

HIV behavioural surveillance among refugees and surrounding host communities in Uganda, 2006

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We used a standardised behavioural surveillance survey (BSS), modified to be directly relevant to populations in conflict and post-conflict settings as well as to their surrounding host populations, to survey the populations of a refugee settlement in south-western Uganda and its surrounding area. Two-stage probability sampling was used to conduct 800 interviews in each population. The BSS questionnaire adapted for displaced populations was administered to adults aged 15–59 years. It collected information on HIV knowledge, attitudes and practices; issues before, during and after displacement; level of interaction and sexual exploitation among the refugees and host communities (i.e., nationals). Population parameters were compared and 95% confidence intervals were calculated for core HIV indicators. The demographic characteristics were similar (except for educational achievement), and HIV awareness was very high (>95%) in both populations. The refugees reported more-accepting attitudes towards persons with HIV than did nationals (19% versus 13%; $p < 0.01$). More refugees than nationals reported ever having had transactional sex (10% versus 6%; $p < 0.01$), which mostly occurred post-displacement. Five percent of females among both the refugees and nationals reported experiencing forced sex, which mostly occurred post-displacement and after the arrival of refugees, respectively. Nationals reported more frequent travel to refugee settlements than reported by refugees to national villages (22% versus 11%; $p < 0.01$). The high mobility and frequent interactions of these two populations suggest that integrated HIV programmes should be developed and would be an efficient use of resources. Evidence suggesting that female refugees may be at elevated risk for HIV infection, due to forced sex, transactional sex and other vulnerabilities, warrants further examination through qualitative research. The findings indicate a need for additional, focused HIV-prevention programmes, such as youth education, for both refugees and Ugandan nationals.

Keywords: behaviour, displacement, HIV/AIDS, host-country nationals, prevention, quantitative research, sampling, sub-Saharan Africa

Introduction

Sub-Saharan Africa is overwhelmingly affected by HIV and AIDS and is also the region with the highest number of armed conflicts worldwide (Centre for the Study of Civil War [CSCW], International Peace Research Institute [PRIO], 2006; UNAIDS, 2006). The trauma of war, violence, displacement and persecution, followed by the misery of exile, are often the sad destiny of refugees and internally displaced persons. The plight of the uprooted is even worse in parts of the world substantially affected by HIV and AIDS. Not only are refugees and internally displaced persons often falsely accused of spreading HIV and other diseases, but they are often excluded from HIV-related policies and programmes (Spiegel, 2004). Forced displacement refers

to the coerced movement of a person or persons away from their home or home region. A refugee is defined as “a person who, owing to a well-founded fear of persecution for reasons of race, religion, nationality or political opinion, is outside the country of his nationality and is unable or, owing to such fear, unwilling to avail himself of the protection of that country” (Office of the High Commissioner for Human Rights, 1951, Chapter I, Article 1, Section (2)).

Armed conflicts have traditionally been considered catalysts for HIV transmission due to associated sexual violence against women, decreased availability of reproductive health and other health services, and increased vulnerability and risks incurred by population displacement and food insecurity (United Nations Security Council, 1999; Mock, Duale, Brown, Mathys, O'Moanaigh,

Abul-Husn & Elliott, 2004; Ward & Marsh, 2006). The use of sexual violence as a weapon of war has been particularly associated with concerns about heightened HIV incidence among women and girls (Millis & Nachega, 2006). However, empirical research suggests that HIV incidence in countries with armed conflicts may in fact diminish, remain constant, or not increase to the same magnitude compared with those countries not in conflict. This may be due to reductions in population mobility, decreased incidence of casual sex associated with trauma and depression, and urbanisation (Mock *et al.*, 2004; Spiegel, Bennedsen, Claass, Bruns, Patterson, Yiweza & Schilperoord, 2007).

Documenting HIV prevalence among conflict-affected and displaced populations is important. However, it is imperative that the knowledge, attitudes and behaviours of these populations are understood in order to improve and target HIV-prevention and care programmes. There has been a limited number of peer-reviewed articles on HIV-related knowledge, attitudes and behaviours among displaced populations (e.g. Minkler, Korenbrot & Brindis, 1988; Cossa, Gloyd, Vaz, Folgosa, Simbine, Diniz & Kreiss, 1994; McCarthy, Khalid & El Tigani, 1995; Benjamin, 1996; Donati, Hamam & Medda, 2000; Mayaud, 2001; Holt, Effler, Brady, Friday, Belay, Parker & Toole, 2003; Zafar, Brahmabhatt, Imam, ul Hassan & Strathdee, 2003; Larsen, Sartie, Musa, Casey, Tommy & Saldinger, 2004; Todd, Abed, Strathdee, Scott, Botros, Safi & Earhart, 2007; Tanaka, Kunii, Hatano & Wakai, 2008). An analysis of the grey literature of such surveys has questioned their quality (Spiegel & Le, 2006). The same article suggested that a standardised tool to generate reliable data for conflict and post-conflict settings, and which would allow for the provision of targeted and effective interventions in such settings, is needed (Spiegel & Le, 2006). Furthermore, many programmes for refugees and internally displaced persons do not include interventions that integrate surrounding host communities (Spiegel, 2004; Spiegel & Le, 2006).

Thus, in order to improve our understanding of HIV and AIDS knowledge, behaviour and practices among displaced persons and surrounding host populations, the United Nations High Commissioner for Refugees (UNHCR), in conjunction with the Great Lakes Initiative on AIDS (GLIA) and the World Bank, developed a standardised manual for conducting HIV behavioural surveillance surveys (BSS) among displaced populations and their surrounding host communities (UNHCR, GLIA & World Bank, 2008). We modified a well-known BSS tool (see Family Health International, 2000) to be directly relevant in conflict and post-conflict settings, specifically to refugees and their immediately surrounding national populations, and to allow examination of differences between refugees before, during and after displacement, with the aim to improve the understanding of HIV vulnerability and risk factors during the phases of displacement. The goal of the BSS for displaced populations and their surrounding host communities is to provide accurate, reliable data with which to plan integrated programmes during the post-displacement phase.

