

**Knowledge, attitude, and practice (KAP) of HIV prevention and HIV infection risks among Congolese refugees in Tanzania**

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## **Abstract**

Little is known about HIV infection risks and risk behaviours of refugees living in resource-scarce post-emergency phase camps in Africa. Our study at Nyarugusu Camp in Tanzania, covering systematically-selected refugees ( $n=1140$ ) and refugees living with HIV/AIDS (PLWHA) ( $n=182$ ), revealed that the level of HIV risk of systematically-selected refugees increased after displacement, particularly regarding the number having transactional sex for money or gifts, while radio broadcast messages are perceived to promote a base of risk awareness within the refugee community. While condoms are yet to be widely used in the camp, some refugees having transactional sex tended to undertake their own health initiatives such as using a condom, under the influence of peer refugee health workers, particularly health information team (HIT) members. Nevertheless, PLWHA were less faithful to one partner and had more non-regular sexual partners than the HIV-negative group. Our study revealed that community-based outreach by refugee health workers is conducive to risk behaviour prevention in the post-emergency camp setting. It is recommended to increase the optimal use of “radio broadcast messages” and “HIT,” which can act as agents to reach out to wider populations, and to strengthen the focus on safer sex education for PLWHA; the aim being to achieve dual risk reduction for both refugees living with and without HIV/AIDS.

**Keyword:** Refugee camp; HIV/AIDS; knowledge, attitude and practice (KAP); risk behaviours; community-based outreach; refugee health worker

## **Introduction**

Sub-Saharan Africa has just over 10% of the world's population, but is home to more than 60% of all people living with HIV (UNAIDS, 2004). AIDS represents 22.6% of mortality in all African countries, making it the leading cause of death (WHO, 2001).

Conflict, displacement, food insecurity and poverty, all of which affect African countries either individually or collectively, are known to have the potential to increase vulnerability to HIV transmission (Lyons, 2004; Low et al., 1990; Harvey, 2003; UK Consortium on AIDS & International Development, 1997). In 2001, the United Nations General Assembly Special Session on HIV/AIDS passed the Declaration of Commitment on HIV/AIDS, stating that “populations destabilized by armed conflict, including refugees and internally displaced persons, are at increased risk of exposure to HIV infection” (UNGASS, 2001).

For years, relief agencies involved in humanitarian emergencies ignored HIV (Khaw et al., 2000; Hankins, 2002; Hynes et al., 2002), focusing their attention on life-saving measures such as health relief (typically combating measles, diarrhoeal diseases, acute respiratory diseases and malaria), water, shelter and food. In addition, HIV prevention in emergency or refugee population settings was inadequately addressed and little consideration was given to HIV as a priority health issue when immediate survival needs were considered more pressing (Khaw et al., 2000).

Some publications, albeit a limited number, have highlighted factors associated with HIV risk in refugee operations. For example, Spiegel (2004) asserted that factors related to the increased vulnerability of conflict-affected and forced-migrant populations include breakdown in social structures, lack of income and basic needs, sexual violence and abuse, increased drug use, and lack of health infrastructure and education. Countering these situations, Spiegel also suggested factors that might decrease HIV transmission, e.g., reduced mobility of refugees, inaccessibility to high-prevalence urban areas, and in many refugee camps, improved protection, health, education and social services. The ultimate influence of these factors is dependent upon the pre-conflict HIV prevalence among the refugees, the prevalence in the community into which the refugees are displaced, exposure to violence during the conflict and displacement, and the level of interaction between the two communities. That is, the refugee situation is context-specific (Spiegel, 2004; Hankins et al., 2002; Swiss et al., 1993).

Despite the above analysis of risk factors in displaced populations, little is known about the risks and risk behaviours of refugees living in post-emergency phase camps or so-called “forgotten emergencies,” where continued displacement is combined with a lack of food and basic necessities due to limited aid from international donors. This complex situation is exclusive to long-term refugee assistance and should be analyzed independently since it could further exacerbate HIV transmission.

To design and implement effective HIV intervention in long-term refugee assistance, the assessment of who is at the highest risk of HIV infection is of vital importance in the context of resource-scarce post-emergency phase camps. Understanding refugees' knowledge of and attitudes toward HIV as well as behaviours and other socio-economic factors is also important. Moreover, since refugees living with HIV/AIDS and uninfected individuals live together in closed camps, it is essential to address the risks and risk behaviours of both groups to avoid HIV being passed on to others.

