

# Global Leadership Training Programme in Africa 2018

## Activity Report of Field Research

### **A comparative study of barriers and facilitators of HIV Testing Services Visits among male and female adults in Homa Bay, Kenya**

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## I. Summary

### • English Summary

**Background:** It is expected that by 2020, at least 90% of the people living with HIV will know their status. However, currently, only about 75% of the people living with HIV globally are aware of their status yet voluntary counseling and testing services are widely available. Yet Kenya is one of the countries with the highest rate of HIV infection in the world. Homa Bay County was chosen for this study because it has the highest prevalence of HIV infection in Kenya, at 25.7%.

**Study objective:** To determine barriers and facilitators of HIV Testing Services visits among adult males and females in Homa Bay County, Kenya.

**Methodology:** This was a cross-sectional study design among 645 adults who were sampled from Homa Bay County. Both quantitative and qualitative data were collected. Quantitative data was collected on including individual's demographic and social economic factors, family and partner related factors and health system related factors. Qualitative data was also collected on barriers and facilitators of HIV Testing Services visits among 17 participants. Male and female adults were purposively sampled to participate in the study through a multistage process in which stage 1 was sampling of sub-counties, stage 2 sampling of facilities and stage 3 selection of participants. Selection of participants was done with the help of the local HTS counsellors at the study facilities. Statistical analysis was performed with IBM SPSS Statistics software version 23. The dependent variable, "frequency of HIV Testing Services visits" was analyzed as a binary variable. P-values of  $<0.1$  and  $<0.05$  were considered as statistically significant in bivariate analysis and multivariate logistic regression models respectively. Qualitative data were thematically analyzed by barriers and facilitators of HIV Testing Services visits.

**Results:** The frequency of HIV Testing Services visits was significantly different between those at urban and rural based facilities ( $p=0.000$ ). Among the males, the main barrier was "being engaged in fishing industry" (OR:0.269, 95% CI: 0.093-0.778, P: 0.015), while the facilitators were "having a friend to go with for testing" (OR:3.873, 95% CI: 1.983-7.565, P: 0.042) and "partner's positive attitude towards HTS visits" (OR:1.909, 95% CI: 1.023-3.565, P: 0.000). The main barriers among the females were "polygamy" (OR:0.294, 95% CI:0.153-0.565, P:0.000) and "the last HIV testing at the community" (OR:0.143, 95% CI: 0.071-0.289, P: 0.000), while the facilitators were "having family support" (OR:2.672, 95% CI:1.361-5.244, P:0.004) and "affordability of transport cost for HTS centre" (OR:4.926, 95% CI:2.300-10.549, P:0.000).

**Conclusions:** This study confirmed that there are gender differences in factors that determine visits to HIV Testing centres. For men, occupation and public relations determine their frequency of visits to the HIV Testing Services centres, while for the women, the distance and the cost of transportation to the nearest centre as well as type of marriage and family support network determine how frequent they can visit HIV Testing Services. These gender differences should be considered in interventions aimed at increasing uptake of HIV Testing Services.

**Key words:** Homa Bay, HIV Testing Services Visits, Barriers, Facilitators, Gender differences

- Japanese Summary with Japanese research title

**タイトル：**ケニアのホマベイ郡における HIV 検査受診の阻害/促進要因の男女間比較研究

**背景：**国連合同エイズ計画は 2020 年までに、HIV 陽性者の少なくとも 90%が自分の感染状況を知ること为目标として掲げている。しかし現在、自発的な HIV 検査サービスは広く利用可能であるにも関わらず、世界中で HIV 陽性者のうち、自身の感染状況を把握しているものは約 75%とされている。ケニアは世界で最も HIV 感染率の高い国の一つである。中でもホマベイ郡は、HIV 感染率が 25.7%とケニアで最も高い。