Setting

In contrast to refugee 'camps,' refugee households in Uganda are generally settled on 1–2 hectares of arable land, where individuals have freedom of movement and access to labour and markets, and are integrated with surrounding communities (UNAIDS, 2001).

By December 2005, Uganda had 208 500 refugees in 11 refugee settlements (UNHCR, 2006a). The study areas, Oruchinga and Nakivale refugee settlements, were established in 1959 and the early 1960s, respectively, to accommodate Burundian and Rwandan refugees fleeing civil persecution. However, the settlements were opened up in 1994 to accommodate refugees from other surrounding countries. The population of refugees living in Mbarara district (Oruchinga and Nakivale settlements) was estimated at 18 089 persons or 5 156 households, composed of persons from Rwanda (39.6%), the Democratic Republic of the Congo (DRC) (36.1%), Somalia (16.7%) and Burundi (7%) (UNHCR, 2006b). The district settlement also hosted 264 refugees from Eritrea, Ethiopia, Kenya and Sudan. Since the settlements were opened almost five decades ago, the refugee population has varied over time as a result of influx of new caseloads of refugees fleeing civil wars and voluntarily returning to areas experiencing relative calm and peace.

The villages of nationals included in the survey were located within 2 km of the refugee settlement boundaries and had a population of 65 963 (15 352 households), and were mostly Runyonkole-speaking people.

The specific HIV prevalence for refugees and the surrounding host populations in the Nakivale and Oruchinga refugee settlements is not known as these populations have not been included in any national HIV-surveillance system and no HIV-prevalence surveys in these specific areas have been undertaken. UNAIDS/WHO (2006) estimated that HIV prevalence among 15–49-year-olds in Uganda was 6.7% in 2005 (95% confidence interval [CI]: 5.7–7.6). The two largest proportions of refugees in these settlements come from the DRC and Rwanda. HIV-prevalence estimates from the DRC in 2003–2004 estimate a countrywide seroprevalence of 4.9% (95% CI: 4.3–5.6) and 3.1% prevalence in Rwanda in 2005 (95% CI: 2.9–3.2) (Spiegel *et al.*, 2007).

Background to the study

The Uganda HIV BSS, undertaken in May 2006, is one in a series of surveys undertaken by the United Nations High Commissioner for Refugees (UNHCR) and partners in numerous countries (UNHCR, 2008; UNHCR, GLIA & World Bank (2008). The surveys were funded by the World Bank, GLIA and the UNHCR (UNAIDS, 2005; World Bank, 2005).

Although the refugees and surrounding host populations (nationals) had been living together for many years, no studies had been undertaken to examine HIV-related knowledge, attitudes and behaviours in these populations. We aimed to quantify the interaction of these populations and determine how the interaction may affect individuals' vulnerability and risk of contracting HIV. The study further aimed to examine the extent of sexual violence and to determine prevention activities to improve HIV-related programming.

It was hypothesised that the refugee communities may have better HIV-related knowledge, attitudes, and behaviours than their surrounding host communities because of the various programmes run by international organisations that they have likely received, initially, post-displacement. However, Uganda has a strong National AIDS Control Programme and has had success in reducing HIV prevalence (Green, Halperin, Nantulya & Hogle, 2006). Furthermore, unlike in many other refugee settings, these refugees and surrounding communities have lived a relatively integrated coexistence in settlements rather than in isolated refugee camps. Over the years, since international NGOs had left, the refugee and host communities came to share integrated services provided primarily by the Ugandan government.

The objectives of the BSS in Uganda were to provide: 1) data on HIV-related knowledge, attitudes, and behaviour among refugees and surrounding host populations (nationals) to allow for targeted HIV interventions based on evidence; 2) accurate, reliable baseline data for GLIA; and 3) estimates of core HIV indicators (see UNHCR, GLIA & World Bank, 2008) to compare with data on refugees and their surrounding national populations in other countries. The Uganda BSS will be repeated in 2009 in order to assess the effectiveness of the joint HIV interventions within the communities. This activity was approved by the Uganda Ministry of Health in March 2006.

Methods

Survey sample sizes for refugees and nationals were determined using a two-sample formula to measure change of $\geq 15\%$ between the baseline and final surveys, with a precision level of 0.05, 80% power, and initial prevalence of 50% for key indicators. A design effect of 2 was used for cluster sampling. The sample size was 800 interviews carried out in the Nakivale/Oruchinga refugee settlements and 800 interviews in the surrounding villages (1 600 in total).

Households were sampled in both areas (i.e. refugee and national communities) using probability proportional to size. The survey utilised two-stage cluster sampling. The first stage comprised zones within the refugee settlements and the local villages. Data were provided by UNHCR Uganda's Progress/Profile system and the Ministry of Health. We estimated, per household, 2.0 eligible refugees and 1.5 Ugandan nationals, among those persons between 15 and 59 years old. The second stage involved household selection using cluster sampling, without replacement of abandoned or absent households or those who refused. All males and females aged 15 to 59 years old, living in the household for two or more weeks and sharing meals, were eligible for participation (age 59 was selected to be consistent with previous surveys in Uganda but is inconsistent with similar surveys elsewhere).

After determining a central launch point and random direction, the number of households from the launch point to the edge of the village was counted, with one randomly chosen as the selection starting point. Then, each household on the imaginary line was visited until the required number of households per cluster was reached.