This study was conducted to assess the achievements and challenges of HIV/AIDS programmes for refugee populations. The goal was to obtain evidence-based data to help identify areas in need of further focus in promoting HIV prevention in a post-emergency refugee camp setting. More specifically, the objectives of this research were five-fold: (1) to compare the level of risk factors of HIV infection faced by refugees before and after displacement; (2) to determine their knowledge, attitudes and practice (KAP) of HIV risk reduction; (3) to elucidate the factors associated with KAP; (4) to identify characteristic differences between HIV-positive and -negative refugees; and (5) to examine if HIV status is associated with KAP.

As the Office of the United Nations High Commissioner for Refugees (UNHCR) had been giving attention to refugee HIV behavioural surveillance studies in the Great Lakes region of Africa, we undertook a close coordination with (including designing the

questionnaire) and sought advice from the UNHCR, to likewise obtain useful data for their future studies.

## **Methods**

### *Study area*

The study was carried out in March 2005 at Nyarugusu Refugee Camp in the northwest region of the United Republic of Tanzania, following a pretest conducted in March 2004. The camp accommodates some 60,700 refugees from the Democratic Republic of Congo (DRC). The study was a cross-sectional observational study that employed a structured questionnaire. In order to compliment the quantitative data, additional information was collected through focus group discussions (FGD).

Occupying approximately 52 km<sup>2</sup>, the camp is divided into 7 zones, 50 villages and 440 clusters. Each cluster is comprised of an average of 24 plots (dwellings), with one plot allocated per refugee family.

Nyarugusu Camp was selected because HIV preventive activities, including youth peer education and Voluntary Counselling and Testing (VCT) services, were the most active there among several camps in the region, as well as per recommendations by the UNHCR and the Tanzanian Red Cross Society (TRCS).

Youth peer education is aimed at empowering young people

(those aged 10-24 years) to understand the risks of unprotected sex and to develop their life skills to practice safer sex. Youth peer educators within the same age range are appointed by youth community leaders and are trained by senior educators. The peer education programme includes lectures, puppet shows, live drama and songs, posters and leaflets, and meetings with community members. The form and content of the programme are shaped into three age groups, i.e. those aged 10-15, 16-19 and 20-24, in line with suggestions from the refugee community, in particular parents who insisted that topics related to reproductive organs and condom use be avoided for adolescents aged 10-15. A total of 223 youth peer educators, males and females, were registered to carry out the programme for some 18,000 young people aged 10-24 in the camp population at the time of this study. Training sessions are held every month, with each peer educator addressing 80-100 participants per session at the Youth Friendly Centre located in the centre of the camp.

Since 2003, reproductive education, including the topics of HIV, sexually transmitted infections (STD), and the prevention of mother-to-child transmission (PMTCT), followed by serological testing, has also been provided to females as well as their spouses, if they so wish. If the result of the serological test was HIV-positive, VCT service was provided to them.

Male condoms are given free of charge to those aged 16 or above at the time of VCT, at clinics for the prevention of PMTCT and STI, by Health Information Team (HIT) members, and by youth peer

educators (goal: 12 condoms/month/sexually active person). Female condoms are also given free of charge, but not on the same scale as male condoms.

Most HIT members (one member/1000 population), aged between 20-59, have medical/health professional backgrounds as nurses and health educators, and some of them were licensed in their home country. On a daily basis, HIT plays a bridging role between all the refugee community and the encamped health services by referring cases to a dispensary/health post, educating on the prevention of HIV and other diseases, and providing simple treatments (e.g. for mild diarrhea) through individual home visits, in addition to carrying out condom distribution.

Illegal drugs such as miraa (khat), chamkwale (an herb), bangi (marijuana) and madrax (methaqualone), which are taken by smoking, eating, drinking after infusion, or chewing, are locally produced and somehow available to refugees in Nyarugusu Camp, while injectable illegal drugs, e.g., heroine and cocaine, together with clean syringes and needles, are far less available within and outside the camp.

The camp was in the post-emergency phase, which is defined as less than 1 death/10,000 persons/day. The average crude and under-five mortality rates in 2004 were 0.42 and 1.09/10,000 persons/day, respectively, indicating that the situation was under control (UNHCR, 2000; Spiegel et al., 2001).

### *Data collection*

Two types of respondents were included: (1) systematically-selected refugee community members (n=1140, 50% each male and female); and (2) clients of the VCT service who were living with HIV (n=182). For the questionnaire for systematically-selected refugees, one male and one female aged 15–49 years (reproductive age range [Obasco, 1998]) were chosen from two respective plots in even-numbered clusters in village Nos. 1 through 5. For example, a male and a female refugee were selected from Plots 2 and 4, respectively, in Cluster 2 as well as from Plots 6 and 8 in Cluster 4, and so on up to Cluster 8. If there was no male in the designated plot, an individual from the plot of the following number was targeted; the same rule applied to females. The selection of refugee respondents continued until applicable subjects were found in line with the above-mentioned rule and the target total number of respondents (1140) was secured.