**研究目的：**ケニアのホマベイ郡における成人男女間の HIV 検査受診の阻害要因と促進要因を明らかにする。

**研究方法：**本研究は、ホマベイ郡内でサンプリングされた 645 人の成人を対象に自記式質問紙調査とインタビュー調査を併用する横断研究である。自記式質問紙調査では、個人の人口統計学および社会的要因、家族およびパートナーに関する要因、そして保健システムに関する要因を収集した。また、インタビュー調査では自記式質問紙調査の対象者から 17 人をリクルートし、HTS 受診行動の阻害要因と促進要因について半構造化面接を実施した。対象者の選定では多段抽出法を用いた合目的的サンプリングを実施した。まず、ステージ 1 でサブ郡をサンプリングし、ステージ 2 で施設のサンプリング、最後にステージ 3 で対象者をサンプリングした。ステージ 3 における対象者のサンプリングは研究対象施設で働く HTS カウンセラーが行なった。統計分析は、IBM SPSS 統計ソフトウェアバージョン 23 を使用した。

「HTS の訪問頻度」を「1 年未満」「1 年以上/初めて」の二値変数とし、カイ二乗検定および多変量ロジスティック回帰モデルを用いて関連要因を探索した。有意水準は二変量解析、多変量ロジスティック回帰モデルでそれぞれ  $p < 0.1$  および  $< 0.05$  とした。すべての分析は性別毎に行われた。また、インタビュー調査ではデータを HIV 検査受診の阻害/促進要因に分類した。

**結果：**対象者間の施設による HIV 検査の訪問頻度は、都市部と農村部の施設間で有意差があった ( $P = 0.000$ )。HTS 受診行動に関連する要因として、男性の阻害要因は、漁業 ( $OR : 0.269, 95\%CI : 0.093-0.778, P : 0.015$ ) に関与していた。一方で、促進要因は、検査へ一緒に訪問できる友人がいること ( $OR : 3.873, 95\%CI : 1.983-7.565, P : 0.042$ ) と、HTS 受診に対してパートナーが前向きに捉えていること ( $OR : 1.909, 95\%CI : 1.023-3.565, P : 0.000$ ) と関連していた。女性の阻害要因は、一夫多妻制 ( $OR : 0.294, 95\%CI : 0.153-0.565, P : 0.000$ ) と前回の HIV 検査がコミュニティ検査であったこと ( $OR : 0.143, 95\%CI : 0.071-0.289, P : 0.000$ ) が関連し、促進要因は、家族からの支援があること ( $OR : 2.672, 95\%CI : 1.361-5.244, P : 0.004$ ) と、HTS までの移動費が賄えること ( $OR : 4.926, 95\%CI : 2.300-10.549, P : 0.000$ ) が挙げられた。

**結論：**本研究では、HIV 検査の訪問に関連する要因に性差があることが明らかとなった。男性の場合、職業および周囲との関係性が HIV 検査への訪問頻度と関係し、女性の場合、最寄りの検査場までの距離や交通費、および結婚のタイプや家族のサポート体制が関連を示した。これらの性差は、HIV 検査サービスの普及を促進のための介入において考慮されるべきことである。

**キーワード：**ホマベイ、HIV 検査受診、阻害要因、促進要因、性差

## **II. Research Activity**

### **1. Introduction**

#### **(1) Background**

HIV continues to be a major global public health issue according to WHO (2017), having taken more than 35 million lives so far. Globally, there were approximately 36.7 million people living with HIV at the end of 2016, with 1.8 million people becoming newly infected in 2016. The African region accounts for almost two-thirds of the global total of new HIV infections (WHO, 2017). The high HIV prevalence rate continues to impact negatively on Homa Bay County's development besides placing a lot of strain on any household budget. HIV/AIDS has also affected productivity especially in agricultural and transition in the education sector. The fight against HIV/AIDS must therefore be intensified if the county is to win its war against poverty (County, E., 2013).

In the "Millennium Development Goals" that ended in 2015, the prevention of the spread of HIV/AIDS was addressed in goal 6. Between 2000 and 2016, new HIV infections fell by 39%, and HIV-related deaths fell by one third with 13.1 million lives saved in the same period (WHO, 2017). The successor "sustainable development target" has been set as "by 2030, end the epidemics of AIDS, tuberculosis, malaria, and neglected tropical diseases and combat hepatitis, water-borne diseases, and other communicable diseases," and HIV / AIDS continues to be a major international challenge (WHO, 2017). It is expected that by 2020, at least 90% of the people living with HIV will know their status. This can only be possible if people can get tested for their HIV infection status (Bachanas et al., 2013). Currently, only 75% of HIV-infected people are aware of their infection morbidity status; an additional 7.5 million people need to receive testing services to reach the goal of 90% listed in the United Nations HIV/AIDS Plan (UNAIDS, 2018).