The BSS questionnaire (see UNHCR, GLIA & World Bank, 2008), first developed in English, was translated into Kinyarwanda, Congolese Swahili and Runyankole, and thereafter back-translated. Field testing refined the translated versions before training interviewers. The questionnaire collected information on a broad range of the respondents' HIV-related knowledge, attitudes and practices, and incorporated issues relating to experience pre-, during, and post-displacement, and also solicited information to gauge the level of interaction and sexual violence between the refugee and host communities. Both individuals' and households' verbal consent were recorded.

Over 90 interviewers participated in a four-day training session. Fifteen teams of four interviewers were formed, with at least one female included in each team. All survey participants signed a confidentiality agreement as well as a UNHCR code-of-conduct statement after receiving extensive training on these topics. Whenever possible, female interviewers interviewed female respondents.

Before the survey, UNHCR staff met with community leaders and explained the purpose of the survey to promote awareness and acceptance while encouraging participation. Refugee households in national areas and national households in refugee areas were not eligible for selection.

Data processing and analysis

Completed questionnaires were entered into Epi Info Version 3.3.2 (US Centers for Disease Control and Prevention [CDC], 2005) on a daily basis and checked for quality. Descriptive statistics and 95% confidence intervals (CI) which took into account design effects were calculated for GLIA-BSS core indicators using Stata Version 7 (Stata Corp., 2001). F-tests of significance ($p = 0.01$) were used to test overall differences between Uganda national and refugee responses. T-tests were used to test differences in continuous variables (p -level of significance = 0.01).

Results

Refusals to participate were very low and equal in both populations (0.3%). Five percent of refugees and 12% of nationals were absent at the time of the household visits.

Characteristics of the respondents

The communities of refugees and nationals showed similar age patterns, with a slightly higher percentage of females belonging to younger age groups. Nationals were significantly younger than refugees. The vast majority of the refugees in Mbarara district were Rwandan (83%), and 10% were Congolese (Table 1). Thirty-five percent of refugees had no formal education, compared with 20% of nationals. Completion of secondary or higher education was 4% among refugees and 12% among nationals, with males in both populations reporting higher completion rates than females (Table 1). Almost three-fourths of the refugees (70%) were married, while a smaller proportion of nationals (60%) reported the same. The refugees were predominantly Catholics (40%), while half of the nationals were Protestants; about 5% of both populations were Muslims.

Table 1: Demographic characteristics of the respondents to the Behavioural Surveillance Survey (BSS) 2006 in Mbarara district, Uganda

Characteristics	Nakivale refugees ^a (n = 1 158)			Ugandans ^b (n = 1 098)		
	Males (%)	Females (%)	Total %	Males (%)	Females (%)	Total %
Age (years):						
Total no.	542	607	1 149	485	608	1 093
15–19	15.9	19.8	17.9	22.9	24.5	23.8
20–24	11.3	16.6	14.1	15.9	18.4	17.3
25–59	72.9	63.6	68	61.2	57.1	58.9
Nationality:						
Total no.	541	606	1 147	485	608	1 093
Kenyan	0	0.2	0.1	0	0	0
Rwandan	83	83.3	83.2	0.2	1	0.6
Ugandan	0.7	1.3	1.1	99.6	98.4	98.9
Somalian	2	2	2	0	0.3	0.2
Congolese (DRC)	10.4	10.1	10.2	0	0	0
Burundian	2.4	1.7	2	0	0	0
Sudanese	0.6	0.5	0.5	0	0	0
Other	0.9	1	1	0.2	0.3	0.3
Refugee status^c:						
Total no.	557	622	1 179	493	613	1 106
Refugee	97.3	97.6	97.5	1.4	0.8	1.1
Not a refugee	2.7	2.4	2.5	98.6	99.2	98.9
Marital status:						
Total no.	540	604	1 144	485	607	1 092
Currently married	71.1	70.5	70.8	62.1	61.3	61.6
Never married	23.9	18.2	20.9	35.7	27	30.9
Divorced/separated	3.3	4.6	4	1.9	4.9	3.6
Widowed	1.7	6.6	0.3	0.4	6.8	3.9
Religious affiliation:						
Total no.	540	603	1 143	483	608	1 091
Catholic	40.4	39	39.6	42.4	39.8	41
Protestant	29.1	29.4	29.2	50.1	51.8	51.1
Muslim	5.2	2.8	3.9	4.8	5.4	5.1
Pentecostal	11.9	13.8	12.9	2.3	2.1	2.2
Seventh Day Adventist	9.1	10.1	9.6	0	0.7	0.4
Other	4.4	5	4.7	0.4	0.2	0.3
Education^d:						
Total no.	541	605	1 146	486	608	1 094
None	29.8	39.7	35	12.6	25.7	19.8
Some primary	33.5	34.9	34.2	25.9	27	26.5
Primary completed	30.7	22.6	26.4	47.7	36.8	41.7
Secondary or higher	6.1	2.8	4.4	13.8	10.5	12

Note: Numbers may not add up to total number due to missing data.

Percentages may not add up to 100 due to rounding.

DRC – Democratic Republic of the Congo.

Differences between refugees and nationals are significant at $p < 0.01$ for all categories.

^a Nakivale also includes Oruchinga refugee settlement for the purposes of this study.

^b 'Ugandans' refers to the Ugandan population in national villages within 2 km of the refugee settlements.

^c Refugee status is based on self-identity and therefore the totals exceed the column totals.

^d Education refers to the highest level of schooling completed.

HIV-related knowledge, attitudes and behaviours

General awareness of HIV was very high in both populations (ages 15–59). Fewer refugees than nationals (88% versus 92%; $p < 0.01$) knew that people can protect themselves from HIV infection by abstaining from sex. The two populations were similar in their responses to all other knowledge questions, except those relating to breastfeeding (Table 2).

