

Understanding Perceived Social Harms and Abuses of Oral HIV Self-Testing in Kenya: Key Findings of a Cross-sectional Study

Caroline W. Kabiru, African Population Health and Research Center
Estelle M. Sidze, African Population Health and Research Center
Thaddaeus Egondi, African Population Health and Research Center
Damar Osok, African Population Health and Research Center
Chimaraoke O. Izugbara, African Population Health and Research Center

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About the HIV Self-Testing Thematic Window

Thematic Window 2 on HIV self-testing in Kenya is structured under two phases—phase 1, which funded formative research and phase 2, which will be informed by results from the first phase and will fund pilot interventions and their impact evaluations. 3ie identified key questions related to HIV self-tests by reviewing relevant literature and by meeting with key stakeholders in Kenya. 3ie and Kenya's National AIDS and STI Control Programme selected six of these questions in a request for applications under phase 1. The call was open to organisations implementing HIV and AIDS programmes in Kenya.

About this report

This report has been submitted in partial fulfilment of the requirements of a grant issued under the HIV Oral Self-Testing Thematic Window. 3ie is making this final report available to the public as it was received without any further changes. All content is the sole responsibility of the authors and does not represent the opinions of 3ie, its donors or its board of commissioners. Any errors and omissions are the sole responsibility of the authors. All affiliations of the authors listed in the title page are those that were in effect at the time the report was accepted. Any comments or queries should be directed to the corresponding author, Caroline Kabiru at ckabiru@aphrc.org.

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Caroline W. Kabiru
Estelle M. Sidze
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Chimaraoke O. Izugbara

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STUDY TEAM

Caroline W. Kabiru

Chimaraoke O. Izugbara

Estelle M. Sidze

Damar Osok

Thaddaeus Egondi

Clement Oduor

Peter Nyongesa

Silvia Njoki

ACRONYMS

AIDS	Acquired Immunodeficiency Syndrome
AMREF	African Medical and Research Foundation
FGD	Focus group discussion
HIV	Human Immunodeficiency Virus
IDI	In-depth interview
MOH	Ministry of Health
NASCOP	The National AIDS and STD Control Programme
VCT	Voluntary counseling and testing

EXECUTIVE SUMMARY

Background

Existing evidence suggests that additional efforts to increase Human Immunodeficiency Virus (HIV) testing uptake in Kenya are needed to reach the national HIV testing target. HIV self-testing methods offer a potentially innovative option to improve HIV status awareness among Kenyans. This study provides useful insights on the range of perceived social harms and abuses that may result from HIV self-testing in Kenya, and how these harms and abuses might be avoided. The study draws on cross-sectional quantitative and qualitative data collected in 2013 among women and men aged 15 to 49 years in urban and rural settings in Kenya.

Study Design and Data Collection

Data for the study were collected in Nairobi (urban) and Machakos (rural) Counties between August and November 2013. In Nairobi, data were collected in two informal settlements (Korogocho and Viwandani) and two formal settlements (Jericho and Harambee). In Machakos, data were collected in Muthwani Sub-Location within Lukenya Location. A quantitative survey was conducted among 1,133 randomly-selected men and women aged 15 to 49 years old to evaluate the prevalence of perceived social harms and abuses and the factors associated with perceived social harms among adults living in the study sites. In addition, thirteen focus group discussions (FGDs) and 26 in-depth interviews (IDIs) were conducted with men and women aged 15 to 49 years residing in the study sites. Individual interviews with five purposively-selected key informants were also conducted.

Analysis of quantitative data entailed descriptive and multivariate analyses to evaluate the prevalence of perceived social harms and abuses in the community and to assess the factors associated with these perceived harms and abuses. Analysis of the qualitative data entailed a synthesis of transcripts to provide a robust picture of the perceived social harms and abuses that could result from HIV self-testing and suggested ways of introducing HIV self-testing to minimize the perceived social harms and abuses.

Results

Results demonstrate that most quantitative survey respondents (80%) had previous testing experience and that most (91%) stated that they would buy and use oral HIV self-testing kits if these were available for purchase. Participants underscored the privacy and the confidentiality of test results as a positive feature of self-testing. Other benefits identified by participants included the non-invasive nature of the test, and the time-saving nature of the self-test process. Although participants had very positive views about oral HIV self-testing, they stated that there were potential dangers associated with people being able to self-test for a highly stigmatized disease often associated with death, discrimination, and isolation. One in three respondents in the quantitative survey stated that suicide could be a risk. Further, in almost all focus group discussions, participants noted that for many people in their community, a positive oral HIV self-test result might lead to suicide. Other perceived negative repercussions of public availability and use of self-testing kits included the risk of coerced testing, the risk of people intentionally

infecting others, limited ability to track HIV prevalence and incidence, and the probability of counterfeit kits being produced. Based on qualitative reports, many of the perceived harms and abuses associated with oral HIV self-testing were linked to the lack of a suitable mechanism to provide counseling or information either prior to or after the test. The cost of the kit was also linked to the risk of counterfeit kits being produced.

Participants identified several possible ways to mitigate the challenges that might stem from lack of counseling. Preventive measures suggested included community sensitization programs; restricting the sale of kits to selling points with trained counselors; house-to-house distribution by community health workers; and inclusion of written guidelines in local languages in the kits that would include details on what a person should do after the test as well as telephone contacts in case the person needed someone to talk to before, during and after testing.

Interpretation of data

Overall, the study shows widespread acceptability for HIV self-testing among the general public. However, efforts to roll out HIV self-testing must take into account the perceived harms and abuses associated with HIV self-testing among the general public. These perceived harms and abuses provide possible barriers to the uptake of HIV self-testing. In addition, they may also represent real risks that could emerge from unsupervised HIV self-testing among the general public. Although some people believed self-tests were open to abuse, they also thought that most of the abuses were preventable. Emerging findings strongly suggest the need for effective approaches to provide linkages to counselling and treatment as well as ensure that the public is well informed about correct use of the kits, the illegality of coercive testing and the risk of counterfeit kits.

PART ONE: DESCRIPTION OF STUDY AND DATA

I. Background

HIV/AIDS remains one of the leading causes of morbidity and mortality in sub-Saharan Africa. It is estimated that 70% of the 34 million people living with HIV globally in 2011 were living in sub-Saharan Africa [1]. Although the number of new infections has declined substantially since 2001, there were 1.8 million new infections in the region (71% of new infections globally) in 2011[1]. Access to treatment for those infected has also improved resulting in a 32% decline in the number of people dying from AIDS-related causes between 2005 and 2011 [1].

In Kenya, it is estimated that 1.6 million people were living with HIV at the end of 2011[2], this number is the third largest national population of people living with HIV/AIDS in sub-Saharan Africa. Although the country has a generalized epidemic, HIV prevalence differs by location, gender, age, and socioeconomic status [3]. HIV prevalence is higher in urban compared with rural areas; however, the urban-rural difference has been decreasing [3]. In urban settings, substantial variations in prevalence exist between informal settlements and non-slum areas with the prevalence in the former estimated at 12% compared with 5% among non-slum urban residents [4]. The high national prevalence of HIV has led to extensive efforts to prevent HIV as well as increase access to treatment for those infected.

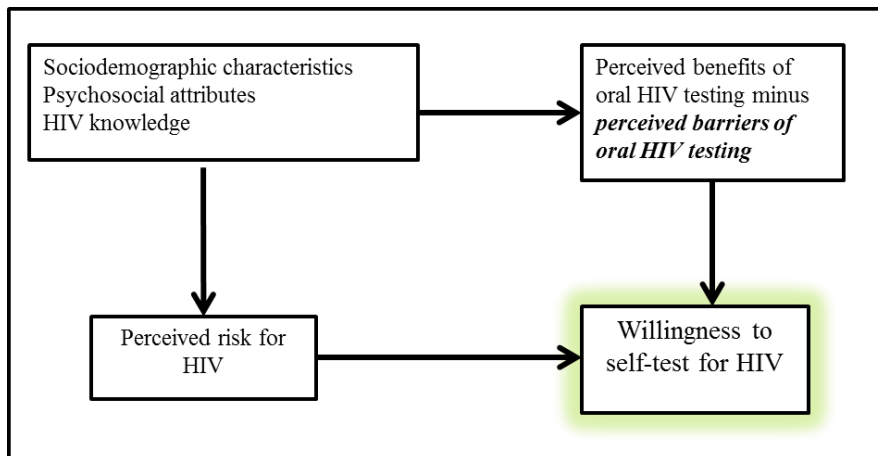
Research suggests that HIV testing, particularly when it is voluntary and involves counseling, is a very critical and cost-effective tool for HIV screening, prevention, control, and support [4-6]. Knowledge of one's HIV status can be an important driver of sexual behavior change and previous research has shown that people who are aware of their positive status are more likely to practice safer sex, seek medical care, and plan for the future [7-9]. There is also evidence that testing prolongs the lives of people infected with HIV because of treatment uptake [10, 11]. The early detection of HIV can permit advance planning for the livelihood and financial security of survivors and dependents. There are also immense benefits to communities when their members feel safe enough to be open about HIV and their own statuses, and become involved in the fight against the epidemic [12, 13]. Given the window of opportunity which HIV testing offers, the need for innovative strategies to promote HIV testing has become critically important.

HIV self- testing methods, which allow people to conduct a test on their own specimens similar to a home pregnancy test [14], offer a potentially innovative option to improve HIV status knowledge particularly among those demographics that have a poor record for HIV testing or do not use facility-based, standard HIV testing services because of privacy concerns, stigma, transport costs, or other barriers [14, 15]. Research on HIV self-testing, particularly oral self-testing, shows that it is not only acceptable and feasible but can produce accurate results and improve testing uptake [16, 17]. However, there have been concerns that HIV self-testing could promote the testing of individuals without their consent, either secretly or under duress [18]. Some scholars have also been particularly concerned that while knowledge of one's HIV status is useful, increased speed and convenience of testing could break the chain of care, referral, and effective counseling, which are essential for HIV/AIDS prevention, control, and support [19].

II. Aims and objectives of the study

Although privacy, feasibility, acceptability, and convenience are clearly benefits of HIV self-testing methods, questions remain about its potential to be abused and to result in social harms. Based on the health belief model [20] we postulate that individuals' perceived social harms and abuses also constitute a potential barrier to the uptake of HIV self-testing. The health belief model posits that a person's likelihood of engaging in a particular health behavior, in this case self-testing for HIV, is influenced by his or her perceived susceptibility to HIV, the medical and social consequences of living with HIV/AIDS (i.e. the perceived seriousness of HIV), the perceived benefits of self-testing or HIV status awareness, and the perceived barriers of self-testing (e.g., possible harms and abuses of HIV self-testing kits). Other factors that could affect the uptake of HIV self-testing are cues that prompt one to take a certain action (e.g., relevant mass media campaigns); and self-efficacy to self-test [20]. Figure 1 presents a schematic of the conceptual framework of how perceived social harms and abuses may affect individuals' willingness to self-test for HIV.

Figure 1. Conceptual Framework (adapted from Janz et al [20])



This study used data from a population-based survey to explore the perceived social harms and abuses that could emanate from the public availability of HIV self-testing kits in urban and rural settings in Kenya. The findings are expected to inform the design, development and implementation of HIV prevention and control strategies aimed at increasing uptake of HIV self-testing and promoting the safe use of oral HIV self-testing kits as an alternative to conventional avenues of HIV testing in Kenya.

Research Questions

Two research questions are addressed by the study: What are the perceived social harms and abuses associated with oral HIV self-testing among adults aged 15-49 years in Kenya? And, what are possible approaches to mitigate these harms and abuses?

III. Study Design

We conducted a cross-sectional study with both qualitative and quantitative components. The quantitative component evaluated the prevalence of perceived social harms and the factors associated with social harm perceptions among adults living in the study sites. The qualitative component explored in greater detail the perceived social harms and abuses that could emanate from self-testing in the study population, and participants' suggested strategies to mitigate these harms and abuses.

Study Sites

The study was implemented in the counties of Nairobi (urban) and Machakos (rural). In Nairobi, we collected data in two urban informal settlements (Korogocho and Viwandani) and two urban formal settlements (Jericho and Harambee). Jericho and Harambee represent a mix of middle and low income households living in formal housing structures. In Machakos, we collected data in Muthwani Sub-Location within Lukenya Location, which was selected for convenience given the close proximity to Nairobi.

