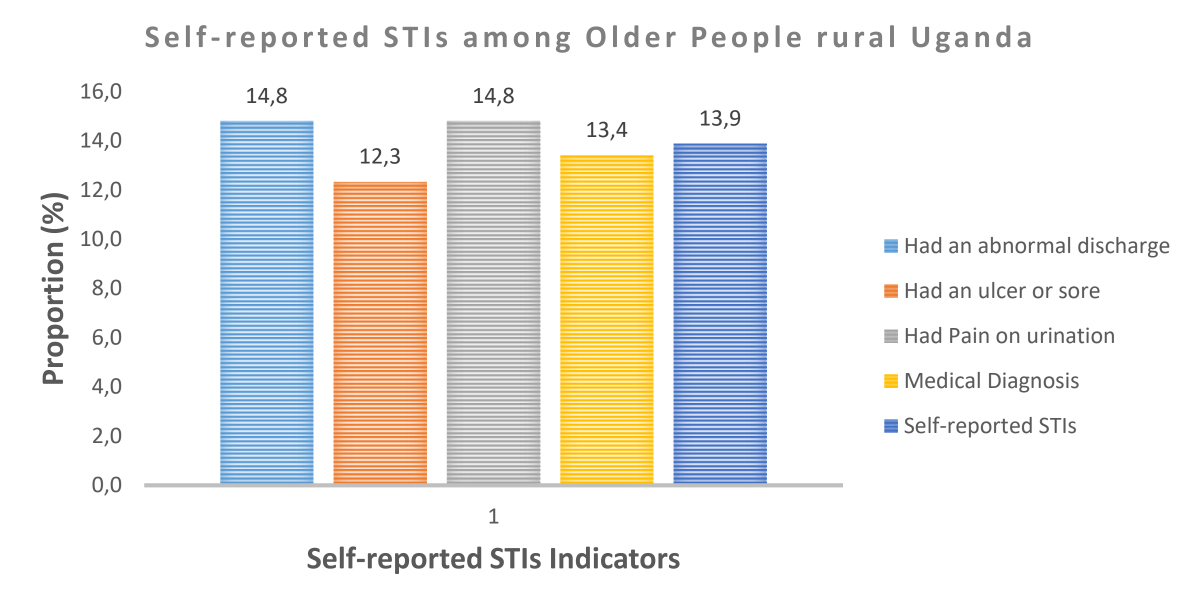
Survey data were collected using SurveyCTO (SurveyCto, 2018) application installed on android enabled Tablets. Data were downloaded from the SurveyCTO Server as STATA files on a daily basis.

**Measure of outcome variable**

Self-reported STIs were measured by asking four questions:

1. During the last 12 months, have you had an abnormal discharge from your vagina or experienced pelvic pain (if woman) or penis (if man)?
2. During the last 12 months, have you had an ulcer or sore on or near your vagina (woman) or penis (man)?
3. During the last 12 months, have you had pain on urination?
4. In the last 12 months, did a doctor, clinical officer or nurse tell you that you had a sexually transmitted disease other than HIV?

These questions had three categories (yes, no and don't know). The Cronbach's alpha for the four statements was 0.71. The "don't know" category was merged with the "No" category. The responses to the former were few. Finally, an aggregate variable (self-reported STIs) was created for those who reported any of the four indictors: an abnormal discharge, ulcer or sore in the genital area, pain during urination and were told to have an STI test by a health provider (Figure 1).




**Measures of explanatory variables**

Demographic variables include age and sex. Age was recoded into three categories: 50-59, 60-69 and 70 and older. Sex was recoded into male or female.
Socio-economic variables included: education level (none, primary or secondary or higher), working in the last 12 months (yes or no), religion (catholic, Anglican, or others), marital status or currently in union (no or yes), and number of wives or husbands (one, two or more, not in union). Participants were asked if they had an HIV test in the last 12 months (yes or no responses). A follow up question was about reception of HIV results during the recent HIV test (yes or no responses). A binary variable called recent HIV testing was recoded to a binary variable (yes or no).

**Statistical Analysis**

Frequency distributions were used to describe the background characteristics of older persons. Cross-tabulations were used to investigate associations between self-reported STIs in the last 12 months and selected explanatory variables. Pearson's chi-squared ($\chi^2$) tests were used to examine the association between recent STIs and the explanatory variables. The level of statistical significance using p-values was set at $p < 0.05$. Multivariable logistic regression analyses were used to examine the association between self-reported STIs and explanatory variables. Adjusted Odds Ratios (aOR) with their 95% confidence intervals were reported. The level of statistical significance using p-values was set at $p < 0.05$. All analyses were performed in STATA version 15.

**Results**

A small proportion (14%) of older persons reported STIs in the last 12 months. A recent Demographic and Health Survey (DHS) in Uganda reported that 24% of women age 15-49 years and 14% of men age 15-54 years reported STIs in the last 12 months (UBOS & ICF International, 2017). The correlates of self-reported STIs among older persons in Uganda were age and correct knowledge on 4-5 HIV prevention modes. Further, results indicate that HIV testing was also significantly associated with self-reporting of STIs. Symptoms of STIs pose a health threat (fear of being HIV positive) to older people, which in turn prompts them to go for HIV testing, only to realize that it was an STI. Self-reported STIs are indicative of engagement in risky sexual behaviours. HIV testing in such cases is a manifestation of risk perception (Oraka, Mason, & Xia, 2018). It is surprising that risky sexual behaviours such as non-condom use, multiple sexual partnerships and recent sexual activity were not associated with self-reported STIs. The possible explanation could be under-reporting of these indicators because such issues are associated with stigma and therefore, social desirability bias could be at play. This may also explain why the prevalence of transactional sex was low (12%). The contribution of this study is that it highlights important findings about the prevalence and correlates of self-reported STIs among older persons in Uganda. None the less, there are two major limitations of the study. First, the study utilises cross-sectional data and we cannot easily ascertain the direction of causality of associations between self-reported STIs and recent HIV testing. Second, use of self-reported measures is associated with under-reporting or underestimation of the prevalence of STIs among older people.

## Conclusion

Self-reported STIs was strongly associated with age (and having correct knowledge on HIV prevention) among older persons in rural Uganda. Interventions to screen and prevent or manage STIs need to target older persons and aim to reach those who do not come for routine HIV counselling and testing services. These interventions should include behavioral risk assessment and objective screening measures for STIs.