

## Assessing the knowledge and behavior towards HIV/AIDS among youth in Northern Uganda: a cross-sectional survey

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**Summary** - Youth represents a vulnerable group to HIV and accounts for 45% of new infections globally. Attaining an accurate knowledge on HIV among young people is a vital objective of HIV prevention activities. In Uganda, 30% of young women and 35% of young men have comprehensive knowledge of HIV/AIDS. This is lower in the Northern region that was hit by a 20-year long rebellion and population displacement. The Northern Uganda Malaria AIDS/HIV and TB Program involves the youth with multifaceted preventive activities. A survey was conducted to assess their knowledge and attitude towards HIV. A total of 1,781 individuals were interviewed. Overall, 51% mentioned the three main ways of preventing HIV and 29% had a comprehensive knowledge on HIV transmission. Out of the respondents, 86% knew of a site providing HIV testing, 64% had ever tested for HIV and 76% knew of a condom distribution outlet. Factors like gender, geographical location, marital status and education were found to be associated to the above variables. Assessing the level of knowledge and the attitude towards HIV among the youth is vital for monitoring prevention programmes, identifying gaps and refining activities.

**Key words:** HIV/AIDS, youth, LQAS survey, Northern Uganda

### INTRODUCTION

More than 25 years after the first case of AIDS was notified, the HIV pandemic continues to pose unprecedented challenges to individuals, families, health services and governments, especially in developing countries, which bear the greatest burden of HIV infection.

Young people are particularly affected in terms of transmission, vulnerability and impact. Globally, 45% of the new HIV infections occurred in 2007 was among the young people. Today, nearly 12 million young people are living with HIV/AIDS (UNAIDS, 2008). Particularly, HIV prevalence among young women is considerably higher than among young men in countries with generalized epidemics (WHO, 2003) and adolescent girls are especially vulnerable to HIV infection. Currently, about two thirds of newly infected adolescents aged 15-19 years in sub-Saharan Africa are female.

In 2007, national surveys across several African countries found that 40% of young males and 36% of young females had accurate knowledge regarding HIV, still well below the 95% goal for young people's HIV knowledge unanimously endorsed by Member States in the Declaration of Commitment on HIV/AIDS (UNGASS, 2008). Additionally, both

in sub-Saharan Africa and globally, young women had lower levels of basic HIV knowledge than males.

Attention is turning increasingly towards young people, who are not yet sexually active or who are just embarking on their sexual lives. Promoting wider HIV-related knowledge and safer sexual behaviors have been some of the imperative areas of prevention for most national AIDS Control Programmes in those countries that are most affected by the epidemic (Ross *et al.*, 2006).

Uganda is considered to be one of the world's earliest and most convincing success stories in combating the spread of HIV and reversing the trend of HIV epidemic. After reaching a peak of around 18% in 1992, the national HIV prevalence rapidly declined to 6% in 2000 due to a soundly funded and widely acclaimed policy approach and intervention strategy. However, this progress has been undermined by the recent statistics indicating that the HIV prevalence has been leveling off or even reversing.

The Uganda HIV Sero-Behavioural Survey (UHSBS) 2004/05 found an overall national HIV prevalence rate of 6.4% among men and women aged 15-49 years (Ministry of Health, 2006). The survey showed that prevalence was higher among

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women (7.3%) compared to men (5.2%), and more so among the youth (3.9% among female vs. 1.3% among male). Additionally, 30% of young women and 35% of young men have comprehensive knowledge of HIV/AIDS(\*). Knowledge increases with education and wealth and varies greatly by region. Of the 810,000 HIV-infected people estimated to live in Uganda in 2007 about 160,000 are youth (UNAIDS/WHO, 2008).

### Study context and study objective

The North-Central region of Uganda was faced with a 20 year armed insurgency which resulted in immense suffering and the displacement of 1.8 million people, mostly from the four districts of the Acholi sub/region. The long term displacement has led to social deterioration, heavy dependency on food rations and a collapse of social services, including health services, with the exception of those provided to Internally Displaced People (IDP) camps residents by non-government organizations.

The UHSBS 2004/05 indicated that there is a high regional variation in HIV infection particularly in the conflict-affected North-central Region where the prevalence was 8%. This higher prevalence could be attributed to various factors, including the long-standing conflict with its displacement of populations, food insecurity and abject poverty leading to transactional sex, all of which compounded by lack of access to health care in the conflict-stricken areas. The same survey also revealed that the HIV comprehensive knowledge among the youth in this region is lower than the national average and the gap between male and female is much wider (32% among male vs. 17% among female).