Sampling

Quantitative: Study participants were randomly-selected from the study communities to ensure sufficient numbers of urban and rural residents, as well as males and females of different ages. In each community, we randomly selected enumeration areas (EAs) and visited every household within these EAs and recruited alternately one young female (15-24 years), an older female (25-49 years), young male (15-24 years), or an older male (25-49 years) from the household until the desired sample size was achieved. The sampling procedure was slightly adjusted in Machakos due to the remoteness and sparse distribution of households. In every other household, fieldworkers could interview two females, one younger and one older, and in the next household fieldworkers could interview two males, one younger and one older.

The desired sample size was computed using the formula below:

$$n = \frac{Z^2 pq}{e^2}$$

Where n is the required sample size, Z is the critical value for the standard normal distribution corresponding to a 95% confidence interval, p is the estimated proportion of an attribute that is present in the population, and q is $1-p$, and e is the desired level of precision taken here as 10%. Given that the proportion reporting any perceived harm stemming from oral HIV self-testing is unknown, we used a conservative estimate of 50% for p . Based on the formula above a minimum sample size of 97 per group was estimated. Thus, a total sample of 776 ($97*8$) participants covering equal proportions of younger and older men and women in urban and rural areas was estimated. We used a conservative response rate of 80% (previous studies [21, 22] conducted in slum communities in Nairobi have reported response rates around 90%). Thus, we targeted a sample of 970 respondents. A total of 1,139 men and women aged 15 to 49 years old were

interviewed but 6 individuals with extensive missing data were dropped from the final sample (N=1,133).

Qualitative: Participant diversity was critical to our goal of generating robust and grounded knowledge on the perceived social harms and abuses that may result from HIV self-testing in Kenya. We therefore recruited participants comprising a fair mix of urban and rural adult and young men and women. We held a total of 13 age and gender-specific focus group discussions (FGDs) in the study sites, with each FGD comprising between 6-10 persons (N=118). We also conducted 26 in-depth individual interviews (IDIs) with a purposively-selected sample of participants to represent a mix of ages, gender, and area of residence. Separate samples were recruited for the FGDs and IDIs. Finally, we conducted individual interviews with five purposively-selected key informants: a VCT service coordinator, a sexual and reproductive health expert from the Muslim community, a youth leader, a county official in charge of HIV programs, and a medical practitioner who also serves as a senior official in charge of reproductive health services at the Ministry of Health.

IV. Data collection and analysis

Selection and training of field enumerators

Field enumerators were selected based on level of education, prior experience working on household surveys especially with APHRC, computer literacy, and knowledge of Swahili and Kamba (local language widely spoken in Machakos). In total, 20 fieldworkers including 16 field enumerators and 4 supervisors were recruited. All fieldworkers underwent a 6-day training workshop, comprising: 1) facilitated sessions on the overall aims of the study, the study tools, research ethics and hands-on training on the use of Netbooks (for the quantitative component); 2) training on the use of Aware HIV-1/2 OMT kits (Calypte Biomedical Corporation) by the local distributor; 3) mock interviews; and 4) a field-based pilot. The training was facilitated by researchers with vast field work experience drawn from APHRC.

Study tools

Interviewer-administered questionnaires were used for the quantitative survey. We used Netbooks for data collection. This helped reduce data capture errors, data entry time and printing costs associated with paper questionnaires. The questionnaire was translated into Swahili, which is widely spoken in both the urban and rural sites. The original and translated versions of the questionnaire were reviewed by bilingual researchers and interviewers to ensure comparability. Netbooks were loaded with the Swahili version of the questionnaire and a hard copy English version was provided for reference. The tool captured respondents' sociodemographic characteristics (including age, sex, area of residence, level of education), HIV-related knowledge, HIV stigma, HIV testing history, willingness to self-test for HIV, and perceived social harms or disadvantages and risk stemming from self-testing (including psychological problems, low disclosure of test outcomes, risk compensation, non-consensual use of oral tests) [23]. HIV stigma was assessed using four questions: if respondents would buy fruits or vegetables from a known HIV infected shop keeper, if respondents would like the HIV positive status of a family member to stay secret, if respondents were willing to care for an HIV infected person in their own households, and if respondents thought a HIV positive teacher should be allowed to teach. Willingness to self-test for HIV using the oral testing kit was assessed with a single question having a *yes* or *no* response option: *"If you can buy an oral HIV self-test [kit] from the supermarket or shop, would you get it and do the test on your own?"*

Semi-structured interview guides developed by a team of researchers with experience working on sexual and reproductive health issues were used for the qualitative interviews. Respondents were asked about ways through which HIV/AIDS affects the community; factors that prevent people in the community from getting an HIV test; perceived benefits of HIV self-testing; potential challenges associated with letting people in the communities test themselves; ways people in the communities might misuse/abuse HIV self-testing; and perceptions on people in the communities who were more at risk of misuse/abuse HIV self-testing or to be victims of abuse/harms.

Study tools were pilot-tested during the last two days of the training with households outside the study areas. The aims of the pilot test were to: check for consistency in skip patterns in the

quantitative survey; assess appropriateness of the wording of the questions; ensure that there was no loss in meaning after the translation of the study tools to Swahili from English; and determine the logistics of the actual survey. The pilot test also helped in estimating the amount of time needed to complete a questionnaire. A quick analysis of the data collected in the pilot test was conducted to check for data programming errors. Following the pilot test, the survey team held debriefing meetings to discuss the results and to review survey instruments and procedures.

Qualitative interviews were conducted between August 03, 2013 and November 20, 2013. The quantitative survey ran from August 14, 2013 to September 30, 2013. For both the quantitative and qualitative interviews, fieldworkers used Aware HIV-1/2 OMT kits (Calypte Biomedical Corporation) for demonstration purposes (without actual collection of oral fluid specimens).

Data quality control

Designated field supervisors coordinated field work operations to ensure that work was of high quality and done in an efficient manner. At the end of each day, fieldworkers synchronized their data to the central data server. Field supervisors were able to access synchronized data for spot checks and daily editing. Implausible values identified by field supervisors during editing were verified and corrected in the field. Data were sent electronically by field supervisors on a daily basis to the Statistics and Surveys Unit at APHRC for quick consistency and verification checks.

Ethical considerations

Ethical approval was granted by the African Medical and Research Foundation (AMREF) Ethics and Scientific Review Committee. Research clearance was granted by the National Council for Science and Technology. Verbal consent was obtained from all participants before interviews. Parental assent was obtained for all respondents aged 15-17 years. Strict confidentiality rules were observed during data collection, processing and analysis by excluding all participant identification information.

Data Analysis

The quantitative data were analyzed using STATA version 12.1. The primary outcomes of interest were perceived social harms or disadvantages and abuses stemming from HIV self-testing. The range of perceived social harms and abuses identified by participants was summarized through proportions. Variations in the perceived social harms and abuses by sociodemographic characteristics were assessed using chi-square tests and logistic regressions. Chi-square tests were used to assess difference in key outcome variables (e.g., previous testing experience, willingness to purchase and a self-test kit, perceived disadvantages and abuses, importance of counseling, etc.) by gender or place of residence. Logistic regression models were used to investigate the correlates of previous testing experience, perceived disadvantages of HIV self-testing (no disadvantage versus any disadvantage), and perceived abuses of HIV self-testing (no abuse versus any abuse).

Analysis of the qualitative data entailed a manual synthesis of transcripts using thematic, content and narrative analyses to provide a robust picture of the potential harms and abuses that could result from HIV self-testing. It also entailed summarizing information on suggested ways of

introducing HIV self-testing to minimize the perceived social harms and abuses. We relied on a flexible, theory-driven approach grounded in critical qualitative and participatory research, and systems thinking [24, 25] and built on the rich body of extant literature regarding the role of contextual, structural, livelihoods, gender and generational factors in shaping people's relationships with new health interventions and technologies [26-28].

Limitations

Study findings should be interpreted taking account of two key limitations. First, data are based on self-reported perceptions of willingness to self-test and potential harms and abuses among participants who in many instances were learning about availability of such a kit for the first time. The long-term negative effects of self-testing in resource-constrained settings with critical health systems challenges are best assessed through pilot studies investigating the acceptability of oral HIV self-testing and with adequate systems to monitor and address the possible harms and abuses that could emerge. However, as noted, perceived harms and abuses could affect the actual uptake of self-testing because they constitute perceived barriers. Second, these data are limited to a sub-section of the Kenyan population that may differ significantly from a nationally-representative sample. However, they do provide useful information on possible social harms and abuses that could emanate from public availability of self-testing kits.

V. Results

In this section, we first describe the characteristics of study participants. Second, we present data on quantitative survey respondents' previous HIV testing experiences, HIV stigma, and willingness to self-test. Third, we present quantitative and qualitative findings on perceived social harms and abuses. Finally, we present the findings on participants' suggested approaches to control the perceived social harms and abuses of HIV self-testing.

Characteristics of Study Participants

Table 1 presents the sociodemographic characteristics of the 1,133 (785 in Nairobi and 348 in Machakos) quantitative survey respondents. As expected considering our sampling procedure, roughly equal numbers of males and females were interviewed in all the study sites. The level of education among the sample was generally high: Over 90% of male and female respondents had attended school, 62% had a secondary or higher level of education (67% of males and 56% of females). The majority of respondents (94%) were Christian. The sample comprised different ethnic groups. The largest ethnic group was Kamba (42%) as expected given the rural site which is in a predominantly Kamba region. Forty-eight percent of respondents were currently married, 44% were single and about 8% were divorced, separated or widowed.

Table 1. Sociodemographic characteristics of respondents for the quantitative study

Variable	Males (n=565) %	Females (n=568) %	Total (n=1,133) %	Sample per row (n)
Age group				
15-19	17.6	17.5	17.5	198
20-24	26.3	27.0	26.6	301
25-29	19.0	19.8	19.4	219
30-39	21.5	21.5	21.5	243
40-49	15.6	14.3	15.0	169
Ever attended school	99.6	98.6	99.1	1,112
Highest level of school attended				
Primary/Vocational	32.7	44.4	38.4	428
Secondary/'A' level	43.6	38.8	41.2	458
College/University	23.8	16.8	20.3	226
Religion				
Catholic	29.5	28.6	29.1	327
Protestant	41.8	44.0	42.9	482
Pentecostal/Charismatic	14.2	14.1	14.1	159
Other Christian	5.0	7.1	6.0	68
Islam	5.9	4.4	5.2	58
Other religion	3.6	1.8	2.7	30
Ethnic Group				
Kamba	42.9	40.6	41.7	470
Kikuyu	19.6	21.0	20.3	228
Luhya	13.2	13.2	13.2	148
Luo	14.8	14.4	14.6	164
Other [†]	9.6	10.9	10.2	115

Table 1. Sociodemographic characteristics of respondents for the quantitative study

Variable	Males (n=565) %	Females (n=568) %	Total (n=1,133) %	Sample per row (n)
Marital Status				
Married	39.3	57.2	48.3	547
Single (Never married)	55.4	32.4	43.9	497
Divorced/Separated/Widowed	5.3	10.4	7.9	89
Area of Residence				
Urban informal				
Korogocho	15.2	14.6	14.9	169
Viwandani	16.3	16.9	16.6	188
Urban formal				
Jericho	20.7	18.7	19.7	223
Harambee	17.2	19.0	18.1	205
Rural				
Machakos (Lukenya Location)	30.6	30.8	30.7	348

Note: ‡Other ethnic groups include: Embu, Kalenjin, Kisii, Masai, Meru, Mijikenda, Somali and Taita

Table 2 provides a summary of the socio-demographic characteristics of the 144 (71 males and 73 females) FGD and IDI participants. Most of the participants were aged between 15 and 29 years (70% of males and 74% of females). The majority of participants had secondary or higher level of education (73% of males and 81% of females). Over 60% of male and female participants were single (never married). Sixty-six percent of the male participants and 59% of the female participants were rural dwellers.