#### **HIV Testing Services**

Centers for Disease Control and Prevention (CDC) recommends that everyone between the ages of 13 and 64 gets tested for HIV at least once as part of routine health care. For those with specific risk factors, the CDC recommends that they get tested at least once a year (CDC, 2019). Annual HIV testing in high prevalence settings is recommended or individuals at continued risk of HIV infection to support early detection of HIV infection and initiation of Anti-Retroviral Therapy (ART) (Hensen et al., 2015). In Kenya, it is recommended that the general population visit the HTS centre at least once a year (NAS COP, 2015). The term HIV Testing Services (HTS) is used to indicate the full range of services that a client is offered together with HIV testing. This includes counselling (pre and post testing); linkage to appropriate HIV prevention, care and treatment services, and other clinical support services; and coordination with laboratory services to support quality assurance and delivery of correct results (NAS COP, 2015).

#### **Access to HIV Testing Services**

Studies show that the general population is reluctant to visit the HTS centres for testing of their HIV status, thus frustrating the efforts in reducing new HIV infections (Healthlink Worldwide, 1999; Jean et al., 2012; Audet et al., 2012; Camlin et al., 2016). In previous studies, the facilitators and barriers to HTS visits in Africa were investigated. However, most of these studies targeted special groups such as Men who have Sex with Men (MSM), drug users and sex workers (Shangani et al. 2017; Wright et al., 2013; Chanda et al., 2017). Women's HIV testing rates have significantly improved in Africa (Japan International Cooperation Agency. 2004; WHO, 2011). In women, barriers such as the reaction of the partner and the collapse of the relationship have been reported (Qiao, 2018). The frequency of HIV

testing in men is known to be low (Hensen et al., 2015). In men, barriers such as the hospital system (Larsson, 2010) and poor access to the examination through work (Siu et al., 2014) were reported. Other external barriers have been shown to be social roles and social systems in men and social relationships with families and close friends in women (Mugisha. et al., 2010; Chimoyi. et al., 2015). It therefore appears that there are differences in barriers and facilitators to HTS visits by gender.

### **Causes of gender differences in barriers and facilitators of HIV Testing Services Visits**

It has been suggested that factors that are barriers or facilitators in one group are not necessarily the same in other groups. Health behavior is influenced by multi-level factors such as individual itself, between individuals and communities, and different groups have different values and cultures, so it is necessary to examine factors that affect each group (Glanz, et al., 2015) . The studies on barriers and facilitators to HIV testing in Africa is summarized in table 1.

In studies that analyzed men and women separately, being aged 35 to 49 in men (Tabana et al., 2012) were shown to be facilitators to HTS visits. With regard to marital status, being married and living with partners were facilitators in men (Chimoyi et al., 2015). Siu and colleagues (2014) reported that having a responsibility to the family was a facilitator of HIV testing visits. On the other hand, Ostermann and colleagues (2011) reported that having a child was a barrier in men. Barnabas and colleagues (2010) concluded from their qualitative study that one of the facilitators of the HIV testing visits were “believing in God” and “the desire to live longer.” Chimoyi and colleagues (2015) also reported that being without stigma or discrimination was a facilitator for men. In addition, “fear of the test results” (Siu et al., 2014; Mugisha et al., 2010) and “fear of death” (Audet et al., 2012) were reported as barriers in men. Also, drinking tap water and using electricity for cooking in men (Tabana et al., 2012) were reported as facilitators. In health care system, difficulties in adjusting the work schedules for HIV testing (Siu et al., 2014) and unfamiliarity with seeking healthcare (Camlin et al., 2016) were reported as barriers of HIV testing visits in men.