The Northern Uganda Malaria, AIDS/HIV and TB Program (NUMAT) is a USAID/PEPFAR-funded project that begun in 2006 with the goal of expanding access to and utilization of HIV, TB and malaria prevention, treatment, care and support services in Northern Uganda. One of NUMAT's major target groups is the youth (15-24 years), particularly for prevention interventions. Through a multidisciplinary approach, NUMAT is using media campaigns, peer counseling, life skills training, and activities for youth in particularly vulnerable circumstances to spread prevention messages and help them develop the skills necessary to protect themselves. Among other key messages, the Program encourages delaying sex debut among young people; promoting life-long, mutually monogamous partnerships; and reducing the number of sexual partners and making consistent use of condoms during casual intercourse.

A deep understanding of the knowledge of young people about HIV transmission and prevention as well as their attitude towards the epidemic is required to design and implement preventive interventions and monitor their effectiveness and appropriateness in providing the youth with the necessary information and protecting them from getting infected.

## MATERIALS AND METHODS

### Study population and study design

The Program employed the Lot Quality Assuring Sampling (LQAS) survey methodology to examine the HIV-related knowledge, attitude and practice among youth in Northern Uganda. LQAS approach is a relatively simple, low-cost sampling method (Lemeshow and Taber, 1991) that has widely been used in the health sector to determine the coverage of certain interventions (e.g. immunization) and to assess sexual behavior, risk factors and people attitudes towards HIV/AIDS (Robertson and Valadez, 2006).

The study population was the young people (age 15-24 years) residing in the nine districts of the Northern Region. Using the LQAS methodology, each district was divided into 5 supervision areas and for each supervision area 19 villages were randomly selected, where one eligible respondent was randomly identified and interviewed. Beside youth, the survey had targeted other categories of respondents, including male and female in their reproductive age and mothers who had a pregnancy in the two years prior to the survey. Some of these selected people turned out to be youth, thus increasing the total sample of 15-24 years old individuals to 1,781.

### Data collection

Semi-structured survey questionnaires were developed investigating different areas. One in particular included specific questions on knowledge, attitude, practice and behavior of respondents towards HIV/AIDS. Interviewers with medical background and fluent with the local languages were identified and trained. The training consisted of an in-depth orientation to the LQAS methodology, including random sampling of villages and individuals, as well as interviewing techniques. The whole survey questionnaire was reviewed during the training, each question translated into the local languages and the final tool was eventually pre-tested.

Data collection took place between November and December 2008. Each individual interview began

\*Comprehensive knowledge about HIV/AIDS combines knowledge on the three main ways of preventing HIV transmission (by abstaining from having sex; having sex with only one faithful, uninfected partner; and by using condoms) with rejection of the main misconceptions about HIV (knowing that a healthy-looking person can have the AIDS virus, and that HIV cannot be transmitted by mosquito bites or sharing food with a person who has HIV).

with an oral consenting process in which the interviewer explained the details of the study, including the participant's right to refuse to participate. In order to protect the confidentiality of all information provided, the data from this survey have been kept in a locked storage area with limited access. A unique identification number was assigned to each respondent and coded onto the survey questionnaire during data collection. No identifying information was included that would allow anyone to connect individual survey responses back to individual respondents.

Quality assurance and control of the data were integral components of the entire survey process at every stage, from instrument development to training of interviewer staff, to data entry, analysis and reporting.

### Statistical analysis

The data entry process was made using EpiData v3.1 software (The EpiData Association, Odense Denmark). A programmed EpiData screen and logical checks for missing data were prepared. Proportions were computed to determine the status of each indicator and statistical tests (chi-square and odds ratio) were used to assess 95% level statistical significance. STATA statistical software was used to calculate the proportions and significance levels.

### RESULTS

A total of 1,781 individuals aged 15-24 years from 855 villages throughout the region were interviewed. The socio-demographic characteristics of respondents are shown in Table 1. Female participants were predominant since some of the targeted respondent groups were obviously represented by women, namely the caretakers of children under 5 years of age and mothers who gave birth within two years prior to the study.

Knowledge of and attitude towards HIV among respondents are summarized by Table 2. More specifically, Table 3 shows that 72% indicated use of condoms as a way of preventing HIV infection, of which 80% knew where to locate a condom distributing outlet.