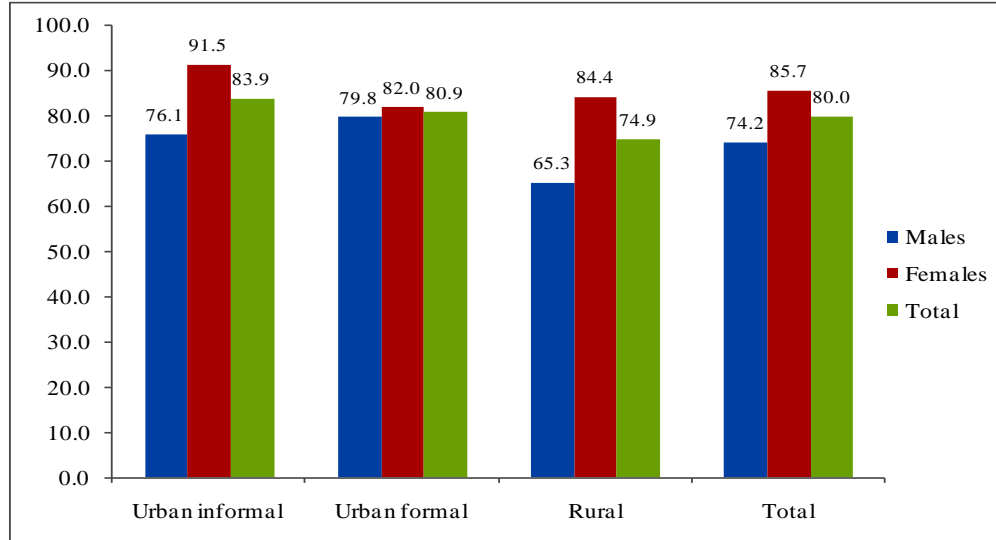
Table 2. Demographics of the FGD and IDI respondents

Characteristics	Males (n=71)		Females (n=73)	
	n	%	n	%
Age				
15-19	17	23.9	26	35.6
20-24	20	28.2	16	21.9
25-29	13	18.3	12	16.4
30-39	13	18.3	14	19.2
40 -49	7	9.9	5	6.9
Not declared	1	1.4	0	0.0
Education				
No education or primary	18	25.4	14	19.2
Secondary	33	46.5	50	68.5
College/University	19	26.8	9	12.3
Not declared	1	1.4	0	0.0
Marital Status				
Married	24	33.8	22	30.1
Single (Never married)	44	62.0	48	65.8
Divorced/Separated/Widowed	2	2.8	3	4.1
Not declared	1	1.4	0	0.0
Residence				
Urban	24	33.8	30	41.1
Rural	47	66.2	43	58.9

Previous HIV Testing Experience

Figure 2 shows high levels of HIV testing among the respondents: 80% of respondents in total reported that they had been tested for HIV, with a significantly higher proportion of females (86%) than males (74%) reporting a prior HIV test. This compares well with the 2012 Kenya AIDS Indicator Survey [29], which shows that 72% (63% males and 80% females) of adults aged 15-64 years have ever been tested for HIV [29]. The gender gap in HIV testing experience was the highest in the rural site with 84% of females versus 65% of males having tested for HIV. A greater proportion of urban informal settlement residents (84%) had previously been tested for HIV than those in urban formal (81%) and rural (75%) settings, possibly due the intensive work done by various NGOs in these settlements.

Figure 2. Percentage of respondents who had been tested for HIV, by study area (quantitative survey)



Note: Chi square tests were used to test the significance in differences by gender. P value less than .05 for difference in proportion between males and females in overall, rural and urban informal samples.

Logistic regressions were performed separately for males and females to determine the factors associated with previous HIV testing among the respondents. Results indicate that compared with adolescents (15-19 years), those aged 20 years and older were more likely to have been tested for HIV (Table 3). However, the differences were not significant for males aged 30 years and older as well as females aged 40 years and older. Single respondents were less likely to have been tested for HIV as compared with their married counterparts. Results also indicate that the odds of having been tested for HIV are associated with the level of education: those with college or university level of education were at least two times more likely to have been tested as compared with their counterparts with no or primary education. Males in rural areas were less likely to have been tested for HIV than males in urban formal settlements. HIV knowledge was not associated with prior HIV testing. Males who believed that HIV positive teachers should not

be allowed to teach (a measure of stigma) were less likely to have been tested than males who believed otherwise.

Table 3. Factors associated with previous HIV testing experience, by gender

Variable	Males		Females	
	Odds ratio (OR)	95% Confidence intervals (CI)	Odds ratio (OR)	95% Confidence intervals (CI)
Age group (ref: 15-19)				
20-24	2.10**	1.13 – 3.90	6.94***	3.13 – 15.40
25-29	2.57**	1.18 – 5.58	12.54***	3.46 – 45.37
30-39	1.44	0.60 – 3.49	4.13***	1.59 – 10.73
40-49	1.19	0.43 – 3.26	1.14	0.41 – 3.18
Marital status (ref: Married)				
Single	0.32***	0.15 – 0.67	0.18***	0.08 – 0.40
Widowed/divorced	0.31**	0.12 – 0.80	0.72	0.25 – 2.07
Education level (ref: No education or primary)				
Secondary	1.59*	0.94 – 2.70	1.52	0.81 – 2.85
College/University	3.56***	1.60 – 7.96	2.35*	0.89 – 6.20
Study area (ref: Urban formal)				
Urban informal	1.07	0.59 – 1.94	2.13*	0.98 – 4.61
Rural	0.53**	0.29 – 0.95	0.65	0.31 – 1.34
HIV stigma				
Will not buy fruits from infected person (ref: would buy)	1.48	0.72 – 3.04	1.29	0.60 – 2.79
Want the HIV status of a family member to remain secret (ref: No)				
Yes, remain secret	0.91	0.56 – 1.50	0.98	0.49 – 1.97
Don't now/not sure/depend	0.97	0.51 – 1.85	0.56	0.16 – 1.91
Teacher should not be allowed (ref: should be allowed)	0.55*	0.31 – 1.00	2.79	0.68 – 11.39
HIV knowledge [‡]	1.16	0.51 – 12.62	1.68	0.61 – 4.59

Notes: [‡] The HIV knowledge index was generated using standardized (mean=0 and standard deviation=1) values of 13 items scored in the positive direction (i.e. a higher score represents higher knowledge).

Level of significance: *** p<0.001, ** p<0.05, * p<0.1

The testing circumstances of the respondents who had tested for HIV before were also analyzed. Forty nine percent (55% of males and 44% of females) of the respondents who had tested for HIV stated that they personally asked for the test (Table 4). In 29% of the cases (35% among males and 24% among females), participants were offered the test during a visit to the hospital for other health issues or they were highly encouraged to test by a counselor, a peer educator, peers or family members. About 22% of the respondents (10% of males and 32% of females) tested as a requirement to get a job, to get married or as a requirement for prenatal care. Finally, the results show that 65% (70% of males and 58% of females) of never tested respondents would like to be tested. The majority (94%) of all respondents said that it is advisable for people to routinely test for HIV.

Table 4. Uptake of HIV testing

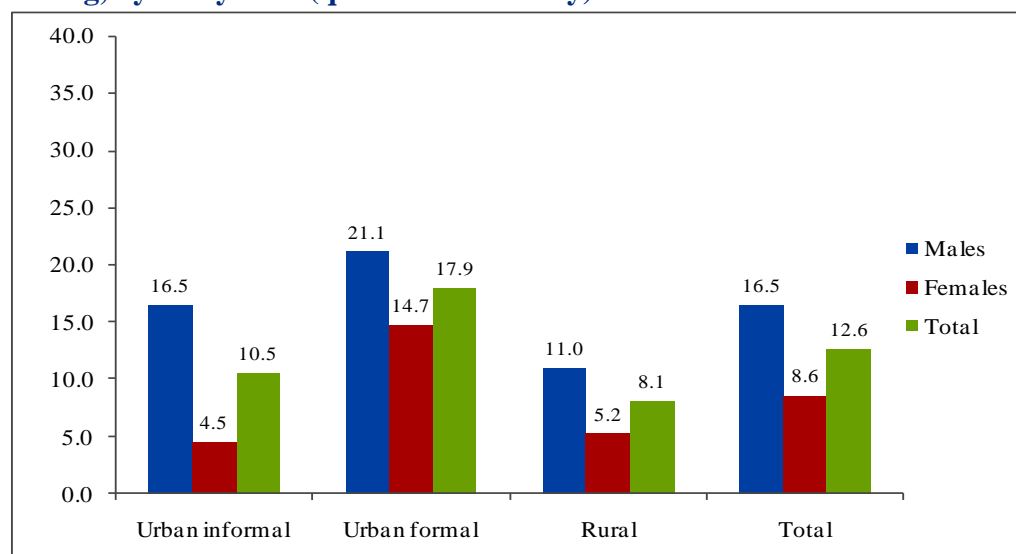
Variable	Male (%)	Female (%)	Total (%)	Sample per row (n)	p value chi-square
HIV testing circumstances					
Respondent initiated testing	55.3	43.5	48.9	440	
Respondent was offered to test	35.1	24.3	29.3	263	0.000
Respondent was required to test	9.6	32.2	21.8	195	
Percentage of never tested respondents who would want to be tested	69.7	57.5	65.3	147	0.122
Percentage of respondents who think it is advisable for people to routinely test for HIV	90.4	97.0	93.7	1052	0.000

Note: Chi square tests were used to test the significance in differences by gender

Attitudes and Willingness to Self-test for HIV

All respondents in the quantitative survey were asked if they had heard of oral HIV self-testing: only 13% said yes (Figure 3). The percentage of respondents aware of the existence of an oral HIV testing kit was highest in the urban formal settlements (18% versus 11% in the urban informal settlements and 8% in the rural site). The data also indicate that significantly more males than females had heard of oral HIV self-testing in all the study sites: the gender gap was the highest in urban informal settlements (17% of males versus 5% of females).

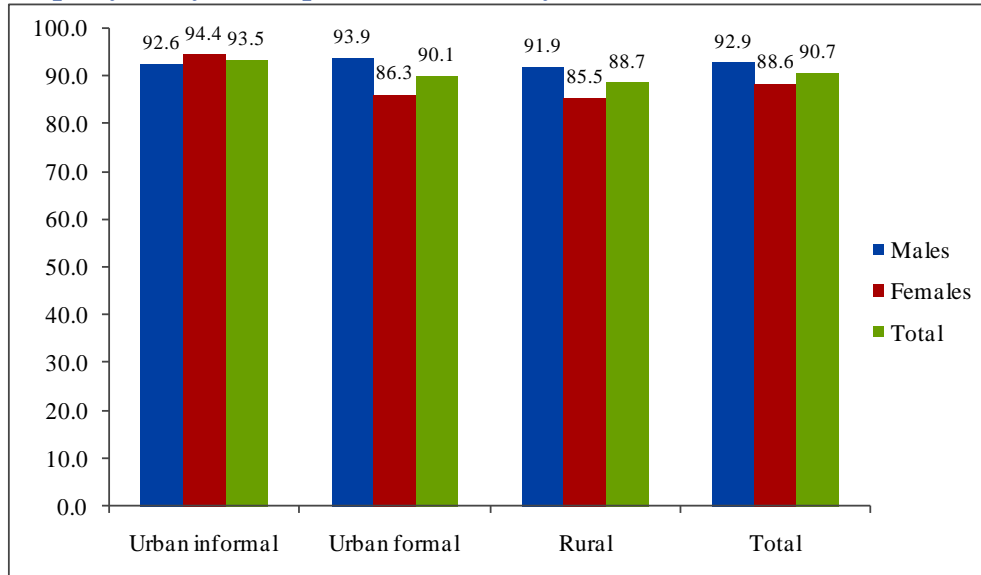
Figure 3. Percentage of respondents who have heard of oral HIV self-testing, by study area (quantitative survey)



Note: Chi square tests were used to test the significance in differences by gender. P value less than .05 for difference in proportion between males and females in overall, rural and urban informal samples.

All respondents were also asked if they would buy an oral HIV self-test and do the test on their own if the self-test kit was available for purchase in supermarkets or shops: 91% said they would get it and do the test on their own (Figure 4). A greater proportion of males (93%) than females (89%) stated that they would purchase a self-test kit and do the test on their own.

Figure 4. Percentage of respondents who would get an oral HIV self-test and do the test on their own if they can buy it from the supermarket or shops by study area (quantitative survey)



Note: Chi square tests were used to test the significance in differences by gender. P value less than .05 for difference in proportion between males and females in overall and urban formal samples.

The willingness to self-test among the respondents who had tested for HIV before and those who never been tested for HIV was explored. Descriptive findings are shown for males and females in Figures 5a and 5b. Among both males and females, the proportions of respondents willing to purchase a self-testing kit and do the test on their own are higher among those who had tested for HIV before. Among males, 91% of never-tested respondents residing in urban formal settlements said they would purchase a self-testing kit and do the test on their own compared with 79% in urban informal settlements and 88% in the rural setting. The proportion of never-tested females who said that they would purchase and use self-testing kits was relatively lower in the rural area (70%) compared with urban informal settlements (87%) and urban formal settlements (84%). Twenty percent of the respondents who never tested for HIV (27% of males and 13% of females) said they would self-test to know their status (Table 5).