For women, previous studies show that being aged 20 to 34 (Agha, 2012; Tabana et al., 2012) is a facilitator to HTS visits. With regard to marital status, never being married was reported as a barrier in women (Agha, 2012). In addition, living in urban areas and being wealthy (Agha, 2012) and being pregnant (Mugisha et al., 2010) were reported as facilitators.

It is evident that there are gender differences in accessing the HTS. A comprehensive understanding of these difference in populations with high prevalence of HIV is necessary to guide gender-sensitive programs for HTS visits.

### (2) Study questions

- a) What is the proportion of the population who visits HTS more than once a year as recommended in Homa Bay County?
- b) What are the barriers and facilitators to HTS visits in Homa Bay County?
- c) Are there gender differences in HTS visits in Homa Bay County?
- d) What are the factors associated with HITS among males and females in Homa Bay County?

### (3) Study objective

#### **Main Objective**

To determine barriers and facilitators to HTS visits among adult males and females in Homa Bay County, Kenya.

#### **Specific Objective**

- a) To assess the frequency of HTS visits among adult male and female in Homa Bay County
- b) To determine barriers to HTS in Homa Bay County
- c) To determine facilitating factors for HIV Testing Services in Homa Bay County
- d) To determine factors associated with HIV Testing Services Visits among males and females in Homa Bay County

2. Study Area

The study was conducted in Homa Bay County (Figure 1). There are eight sub-counties in the county namely: Homa Bay town, Kabondo Kasipul, Kasipul, Rangwe, Rachuonyo North, Mbita, Suba and Ndhiwa. Its borders Kisumu and Siaya counties to the North, Kisii and Nyamira counties to the East, Migori County to the South and Lake Victoria and the Republic of Uganda to the West. The total population in Homa Bay County is estimated to be 1,177,181 (Male: 564,843, Female: 612,338) (Kenya

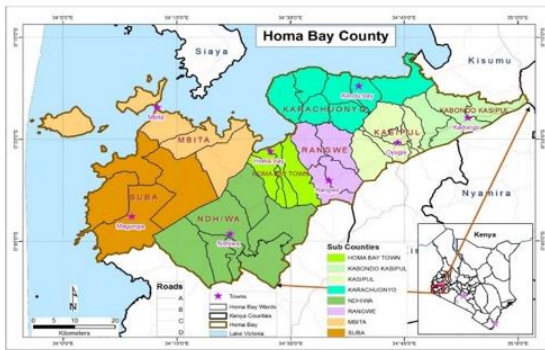


Figure 1:Map of Homa Bay County

Source: GoK, 2013 County Government of Homa Bay; First county Integrated Development Plan

National Bureau of Statistics, 2014). The main sources of livelihood of the population in Homa Bay county are agriculture, fishing, tourism and forestry (County, E., 2013). The county was chosen for this study because it has the highest prevalence of HIV infection in Kenya, at 25.7% (NAS COP, 2015). The HIV infection rate in Homa Bay County is about 4.5 times higher than that of Kenya, with 10.4 % of HIV-infected people in Kenya live in the county (NAS COP, 2015).

3. Methodology

(1) Study design

This was a cross-sectional study design among the 645 adults who were sampled from Homa Bay County.

(2) Study population description

The study population consisted of adults (excluding pregnant women) who visited the HTS centres in Homa Bay County.

(3) Sample size calculation for questionnaire

Using the estimated sample size calculation for two-sample comparison of proportions and based on the Kenya Demographic Health Survey (KDHS, 2014) values for HTS visits of 58.9% and 70.9% for males and females respectively in Homa Bay County, the sample size was computed in STATA statistical software version 12.0. From there, the minimum sample size for the study was 528. When adjusted for 10% non-response due to spoilt questionnaires based on the following formula,  $n^* = n/(1-q)$ , where  $n^*$ =adjusted sample size,  $n$ =sample size before adjusting, and  $q$ =the proportion expected for

non-response (Tucker et al. 1998), the minimum sample size expected was 580 participants (290 males and 290 females).

(4) Sampling for questionnaire

Multi-stage sampling method was used in this study. Stage 1 involved sampling of sub-counties, stage 2 was a sampling of facilities and stage 3 was the selection of participants.