Concerning HIV testing, a substantial proportion of respondents (64%) reported to have been tested for HIV at any time and slightly more than half of them (51%) to have been tested and received the test result in the 12 months prior to the interview. The previous experience with HIV testing among participants is shown in Table 4.

Some factors were found to be associated to owning a comprehensive knowledge about HIV prevention.

**Table 1 - Demographic characteristics of respondents**

Variable	Number of respondents	Percentage
<b>Sex</b>		
Female	1,124	63%
Male	657	37%
<b>Education</b>		
No education	121	7%
Primary schooling	1,219	68%
Secondary +	431	24%
No answer	10	1%
<b>Marital Status</b>		
Single	646	36%
Currently in union	1,083	61%
Formerly in union	48	3%
No answer	4	-
<b>Sub/region</b>		
Lango	998	56%
Acholi	783	44%
<b>Total</b>	<b>1,781</b>	<b>100%</b>

**Table 2 - Knowledge of and attitude towards HIV**

Variable	Number of respondents	Percentage
Mentioned the three main ways of HIV prevention	910	51%
Rejected the common misconceptions on HIV transmission	882	50%
Had comprehensive knowledge of HIV prevention	517	29%
Mentioned the three ways of mother-to-child HIV transmission	867	49%
Keep secret if a family member had AIDS	726	41%
Willing to care for family member with AIDS	1,663	93%

**Table 3 - Knowledge about condom use and availability**

Variable	Number of respondents	Percentage
Mentioned condom use as a way of HIV prevention	1,282	72%
Knowledge of a condom distributing outlet	1,356	76%
Of those who mentioned condom use as a way to prevent HIV, knowledge of a condom distributing outlet	1,020	80%

**Table 4 - Respondents' experience with HIV testing**

Variable	Number of respondents	Percentage
Knowledge of HIV testing site	1,525	86%
Ever tested for HIV	1,131	64%
Of those who ever tested, willingness to disclose their sero-status	945	53%
Tested in the last 12 months	947	53%
Received the test result in the last 12 months	907	51%

Among them, male gender ( $p < 0.001$ ), educational level ( $p < 0.001$ ) and residing in the Acholi sub/region ( $p < 0.001$ ) were statistically significant.

Respondents from the Acholi sub/region were also more likely to have ever been tested for HIV compared with youth from the Lango sub/region ( $p < 0.001$ ). Similarly, female gender was also significantly associated with a higher proportion of people being tested ( $p < 0.001$ ), while education did not show any relation. Married and divorced people were more likely to have tested than those not in any marital relationship.

No association with these factors was found to exist for other indicators, namely: the willingness by respondents to disclose their sero-status once they tested; their intention to keep as a secret that a family member has HIV/AIDS and to care for a relative affected by the disease.

Statistically significant predictors of respondents' knowledge of where to locate a condom distributing site were male gender ( $p < 0.001$ ), education ( $p < 0.001$ ) and residing in the Acholi sub/region ( $p < 0.001$ ). The above findings are summarized in Table 5.

## DISCUSSION

Assessing the knowledge, attitude and practice of the youth towards HIV/AIDS is vital to monitor preventive interventions and to measure progress in achieving set objectives, more so in countries largely hit by the HIV pandemic. Northern Uganda was found with HIV prevalence higher than the national average. It is debatable whether this is an effect of the long-standing conflict that affected the region, since there is no consensual evidence on this association (Spiegel 2004, Becker 2008). However, this highlights the strategic importance of expanding prevention efforts in this geographic area, including the provision of detailed and precise information about HIV infection, its modes of transmission and ways to prevent it. Young people are particularly vulnerable to HIV infection and they represent a crucial target group for preventive activities.

This study found that the comprehensive knowledge of HIV transmission among the youth in Northern Uganda in 2008 was at 29%, lower than the national average of 32% that was measured in the national survey in 2005 (Ministry of Health, 2006). Higher knowledge of HIV prevention was significantly