A significantly lower proportion of refugees than nationals said they would want to keep it a secret if a family member were infected with HIV (40% [$n = 428$] and 55% [$n = 585$],

respectively; $p < 0.01$). Refugees reported more-accepting attitudes than nationals concerning allowing an HIV-infected teacher to continue teaching but not in regard to caring for a relative with HIV-related illness in their own homes (data not shown). Approximately the same proportion (80%) of refugees and nationals in Mbarara district thought that adolescents should be taught how to use condoms.

Only 49% of refugees but 82% of nationals reported that they had received information on HIV or AIDS in the past 12 months ($p < 0.01$). Refugees and nationals reported

Table 2: Knowledge of HIV and its transmission among refugees and host communities; 2006 behavioural surveillance surveys in Mbarara district, Uganda

	Nakivale ^a refugees			Ugandans ^b		
	% Males	% Females	% Total	% Males	% Females	% Total
Percentage of respondents answering 'yes' to the following statements —						
Have heard of HIV.*	93.5 (n = 537)	95.4 (n = 602)	94.5 (n = 1 146)	99 (n = 481)	98 (n = 604)	98.4 (n = 1 087)
Abstaining from sex protects from HIV.* ^c	86.7 (n = 481)	89.8 (n = 560)	88.2 (n = 1 048)	92.6 (n = 474)	91.3 (n = 587)	91.8 (n = 1 063)
Staying faithful to one uninfected faithful partner is protective. ^c	94.7 (n = 486)	97.3 (n = 561)	96.1 (n = 1 054)	95.3 (n = 472)	94.4 (n = 584)	94.7 (n = 1 058)
Using a condom every time correctly when having sex protects. ^c	87.3 (n = 458)	87.6 (n = 506)	87 (n = 970)	90.8 (n = 447)	88.6 (n = 550)	89.5 (n = 999)
Anal sex with a male partner without a condom is high risk. ^c	78.7 (n = 362)	80.8 (n = 426)	79.9 (n = 791)	80.5 (n = 394)	79.2 (n = 494)	79.8 (n = 890)
Sharing needles may lead to HIV infection. ^c	93 (n = 486)	94.8 (n = 558)	93.9 (n = 1 051)	93.8 (n = 469)	93.8 (n = 580)	93.7 (n = 1 051)
HIV can infect an unborn child during pregnancy or delivery. ^c	92.7 (n = 479)	95.8 (n = 541)	94.4 (n = 1 026)	94.1 (n = 460)	95.6 (n = 572)	95 (n = 1 034)
Breastfeeding can transmit HIV if the mother is infected.* ^c	87.9 (n = 463)	91 (n = 533)	89.5 (n = 1 002)	84 (n = 444)	84 (n = 562)	83.9 (n = 1 008)

Note: Percentages may not add up to 100 due to rounding; n = total number surveyed, aged 15–59 years; numbers may not add up to total due to missing data.

* Overall differences between data for refugees and nationals are significant at $p < 0.01$.

^a Nakivale also includes Oruchinga settlement for the purposes of this survey.

^b 'Ugandans' refers to the Ugandan population in national villages within two kilometres of the refugee settlement.

^c Denominator: Those who have heard of HIV.

getting their HIV information from the radio (44% and 56%, respectively) and health facilities (23% and 30%, respectively); more respondents in both groups said they less preferred to receive information from the radio and instead preferred information from health facilities and community health workers. Refugees and nationals were similar in that both (66% and 69%, respectively) thought that their own community had more cases of HIV and AIDS than the other community.

Displacement and mobility

The refugees had been away from their birth country for a median of 10 years. Fifty-five percent of the refugees ($n = 594$) and 80% of the nationals ($n = 817$) had lived in their communities for five or more years ($p < 0.01$), while 12% and 9%, respectively, had not lived in their communities for two or more years ($p < 0.01$).

Eleven percent of the refugees reported being away from their refugee settlement for one or more months during the past year, compared with 20% of the nationals ($p < 0.01$); 14% of the male and 7% of the female refugees ($p < 0.01$) reported being away for an extended period.

Much interaction seemed to occur between refugees and nationals, but with nationals more frequently reporting travel to refugee settlements than refugees reporting travel to national villages: 22% of refugees and 11% of nationals said that they visited the other community many times a month. The main reason for refugees' visits to the surrounding communities was for food, shopping or to attend the market (53%; no gender difference), whereas nationals primarily visited refugee settlements to visit relatives or friends (50%; males = 35%, females = 60%; $p < 0.01$) and for trade (12%; males = 22%, females = 3%; $p < 0.01$).

Sexual behaviour

Median age at first sex was 20 years for males and 18 years for females in both populations. A regular sexual partner was defined as a spouse or live-in sexual partner. Approximately 80% of the respondents in both populations reported they had a regular sex partner in the past 12 months, with a larger percentage of males than females in both populations (and more nationals than refugees; $p < 0.01$) having had multiple regular sex partners in the past 12 months (20% males versus 5% females, among nationals [$p < 0.01$]; 11% males versus 2% females, among refugees [$p < 0.01$]).

A casual sex partner was defined as any sex partner different from the one with whom you live or are married to, and from whom you did not receive nor give money, gifts or favours for sex. Five percent of the refugees compared with 8% of the nationals ($p < 0.01$) had had a casual sex partner in the past 12 months (Table 3), but there was no significant association with the group of 15–59-year-olds who reported having used a condom the *last time* they had sex with a casual partner, or with those who reported they had used a condom every time with *all* their casual sex partners (Table 3). There was no significant association between reported condom use at instance of last sex with a casual partner and the respondents' level of educational attainment.