Clients of the VCT service who were administered the same questionnaire were also aged 15-49 years and had been identified as living with HIV through a serological test in the camp. Out of 184 VCT clients in this category, 182 consented to participate in the study. Of these, 67.6% were female and knew their HIV status as a result of PMTCT initiatives.

The same questionnaire was employed for both groups of respondents and included items related to socio-demographic characteristics/background; male and female condom use; sexual

history and risk behaviours; knowledge of and opinions and attitudes towards HIV/AIDS; and knowledge and accessibility of services. To assess the respondents' knowledge of HIV/AIDS, 6 questions covering indicators of ABC (Abstinence, Being faithful, Condom use) and CNN (Condom use, Needles sharing, Negotiation) (Sinding, 2005) were employed.

Eight groups of 8-10 individuals were selected from the total study population to take part in the FGDs. Participants included 2 males, aged either 15-29 or 30-49 years, randomly selected from four designated clusters in odd-numbered villages (Nos. 1 & 3) located in odd-numbered zones (Nos. 1, 3, 5 & 7), and likewise for 8-10 females from even-numbered villages located in even-numbered zones. No FGDs were held with the VCT clients.

In this paper, sexual intercourse is defined as “vaginal or anal penetrative sexual intercourse,” regular sexual partner as “a spouse or live-in sexual partner” and non-regular partner as “any sexual partner different from the one with whom one lives and who you did not pay for sex.” The questionnaire was first developed in English, translated into Swahili (the language spoken by Congolese refugees) and then back-translated.

For the systematically selected refugees, three supervisors and 20 bilingual Congolese refugees (most of whom worked as health assistants, counselors or school teachers) who spoke both Swahili and English were recruited as interviewers for the questionnaire and FGDs. For interviews with refugees living with HIV, the same three

supervisors and four refugee VCT counsellors who spoke both languages were employed as interviewers. All interviews were held in the daytime in a private space in or near the interviewees' dwellings. To maintain confidentiality, the 20 bilingual interviewers were not informed that there would be interviews with refugees living with HIV.

Signed informed consent was obtained from all respondents before each interview. For interviewees aged 15-19 years, informed consent was obtained in the form of a parental signature. We were given clearance by the Ethics Committee of the Graduate School of Medicine, University of Tokyo, Japan. Also, official permission to conduct the study was given by the Ministry of Home Affairs, United Republic of Tanzania.

### *Data analysis*

Data were analyzed with SPSS statistical software version 12.0, and the chi-square test was applied to assess the data.

## **Results**

### *Characteristics of the 1140 refugee community members*

The median age of the responding refugees was 25 years (interquartile range (IQR): 19-37) and, of these, 62.7% (717/1140) were either

married or unmarried but living with a spouse or long-term partner. Significantly more females than males were married but not living with a spouse, divorced, or a widow/widower, respectively. Of the respondents, 84.8% (967/1140) attended school and 29.9% (341/1140) were involved in an income-generating activity. Females were significantly less educated and had fewer opportunities to obtain an income than males. The median length of stay in Nyarugusu Camp was 8 years (IQR: 6-9). (Table 1).

#### *Risks of HIV infection before and after displacement*

The 1140 respondents were all within the reproductive age range (15-49 years) when interviewed, but included some who had not reached reproductive age at the time of their displacement from their country of origin (DRC). Thus, they were divided into two age groups in the analysis of risks of HIV infection before and after displacement, i.e.  $\geq 15$  and  $\leq 14$  years of age.

**Table 2** compares the risks of HIV infection of those refugees aged  $\geq 15$  years at the time of displacement (n=682 out of 1140), before being displaced, and after arriving in the refugee camp. Risks of HIV infection significantly increased after displacement, as per the number of the refugees involved in transactional sex for money or gifts.

The FGD among females aged 30-49 years also revealed their participation in transactional sex for survival:

*People don't eat well and don't dress properly. Some of us women in this camp, particularly during the period of Ndenga (when food rations from aid agencies run out and before the next distribution arrives), cannot help but leave our husbands inside the house and go out to perform sex in order to obtain food. These women don't know whether their casual partners are HIV-infected or not, and when they come home could be directly contaminating their husbands.*

The male FGD disclosed their awareness of extramarital sex:  
*Most of our wives are used to having sex outside the camp. They get up early and go to the surrounding villages, coming back in the evening with different kinds of food such as cassava roots, and so on. ...all the food she returns with is given to her in exchange for sex with villagers.*

#### *Knowledge, attitude and practice (KAP) of HIV prevention*

The majority of the 1140 systematically selected refugees had heard of HIV/AIDS. One principal finding was that their level of knowledge and attitude to HIV/AIDS and its prevention was generally high (63.3%-93.0%) as measured by indicators of ABC/CNN, but practice of HIV risk reduction was low. One third of the respondents had  $\geq 1$  non-regular partner during the preceding year, and condom use was limited to 20.0% for sex with a regular partner and 13.6% with a

non-regular partner. There was also a notable gender gap whereby females had a lower level of KAP than males. Attention should also be given to the fact that 5.4% of respondents (61/1140) had never heard of HIV/AIDS and the majority of these (52/61) were female.