**Table 5 - Odds ratios for assessed indicators**

Variable	% with comprehensive knowledge	OR (95% CI)	% ever been tested for HIV	OR (95% CI)	% knowing where to obtain condoms	OR (95% CI)
<b>Sex</b>						
Female	23%	1.0	69%	1.0	71%	1.0
Male	30%	1.4 (1.2-1.8)*	54%	0.5 (0.4-0.6)*	85%	2.4 (1.8-3.1)*
<b>Education</b>						
No education	17%	1.0	69%	1.0	51%	1.0
Primary schooling	23%	1.5 (0.9-2.4)	61%	0.7 (0.5-1.0)	74%	2.7 (1.8-3.9)*
Secondary +	36%	2.8 (1.7-4.7)*	68%	0.9 (0.6-1.4)	90%	8.2 (5.1-13.1)*
<b>Marital Status</b>						
Single	30%	1.0	47%	1.0	76%	1.0
Currently in union	23%	0.7 (0.5-0.8)*	73%	3.0 (2.4-3.7)*	76%	1.0 (0.8-1.3)
Formerly in union	29%	0.9 (0.5-1.8)	71%	2.7 (1.4-5.1)*	73%	0.8 (0.4-1.6)
<b>Ethnicity</b>						
Lango	18%	1.0	53%	1.0	71%	1.0
Acholi	36%	2.5 (2.0-3.1)*	77%	3.0 (2.5-3.8)*	83%	1.9 (1.5-2.4)*

\* $p < 0.001$

associated with education status and sex, with male respondents rating better for this indicator. Lower literacy level of female respondents and limited access to HIV/AIDS educational messages could be reasons for these findings. Interestingly, a significant difference for this indicator was also found between the two sub-regions. The basic difference is that the population in the Acholi sub-region has stayed longer in IDP camps as a consequence of more intensified conflict and prolonged fighting in that area. This has resulted into a humanitarian emergency that attracted a large number of agencies and international NGOs for relief support and provision of health services to the IDP, including HIV-related services. This may suggest that the reason for the youth in the Acholi sub-region to have a better knowledge of HIV transmission than their age mates in the Lango sub-region could be the abundant exposure they received in terms of general HIV interventions and specifically preventive messages. Additionally, concentrated populations like those in congested IDP camps can be reached more easily by health-related activities than those living scattered in a rural context that is difficult to reach out.

This same geographic pattern was shown also in the uptake of HIV counseling and testing. A significant difference was found with Acholi respondents three times more likely to have ever tested for HIV than Lango respondents. More widespread availability and easier accessibility to testing facilities in that sub-region facilitated by the presence of several organization delivering HIV services is likely to be the main reason for the huge difference.

HIV testing among female participants was almost two-fold higher than their male counterparts, confirming a finding substantiated in both the 2004-05 UHSBS and the 2006 Demographic and Health Survey (UBOS, 2007). The female population seemed to have more opportunities to get tested for HIV. This may be due to their higher access to health facilities as patients and care-takers. Additionally, they are also likely to be counseled and tested during pregnancy in the context of the prevention of vertical HIV transmission. On the other hand, education did not appear to be associated to uptake of HIV testing. However, when gender was taken into account, there was an increased likelihood for HIV testing among educated males, which is not found among females for the reasons above.

This study did not investigate sexual behaviors or utilization of condoms during sexual intercourses. However, youth's awareness of consistent condom use as a way to prevent HIV transmission was examined and found to be high, especially among male respondents. Similarly, knowledge of a place where to access condoms was also found to be rela-

tively high, with a significant association with gender and geographical region and a very strong one with education level. Education is a well known driving factor for better knowledge about condoms and condom use (ZELLNER, 2003). The difference between genders is likely to originate from social and cultural factors that privilege men in accessing condoms. Our study has also shown that there was a significant difference between the two geographical areas. This may be related to the similar difference noted for the indicator on the comprehensive knowledge of HIV transmission and explained with the intensified preventive efforts and wider availability of information spread across those districts hosting IDP camps by the several organizations that were involved in the humanitarian intervention.

This study has some limitations. Since respondents were asked to report on information from their past, such as uptake of HIV testing, it is possible that their responses did not accurately reflect their experiences because of recall bias. Response bias was also of concern as respondents might have intentionally reported on their own behavior or experiences incorrectly based on a perceived desirability of responses rather than actual knowledge or practices. Due to the cross-sectional design of the survey, it was only possible to speculate about associations between various factors and the resultant measures of each indicator, but any attribution of this outcome to specific interventions or programs might not be possible.

In conclusion, assessing the level of knowledge on HIV and the attitude and practice towards HIV services among the youth is a vital endeavor for monitoring the progress of HIV prevention programmes, identifying information gaps and factors related and refocusing the planning and implementation of preventive activities. Quick, simple and low-cost small scale surveys such as the LQAS can be utilized for measuring performance-related indicators, comparing with national and regional average and follow time trends. The quest for updated information on young people can be of enormous importance bearing in mind the many factors that increase young people's vulnerability to HIV during this critical period of their lives.

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