Transactional sex was defined as the exchange of money, gifts or favours for sex. Four percent of the refugees reported ever having had a transactional sex partner, compared with about 3% of the nationals (Table 3). More female refugees (74%) than female nationals (60%) who had ever had a transactional sex partner reported having one in the past 12 months; this compares with 32% of male refugees and 59% of male nationals. Among those reporting transactional sex in the past 12 months, 12% of the refugees and 33% of the nationals reported having used a condom the last time they had transactional sex. Among refugees who indicated that transactional sex had occurred post-displacement, 50% of females ($n = 17$) and 42% of males ($n = 24$) reported that the last time they had exchanged sex it was for a favour; however, of the female nationals reporting experience of transactional sex, 72% ($n = 20$) reported the last instance was for money.

Forced sex

Forced sex was defined as having been forced to have sex against one's will. Among females who reported ever having had sex, the proportion of those who reported experience of forced sex was 5% among both refugees ($n = 23$) and nationals ($n = 21$). Also, there was no difference in the refugees' and nationals' reported prevalence of forced sex (1.6%). Forced sex among the female refugees had reportedly occurred during: pre-displacement (30%, $n = 7$), displacement (22%, $n = 5$), and post-displacement (39%, $n = 9$). For female nationals, experience of forced sex had more commonly occurred after the arrival of refugees into the nearby area (57%, $n = 12$), and less often before the arrival of refugees (38%, $n = 8$). Differences between the proportions of the female refugees and nationals in regard to all variables concerning experience of forced sex were not significant, but the cell sizes were small.

HIV testing

More refugees reported ever having tested for HIV than did nationals (20% [$n = 210$] versus 13% [$n = 133$]; $p < 0.01$). Among those respondents ever having tested for HIV, approximately half (of both the refugees and nationals) had tested in the past 12 months.

Core indicators

Core indicators in the standardised manual for conducting a HIV BSS among displaced populations and their surrounding host communities²⁰ were chosen to ensure that a core set of indicators would be available for comparison among the various BSSs undertaken in these situations (these are listed in Table 4). Few significant differences in HIV-indicator-estimates for refugees and nationals were found (Table 4). A significantly higher proportion of the refugees than nationals (18.7% versus 13.3%) reported accepting attitudes towards persons living with HIV. In terms of travel, half as many refugees (10.7%) as nationals (20.3%) reported having been away from home for four or more consecutive weeks in the past 12 months. Among females with a symptom of a sexually transmitted infection in the past 12 months, 41% of the refugees said they had sought treatment, compared with 68% of the nationals in this group.

Table 3: Occurrence of casual and transactional sexual partners among people reporting ever having had sex, 2006 behavioural surveillance surveys in Mbarara district, Uganda

Age group (years)		Nakivale ^a refugees			Ugandans ^b		
		% Males	% Females	% Total ^c (n = 945)	% Males	% Females	% Total ^c (n = 786)
Casual partner							
	15–24 years	Had a casual partner in the past 12 months ^d	8.4 (n = 131)	16.2 (n = 192)	36.1 (n = 72)	11.3 (n = 124)	20.4 (n = 196)
		Used a condom during last sexual intercourse with a casual partner ^e	9.1 (n = 11)	9.7 (n = 31)	16 (n = 25)	21.4 (n = 14)	18 (n = 39)
	Consistent condom use with a casual partner in the past 12 months ^e	10 (n = 20)	6.7 (n = 30)	8 (n = 25)	0 (n = 14)	5.1 (n = 39)	
25–59 years		Had a casual partner in the past 12 months ^d	2.7 (n = 374)	3.6 (n = 748)	14.2 (n = 274)	3.6 (n = 308)	8.6 (n = 582)
		Used a condom during last sexual intercourse with a casual partner ^e	0 (n = 10)	7.1 (n = 28)	2.6 (n = 38)	18.2 (n = 11)	6.1 (n = 49)
		Consistent condom use with a casual partner in the past 12 months ^e	0 (n = 10)	7.1 (n = 28)	0 (n = 37)	9.1 (n = 11)	2.1 (n = 48)
15–59 years		Had a casual partner in the past 12 months ^d	4.2 (n = 505)	6.2 (n = 940)	18.8 (n = 346)	5.8 (n = 432)	11.6 (n = 779)
		Used a condom during last sexual intercourse with a casual partner ^e	4.8 (n = 21)	8.5 (n = 59)	7.9 (n = 63)	20 (n = 25)	11.4 (n = 88)
		Consistent condom use with a casual partner in the past 12 months ^e	0 (n = 20)	6.9 (n = 58)	3.2 (n = 62)	4 (n = 25)	3.4 (n = 87)
Transactional partner							
	15–24 years	Had a transactional partner in the past 12 months ^f	66.7 (n = 18)	63 (n = 27)	100 (n = 3)	50 (n = 16)	57.9 (n = 19)
		Used a condom during last sex with a transactional partner ^g	0 (n = 5)	11.8 (n = 17)	66.7 (n = 3)	37.5 (n = 8)	45.5 (n = 11)
	Consistent condom use with a transactional partner in the past 12 months ^g	12.5 (n = 8)	15.8 (n = 19)	28.6 (n = 7)	25 (n = 8)	26.7 (n = 15)	
25–59 years		Had a transactional partner in the past 12 months ^f	81.3 (n = 16)	40.9 (n = 66)	50 (n = 14)	71.4 (n = 14)	60.7 (n = 28)
		Used a condom during last sex with a transactional partner ^g	7.7 (n = 13)	7.7 (n = 26)	0 (n = 7)	30 (n = 10)	17.7 (n = 17)
		Consistent condom use with a transactional partner in the past 12 months ^g	13.3 (n = 15)	19.1 (n = 21)	12.5 (n = 8)	0 (n = 7)	6.7 (n = 15)
15–59 years		Had a transactional partner in the past 12 months ^f	73.5 (n = 34)	47.3 (n = 93)	58.8 (n = 17)	60 (n = 30)	59.6 (n = 47)
		Used a condom during last sex with a transactional partner ^g	5.6 (n = 18)	9.3 (n = 43)	20 (n = 10)	33.3 (n = 18)	28.6 (n = 28)
		Consistent condom use with a transactional partner in the past 12 months ^g	13 (n = 23)	17.5 (n = 40)	6.7 (n = 15)	0 (n = 15)	3.3 (n = 30)
Unmarried with sex in the last 12 months ^h							
	15–19 years		14.1 (n = 85)	13.3 (n = 181)	12 (n = 108)	3.2 (n = 125)	7.3 (n = 233)
	20–24 years		25 (n = 32)	22.5 (n = 49)	25.6 (n = 43)	40 (n = 35)	32.1 (n = 78)
15–59 years		17.1 (n = 158)	15.2 (n = 348)	18.4 (n = 185)	14 (n = 236)	15.8 (n = 425)	