*Abstinence:*

**Table 3** shows that the importance of abstinence was accredited by no more than 44.2% (252/570) of females compared to 93.5% (533/570) of males. **Table 4** shows that 18.7% (213/1140) had sex for the first time at 14 years of age or younger, and that 42.1% (480/1140), significantly more males than females, had premarital sex.

*Being faithful to one partner:*

**Table 4** shows that 30.4% of respondents (346/1140) had sex with at least 1 non-regular partner in the preceding 12 months. In addition, males surpassed females in the number of non-regular partners in the preceding 12 months and post-displacement involvement in transactional sex for money or gifts. Although fellow refugees/Congolese represented the principal transactional sex partners for both males and females, persons from local Tanzanian communities ranked second for males, while police and humanitarian workers ranked second and third, respectively, in the case of females.

*Condom use:*

**Table 3** shows that 87.7% of respondents (1000/1140) had heard about

male condoms and 58.1% (662/1140) about female condoms. Moreover, 75.8% (865/1140 respondents) perceived that it was easy to access male condoms. Females were significantly less aware of the importance of correct condom use and less willing to use them than males. **Table 4** shows that 20.0% of respondents (228/1140) used a condom with their last regular partner (males > females), and 13.6% (155/1140) with their last non-regular partner (males > females). “Trust my partner,” “Don’t like them” and “Didn’t think about it” represented the females’ leading reasons for not using a condom with a regular partner (**Figure 1a**), while “Don’t like them,” “Didn’t think about it” and “Didn’t think it was necessary” represented their prime reasons for not using a condom with a non-regular partner (**Figure 1b**). The FGD participants explained this further:

***Food security:** In the refugee camp, people want to have many children, because it allows us to get more food through new/additional ration cards. The amount of food rations is calculated on the basis of the number of family members, whether baby or adult. That is, if you have more members in a family, the camp manager will give more food. Since using condoms prevents pregnancy, we don’t like to use them with a regular partner.*

***Producing descendants:** Many people do not like to use condoms to avoid family planning. That is, we need to have more children. Making many children, in our culture, creates power. For us, children are considered a source of labor. Most*

*refugees arrived here after cruel displacement processes during which many children died.*

***Misinformation:*** *Condoms are full of diseases, and are thought to provoke caesarian section, and abnormal child delivery. Many refugee community members believe that condoms from European countries contain viruses, so this is one reason they are not used.*

***Negotiation:***

Only 33.4 % of respondents (381/1140) had requested or asked a partner's permission to use a condom during sex, and females were more passive than males both in their attitude (**Table 3**) and practice (**Table 4**). One 35-year old female mentioned the challenge faced with regard to condom use:

*Men have knowledge about and the power regarding condom use, but women have neither. We cannot refuse sex without condoms. To request a condom means we may be thought of as a prostitute or we may be asked, "Where did you learn about condom use?" The decision to use condoms remains that of men, and women are far from being able to have a say.*

***Needle sharing:***

No more than 4.7% of respondents (54/1140) have ever taken drugs. Among those, taking drugs by inhalation (0.4%) was the least common method, while smoking drugs (2.7%) rated the highest, followed by

eating/drinking after infusion (1.8%), chewing (0.9%) and injection (0.6%). Most of the respondents expressed willingness to maintain personal control over syringe use, i.e., not sharing them with others, suggesting that needle sharing is not a major issue in this particular refugee camp. Only 0.6% (7/1140) had ever shared a syringe with other drug users.

#### *Sexual practice and condom use with a non-regular partner*

One encouraging finding of this study was that those refugees who used a condom with a non-regular partner were likely to have had sex in exchange for money or gifts after displacement, revealing the association between condom use and transactional sex (**Table 5**). **Table 5** shows that condoms tend not to be used with fellow refugees or Congolese partners, and vice versa for non-refugees/non-Congolese partners. That is, condoms were more frequently used with persons from local Tanzanian communities, military/militia/other security forces, police, and humanitarian workers than with fellow countrymen/women.