Figure 5a. Percentage of male respondents willing to self-test among those who had tested for HIV before and those who never tested, by study area (quantitative survey)

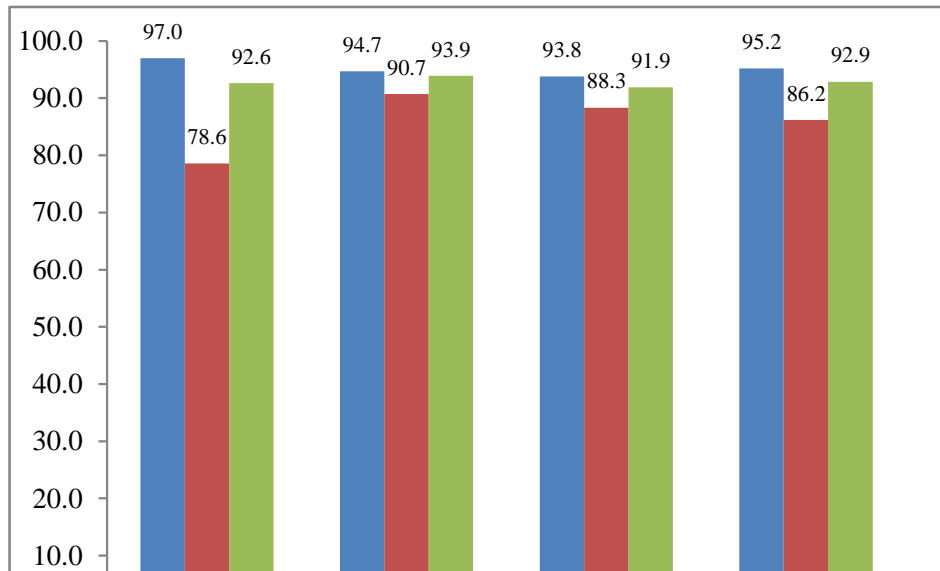
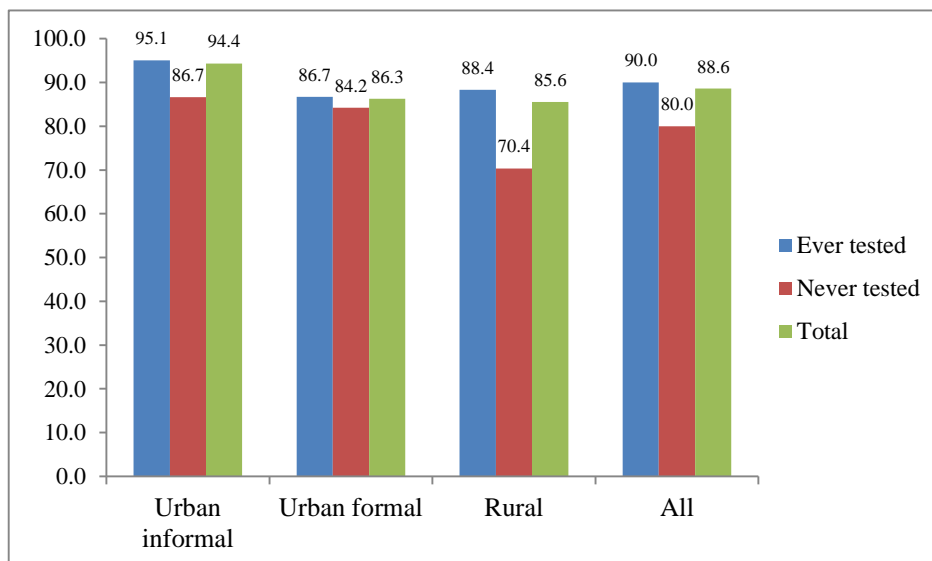


Figure 5b. Percentage of female respondents willing to self-test among those who had tested for HIV before and those who never tested, by study area (quantitative survey)



Note: Chi square tests were used to test the significance in differences by gender. There were no significant gender differences.

Respondents who said they would buy and use an oral HIV self-test kit if the kit was available for purchase were asked why they would do so. Over 60% (71% of males and 57% of females) stated that they would self-test because the procedure can be done privately (Table 5). The privacy of the self-test was considered an advantage by 65% of the respondents who had tested for HIV before and by 58% of the respondents who never tested. The privacy of the self-testing procedure was also mentioned several times in qualitative interviews. As one male, 25-49 year old, FGD participant in the urban informal settlements noted, “... *no one will ever find out about it because there are no records showing that you went to hospital on a particular date and had an HIV virus test and the results were this and that. It is very private*”.

Other important reasons for self-testing mentioned by the respondents who said they would self-test include: to get early treatment (20% of males and 25% of females), because the test is convenient (13% of males and 9% of females), and because the test is easy to use or non-invasive (13% of males and 10% of females). The non-invasive nature of the test was also highlighted in focus group discussions as illustrated by the quotes below:

This kit, if it is affordable then it is better because most people don't like the idea of going to be pricked and their blood screened. It can be the best thing for this community

FGD, 25-49 years, Male, Rural

There are the guaranteed results; there are no needles to prick you fingers with of which you are always suspicious that it could have been used on someone else. But the kit is specially [for] one person and it will be sealed, so there are no doubts when doing the test

FGD, 15-24 years, Female, Urban formal settlement

Reasons why respondents might not self-test were also explored. The accuracy of the self-test was a concern for 21% of respondents (n=102) who said they might *not* self-test (26% of males and 17% of females). About 20% of those who stated they might not self-test (10% of males and 26% of females) reported that they might not self-test because they were afraid to know the results. Among respondents who never tested, 31% said they might not self-test because they were afraid to know their status (21% of males and 44% of females), 26% said they might not self-test because there is no cure for HIV/AIDS (42% of males and 6% of females), and the accuracy of the self-test was a concern for 17% (26% of males and 6% of females) of respondents.

Other general views about HIV self-testing among the respondents indicate that: almost all respondents (99%) who stated that they would buy and use a self-test kit were confident that they could perform the test correctly and 95% thought they could trust the results. Ninety five percent of all respondents stated that they would recommend self-testing to people and 81% thought self-testing kits should be sold in public outlets.

Table 5. Respondents' attitudes towards self-testing for HIV, by gender and HIV testing experience (quantitative survey)

Variable	Males				Females				Overall			
	Ever tested (%)	Never tested (%)	Total (%)	p value chi-square	Ever tested (%)	Never tested (%)	Total (%)	p value chi-square	Ever tested (%)	Never tested (%)	Total (%)	p value chi-square
Reasons why respondents would self-test												
It can be done privately	74.1	60.8	70.9	0.004	57.5	51.6	56.7	0.370	65.3	57.7	63.9	0.047
To get early treatment	20.7	18.4	20.1	0.583	24.2	28.1	24.7	0.502	22.5	21.7	22.4	0.809
A negative result will mean "no worry"	8.1	12.0	9.0	0.180	20.6	12.5	19.5	0.129	14.7	12.2	14.2	0.372
To know status	9.6	27.2	13.8	0.000	10.9	12.5	11.1	0.695	10.2	22.2	12.5	0.000
Easy to use/Non-invasive	14.4	8.8	13.0	0.107	9.7	10.9	9.9	0.757	11.9	9.5	11.5	0.352
Test is convenient	13.9	8.8	12.6	0.138	9.7	7.8	9.5	0.630	11.7	8.5	11.1	0.205
Such tests are accurate	6.8	3.2	5.9	0.137	3.5	3.1	3.4	0.889	5.1	3.2	4.7	0.271
To protect regular partners	7.8	3.2	6.7	0.072	1.2	0.0	1.0	0.388	4.5	2.1	4.0	0.140
To protect other sexual partners	1.8	1.6	1.7	0.903	1.4	1.6	1.4	0.911	1.6	1.6	1.6	0.982
Other reasons	3.5	3.2	3.4	0.862	3.7	3.1	3.6	0.820	3.6	3.2	3.5	0.770
Reasons why respondents would NOT self-test[§]												
Not sure if the test is accurate	30.0	26.3	28.2	0.798	23.4	6.3	19.0	0.131	25.4	17.1	22.5	0.345
Afraid to know results	0.0	21.1	10.3	0.030	23.4	43.8	28.6	0.120	16.4	31.4	21.6	0.080
Already know personal results	25.0	0.0	12.8	0.020	21.3	6.3	17.5	0.171	22.4	2.9	15.7	0.010
There is no cure for HIV/AIDS	10.0	42.1	25.6	0.022	4.3	6.3	4.8	0.746	6.0	25.7	12.7	0.005
Other reasons	45.0	21.1	33.3	0.113	36.2	43.8	38.1	0.590	38.8	31.4	36.3	0.462
Percentage of respondents who stated that they are confident they can self-test correctly[‡]												
	99.0	100.0	99.2	0.530	99.5	100.0	99.6	0.586	99.3	100.0	99.4	0.503
Percentage of respondents who would trust the results of the self-test[‡]												
	94.5	93.6	94.3	0.009	97.2	92.2	96.6	0.040	95.9	93.1	95.4	0.004
Percentage of respondents who would recommend the oral self-testing kit to people												
	94.7	92.4	94.1	0.418	94.6	98.8	95.2	0.272	94.5	94.6	94.6	0.494
Percentage of respondents who think the oral self-testing kit should be sold in public outlets												
	80.1	84.8	81.3	0.358	79.2	83.8	79.9	0.610	79.5	84.4	80.5	0.197

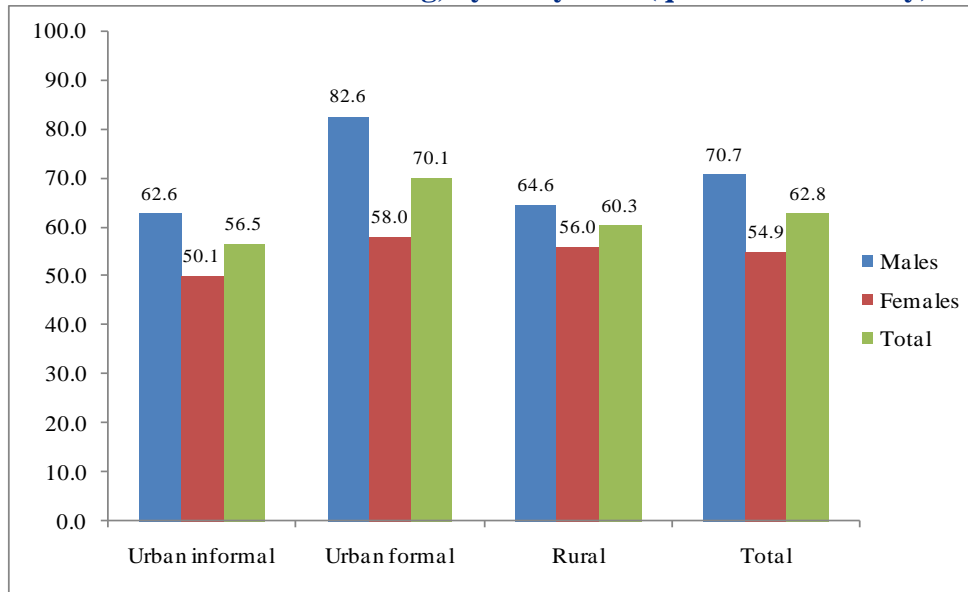
Notes: Chi square tests were used to test the significance in differences by gender

[‡] Among respondents who said they would buy and use a self-test kit if it were available for purchase; [§] Among respondents who said they would NOT self-test;

Perceived Social Harms of HIV Self-Testing

In the quantitative survey, all respondents were asked “what disadvantages do you see in HIV self-testing?” Multiple responses were permitted. Sixty-three percent mentioned at least one perceived disadvantage (Figure 6). Greater proportions of males perceived that HIV self-testing has a disadvantage (71% versus 55% of females): the gender gap was greater among the respondents in urban formal settlements where 83% of males versus 58% of females cited a least one disadvantage.

Figure 6. Percentage of respondents who felt there are disadvantages associated with HIV self-testing, by study area (quantitative survey)



Note: Chi square tests were used to test the significance in differences by gender. P value less than .05 for difference in proportion between males and females in overall and urban formal samples.