Stage 1: Sampling of sub-counties

Homa Bay town, Ndhiwa and Rachuonyo North sub-counties were purposively sampled for the study because Homa Bay town has the highest population density and while Ndhiwa and Rachuonyo North sub-counties have low population density but the most populous sub-counties.

Stage 2: Sampling of facility

One public hospital with the highest attendance of outpatients was purposively selected from each sub-county. These were Homa Bay referral hospital in Homa Bay town, Ndhiwa sub-county hospital in Ndhiwa sub-county and Rachuonyo North sub-county hospital in Rachuonyo North sub-county.

Stage 3: Selection of participants

All adults aged 18 years and above who visited the HTS centres during the study period were subsequently purposively selected to participate in the study.

(5) Recruitment, Selection and Consenting procedure for participants for questionnaire

The local HTS counsellor recruited the study participants after conducting the HTS for them. All adults who visited HTS in this research period were included in the study until the sample size was achieved. Participants were selected for the questionnaires survey at the 3 participating facilities in Homa Bay County. Only those participants who provided voluntary informed written consent were included in the study.

(6) Sample size for qualitative interview

About 20 adults were initially expected to participate in the qualitative interviews at the HTS. Ten participants who visit the HTS at least once a year and 10 participants who did not visit the HTS at least once a year was selected for the interviews. 10 people (5 males, 5 females) who had completed the questionnaire, who were visiting HTS at least once a year and 10 people (5 male, 5 female) who were not visiting HTS at least once a year, total 20 people. The total sample size for qualitative interviews was 17 participants when the point of saturation was reached, and no new information was generated from the interviews. According to Creswell (2013), cost, time, and effort can be secured, and feasibility is considered for the purpose of being able to generalize research so that the maximum information can be applied to other cases.

(7) Recruitment, Selection and Consenting procedure for participants in interview

The principal investigator, with the support from research assistants, recruited the study participants who had completed the questionnaire for qualitative interview. Participants were randomly selected to respond to the interview until the point of the saturation was reached when no new information came out of the interviews.

(8) Training of research assistants

The research assistants were the trained local certificate holders of HTS counselling from each of the study facilities. They were trained on the research ethics and data collection tools and recording for this study.

(9) Data collection procedures

For the questionnaires, a structured questionnaire was used to collect the data. The questionnaire is written in English but was translated into the local language by HIV counsellor. The questionnaire took about 10-15 minutes to complete.

For the qualitative interviews, a semi-structured interview guide was used. The participants were interviewed by research assistants in a private room where they felt comfortable answering questions. The time required for the interview was about 30 minutes.

(10) Data analysis

The dependent variable in this study was the frequency of HTS visits. This was measured as the proportion of participants who visited the HTS at least once a year as per recommendations, once after many years or never (First time). Statistical analysis was performed with IBM SPSS Statistics software version 23. The independent variables that were statistically significant at  $p < 0.1$  in bivariate analysis were included for multivariate analysis by using Forward Stepwise (Likelihood Ratio). Factors which were statistically significant at  $p < 0.05$  were considered to be independently associated with HTS visits. All the analysis were done by gender. Qualitative data were thematically analyzed by barriers and facilitators of HIV Testing Services visits.

4. Research Findings

**Socio-demographic characteristics of study participants**

Figure 2 shows the flowchart for the selection of participants in the questionnaire. Table 1 shows the characteristics of participants in the study. A total of 645 adults participated in the study and all of them completed the questionnaire. The represents 111% completion rate in the study.

