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## **Abstract**

**Background:** A quality improvement initiative was created during the 2014 Africa Goal campaign, which uses live screenings of FIFA World Cup football matches as a platform for local organizations to provide HIV outreach and services in East and Southern Africa.

**Materials and Methods:** Survey data assessed attendees' baseline knowledge of HIV and prevalence of prior testing.

**Results:** The data showed a high level of knowledge and prior testing among both men and women, with no statistical differences based on gender.

**Conclusion:** The level of knowledge about HIV may be higher than previously thought in some parts of East and Southern Africa and this should inform future HIV outreach efforts.

Key words: HIV-AIDS, East Africa, Southern Africa, HIV knowledge, mobile HIV testing

## **Introduction**

Although HIV-related deaths in sub-Saharan Africa are decreasing and new infection rates have stabilized, important gaps in prevention and treatment remain. For example, only 45% of people in this region know their HIV status and in most countries, men are less aware than women (UNAIDS, 2014). In Tanzania, men were more than twice as likely as women to report never testing for HIV (Kaufman et al., 2015).

The Africa Goal Project combines HIV outreach with access to FIFA World Cup matches, targeting young men. Free outdoor screenings of live matches provide a platform for local organizations in Eastern and Southern Africa to disseminate HIV information and services. In 2014, a quality improvement initiative assessed baseline HIV knowledge and prevalence of prior testing among attendees. Survey data was collected to better target specific knowledge gaps for future campaigns, to assess the need for testing services, and to see if men were in more need than women.

## **Methods**

A brief questionnaire was adapted from existing survey instruments assessing HIV knowledge (Amon et al., 2000; Ciampa et al., 2012; Wang et al., 2012). We used a convenience sampling approach among attendees at nine events in Tanzania, Malawi, Zambia and Zimbabwe. Translation (and back-translation) of the questionnaires into local languages was performed by bilingual English speakers. Verbal consent was obtained from all respondents and no personal identifying information was collected. The Institutional Review Board at the University of Pennsylvania exempted this study from review.

Participants were asked nine yes/no/don't know questions, testing basic HIV knowledge and misconceptions as well as HIV testing history. We interviewed 118 attendees with two excluded due to missing data, yielding a sample size of 116. The number of participants who refused to respond to the survey was not recorded, but the proportion is estimated to be less than ten percent of the total sample. We compared mean test scores between men and women using Student's t-test. We compared the sexes with respect to 1) the proportion scoring at least seven out of nine correct, 2) the proportion ever having an HIV test, and 3) the proportion with correct answers on each individual HIV knowledge question, using Chi-squared tests or Fisher's exact tests where applicable.

## **Results**

The main finding of this study was that overall HIV knowledge was high among both sexes. The study population was 72% male. Table 1 presents the comparison between the sexes. Women scored at least seven out of nine more commonly than men, but the difference was not statistically significant. Self-reported prior HIV testing was also high. Women reported having been tested more commonly than men, but this difference did not achieve statistical significance ( $p=0.28$ ).

**Table 1: HIV knowledge and prior testing among Africa Goal attendees by gender**

	Total	Females	Males	p-value
Average age	28.96	31.27	28.03	0.22
Average score (# correct out of 9)	7.56	7.76	7.50	0.32
Number scoring at least 7 out of 9	95 (81%)	28 (85%)	65 (78%)	0.43
Prior HIV testing	83 (72%)	26 (79%)	57 (69%)	0.28

There were no statistically significant differences by sex for answering each of the nine questions correctly. Table 2 presents the proportion of men and women who answered each of the nine questions correctly. Seven of the nine questions were answered correctly by a large proportion (more than 80 percent) of the respondents. The question most commonly answered *incorrectly*, by both sexes, was whether or not there is any treatment for HIV. Other questions that were commonly answered *incorrectly* were whether HIV can be transmitted by insects and whether a woman can transmit HIV to her baby by breastfeeding.

**Table 2: Percentage of people who answered each question correctly, by gender**

	Total	Females	Males	p-value
Can HIV be spread by mosquitoes or other insects?	79	24	82	0.27
Can HIV be spread by coughing or sneezing?	88	88	88	1.00
Can HIV be spread by having unprotected sex with an HIV-positive person?	93	97	92	0.44
Can people protect themselves from HIV by washing themselves after sex?	92	97	92	0.44
Can people protect themselves by using condoms each time they have sex?	94	91	95	0.40
Is there any treatment for HIV?	55	64	52	0.25
Do you think a healthy-appearing person can be infected with HIV?	86	91	84	0.55
Can a woman with HIV transmit the virus to her unborn baby?	86	85	86	1.00
Can a woman transmit HIV to her newborn baby by breastfeeding?	81	91	78	0.11

## Discussion

The main findings of this study were unexpected. For instance, there was a high level of knowledge among the people surveyed and no significant difference in the level of knowledge between males and females. This is contrary to the results of prior research, including the 2009 Demographic and Health Surveys Comparative Report on “Changes in HIV-related Knowledge and Behaviors in Sub-Saharan Africa”, which showed that comprehensive knowledge about HIV was low and that men were generally more knowledgeable than women (Vinod et al., 2009). Despite the overall high level of knowledge, only about half of respondents knew that HIV treatment exists. This points to one specific area where knowledge is still lacking. Finally, the results of this study suggest that male Africa Goal attendees were less likely than their female counterparts to have had an HIV test in the past. Although this difference was not statistically significant, if the difference persists in larger samples, it may warrant further roll-out of programs like this that target men for free testing.

This study was limited by the small sample size and lack of randomization. In addition, translation of the survey questions was done informally and was therefore not uniform across sites. Further, the sampling may not have been representative of everyone who participated and even less representative of the target population.

While our results suggest that knowledge is high in this population, it is interesting to note that gaps remain in knowledge of treatment. Previous research has shown that knowledge of treatment for HIV increases the likelihood of testing for it (Cremin et al., 2012). This suggests that in order to maximize impact, programs like Africa Goal should focus on education about HIV treatment while offering testing to increase testing rates.

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