People’s vulnerability to emotional distress was one of the main disadvantages expressed by the respondents who thought there were disadvantages: 32% of them felt that people might commit suicide if they tested positive while 24% felt that people might be anxious or depressed if they tested positive (Table 6). Qualitative interviews also revealed widespread concerns about people being able to test themselves for a highly stigmatized condition in the absence of a trained counselor as highlighted below:

I would rather go to the VCT... For counseling...Yes, that counseling is very important...I would rather go to the VCT because I need that counseling, otherwise I can imagine seeing those two lines and I am alone, I will just commit suicide.

FGD, 25-49 years, Male, Urban formal settlement

Sixteen percent of quantitative survey respondents who thought there were disadvantages associated with HIV self-testing mentioned non-disclosure of HIV status as a potential disadvantage (Table 6). In the qualitative interview, non-disclosure was frequently associated with heightened risk of people infecting others either intentionally or because they are unable or unwilling to seek treatment because of associated stigma. To put it in the words of one respondent:

Yes you feel worthless after finding out that you are HIV positive. He will not want to go for the treatment since this was a private thing he did at home, and again since many people usually say that those drugs are sold, he/she will feel no, I cannot go to buy those drugs. I will just stay like that and if I happen to infect anyone, too bad for them.

FGD, 15-24 years, Female, Urban informal settlement

However, some participants argued that the risk of intentionally infecting others was not unique to self-testing since HIV testing is mostly confidential. Underscoring this point, one male FGD participant aged 25-49 years in a formal urban settlement argued, “*I would say it is equally the same even if you go to the VCT because those results are only given to you and you alone, no one else. When you are leaving the VCT, no one else is aware.*”

Besides emotional vulnerability and poor disclosure, respondents in the quantitative survey who thought there were disadvantages associated with HIV self-testing also noted that people might harm others (15%), counterfeit kits might be produced (13%), people might misinterpret results (11%), or people will lack social support (10%) (Table 6). Eleven percent of them also viewed the risk of inaccurate results as a disadvantage of HIV self-testing. In the qualitative interviews, participants were also concerned that allowing people to self-test could make HIV disease surveillance difficult with negative repercussions for HIV programming. The concern about counterfeit kits was also raised in the qualitative interviews. Some participants were particularly concerned that availability of kits for purchase rather than the distribution of free kits or highly subsidized kits could result in a market for counterfeit or expired testing kits. This point is illustrated in the following quote by a 25-49 year old male FGD participant:

Anything with financial strings attached to it, know that it is already behind the markets but if it were free, it will remain original, original since it has no financial costs involved. The moment it comes at Sh300, the original will come at Sh500 and the fake one at Sh300

FGD, 25-49 years, Males, Urban formal settlement

Quantitative findings indicate few significant differences in perceived social harms by HIV testing experience among males and none among females (Table 6). For instance, the perception that people will have unprotected sex was more prevalent among males who had tested for HIV before (13%) than among males who never tested (3%).

Table 6. Respondents' perceived disadvantages of oral HIV self-testing, by gender and HIV testing experience (quantitative survey)

Variable	Males				Females				Overall			
	Ever tested (%)	Never tested (%)	Total (%)	p value chi-square	Ever tested (%)	Never tested (%)	Total (%)	p value chi-square	Ever tested (%)	Never tested (%)	Total (%)	p value chi-square
People might commit suicide	33.6	29.0	32.4	0.307	31.0	32.5	31.2	0.785	32.3	30.2	31.9	0.558
People will be anxious or depressed	28.1	25.5	27.4	0.555	20.6	18.8	20.3	0.706	24.1	23.1	23.9	0.747
People will not disclose positive results	20.6	20.0	20.5	0.873	10.4	11.3	10.5	0.817	15.1	16.9	15.5	0.514
People might harm others	20.6	15.2	19.2	0.151	10.8	7.5	10.3	0.368	15.4	12.4	14.8	0.272
People might produce counterfeit kits	22.1	14.5	20.1	0.050	7.1	2.5	6.4	0.123	14.0	10.2	13.3	0.133
Test results may be wrong	8.5	13.1	9.6	0.168	14.3	9.3	13.7	0.370	11.4	12.0	11.5	0.853
People might misinterpret results	15.6	15.2	15.5	0.905	6.0	5.0	5.9	0.717	10.5	11.6	10.7	0.633
People will lack social support	17.0	16.6	16.9	0.895	4.0	2.5	3.7	0.527	10.0	11.6	10.3	0.496
People might delay seeking treatment	14.6	14.5	14.6	0.966	3.7	2.5	3.6	0.579	8.8	10.2	9.1	0.503
People will have unprotected sex	12.9	2.8	10.3	0.001	0.8	0.0	0.7	0.413	6.5	1.8	5.5	0.006
People will have multiple partners	10.1	4.1	8.5	0.028	1.2	2.5	1.4	0.382	5.3	3.6	5.0	0.271
Cost	4.1	3.0	3.8	0.636	2.4	2.3	2.4	0.980	3.3	2.8	3.2	0.785
People will have a false sense of security	4.3	2.8	3.9	0.405	1.2	0.0	1.1	0.315	2.7	1.8	2.5	0.443
People will use the kit incorrectly	3.1	3.0	3.1	0.958	1.7	0.0	1.5	0.388	2.4	2.1	2.4	0.814
People will dispose the kit inappropriately	1.3	0.0	1.0	0.263	3.8	0.0	3.3	0.196	2.4	0.0	2.0	0.060
Other disadvantage [‡]	14.1	8.0	12.7	0.142	16.7	18.7	17.0	0.858	15.3	11.2	14.5	0.201
Don't know	3.1	6.1	3.8	0.185	5.5	7.0	5.7	0.688	4.3	6.3	4.6	0.284

Notes: 1) Respondents could give multiple responses. 2) Chi square tests were used to test the significance in differences by gender.

[‡]Other disadvantages mostly include: inability to gather accurate HIV surveillance data in the country, lack of confidence in the results, lack of counseling, and impossibility to use for illiterate people.

Further logistic regression analysis was performed to investigate the correlates of perceived disadvantage of HIV self-testing (no disadvantage versus any disadvantage). Findings indicate that female respondents who were married or divorced were less likely than those who were single to perceive that HIV self-testing has disadvantages (Table 8). Married males were not significantly different from single males in terms of perceived disadvantages. For both males and females, respondents with at least secondary level of education (compared with those with a primary level) were significantly more likely to think that there were disadvantages associated with HIV self-testing. Females in the rural setting were more likely than their counterparts in urban formal settings to perceive that HIV self-testing has disadvantages, whereas males in the urban informal settings were less likely than their counterparts in urban formal settings to perceive that HIV self-testing has disadvantages. Compared with females who had tested for HIV before, females who had never tested were less likely to perceive that HIV self-testing has disadvantages. Findings also indicate that females who stated they would not purchase and use HIV self-testing kits were more likely to perceive that HIV self-testing has disadvantages.

Table 7 Factors associated with the perception that HIV self-testing has disadvantages (N=1,077)

Variable	Males		Females	
	Odds ratio (OR)	95% CI	Odds ratio (OR)	95% CI
Age group (ref: 15-19)				
20-24	0.88	0.44 - 1.75	0.80	0.44 - 1.45
25-29	0.58	0.26 - 1.30	0.83	0.42 - 1.64
30-39	1.21	0.49 - 3.01	1.09	0.55 - 2.17
40-49	1.12	0.42 - 2.99	1.48	0.69 - 3.15
Marital status (ref: Single)				
Married	0.69	0.35 - 1.35	0.61*	0.37 - 1.02
Widowed/divorced	0.33**	0.12 - 0.90	0.43**	0.2 - 0.92
Education level (ref: Primary)				
Secondary	1.57*	0.96 - 2.57	1.75**	1.16 - 2.64
College/University	4.85**	2.12 - 11.06	2.07**	1.13 - 3.79
Study area (ref: Urban formal)				
Urban informal	0.52**	0.28 - 0.95	1.49	0.9 - 2.45
Rural	0.68	0.36 - 1.26	2.06**	1.25 - 3.39
HIV stigma				
Will not buy fruits from infected person (ref: would buy)	0.73	0.37 - 1.47	1.04	0.65 - 1.68
Want the HIV status of a family member to remain secret (ref: No)				
Yes, remain Secret	1.60*	0.99 - 2.60	0.62**	0.4 - 0.95
Don't now/not sure/depend	1.30	0.69 - 2.43	1.74	0.71 - 4.27
Teacher should not be allowed (ref: should be allowed)	1.13	0.59 - 2.14	0.72	0.35 - 1.47
HIV knowledge ‡	0.51*	0.24 - 1.06	1.43	0.85 - 2.4
Never tested for HIV (ref. ever tested)	0.72	0.44 - 1.18	0.60*	0.34 - 1.05
Not willing to self-test (ref. willing to self-test)	0.89	0.39 - 2.01	1.85**	1.01 - 3.39

Notes: ‡The HIV knowledge index was generated using a standardized (mean=0 and standard deviation=1) values of 13 items scored in the positive direction (i.e. a higher score represents higher knowledge).

Level of significance: *** p<0.001, ** p<0.05, * p<0.1

In an attempt to tease out actual risks of occurrence of the perceived disadvantages, respondents in the quantitative survey who said they would buy and use a self-test kit (n=1,019) were asked what they (themselves) would first do if they hypothetically tested and found out that they were positive. Thirty-nine percent of them said they would seek counseling, 21% said they would confirm the results, and 15% said they would seek medication (Table 8). About 9% of them said they would go into depression. Only one male respondent said he could intentionally infect others. Descriptive analysis (not shown here) revealed no significant differences in respondents' responses by socio-demographic characteristics.

Table 8. Main action respondents who are willing to self-test would most likely do first if they hypothetically self-tested and found they are positive, by gender (quantitative survey)

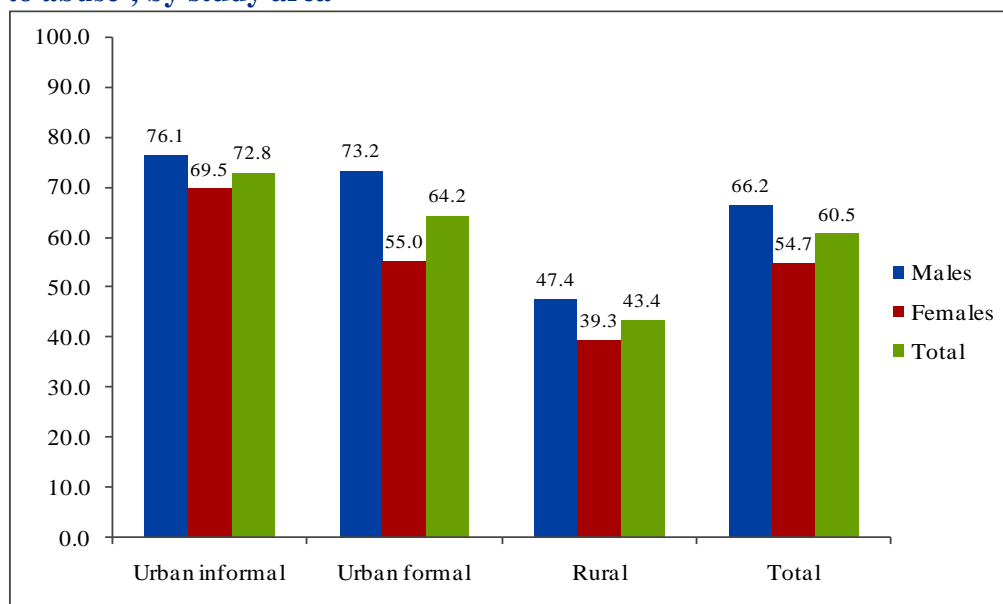
Action	Male (%)	Female (%)	Total (%)	Sample per row (n)
Seek counseling	41.4	35.8	38.6	394
Confirm results	22.0	19.5	20.8	212
Seek medication	10.7	18.9	14.7	150
Go into depression	9.0	8.3	8.7	89
Keep the results secret	4.8	2.2	3.5	36
Inform sexual partners	1.5	2.8	2.2	22
Accept results and move on	1.9	2.0	2.0	20
Commit suicide	1.9	1.6	1.8	18
Inform parent or close friend	1.3	2.0	1.7	17
Have risky sexual behavior if already infected	0.6	0.2	0.4	4
Abuse alcohol/drugs	0.8	0.0	0.4	4
Seek for revenge	0.0	0.6	0.3	3
Stop engaging in social activities	0.2	0.4	0.3	3
Intentionally infect others	0.2	0.0	0.0	1
Don't know	2.1	2.8	2.5	25
Others	1.5	2.8	2.2	22

Notes: 1) Respondents could give only one response. 2) Chi square tests were used to test the significance in differences by gender

Perceived Abuses of HIV Self-Testing

All respondents in the quantitative survey were asked if they felt that HIV self-testing could be misused or abused by people (Figure 7). Sixty one percent of respondents responded affirmatively that HIV self-testing is open to abuse. A greater proportion of males than females felt that HIV self-testing could be misused or abused (66% versus 55%). The gender gap was only statistically significant in the Nairobi formal settlements (73% of males versus 55% of females).