#### *Sources of HIV prevention information in the refugee camp*

Over 70% of those who had heard of HIV/AIDS responded that their perceived leading sources of influence regarding HIV prevention were “radio broadcast messages,” followed by “dispensary/health posts” and

“refugee workers,” as shown in **Table 6**. While “radio broadcast messages” and “refugee workers” were significantly more influential among males, “dispensary/health posts” were significantly more influential among females. While “refugee workers (youth peer educators)” were more significantly influential among those aged 15-29, “dispensary/health posts” were significantly more influential among those aged 30-49. Knowledge of condoms was associated with the influence of “radio broadcast messages,” “refugee workers,” “friends,” “family/relatives,” and “religious leaders.” Condom use during sex with the last non-regular partner was also associated with influence by “friends” and “HIT members” as well as “youth peer educators” and “family/relatives,” suggesting that accessibility to peer education/influence determines the practice of HIV prevention. HIT members, in particular, rated the highest among refugee health workers as an HIV education source for those who used a condom with a non-regular partner (71.0%). Non-condom use with the last non-regular partner was associated with influence by “religious leaders” and “traditional healers/prayers,” suggesting that those cultural proxies may be hindering safer sex practices.

*Characteristics and KAP of refugees living with HIV (n=182) in comparison with HIV-negative refugees (n=461)*

**Table 7** compares the characteristics of the 182 VCT clients whose HIV status was positive and 461 persons among the 1140

systematically-selected respondents who were shown to be HIV negative as a result of a voluntary HIV serologic test. These two groups came from the same country of origin, were accommodated in the same refugee camp covered by the same assistance, and knew of their HIV status through the encamped VCT service, which is accessible to all refugees. The median age of the 182 PLWHA and 461 HIV-negative individuals was 30 years (IQR: 25-37) and 28 years (IQR: 21-36), respectively. The proportion who were married or living with a partner who they have sex with was lower in the PLWHA than the HIV-negative group.

Compared with the HIV-negative group, the PLWHA group had better knowledge of HIV prevention, but were less faithful to one partner, and had more non-regular partners and more experience of transactional sex (**Table 8**). Despite this, the PLWHA had a more proactive attitude to condom use and were more likely to use a condom than the HIV-negative group. To compare the differences in KAP between the PLWHA and HIV-negative group, logistics regression was used to adjust for sex, age, and marital status, revealing the same significant differences ( $P < .005$ ) as for the independent variables shown in Table 8.

## **Discussion**

This study represents the results of collaborative efforts with stakeholder relief agencies on the anecdotal vulnerability of displaced

persons to HIV infection before and after displacement. It documents the achievements and challenges faced during reduction of HIV risks in the post-emergency refugee camp setting.

### *Risks of HIV infection before and after displacement*

Refugee camps can be considered a milieu of risks in which vulnerability to HIV is increased (Lyons, 2004; Palmer et al., 1998), though evidence for this remains poorly documented (UNAIDS, 2004). This study established with quantitative data that risks of HIV infection, with respect to the number of refugees involved in transactional sex for money/gifts, amplified after arriving at the refugee camp compared with prior to displacement ( $p < .001$ ), particularly among those of reproductive age at the time of displacement. The number involved in transactional sex is an important determinant of the potential risk of HIV infection (World Bank, 1997; Brooks-Gunn et al., 1988; Meekers, 2003), particularly in Africa where an estimated 80-90% of HIV infection occurs through heterosexual intercourse (Schoeph, 2004).

The anecdotal assumption that female refugees are involved in transactional sex in and around the camp to obtain food or money for themselves and family members (Hankins et al., 2002; Black et al., 1993; Colins, 2004) was also confirmed in this study. That is, 18.8% (107/570) of females were involved in transactional sex with partners including police and humanitarian workers after displacement, while

even more males practiced transactional sex, at 24.7% (141/570 males). Transactional sex is not exclusive to the refugee camp setting, but common elsewhere in Africa where there is chronic risk of undernutrition (Craddock, 2000). It also appears to be the norm for adolescent girls in sub-Saharan Africa who engage in sexual relations with older partners for money or gifts, although the motivations for such rewards tend to be complex, ranging from economic survival to desire for possessions (Luke et al., 2002). In war-torn countries including the DRC, the disruption of normal economic activity and destruction of bases of economic support due to armed conflict puts women at increased risk for trafficking and at greater risk for having to engage in survival sex or sexual bartering (Jefferson, 2007). In addition to that, refugee populations are unique in that they have neither legal, economic, nor political power or means to control their asylum seeker position and live on their own. In particular, the weak position of women in society means that they often do not have the power to negotiate condom use, and many are pushed by economic difficulties to have exploitive sexual relations in exchange for food, money or gifts.