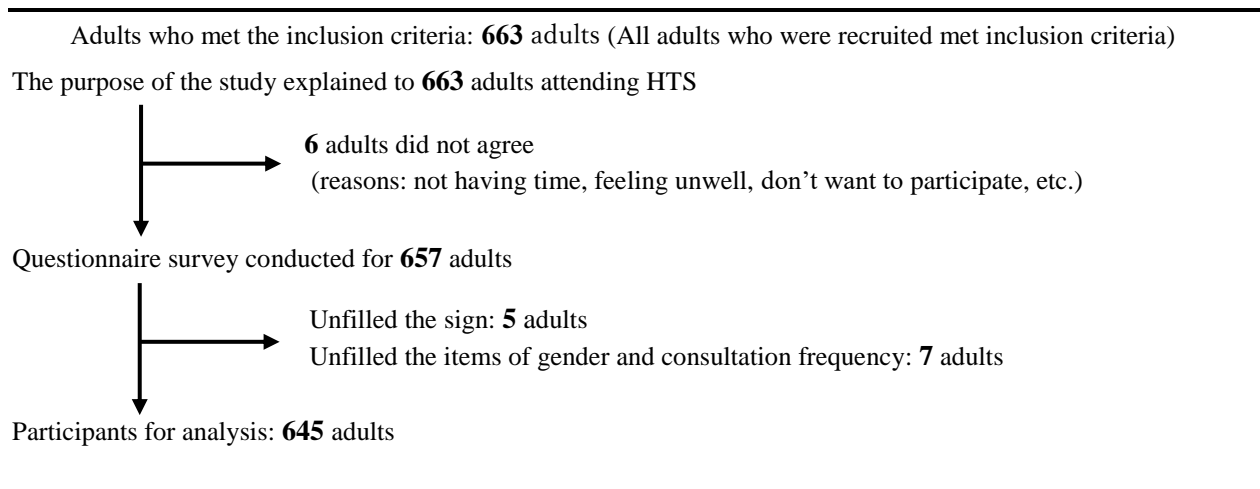


Figure 2: Flowchart for selection of participants in questionnaire



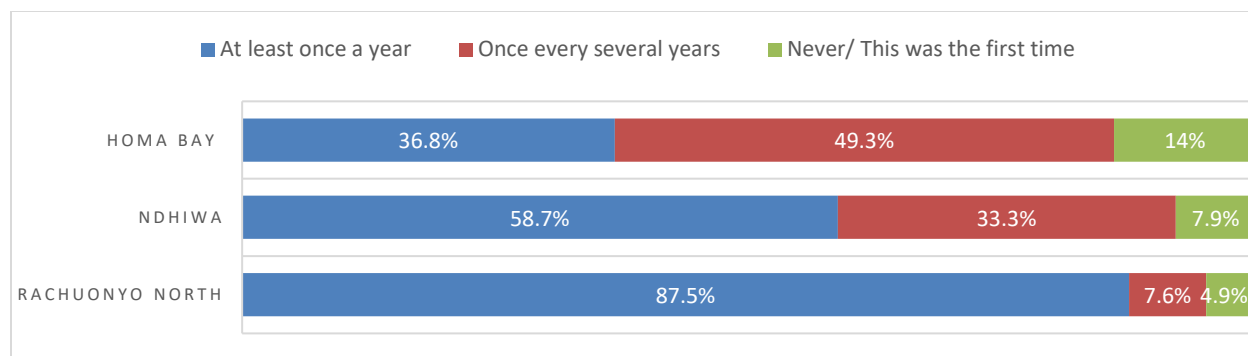
Table 1 shows the characteristics of participants in the study. The males were 284 while females were 361 representing a 2:3 male to female ratio. Most participants were 20-29 years old (41.7%) followed by 30-39 years old (27.3%). About the religion, most were African indigenous churches (59.8%). For the occupation, most of them were working for the small-scale business (34.0%) followed by the farmer (18.6%). The highest level of education they achieved was secondary school (49.1%). Most participants were married (65.1%) and majority were monogamous (53.2%).

**Table 1: Participant Characteristics**

		n=645	
		n	%
Sex	Male	284	44.0
	Female	361	56.0
Age	Below 20	70	10.9
	20-29	269	41.7
	30-39	176	27.3
	40-49	98	15.2
	50 and above	32	5.0
Religion	Local Christian	384	59.8
	Catholic	145	22.6
	Protestant	59	9.2
	Muslim	30	4.7
	Others	24	3.7
Occupation	Small scale business	219	34.0
	Farmer	120	18.6
	Formally employed	89	13.8
	Fishing Industry	59	9.2
	House Wife	57	8.9
	Others	100	15.5
Education	Secondary education	316	49.1
	Primary education	202	31.4
	Higher	98	15.2
	No formal education	27	4.2
Marital Status	Married	420	65.1
	Single	159	24.7
	Widowed	36	5.6
	Devorced	30	4.7
Marriage Type	Monogamous	343	53.2
	Polygamous	148	22.9
	Not applicable	154	23.9