Figure 7. Percentage of respondents who felt that HIV self-testing ‘is open to abuse’, by study area



Note: Chi square tests were used to test the significance in differences by gender. P value less than .05 for difference in proportion between males and females in overall and urban formal samples.

Further multivariate analysis using logistic regression indicated that education level, area of residence, and HIV stigma were associated with the perception that HIV self-testing might be abused by people. For both males and females, respondents with at least a secondary level of education were significantly more likely to think that HIV self-testing might be abused by people compared with those with a primary level of education (Table 9). Compared with male respondents living in urban formal settlements, male respondents residing in rural settings were less likely to think that HIV self-testing might be abused by people. Female respondents living in urban informal settlements were more likely to think that HIV self-testing might be abused by people compared with female respondents in urban formal settlements. Male respondents who said that teachers who are known to be HIV positive should not be allowed to teach (a measure of stigma) were less likely to perceive that HIV self-testing could be abused compared with those who said that they should be allowed to teach. HIV testing experience and willingness to self-test were not associated with the perception that HIV self-testing.

Table 9. Factors associated with the perception that HIV self-testing might be abused by people (N=1,077)

Variable	Males		Females	
	Odds ratio (OR)	95% CI	Odds ratio (OR)	95% CI
Age group (ref: 15-19)				
20-24	1.12	0.59 - 2.12	0.65	0.36 - 1.18
25-29	0.83	0.40 - 1.73	0.89	0.45 - 1.77
30-39	0.79	0.34 - 1.81	0.81	0.41 - 1.6
40-49	0.57	0.23 - 1.44	1.52	0.71 - 3.27
Marital status (ref: Single)				
Married	1.32	0.70- 2.48	1.01	0.61 - 1.66
Widowed/divorced	0.98	0.36 - 2.68	0.66	0.31 - 1.42
Education level (ref: Primary)				
Secondary	1.72**	1.04 - 2.83	1.85**	1.22 - 2.82
College/University	2.33**	1.17 - 4.64	2.28**	1.26 - 4.14
Study area (ref: Urban formal)				
Urban informal	1.31	0.74 - 2.33	2.84**	1.70 - 4.74
Rural	0.45**	0.27 - 0.78	0.71	0.44 - 1.15
HIV stigma				
Will not buy fruits from infected person (ref: would buy)	1.67	0.81 - 3.44	1.42	0.87 - 2.33
Want the HIV status of a family member to remain secret (ref: No)				
Yes, remain secret	1.29	0.82 - 2.04	1.30	0.85 - 1.99
Don't now/not sure/depend	1.01	0.57 - 1.78	2.08	0.91 - 4.78
Teacher should not be allowed (ref: should be allowed)	0.43**	0.25 - 0.76	1.16	0.55 - 2.42
HIV knowledge [‡]	0.87	0.42 - 1.78	1.07	0.66 - 1.76
Never tested for HIV (ref: ever tested)	0.67	0.42 - 1.07	0.94	0.54 - 1.65
Not willing to self-test (ref: willing to self-test)	0.58	0.27 - 1.21	1.44	0.80 - 2.56

Notes: [‡]The HIV knowledge index was generated using a standardized (mean=0 and standard deviation=1) values of 13 items scored in the positive direction (i.e. a higher score represents higher knowledge). Level of significance: *** p<0.001, ** p<0.05, * p<0.1

Among the respondents who felt that HIV self-testing was open to abuse: 80% felt that people might intentionally infect others, 67% felt that people might use self-testing kits to test their partners without their consent and 67% felt that self-testing kits might be used by parents to test their children and infants (Table 10).¹

¹ The Kenya HIV and AIDS Prevention and Control Act of 2006 provides guidelines on HIV testing of minors but is based on facility-based testing

Table 10. Respondents’ perceptions of potential abuses of HIV self-testing, by gender (quantitative survey)

Perceived abuses	Male (%)	Female (%)	Total (%)	Sample per row (n)	p value chi-square
Intentionally infecting others	70.7	90.5	79.6	538	0.000
Testing a partner without their consent	73.0	59.5	67.0	449	0.000
Parents testing their children and infants	80.9	49.5	66.9	450	0.000
Testing people without their consent	45.4	52.0	48.4	326	0.187
Testing potential employees	36.6	46.9	41.2	278	0.017
Schools testing children	31.7	41.1	35.9	243	0.012
Disclosing others' HIV status	19.9	53.9	35.2	238	0.000
Don't know	3.0	5.0	3.9	15	0.032

Note: Chi square tests were used to test the significance in differences by gender

Qualitative interview respondents also noted that the kit might make it possible for people to be tested against their wish. In the words of one female IDI participant aged 15-24 years in the urban informal settlements, *“If I can access this kit, I will make sure that my partner or my husband/wife also does that test so that I can also know his/her HIV status and this will not be voluntary as it is supposed to be. It will be for my pleasure and not theirs.”* Children, spouses or partners, students, and employees were identified as groups vulnerable to forced testing. Forced testing was considered dangerous because it could lead to mistreatment, abandonment, abuse, loss of job, among other consequences.

Younger children were seen to be more vulnerable to coercion as illustrated in the quote below:

If they are told; if you don't agree I will beat you, open your mouth. She will do it because she is scared and you can also manipulate her to agree to take the test, and it is not that she wanted it but you are the one who is interested in it. She will not even be able to read the results therefore it is easy to manipulate anyone under 18 years old to have the test using the HIV self-testing kit.

FGD, 15-24 years, Male, Urban informal settlement

Participants also noted that it might be easier to coerce or deceive people with low education or low awareness about self-testing. As shown in Table 9, survey respondents with no or primary education were less likely to perceive that people could abuse the use of the kit. Explaining why people with low education will be at greater risk of coercion, a 15-24 years old female FGD participant in the rural site stated: *“You can also get some illiterate people, those who have spilt or poured their soup [sic], they can easily be forced by others to self-test since their knowledge is limited and they never argue or question anything at all. You threaten them and they do things according to your will.”*

The power dynamics between employers and employees as well as between teachers and students were also identified as presenting opportunities for coercion. As one participant noted:

The employer can threaten to sack you if you don't do the self-testing. So circumstances will force you to self-test for HIV virus because you don't have another choice but really do need that job.

FGD, 15-24 years, Female, Rural

You can force a house help to self-test since you will be leaving the baby with her and you don't want your baby to be at risk at all.

FGD, 15-24 years, Female, Rural

The possibility of coerced testing of family members was also raised by a 15-24 years old male in the urban informal settlement and linked to the financial cost of the kit. He said: *"Maybe if it was being distributed for free, it would be good so that everyone can have their kit when they want to use it. But if the man of the house was to buy that would mean he buys for everyone and that is when he will force the family members to take the test against their will. If it were free that would be good because he will not be able to force people to use it since he has not spent any coin on it."*

Intentionally infecting others (in case of a positive result), and disclosing other people's HIV status were also cited as ways people might potentially abuse HIV self-testing. This was expressed by respectively 80% and 35% of the respondents in the quantitative survey who stated that HIV self-testing could be abused (Table 10). These concerns were also stated in the qualitative interviews:

There are some people who are devilish in the sense that when they discover that they are HIV positive, she will say so and so has been seducing me and I refuse, this time round I will go for him and she will make sure that when he approaches her this time round, she will accept him.

FGD, 25-49 years, Female, Urban informal settlement

Another challenge is that if I am going to do the test and find that I am HIV positive, I will spread it around since no one else knows what I did. Some people will take advantage and start spreading it after all he didn't go to the VCT so he is the only one aware of what is taking place. He will take advantage of the situation.

FGD, 25-49 years, Male, Urban informal settlement

Expressed Means to Prevent Potential Harms and Abuses of HIV Self-Testing

Participants who noted that HIV self-testing could be abused were asked about possible means to mitigate potential abuses of HIV self-testing. Most of them believed that identified harms and abuses were largely preventable. However, some abuses or harms were considered more difficult to prevent. For example, more than 70% (79% of males and 72% of females) of those who believed that HIV self-testing could be abused in the quantitative survey thought that testing people without their consent using HIV self-testing kits was preventable (Table 11). However,

less than 40% (31% of males and 48% of females) thought that the testing of children and infants by parents was preventable. Feedback from the qualitative interviews suggests that because parents often tell children what to do, it might be difficult to discern between coercive testing and parents simply encouraging their children to test.

When questioned about the ways to prevent the potential abuses of HIV self-testing, 32% (40% of males and 22% of females) of survey respondents who thought that HIV self-testing could be abused suggested making non-consensual testing illegal², 24% (31% of males and 14% of females) suggested that the kit should only be used by the person who purchases it, 20% (22% of males and 18% of females) suggested that only one self-testing kit should be availed per person, while 16% (18% of males and 15% of females) suggested that public sensitization activities should be organized prior to the roll out of self-testing (Table 11). Three percent mentioned that HIV self-testing kits selling points should be restricted.

Table 11. Respondents’ suggestions on ways to prevent potential abuses of HIV self-testing, by gender (quantitative survey)

Variable	Male (%)	Female (%)	Total (%)	Sample per row (n)	p value chi-square
Percentage of respondents who felt that the following type of abuses are preventable					
Testing potential employees	80.8	74.8	77.7	212	0.462
Schools testing children	81.0	73.6	77.2	186	0.250
Testing people without their consent	79.1	71.6	75.4	227	0.232
Testing a partner without their consent	60.7	62.1	61.3	274	0.754
Disclosing others' HIV status	55.3	60.7	59.0	141	0.417
Intentionally infecting others	40.8	49.5	45.2	241	0.069
Parents testing their children and infants	31.3	48.0	36.9	166	0.001
Expressed ways to prevent potential abuses					
Make non-consensual testing illegal	39.5	22.2	31.7	215	0.000
Self-testing kit be used by the person availed to	30.9	14.4	23.5	159	0.000
Avail only one self-testing kit per person	21.5	18.3	20.1	136	0.300
Sensitization	17.7	14.7	16.3	111	0.279
Other ways	5.4	11.1	8.0	54	0.006
Don't allow home self-testing	5.1	10.8	7.7	52	0.006
Pre-counseling	5.9	6.2	6.0	41	0.881
Restricted distribution points	3.2	3.3	3.2	22	0.982
Legal penalties for misuse of kit	4.8	0.3	2.8	19	0.000
Age restrictions for buying kits	1.3	1.3	1.3	9	0.963

Note: Chi square tests were used to test the significance in differences by gender

² The Kenya HIV and AIDS Prevention and Control Act of 2006 states that non-consensual HIV testing is illegal

In the qualitative survey, participants also noted the importance of national campaigns or public sensitization efforts geared at increasing HIV awareness and educating the public on the availability and use of HIV self-testing kits prior to the roll out of self-testing. People mentioned that these campaigns could be done through seminars, community meetings or 'barazas', door to door counseling, use of social and mass media, and road shows. Schools and churches were also described as suitable venues to raise awareness. The importance of public sensitization prior to roll out of HIV self-testing was underscored in the quote below:

People should be sensitized first before being given access to the HIV self-testing kit. Once you sensitized people first before the kits are on the market it will be easy for them to remember what you told them when they see it. Especially these people who are not well educated or well informed, they need to be sensitized to be well equipped so that they are not forced into HIV self-testing.