*Differences between data for refugees and nationals are significant at $p < 0.01$.^aNakivale also includes Oruchinga settlement for purposes of this survey.^b'Ugandans' refers to the Ugandan population in national villages within two kilometres of the refugee settlement.^cTotal = Those who have ever had sex.^dDenominator: Those who have ever had sex.^eDenominator: Those who had sex with a casual partner in the last 12 months.^fDenominator: Those who have had sex with a transactional partner.^gDenominator: Those who had sex with a transactional partner in the past 12 months.^hDenominator: Those who are not currently married.

Table 4: Core indicators from the 2006 behavioural surveillance surveys among Nakivale and Oruchinga refugees in Mbarara district, Uganda (LCI: lower 95% confidence interval limit; UCI: upper 95% confidence interval limit)

Indicator	Refugee settlement						National villages											
	Males			Females			Males			Females			Total					
	n	LCI	UCI	n	LCI	UCI	n	LCI	UCI	n	LCI	UCI	n	LCI	UCI			
<i>Sexual behaviour</i>																		
1	Never-married, young people aged 15–24 who have never had sex.																	
	85	65.1	86.1	85	66.4	87.4	170	78.7%	78%	114	66.3	80.5	129	77.0	89.6	243	74.3	83.3
2	Never-married, young people aged 15–24 who have abstained from sexual intercourse for the past 12 months.																	
	86	74.2	89.9	86	76.2	94.1	172	87.8%	85.6%	114	74.5	86.6	130	84.2	94.2	244	82.2	89.0
3	Sex with a non-regular partner in the past 12 months, among men and women aged 15–24. ^a																	
	20	9.3	19.7	11	2.1	11.4	31	5%	8.5%	26	9.5	19.8	14	3.4	8.5	40	6.7	11.9
4	Condom use at last sex with a non-regular partner, among men and women aged 15–24.																	
	2	2.1	36.7	1	1.3	42.6	3	9.1%	9.7%	4	6.1	35.9	3	6.2	53.0	7	8.2	35.0
5	Sex with a transactional partner in the past 12 months, among men and women aged 15–24. ^b																	
	5	1.4	8.0	12	3.1	9.4	17	5.5%	4.7%	3	0.5	4.9	8	1.5	6.0	11	1.4	4.4
6	Condom use at last sex with a transactional partner, among men and women aged 15–24.																	
	0	0	0	2	4.3	47.0	2	16.7%	11.8%	2	9.7	97.4	3	9.5	77.4	5	18.4	75.5
7	High-risk sex in the past 12 months, among men and women aged 15–24. ^c																	
	8	2.6	11.4	15	3.9	33.9	23	6.9%	6.4%	3	0.5	4.7	9	2.0	6.3	12	1.6	4.7
8	Condom use at last high-risk sex, among men and women aged 15–24. ^d																	
	2	2.0	34.7	2	3.7	29.1	4	11.1%	10.3%	5	7.8	38.1	6	13.6	61.4	11	12.5	42.3
9	More than one sex partner in the past 12 months, among men and women aged 15–59.																	
	95	14.6	21.0	42	5.2	9.2	137	6.9%	11.9%	87	14.7	21.6	47	5.9	10.1	134	10.4	14.3
<i>HIV testing</i>																		
10	Had an HIV test in the past 12 months and received results, among men and women aged 15–59.																	
	50	7.1	11.9	47	5.8	10.2	97	7.7%	8.4%	35	4.8	10.6	28	2.8	7.4	63	4.1	8.1
<i>STI health-facility utilisation</i>																		
11	Had an STI symptom in the past 12 months and sought treatment at a health facility, among men and women aged 15–59.																	
	25	36.1	75.4	18	27.1	56.3	43	40.9%	48.9%	30	44.8	73.5	52	56.9	78.0	82	55.1	73.9
<i>Knowledge, attitudes and misconceptions</i>																		
12	Comprehensive correct knowledge of HIV/AIDS, among men and women aged 15–24. ^d																	
	46	23.9	39.8	74	26.5	41.3	120	33.5%	32.6%	61	25.3	40.5	112	36.8	49.3	173	33.8	43.5
13	Accepting attitudes towards PLHIV, among men and women aged 15–59. ^e																	
	104	15.8	23.1	111	15.8	21.1	215	18.3%	18.7%	67	10.9	17.3	78	10.3	15.9	145	11.3	15.5

Table 4: Continued

Indicator	Refugee settlement						National villages								
	Males			Females			Males			Females					
	n	LCI	UCI	n	LCI	UCI	n	LCI	UCI	n	LCI	UCI	n	LCI	UCI
<i>Displacement situations</i>															
14	Percentage of women aged 15-59 who were forced to have sex in the past 12 months.														
				8	0.6	2.9				7	0.6	2.3			
15	Men and women aged 15-59 years who have resided in the current community for less than 12 months.														
	46	4.2	16.3	47	5.2	11.4	93	4.8	13.3	31	4.2	9.5	52	6.5	11.3
16	Away from home for four or more consecutive weeks in the past 12 months, among men and women aged 15-59.														
	78	10.6	19.3	44	5.5	9.6	122	8.6	13.1	96	16.5	23.7	125	17.5	24.0
17	Men and women aged 15-59 years who visit the surrounding community at least once a month.														
	230	35.4	49.8	151	20.2	30.2	381	28.3	38.4	192	33.9	45.4	191	26.1	37.3

Note: Percentages may not add up to 100 due to rounding.