### **The frequency of HTS visits by facility**

The frequency of HTS visits among participants by the facility is shown in Table 2 and Figure 3. The study found that the adults who visited the HTS centres at least once every year as recommended (NASCOP, 2015) were 57.7%. These HTS visits were more from the rural based facilities (Rachuonyo North: 87.5%; Ndhiwa: 58.7%) compared to the urban based facility (Homa BayTown: 36.8%), and these was significantly deferent ( $p=0.000$ ).



**Figure 3: Frequency of HTS visits among study participants by facility.** This was assessed as the frequency of HTS visits at each facility. Blue shows “At least once a year”, Red shows “Once every several years” and Green shows “Never (this was the first time)” .

**Table 2: Frequency of HTS visits among study participants by facility**

	At least once a year		Once every several years/ Never		$\chi$	P-value
	n	%	n	%		
Homa Bay	100	36.8	172	63.2	115.855	0.000
Ndhiwa	111	58.7	78	41.3		
Rachuonyo North	161	87.5	23	12.5		

The frequency of visits to HTS centres was not significantly different by gender ( $P=0.78$ ) as seen in Table 2. The proportion of males (56.3%) who visited the HTS as per the NASCOP recommendation was similar to the females (58.7%).

**Table 3: Frequency of HTS visits among study participants by gender**

Frequency	All(n, %)	Male(n, %)	Female(n, %)	$\chi$	P-value
At least once a year	372 (57.7%)	160 (56.3%)	212 (58.7%)	0.485	0.785
Once every several years	211 (32.7%)	97 (34.2%)	114 (31.6%)		
Never	62 (9.6%)	27 (9.5%)	35 (9.7%)		

### Barriers and facilitators to HTS visits

Study findings on barriers and facilitators to HTS visits are shown in Table 4. The main barriers to HTS visits were being engaged in fishing industry (OR:0.332, 95% CI: 0.150-0.734,  $P:0.006$ ), the last HIV testing was the community HIV testing (OR:0.374, 95% CI:0.226-0.619,  $P:0.000$ ) and polygamy (OR: 0.485, 95% CI:0.297-0.791,  $P:0.004$ ).

The main facilitators to HTS visits were having a friend to go with for testing (OR:2.243, 95% CI: 1.459-3.448, P: 0.000), finding it easy to go to HTS (OR:2.210, 95% CI: 1.335-3.657, P: 0.002) and talking about HIV with the partner (OR:1.635, 95% CI: 1.011-2.642, P: 0.045).

**Table 4: Barriers and Facilitators to HTS visits**

Factor	Item		Multivariate analysis		
			OR	95%CI	P value
Individual	Occupation(Farmer)	House Wife	1.145	0.523-2.505	0.734
		Fishing Industry	0.332	0.150-0.734	0.006
		Small scale business	0.806	0.458-1.419	0.455
		Formally employed	1.227	0.603-2.498	0.572
		Others	1.181	0.536-2.604	0.680
	Marriage Type(Monogamous)	Polygamous	0.485	0.297-0.791	0.004
		Not applicable	0.666	0.367-1.211	0.183
	Place of HTS( Public Hospital)	Private Hospital	1.230	0.655-2.311	0.520
		Community	0.374	0.226-0.619	0.000
		Home	0.693	0.328-1.464	0.336
Family and Partner	Talking with Partner(No)	Yes	1.635	1.011-2.642	0.045
Social Cultural	Friends(No)	Yes	2.243	1.459-3.448	0.000
Health System	Easy to HTS(No)	Yes	2.210	1.335-3.657	0.002

OR, odds ratio; CI, confidence interval. Statistically significant at P<0.05. Input variables: Religion, Occupation, Education, Marital status, Marriage type, Last sexual intercourse, First sexual intercourse, No. of partner, Aware of HTS, HIV status, Place of HTS, Talking with partner, Partner's attitude, Couple testing, Family support, Friends, Disclosure, Time to HTS, Cost to HTS, Easy to HTS. Adjustment variables: Age. Hosmer-Lemeshow test of goodness of fit, P=0.022. Negerlerke R<sup>2</sup>=0.207.