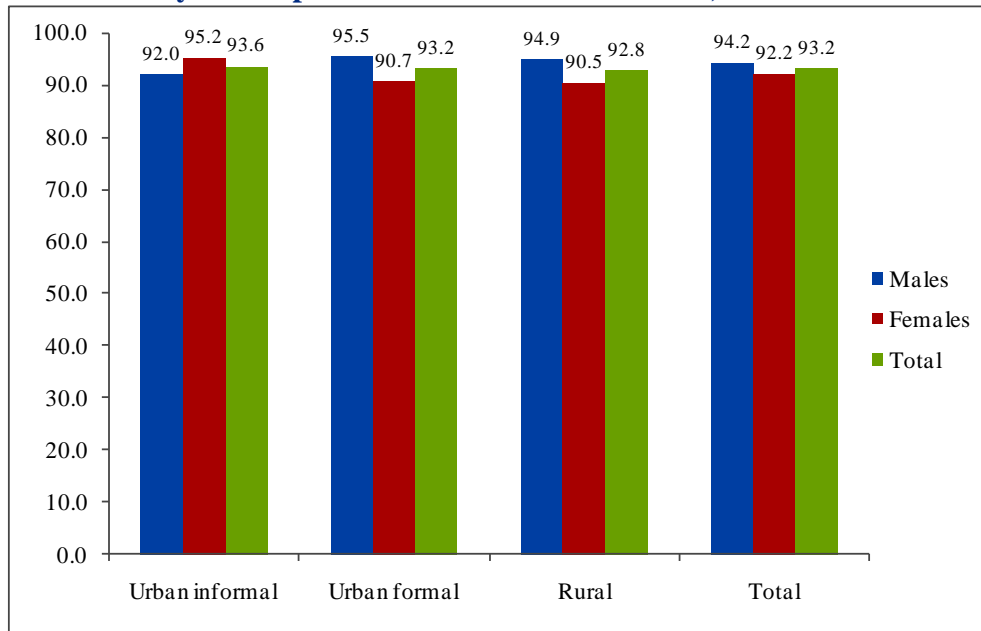
FGD, 15-24 years, Female, Rural

Although two key informants stated that existing HIV testing-related laws were sufficient, the need for a strong legal framework and strict measure for law enforcement were expressed in the qualitative interviews. In particular, some participants stated the need for laws prohibiting coercive testing and the need to restrict the sale of self-test kits to designated selling points where pre-counseling could be offered. For example, a 25-49 years old male FGD participant in the rural site stated: *“In my view, those people who are supplying this kits should be very keen on who is being given this kit to sell to the public because the seller and buyer need to be educated very well on the use of this HIV self-testing kit. When I go to buy it I am also well informed so that I don’t abuse or misuse the kit when I reach home.”*

Counseling Services Needs for HIV Self-Testing

Counseling services for HIV testing have been shown to be effective in promoting behavioral change and providing psychosocial support [30]. Respondents who said they would buy and use a self-test kit were therefore asked this follow-up question: *Do you think it’s necessary to have a trained counselor available to provide support or counseling for self-testing?* They were also asked about the most convenient way to receive counseling with self-testing. The vast majority (more the 90%) felt that it is necessary to have a trained counselor when self-testing. This was unanimous across all the study sites (Figure 8) and there were no significant differences between males and females.

Figure 8. Percentage of respondents who felt it is necessary to have a trained counselor when self-testing, by study area (among respondents who said they would purchase and use a self-test kit)



Note: Chi square tests were used to test the significance in differences by gender. There were no significant differences by gender.

The main reasons why the respondents who said they would self-test would seek counseling from a trained professional included: to receive emotional support if the test was positive (48% of the respondents) and to be able to ask questions and have appropriate answers (34% of the respondents). Thirty percent of the respondents also declared that they would seek counseling from trained professionals because they are knowledgeable. Eighty-eight percent of the respondents reported that they would prefer direct face-to-face counseling.

Table 12. Expressed reasons why respondents thought counseling (pre or post) is needed, and expressed ways to received that counseling (among respondents who said they would purchase and use a self-test kit and that counseling was important), by gender (quantitative survey)

Variable	Male (%)	Female (%)	Total (%)	Sample per row (n)	p value chi-square
Expressed reasons why a trained counselor is needed					
If test is positive, provide support	44.5	51.5	47.9	455	0.011
Answer questions	32.7	35.6	34.1	324	0.065
Healthcare workers are knowledgeable	37.4	21.6	29.8	283	0.000
Explain the results	18.5	18.1	18.3	174	0.882
Explain the need for a confirmatory test	13.6	9.0	11.4	108	0.024
Explain the need for the test	5.7	13.5	9.5	90	0.000
Other reasons	8.7	14.2	11.4	108	0.713
Expressed convenient ways to receive counseling with self-testing					
Direct face-to-face counseling	93.6	82.5	88.2	828	0.000
Over the phone anonymous counseling	2.1	4.8	3.4	32	
Pamphlets/Leaflets	2.5	6.4	4.4	41	
Other	1.9	6.4	4.0	38	

Notes: Chi square tests were used to test the significance in differences by gender

Counseling was also discussed in focus groups where some participants even suggested that kits be distributed initially at health facilities to ensure people receive counseling prior to testing:

When such thing is being launched let it be at the hospital so that when you go there you will get a counselor first before you get it and even if the counseling is not so detailed, but at least you should be given some knowledge about it and then add on what you find in the booklet. That way you will be able to handle the outcome. Most people die from shock and not HIV AIDS because they are not able to manage handling the results. Let it be found in hospitals first.

FGD, 15-24 year old, Male, Urban formal settlement

Although less than 4% of quantitative survey participants noted anonymous counseling over the phone or having necessary information on a pamphlet/leaflet inserted inside the self-testing kit box (Table 12), some participants in the FGDs mentioned these two approaches as other avenues to provide counseling or other relevant information.

You also need to indicate [contacts] where after the results where is this person supposed to go for further help?... Maybe I may be HIV positive and fear to go to hospital but I have someone to talk to after getting my results that will encourage me more. From there I can be registered to start medication or whatever the next course will be. But if I get the results, I might not be very comfortable about going to hospital. Calling might also help me know what to do next.

FGD, 25-49 years, Female, Urban formal settlement

If you could have a small booklet for post counseling, this is very important more than pre-counseling. If a person has that booklet he knows what to do after getting the results because as he is waiting for the results he could be reading the booklet. With pre-counseling you are already aware of what to do so the counselor is there as a shock absorber because you already know what you want to do after the test. A post counseling paper would be very beneficial...then you can go to the VCT to confirm.

FGD, 15-24 years, Female, Rural

Participants in the qualitative interviews suggested community distribution through community health workers (CHWs) as a potential approach to ensure that the public receives counseling or relevant information prior to self-testing. To put it in the words of one respondent:

Another alternative is to have your own counselors as you introduce the kit to the people. Like if you were to use the CHWs like the government is doing or for example if this group here was to be the distribution center, you train us so that when people come for those kits, they are advised. If you are targeting youths, use youths as counselors for example when he comes I will tell him, my dear even though you have come for this thing, this is what to expect. He will go home already equipped on what to do with results.

FGD, 15-24 years, Male, Urban formal settlement

However, some respondents were concerned that the use of community health workers could undermine privacy and confidentiality and preferred the use of professionals who were non-resident in the community. This view is illustrated by the following quotes:

We need people who are conversant or professionals in that field and they can also be counselors from outside the neighborhood. Those CHWs we have...we may not freely tell them our concerns or secrets because might share it out. So even if I did the HIV test at home, and I happen to tell her that information will be all over the community the next day. Therefore we need those people are not residents in this community. If you bring it people from within, other community members will start spreading the news and isolating you.

FGD, 25-49 years, Male, Urban informal settlement

We have those CHWs who come round the community if they were to be given to distribute, we will not take it because we will fear that they might spread the information since we are familiar with one another.

FGD, 25-49 years, Female, Urban informal settlement

PART TWO: INTERPRETATION OF DATA

Overall, the findings reveal widespread acceptability of oral HIV self-testing among the study population. Almost 9 out of every 10 male and female respondents indicated they would buy and use an oral HIV self-testing kit if it were available for purchase. Importantly, study results indicate that 84% of respondents who had never been tested for HIV stated that they would buy and use an oral HIV self-testing kit if the kits were available for purchase in supermarkets or shops. For a highly-stigmatized disease, the widespread acceptability of oral HIV self-testing suggests that it offers great potential for bringing HIV testing rapidly to scale, particularly among hard-to-reach populations. For almost two-thirds of those who were willing to self-test, the privacy afforded by self-testing was a key reason why they would self-test. Only one in five of the few respondents who said they would not buy and use a self-testing kit stated concerns about the accuracy of the kit, suggesting that the accuracy of the oral HIV self-testing kit was not a concern for many respondents.

Although respondents' attitudes towards self-testing are generally positive based on the numbers willing to purchase and use the kit, they raised several concerns about possible harms and abuses at individual and society level. Based on our conceptual framework, we postulate that individuals' perceived social harms and abuses may constitute a potential barrier to the uptake of HIV self-testing. In addition, perceived risks and abuses may represent real risks that could emerge from unsupervised HIV testing among the general public and can inform the development of measures to mitigate these risks.

About 2 in 3 of all the respondents in the quantitative survey cited at least one disadvantage they perceive HIV self-testing could have. Chief among the potential disadvantage were negative psychological effects ranging from depression to suicide. Previous research shows that secret knowledge of one's HIV status has potential to be detrimental, particularly in absence of effective counseling and support. For instance, in a qualitative research study among Malawian and Ugandan young men by Izugbara and colleagues [19, 31], respondents stated that they might commit suicide, deliberately infect others, or run away from home if they secretly realized they were HIV positive. In the present study, 31% of quantitative survey respondents stated that people might commit suicide if they self-tested positive whereas 23% stated that people might be anxious or depressed. As further captured in the qualitative interviews, these fears were related to concerns that people would be self-testing for a highly-stigmatized condition without adequate counseling support. When directly asked about the main action they would (themselves) hypothetically take if they self-tested positive, only 9% of the respondents who said they would self-test mentioned that they would most likely go into depression whereas 2% said they would most likely commit suicide. Taken together, these results suggest that efforts to roll-out HIV self-testing should take into account linkages to counseling and other support services for people who self-test and find themselves to be positive.

Participants in the quantitative and qualitative surveys also expressed fears that people might fail to disclose positive results. Although some participants in the qualitative interviews argued that failure to disclose positive results was not unique to self-testing, others argued that facility-based testing and counseling reduce these risks. Non-disclosure of HIV status could be harmful to the individual or others. Given the importance of disclosure of HIV status in preventing transmission

and ensure linkage to treatment [32], it is imperative that efforts to promote self-testing encourage linkage to treatment, and disclosure of HIV positive status or adoption of behaviors that reduce the likelihood of transmission.

About one in ten of participants were concerned about counterfeit kits. Some focus group discussion participants stated that availability of kits for purchase rather than distribution of free or highly subsidized kits could result in a market for counterfeit or expired testing kits. A recent report by Muthiani and Wanjau [33] notes that counterfeit medical products are a key concern in Kenya. They note that pricing of medical products can influence counterfeiting and recommend that medical products should be affordably priced to reduce the market for counterfeit products. In addition to strict regulations against counterfeiting, Muthiani and Wanjau also recommend the need to educate the public about the risks of counterfeit commodities.

Sixty-one percent of all respondents felt that HIV self-testing might be misused or abused by people. Chief among the perceived ways people could misuse or abuse HIV testing was intentionally infecting others in case of positive results (80% of the respondents who felt HIV self-testing could be misused or abused). However, only one respondent (male respondent) mentioned that he would (himself) intentionally infect others if he hypothetically self-tested and found out he was positive. This large discrepancy in participants' perceptions compared with their own possible actions might be related to the sensitivity given the illegality of intentionally infecting others in Kenya (The Kenya Sexual Offences Act of 2006 stipulates that intentionally infecting others is illegal). In addition, it may be more likely that people might fail to disclose their HIV status to sexual partners rather than deliberately choosing to infect others.

Testing others without obtaining informed consent was also identified as a key concern, with children, students, spouses or partners, employees and people with no or low levels of education noted to be particularly vulnerable to coerced testing or testing without informed consent. Specifically, on the issue of parents testing children without obtaining informed consent, only 37% of the respondents who thought this type of abuse could happen felt it was preventable. In the qualitative interviews, two viewpoints emerged about testing infants or children. One perspective was that testing infants or children was an abuse, while the other viewed it as consistent with good parenting and making sure that children are healthy. Existing laws and guidelines on HIV testing (e.g., the Kenya HIV and AIDS Prevention and Control Act of 2006) focus on the testing of children in health facilities. This strongly suggests the need for guidelines on the testing of children in a context where HIV self-testing kits are publicly available.

The findings show that although the acceptability of HIV self-testing is equally high among males and females, significantly greater proportions of males than females stated that HIV self-testing had disadvantages or that HIV self-testing could be misused or abused by people. For instance, significantly more males (27%) than females (20%) felt that people could be anxious or depressed if they self-tested —though more females (19%) than males (11%) stated that they could go into depression (themselves). Differences by educational status were also observed. Respondents with a secondary education or more were more likely to feel that HIV self-testing has disadvantages or could be misused or abused by people as compared with respondents with no or primary education. Given that perceived disadvantages and abuses could affect uptake, these socio-demographic differences in perceived harms and abuses suggest the need to tailor HIV self-testing campaigns to different audiences.