^a A non-regular partner is defined as any sexual partner different from the one the respondent lives with or is married to, and from whom the respondent does not receive or give money, gifts or favours.

^b A transactional partner is defined as a sexual partner with whom the respondent exchanged sex for money, gifts or favours.

^c High-risk sex is defined as sex with a non-regular or transactional sex partner.

^d Respondents have comprehensive and correct knowledge of HIV if they correctly identified two major ways of preventing HIV sexual transmission (i.e. using condoms, and limiting sex to one faithful uninfected partner), AND if they rejected two common misconceptions (i.e. mosquitoes transmit HIV, and sharing food with an infected person transmits HIV), AND if they knew that a healthy-looking person can transmit HIV.

^e Respondents have accepting attitudes if they reported to be willing to care for a family member sick with AIDS in their own household, AND they would buy vegetables from a shopkeeper with AIDS, AND they felt that a teacher with HIV should be allowed to continue working, AND they did not feel that it should be kept a secret if a family member has HIV.

^f Denominator: All 15-59-year-olds.

Transactional sex was reportedly more than double in the refugee population than among nationals (4.7% and 2%, respectively); however, confidence intervals overlapped. Reported condom use was low in both populations, but lower among the refugees. Condom use at last sex with all types of partners (non-regular, transactional, and higher-risk) was as much as four-times higher among the nationals than refugees, but confidence intervals again overlapped.

Discussion

Consistent with the 2006 Ugandan national population-based Demographic and Health Survey (DHS) estimates (ORC Macro & Ministry of Health [MoH] [Uganda], 2006), we found very high HIV awareness among the respondents, with low and variable levels of accepting attitudes towards people infected with HIV occurring among both the refugee and national populations. The majority of respondents in the refugee settlements and host communities (nationals) supported the idea of adolescents being taught how to use condoms. An estimate of correct, comprehensive knowledge of HIV (knowledge of two ways to prevent sexual HIV transmission, and rejection of the two most common HIV transmission misconceptions) among 15–24-year-olds in our BSS was in the same range as the national estimates (i.e. 30–35%). Despite similar patterns of HIV-related knowledge among young adults aged 15–24, the level of reported use of condoms during last instance of sexual intercourse was not as high among the refugees and host communities as compared with the findings of the 2006 DHS (ORC Macro & MoH, 2006).

The Oruchinga and Nakivale refugee settlements in Uganda are not restricted access camps, and free movement of both refugees and nationals is allowed. This opportunity for mobility together with the provision of land to grow food crops is very positive for the refugees' psychosocial and economic survival as it reduces idleness, supports livelihoods, and reduces some of the HIV vulnerabilities that are commonly encountered in refugee settings. Paradoxically, such mobility and interaction can be a HIV-risk factor for refugees. The finding that 22% of the nationals visited refugee resettlement areas many times a month indicates there was sufficient opportunity for population interaction. Since estimated HIV prevalence among Ugandan nationals is twice that for Rwandan refugees, the refugees could be put at higher HIV risk if sexual contact occurs.

While 12% of the refugees had not lived in their resettlement community for more than two years, a surprisingly high proportion of Ugandans (9%) were recent arrivals to their villages. Available services and work opportunities provided by international organisations in the area may be attracting Ugandans to areas surrounding refugee settlements. Furthermore, because there was significant interaction between the communities (but with the nationals visiting refugee areas twice as much as the refugees visiting national areas), this could explain why experience of transactional sex was higher among refugee women than men. This survey found that transactional sex among the group of 15–24-year-old women and men who had

sexual intercourse in the past 12 months was less among both the refugees (5.5% of females, 3.4% of males) and the surrounding national communities (3.1% of females, 1.6% of males) than that reported in the 2006 DHS as the national average (10.6% for women, 10.7% for men; ORC Macro & MoH, 2006). Many refugees and nationals reported being away from their resettlement area or home village for at least one continuous month in the past 12 months. This high level of mobility could provide substantial interaction with outside communities, thus widening sexual networks. This coupled with the routine interaction of the refugee and national populations may be risk factors for HIV transmission (see also Mock *et al.*, 2004). Additional research on sexual partnerships and networks may be warranted to learn more about the motivating factors, predictors, and characteristics of people engaging in such interactions.

Numerous other HIV-risk factors for both communities were identified: multiple regular, casual, and transactional sex partners, and infrequent condom use. Additional prevention programmes and behavioural and structural interventions should be explored in both populations to reduce higher-risk behaviours and to promote condom use. Such programmes were assessed and then implemented in refugee camps in Kenya (Ngugi, 2002). In Kakuma camp, targeted HIV/AIDS educational materials that were specific to culture, religion, age and gender were found to be missing, as were the curricula (including that for schools) produced by the Kenyan Ministry of Education. Hence, 16 recommendations were implemented in the Kenyan camps, including multi-channel communication, participatory development of advocacy packages for sexual abstinence, faithfulness and condom use, 'personal experience' with HIV/AIDS testimonies (especially from the Somali Muslim point-of-view) to remove the notion that HIV and AIDS do not exist in this group, and community education and counselling through peer systems (Ngugi, 2002).