Refugees survive on food rations provided by humanitarian aid agencies, but the volume of food distributed is often cut due to limited donation of resources by the international community (Collins, 2004). Although the Sphere Project (2004) (Gostelow, 1999), a humanitarian charter and set of universal minimum standards for disaster response, requires humanitarian aid agencies to provide food

rations of 2,100 kcal per person per day, the Nyarugusu Camp management was unable to give more than 1,450 kcal or 69% of the Sphere standards during the study month. When the camp operation started in 1996, international response backed by media coverage enabled the provision of 2,100 kcal of food per person per day. Nevertheless, this was not the case in the following years as media/donor attention shifted towards victims of armed conflicts in eastern Europe and other areas, thus forgetting the long-term refugee crisis in Africa and reducing aid in forms of food (to 1,400 – 1,770 kcal per person per day) and non-food items, e.g. soap. The refugee community found themselves having to explore ways to cope amid limited means for survival. Reduced food rations aggravate food insecurity, placing refugees at risk of coercion into transactional sex.

### *Risky behaviours vs. risk management of HIV/AIDS*

This study revealed that “abstinence” and “faithfulness” are not commonplace among the refugees, probably as a result of economic vulnerability related (or unrelated) to survival. However, “needle sharing” was not a major issue in the present camp situation. This could be attributed to the situation that the most easily available drugs, i.e. miraa, bangi, chamkwale and madrax, are not for injection, and that refugees’ accessibility to syringes and needles is very restricted, be they new or used, under the tight control of the camp management. Nevertheless, attention should be given to the fact that

drug abuse was not uncommon (54/1140) and injection drug users (IDU), however small in number (7/1140), exist in the camp and share syringes with other IDUs. Although Africa has long been considered largely free of injection drug use, heroin is becoming more widely used and easily available in large towns in Tanzania, and heroin injection appears to be spreading throughout the country (Beckerleg et al., 2005). Though data on the prevalence of HIV among IDUs is patchy, researchers at a conference on the US President's Emergency Plan for AIDS Relief (PEPFAR) warned that countries such as Kenya, Tanzania, Nigeria and South Africa were now beginning to report HIV infections among people injecting drugs (Health Systems Trust, 2006). As the disposal of syringes and needles used at the dispensary and health posts in the camp could have direct implications for the transmission of HIV by IDUs, disposing injection equipment must continue to be tightly and firmly controlled in accordance with the Sphere standards, i.e. pit disposal after exclusive collection for incineration.

In sub-Saharan Africa, the majority of newly HIV-infected women contract the virus within marriage from their husbands (Stanecki, 2002), challenging the effectiveness of promoting abstinence and faithfulness as primary means of preventing HIV transmission in this population. What's more, in the refugee setting, the participation of females in transactional sex for survival could also result in transmission of the virus to their husbands, suggesting the importance of condom use and negotiating safer sex. The finding that

5.4% of respondents (61/1140), the majority of which were females, had never heard of HIV/AIDS reveals the need to strengthen HIV education, particularly among females. Given that 1 male youth peer educator is assigned 65 male adolescents, while 1 female youth peer educator is assigned 101 female adolescents, an increase in female educators should be a priority in promoting HIV education, particularly for adolescents.

Condom use is one of the most effective ways to reduce the transmission of HIV (UNAIDS/WHO/UNFPA, 2004; Meekers et al., 2003; Jemmott et al., 1992); however, consistent with the literature (Amadora-Nolasco et al., 2000; Babikian et al., 2004; Lesetedi, 1999), there was virtually no correlation between HIV/AIDS knowledge and the practice of safer sexual behaviours in the present study. This suggests that condoms are yet to be extensively used in the camp. The 13.6% reported condom use rate among the refugees was way below the rates of condom use by Tanzanian males (50.0%) and females (38.0%) in the same age range (15-49 years) during sex with a non-regular partner in the past 12 months (Measure DHS, 2005). Although the total number of condoms distributed within refugee camps are normally recorded using the standard procedures of the UNHCR (UNHCR, 2004), data on “actual condom use” is almost non-existent, except for one UN survey report that showed 16% condom use by Rwandan refugees in Tanzania (UNAIDS/UNHCR, 2003; FHI, 1996; FHI, 2003). This study also revealed that food insecurity not only encourages transactional sex for survival but

discourages refugees from using a condom, so as to avoid family planning, thus increasing their chance of receiving additional food ration cards. Other factors negatively affecting condom use included a strong desire to produce descendants for future labor, misinformation on condoms, and personal disfavor of condom use.