To a large extent, many of the potential harms and abuses associated with oral HIV self-testing were linked to the lack of a suitable mechanism to provide counselling and or information about self-testing kits either prior to or after the test. Previous studies on HIV self-testing have also underscored the lack of counselling as a major concern [34]. Participants identified several ways to mitigate the challenges stemming from lack of counselling. First, participants noted the need for the government to raise awareness about HIV self-testing kits through sensitization programs in schools, places of worship, public meetings and the mass media, among others. They noted sensitization programs would ensure that people were well informed about HIV/AIDS, treatment options, and correct use of the kits. In addition, they underscored the need for face-to-face counselling and some argued that at the initial phase, the kits should only be available at restricted selling points with trained personnel to provide counselling and technical information about the kit. Community distribution through community health workers was also suggested as a potential approach. However, some respondents were concerned that use of community health workers might undermine privacy and confidentiality. Finally, some study participants also noted the need for written guidelines on what a person should do after the test as well as telephone contacts in case someone needed to talk to someone.

Taken together, the study findings demonstrate widespread acceptability for HIV self-testing among the general public. However, efforts to roll out HIV self-testing must take into account the perceived harms and abuses associated with HIV self-testing among the general public. These perceived harms and abuses may affect the uptake of HIV testing or may represent real risks that could emerge from unsupervised HIV self-testing among the general public. To mitigate these risks, decisions on the distribution and sale of oral HIV self-testing kits should ensure that potential users have detailed information on the correct use of the kit (including ways to assess the authenticity of the testing kit), the interpretation of test results, and the recommended steps to take based on the test results. Emerging findings also strongly suggest the need for effective approaches to provide linkages to counselling and treatment and for revision of laws and guidelines on HIV testing to account for situations where HIV self-testing kits are available for public use.

PART THREE: POLICY RECOMMENDATIONS

The following are key policy and programmatic recommendations drawn from the study findings;

1. Study findings highlight the need to ensure that the public is well informed about HIV self-testing and ways to prevent potential harms and abuses. Participants identified mass sensitization as one way to prevent possible harms and abuses. Pant Pai and colleagues [18] note that the success of HIV self-testing is largely dependent on people being able to accurately test themselves and at the same time seek post-testing counseling and treatment. To this end, it is critical that rollout of HIV self-testing kits is preceded by extensive mass sensitization on HIV self-testing including its benefits and risks.
2. HIV/AIDS is a highly stigmatized disease and the possibility of people being able to self-test for HIV in the absence of counseling support presents a unique threat to individual and social wellbeing. The vast majority of respondents noted that counseling was a critical component of HIV self-testing and for many participants in the quantitative survey, face-to-face counseling was the preferred modality for this counseling. The main reasons why the respondents who said they would self-test would seek counseling from a trained professional included: to receive emotional support if the test was positive, and to be able to ask questions and have appropriate answers. Several avenues exist to address the need for counseling for individuals who self-test for HIV:
 - a. The distribution of HIV self-testing kits could, at least in the initial phase, be limited to selling points with trained personnel who can provide counseling and technical information on the use of the kits prior to purchase.
 - b. All people purchasing the kit should be informed about facilities where they can go for further counseling, confirmatory tests, and when eligible, treatment.
 - c. All kits should include easily understood information about the correct way to perform the test (including assessment of the authenticity of the kit), the dangers and illegality of non-consensual use of the kit, information on what one should do if the test is positive or negative, and the need to seek counseling or treatment support.
3. Study findings show that only a minority of study participants noted the need for a hotline service served by trained counselors who can provide phone-based counseling and refer callers to local facilities for further counseling or treatment. However, given that hotline services already exist (e.g., Liverpool VCT one2one youth hotline), information on existing hotline services should be provided to those purchasing self-test kits.
4. About one in every ten survey respondents who noted that there were disadvantages to self-testing stated that counterfeit kits could be introduced in the market. A recent report by Muthiani and Wanjau [33] notes that counterfeit medical products are a key concern in Kenya and that pricing of medical products can influence counterfeiting. Pricing considerations may therefore be critical in mitigating potential harms stemming from the availability of counterfeit self-testing kits in the market. As recommended by Muthiani and

Wanjau [33] the oral HIV self-testing kits should be affordably priced to reduce the market for counterfeit products. Further, strict regulations against counterfeiting and public awareness campaigns about the risks of counterfeit HIV self-testing kits commodities are critical.

5. Testing others, particularly children, without obtaining informed consent was identified as a key concern. Existing laws and guidelines on HIV testing (e.g., the Kenya HIV and AIDS Prevention and Control Act of 2006) focus on the testing of children in health facilities. Existing laws and guidelines should therefore be amended to include guidelines on the testing of children in a context where HIV self-testing kits are publicly available.

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APPENDICES

Focus Group Discussion Guide (English)

HIV -related knowledge

1. In what ways has HIV/AIDS affected this community? (Probes: orphans children, loss of livelihoods, family crises, deaths and morbidity, loss of productive-age adults, social dislocation,)
2. Given what you know, what groups of people do you think are at more risk for HIV infection in this community [and why]? (Probes: Gender and age differences, people involved in multiple sexual relations, same-sex partnerships, commercial sex work)

HIV testing

3. What do you know about HIV testing? *Probe what respondents know about where HIV testing can be obtained, when to seek it, the usefulness of HIV testing (e.g., prevention of mother-to-child transmission, people stop engaging in risking behavior, people receive treatment, reduces transmission, helps people live positively)*
4. Given your knowledge, what would you say prevents people in this community from getting an HIV test? (Probes: stigma, cost, fear, lack of VCTs, self-confidence, etc.) *Probe whether respondents think these reasons differ for genders, generation, literacy, class etc.*
5. How many of you here know someone in this community who has been tested for HIV?
6. What do you know about their experiences being tested? *Probe for specific examples reflecting what they liked or disliked about testing)*

HIV self-testing

<p>There is now a kit that allows people to test themselves for HIV at home. INTERVIEWER SHOULD GIVE A SHORT DEMONSTRATION OF THE HIV KIT AND EMPHASIZE THAT WE WILL NOT BE TESTING THE RESPONDENTS</p>

7. Given what you know, what will be the challenges associated with letting people in this community to test themselves for HIV at home (Probes: cost, lack of access to counseling, illiteracy etc.)
8. Given what you know about this community, what benefits do you see in people being able to test themselves for HIV at home? (Probes: privacy, confidentiality, accessibility, greater awareness of HIV status, etc.) *IMPORTANT: Probe how unique to self-testing respondents perceive these advantages to be)*
9. Given what you know, in what ways do you think people in this community might misuse/abuse HIV self-testing in ways that would harm themselves and others? (Probes: coerced testing, testing children, might give a false sense of security,

deliberately infecting others when test is positive, encourage multiple sexual partnerships, encourage unprotected sexual activity, etc.). *For each mentioned abuse, seek the people perceived as likely to perpetrate it and why.*

10. Given what you know, how can the abuses/misuses that can emerge from HIV self-testing be minimized? (Probes: making it illegal to test others, allowing people to only purchase one kit at a time, etc.). *Pick each abuse mentioned and specifically ask about how it can be minimized and by whom.*
11. Given what you know, what would the average person in this community do if they self-tested positive?
12. What do you think about counseling services for people who self-test?
13. How best can counseling services be organized for people who self-test?
14. Is there anything else you would like to say about this new idea of HIV self-testing? *If yes, probe what it is*

In-Depth Interview Guide (English)

I would like us to begin by talking about HIV/AIDS

HIV -related knowledge

1. What are the ways through which people contract HIV?
2. In what ways can HIV be prevented?
3. Given what you know, what groups of people do you think are at more risk for HIV infection in this community [and why]? (Probes: Gender and age differences, people involved in multiple sexual relations, same-sex partnerships, commercial sex work)

HIV testing

4. What do you know about HIV testing? *Probe what respondent knows about where HIV testing can be obtained, when to seek it, the usefulness of HIV testing (e.g., prevention of mother-to-child transmission, people stop engaging in risking behavior, people receive treatment, reduces transmission, helps people live positively).*
5. Given your knowledge, what would you say prevents people in this community from getting an HIV test? (Probed: stigma, cost, fear, lack of VCTs, self-confidence, etc.) *Probe whether respondents think these reasons differ for genders, generation, literacy, class etc.*
6. Now looking particularly at people your age and sex in this community, what would you say prevents them from getting an HIV test? (Probe: stigma, cost, fear, lack of VCTs, self-confidence, etc.)
7. I do not want to know the result, but have you ever been tested for HIV?
8. **[Only ask those who have ever been tested]** When and where you tested? What did you like or dislike about testing?
9. **[Only ask those who have never been tested]** Why have you not tested for HIV?
10. Do you know someone who has been tested? What do you know about their experiences being tested? *Probe for specific examples reflecting what they liked or disliked about testing*

HIV self-testing

There is now a kit that allows people to test themselves for HIV at home. INTERVIEWER SHOULD GIVE A SHORT DEMONSTRATION OF THE HIV KIT AND EMPHASIZE THAT WE WILL NOT BE TESTING THE RESPONDENT

11. What are your thoughts about HIV self-testing? *Allow respondent to speak freely*
12. **[Only ask who have ever been tested]** Given your experience of testing for HIV, would you have preferred self-testing? If yes/no why?
13. **[Only ask those who have never been tested]** Given that you have not tested for HIV, would you prefer self-testing? Probe why for yes/no

14. What would you do if you self-tested positive? Probe if candidate would seek counseling, inform partner, go public about status etc.
15. Given what you know, what would the average person in this community do if they self-tested positive? [Probe as in above]
16. What do you think about counseling services for people who self-test?
17. How best can counseling services be organized for people who self-test?
18. Given what you know, what will be the challenges associated with letting people in this community to test themselves for HIV at home (Probes: cost, lack of access to counseling, illiteracy etc.)
19. Putting aside your personal experiences, what benefits do you see in people being able to test themselves for HIV at home? (e.g., privacy, confidentiality, accessibility, greater awareness of HIV status) *Important: Probe how unique to self-testing respondents perceive these benefits to be*
20. Putting aside your personal experiences, in what ways do you think people in this community might misuse/abuse HIV self-testing in ways that could harm themselves and others? (Probes: coerced testing, testing children, might give a false sense of security, deliberately infecting others when test is positive, encourage multiple sexual partnerships, encourage unprotected sexual activity etc.). *For each mentioned abuse, seek the people perceived as likely to perpetrate it and why?*
21. Given what you know, how can the abuses/misuses that emerge from HIV self-testing be minimized? *Pick each abuse mentioned and specifically ask about how it can be minimized and by whom*
22. Is there anything else you would like to say about this new idea of HIV self-testing? *If yes probe what it is*

Key Informant Interview Guide (English)

1. In what ways has HIV/AIDS affected this community? (Probes: orphans children, loss of livelihoods, family crises, deaths and morbidity, loss of productive-age adults, social dislocation, etc.)

<p>There is now an affordable kit that allows people to test themselves for HIV at home. INTERVIEWER SHOULD GIVE A SHORT DEMONSTRATION OF THE HIV KIT AND EMPHASIZE THAT WE WILL NOT BE TESTING THE RESPONDENTS</p>

2. Given what you know, what will be the challenges associated with letting people in this community to test themselves for HIV at home (Probes: cost, lack of access to counseling, illiteracy etc.)
3. Given what you know, what benefits do you see in people being able to test themselves for HIV at home? (e.g., privacy, confidentiality, accessibility, greater awareness of HIV status) *Important: Probe how unique to self-testing respondents perceive these benefits to be*
4. Given what you know, in what ways might HIV self-testing become a problem or be misused/abused in this community? (Probes: coerced testing, testing children, might give a false sense of security, deliberately infecting others when test is positive, encourage multiple sexual partnerships, encourage unprotected sexual activity etc.). *For each mentioned abuse, seek the people perceived as likely to perpetrate it and why?*
5. Given what you know, how can the abuses/misuses that can emerge from HIV self-testing be minimized? (Probes: making it illegal to test others, allowing people to only purchase one kit at a time, etc.) *Pick each abuse mentioned and specifically ask about how it can be minimized and by whom*
6. Is there anything else you would like to say about this idea of HIV self-testing? *If yes, probe what it is*