Since school attendance in the study-area is relatively high, school based education could be critical to HIV-prevention efforts. Structural interventions, such as microfinance for women, and education programmes (e.g. condom use and lifeskills) could also be considered to help females in both populations to depend less on transactional sex and learn skills to negotiate situations where they may be exposed to transactional sex. In the Republic of the Congo, an innovative capacity-building project using the 'Community Conversations' approach helped mobilise refugees and host populations to find effective responses to the HIV epidemic (Bard, 2005). Tools such as strategic questions, storytelling and transect walks were used. Many taboo subjects were discussed and false beliefs uncovered. As a result, there were several signs of behaviour change, such as reproaches to men by their wives about their behaviour, reports of fewer transactional-sex and commercial-sex interactions, and an increased demand for condoms (Bard, 2005).

The majority of individuals in both populations were not using condoms even though HIV and condom awareness appeared high. More needs to be understood about this in relation to condom availability or partner issues. Reported condom use was especially low among refugees with all three types of sex partners. Barriers to obtaining condoms,

such as 'distance to source,' should be addressed, for refugees as well as for Ugandans, as this was either the first or second most-frequently cited reason for not using them (data not shown).

Refugees, especially females and children, may be more vulnerable to sexual exploitation than individuals in host populations (Mock *et al.*, 2004). This is supported by our data, which show a larger proportion of the refugees than nationals reported ever having had transactional sex, and a smaller proportion of refugees reported having used a condom during their last instance of transactional sex. The majority of refugees with experience of transactional sex reported that it had occurred post-displacement, and that it occurred in return for a favour rather than a gift or money. Reported experience of forced sex among both populations was 5%, similar to but still lower than other East or southern African populations, according to a World Health Organization report on women's health and domestic violence (WHO, 2005). This is particularly interesting because it is always assumed that refugees' experience of forced sex increases due to their experience of conflict and displacement. However, due to the sensitivity of the information, underreporting of the experience of forced sex by either population may have occurred (see also Cossa *et al.*, 1994; Leroy, Ntawiniga, Nziyumvira, Kagubare & Salamon, 1995; Khaw, Salama, Burkholder & Dondero, 2000; Smith, 2002; Donovan, 2002; Hankins, Friedman, Zafar & Strathdee, 2002; International Rescue Committee, 2002; Lawday, 2002; Mock *et al.*, 2004).

More nationals than refugees reported that they had received HIV/AIDS information in the past year, possibly due to the extensive government-led communication programmes in Uganda. The discrepancy between the populations may highlight accessibility issues, as some national villages were very isolated and hard to reach. Conversely, despite similar programmes for nationals and refugees with respect to HIV testing services (i.e. prevention-of-mother-to-child-transmission services are offered to both populations, as is voluntary counselling and testing), more refugees than nationals had ever tested for HIV. Furthermore, among both populations, approximately half who had ever tested for HIV had tested in the past year. This may reflect recent interest in knowing one's status. HIV-prevention strategies should be strengthened and improved. HIV testing is important in preventing HIV transmission because it provides knowledge of one's infection status; after persons become aware that they are HIV-positive, most reduce their higher-risk sexual behaviour (Marks, Crepaz, Senterfitt & Janssen, 2005).

This survey makes an important contribution by using a standard protocol, internationally accepted questions and indicators, and probability sampling methods that are congruent with the recommendations in the 2001 Declaration of Commitment to HIV/AIDS (United Nations, 2001) and the 2006 Political Declaration on HIV/AIDS (United Nations, 2006). These BSS results were used to plan integrated HIV policies and programmes and to formulate strategic plans for both refugees and nationals in Uganda, at the national and community levels, so as to allocate scarce resources strategically.

Limitations in conducting surveys in refugee and developing-country settings are well documented (Salama & Dondero, 2001; Spiegel, Sheik, Woodruff & Burnham, 2001). First, translated questionnaires, despite being back-translated and field-tested could introduce biases in the information collected from respondents, resulting from misunderstanding of questions or incorrectly worded questions, particularly sensitive ones, such as pertaining to experience of sexual violence. Second, formal qualitative research was not undertaken prior to conducting the survey, however the authors and surveyors were intimately familiar with the environment and cultures of the two populations. Third, while the training sessions were longer than originally anticipated, they may have been insufficient to adequately train interviewers to handle very sensitive areas, such as sexual behaviours. Experts in training interviewers on very sensitive topics should be considered in plans for similar surveys in the future. However, the training of interviewers for this survey did include extensive sessions on confidentiality as recommended by the World Health Organization (WHO, 2005). The study of violence is quite sensitive to a number of methodological parameters and underreporting is a threat to survey validity (Ellsberg, Heise, Pena, Agurto & Winkvist, 2001; WHO, 2005). However, with proper training, accurate information can be obtained (Ellsberg *et al.*, 2001).

Fourth, no HIV testing was conducted as part of the survey due to limited resources. Seroprevalence information would have enriched the data. Finally, the questionnaire did not specifically define the pre-displacement, displacement, and post-displacement periods. Respondents could have interpreted each of these differently, thus biasing their responses to the relevant questions. Future surveys should clearly define those phases by using a local calendar of events; thus data analysis can clearly take into account the timing of incidents according to the phases of displacement.

These BSS results indicate the need for additional, focused HIV/AIDS prevention and care services, specifically HIV testing and the promotion of condom use, for both refugees as well as Ugandan nationals in Mbarara district. These results are some of the first to provide estimates of key standardised HIV indicators for both refugee populations and their immediately surrounding host populations. Given high mobility and frequent interactions between these two populations, it is clear that the integrated HIV programmes being implemented under GLIA can be of great benefit, since resources continue to be scarce in these remote areas. Concerns that female refugees may be at elevated risk for HIV, due to transactional sex and other vulnerabilities, should be further examined given what we have learned from similar populations and because of the suspected underreporting of these sensitive situations in this survey. Qualitative research, which could provide more in-depth understanding of the relevant issues, should be undertaken to improve the interpretation of the results found in behavioural surveillance surveys. Lessons learned from the conduct of these surveys in Uganda should be applied to future ones conducted with refugees, other displaced populations, and their surrounding host populations.

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