This study also revealed the encouraging finding that using a condom with a non-regular partner is associated with sex in exchange for money or gifts ( $P<.001$ ). This suggests that refugees, although risking HIV infection by having transactional sex, are more likely to take their own health initiatives by using a condom with a risky partner. Given the reality that transactional sex is one established means for survival in the refugee setting, this finding suggests that a safety net is somewhat functional, demonstrating the willingness of risk takers to prevent HIV infection. This willingness to use a condom could be attributed to the following:

First, radio broadcast messages mentioned as the most influential source of HIV information promoted a basis of risk awareness within the refugee community. Most of the families have personal radio sets. Because the flow of information from the outside world is limited in the camp setting and they are very eager to listen to music and obtain updated news on their country of origin, they enjoy the programmes aired by radio stations in Tanzania and neighboring countries, which also broadcast short messages on HIV/AIDS and its prevention at every hour during the daytime. Though there was no significant difference ( $P=.198$ ) between those

who used a condom with a non-regular partner and those who were influenced by radio broadcast messages on HIV prevention, 88.4% of those condom users claimed to be influenced by radio broadcast messages.

Second, peer education on HIV prevention had been received by many of those who use a condom with a non-regular partner. This suggests that refugee health workers, particularly HIT members, are essential in propagating the significance and methods of HIV prevention within the wider community. According to Tanaka et al. (2004), who identified the effectiveness of refugee participation in outreach services in a post-emergency refugee camp in Tanzania, the HIT members view themselves not as objects of health services but as responsible subjects listening to their peer community with understanding, and engaging in dialogue on mutual health concerns. This study suggests that the community-based outreach of peer refugees contributed to raising refugees' awareness of HIV risks and prevention to the action level.

Third, easy access to condoms could also encourage their use, at least among some of the refugees. Male condoms are given free of charge by refugee health workers and by/at other health staff/facilities, and it was revealed that 75.8% of the refugees claimed to have easy access to condoms.

Fourth, police, humanitarian workers and other partners who give money or gifts in exchange for sex might also volunteer to use a condom out of fear of HIV infection.

Lastly, religious leaders and traditional healers/prayers who have a negative influence on condom use have a limited voice and respect among the community; however, a greater focus needs to be placed in increasing dialogues with them and educating them on HIV prevention.

These elements suggest that behaviour change communication aimed at developing the skills and capabilities of target populations to promote and manage their own health and development toward fostering positive change in behaviour (African Youth Alliance, 2006) somehow functioned in the refugee camp setting, particularly through the influence network of radio broadcasts as well as HIT members who help to ensure that change is facilitated and motivated from within, rather than dictated by TRCS health/medical professionals. This achievement can be a by-product of a long-term refugee operation, whereby as time passes after the emergency phase is over, new networks and structures develop within the refugee community, they start to organize themselves, and community involvement becomes a natural asset of refugee life during the post-emergency phase relief operation (Médecins Sans Frontières, 1997).

*Attitudes toward HIV prevention among refugees living with HIV (PLWHA)*

Two thirds of the 182 PLWHA were female, and most learned of their HIV status through the PMTCT programme. The PLWHA were more

likely than the HIV-negative refugees to be married but *not* living with a long-term partner, divorced, or a widow/widower ( $P<.001$ ), and more likely to have fewer opportunities to gain an income ( $P=.013$ ). Although it is unknown whether their marriage or cohabitation ended before or after learning their HIV status, this study suggests that women without male protectors to live with (e.g., husbands, partners, fathers or other relatives) would continue to find themselves in vulnerable situations, and with limited economic means for survival. (Table 7).

This study revealed that, despite their good level of knowledge on HIV prevention, the PLWHA were not willing to stay faithful to one partner even after learning their HIV status ( $P<.001$ ), and the number of non-regular partners in the preceding 12 months was higher in the PLWHA group than the HIV-negative group ( $p<.001$ ). The attitude adopted by the PLWHA toward not staying faithful to one partner may be related to the fact that one-fourth of them were not living with a regular partner. Further, it is suggested that prevailing constraints, including a lack of food and other necessities, might continue to compel the PLWHA, particularly single females, to have sex with non-regular partners in exchange for money or gifts. If this is the case, their continued sexual behaviours could expose their fellow countrymen and partners to HIV risks, challenging the suggestion that knowing one's HIV serostatus is the most effective method of changing risky behaviours (Mukherjee et al., 2003; Moore et al., 2001).

This study had a number of limitations that should be noted.

First, since it was a cross-sectional study, it was not possible to define the causal relationship between using a condom with a non-regular partner and the perceived influence of HIT members or youth peer educators, despite the observed association. Further investigation is therefore needed to focus on specific determinants of condom use in the refugee setting. Second, the study was based on the self-reported recall of sexual behaviour across a retrospective time frame. Problems with recall can distort the reported incidence and frequency of specific behaviours, and longer recall intervals result in either underreporting or inaccurate recall of sexual practices and partners (Fenton et al., 2000). Third, as the PLWHA were identified through the VCT service, they did not represent the entire refugee community in the camp. Fourth, in comparing the KAP status of the PLWHA with that of the HIV-negative group, personal profiles such as sex, age and marital status significantly differed, and accordingly, logistic regression analysis was used for adjustment. Finally, nearly half of the PLWHA knew their HIV status during the 12 months prior to the date of the interview and the questions on risk behaviours such as the number of non-regular partners and condom use during the same period; therefore, it was not possible to define the level of risk behaviours exclusively during the ensuing time period after they learned of their HIV status.

## **Recommendations**

Promoting positive changes in refugee behaviours is a complex process requiring an understanding of their vulnerabilities, risk environment and behaviour. Our study revealed that, despite risk behaviours among the refugee community including limited condom use with a non-regular partner, the HIT members, together with youth peer educators and VCT counsellors, verified a great capacity and range of techniques in reaching out to individuals, acting as responsible subjects listening to their peer community with understanding, and engaging in dialogue on mutual health concerns. Such community-based outreach enabled the HIT members to gain community acceptance and foster an increase in behaviour change communication in the post-emergency camp. It is therefore vital to build on those strengths and address both opportunities (a) and threats (b) in HIV prevention towards enhanced community-based outreach: (a) through the optimal use of “radio broadcast messages” and “HIT” to reach even wider populations, with a focus on better condom use; and (b) through an increased focus on safer sex education for PLWHA.

As radio broadcasts were perceived to be the most influential source of information on HIV prevention, HIV/AIDS radio programmes can be produced with the participation of youth peer educators, HIT, VCT counsellors and other refugees. They can prepare a manuscript of the HIV prevention message and read it during radio programmes so that peer-to-peer messages for varied target groups are heard from the voices of fellow refugees. The content of messages

can range from basic information on HIV to infection routes, symptoms, preventive methods, risk behaviours, VCT and other related services that are available in the camp. It could also cover major findings from HIV behavioural surveillance studies such as this one, including a result of KAP surveys and information on who is at the highest risk of HIV infection in this particular camp, thus addressing the exclusive risks and vulnerabilities faced by the listener community itself. This could be effective in promoting action to change risk behaviours by way of an increased level of perceived susceptibility to HIV, as suggested in the Health Belief Model (UNAIDS, 1999).

HIT presents a great opportunity to demonstrate effectiveness by facilitating the growth of casual peer education, as a movement of the community, among its people, e.g. students, women's groups, mothers, market shop owners/clients, traditional healers/prayers, and religious leaders/believers. Our study revealed the impact of outreach by proximity to the people. With the community-based approach, HIT members can not only promote HIV prevention through their own activities, but also act as a catalyst for promoting even wider peer HIV education by developing fellow refugees' knowledge and skills. In this way HIT members can cultivate the abilities of other refugees for them to become peer educators who subsequently reach target populations diversified by age, sex, or other characteristics. HIT members can thus generate a new drive for HIV prevention within the total community population. The terms of reference of HIT should therefore be revised to include an HIV prevention facilitator role that

covers the training of peer trainers, regular monitoring, evaluation, and organizing peer meetings to discuss the effectiveness and efficiency of their activities. Effective involvement of refugee populations through neighbourly solidarity can ensure the quality and relevance of humanitarian action. Our study therefore suggests that refugee health workers such as HIT be encouraged to nurture, actively participate in, and spread peer HIV prevention in the long-term refugee operation with their own knowledge and skills in health services, and achieve the widest possible outreach to individual populations with a heightened sense of responsibility and consciousness regarding HIV prevention.

To reduce threats to HIV prevention, it is also recommended to accelerate the community-based approach in which the VCT service is not merely for providing post-test psychological counselling to PLWHA but also focuses on safer sex education for them, thus preventing the virus being passed on to others.

## **Conclusion**

Poverty and economic distress are contributing to the growth of risk behaviours for HIV infection in the resource-scarce post-emergency refugee camp. Though condoms are not yet extensively used in the camp, refugees involved in transactional sex used condoms through their own health initiatives, under the influence of peer refugee health workers, particularly HIT members.

Our study revealed that community-based outreach by refugee health workers makes a difference in risk behaviour prevention in the post-emergency camp setting. It is recommended to gear up the optimal use of “radio broadcast messages” and “HIT,” which act as agents to reach out to even wider populations, and to increase the focus on safer sex education for PLWHA; the aim being to achieve dual risk reduction for both refugees living with and without HIV/AIDS.

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