Findings from qualitative interviews shown in Table 5 and 6. The total number of participants was 17 (Males: 9; Females: 8). With aged about 33 years on average. Each interview lasted about 14 minutes (average time). The most common barriers that were reported were “Lack of money to go to HTS” (17/17), “Fear of receiving HIV testing results” (14/17) and “Other commitments” (11/17). And most of the barriers which they answered were in individual related factors followed by the health system related factors. Examples of quotes from qualitative interview scrips that illustrate the barriers to HTS visits are found in Box 1.

“Because they are adults, they think that the disease belongs to the young generation” (Female, 30s)  
 “Men have negative attitude towards going to HTS. And they are also proud” (Male, 30s)  
 “I think what can reduce stigma is when one is talked to for encouragement” (Male, 20s)  
 “My husband does not want to hear about going for testing. He quarrels and fights when I start talking about it. He is the problem” (Female, 30s)

**Box 1: Quotes from Qualitative interview on barriers; The information in brackets () represent the respondent' s gender and age**

The most common facilitating factors to HTS visits were reported as “Willingness to know the status” (6/17), “Incentives and meet transport cost” (6/17), “Disclosure of HIV status to anybody” (4/17),

“Motivation from community members, media, church and community leaders” (4/17), “Door to door testing” (4 /17), and “Counseling” (4/17). And most of the facilitators which they answered were in individual related factors followed by the health system related factors. Examples of quotes from qualitative interview scrips that illustrate the facilitators to HTS visits are found in Box 2.

“Church leaders or community leaders can motivate the community” (Male, 30s)  
 “The advantage of friends. Sometimes your friend can advise you to go to the hospital” (Male, 40s)  
 “Another thing that can motivate one to go for testing is when they get to know how the disease can interfere with one’s life then they develop a fear that can develop his decision to go for testing” (Male, 40s)  
 “I know how my husband goes with other woman. If I also go out, I can die leaving my children. So, let him find it by himself since I don’t want blames” (Female, 20s)

Box 2: Quotes from Qualitative interview on facilitators; The information in brackets () represent the respondent’ s gender and age

Table 5:No. of participants in qualitative study

		Males	Females
HTS visits	Appropriate (At least once a year)	4	5
	Not appropriate (Once every several years / Never)	4	4
Average age: 33.0 (20-54) years old			
Average time conducted: 13.59 (8.41-21.58) minutes			
Facility: Homa Bay 7people, Ndhiwa 6 people, Rachuonyo North 4 people			

Table 6:Factors from Qualitative data

Factor	Barriers	n=17	Facilitators	n=17
Individual	Lack of money to go to HTS	17	Willingness to know the status	6
	Fear of receiving HIV testing results	14	Disclosure of HIV status to anybody	4
	Other commitments	11	Love their body and life	3
	Negative attitude among adults and males	8	In the event of accident or injury	2
	Lack of education and knowledge	6	Fear of having HIV	2
	Forgetfulness of appointment date	2	Not afraid of knowing HIV status	1
	Healthy body	1	The latest result was HIV negative	1
	Sickness	1	Financial ability	1
				Feeling health benefits
Partner and Family	Concerns of children’s immediate welfare	4	Concerns of children’s future	2
	Fear to share with partner	3		
Social Cultural	Fear of stigmatization	4	Motivation from community members, media, church and community leaders	4
	Tradition and cultural believe	2	Experience of seeing death with HIV/AIDS	3
			Disseminate information	1
			Talking with others	1
Health system	Long distant to HTS	9	Incentives and meet transport cost	6
	Lack of confidentiality	9	Door to door testing	4
			Counseling	4

Discouragements by health service providers	7	Assurance of confidentiality from health service providers	1
Long line in the ARVs	3	living close to the HTS	1
Lack of chances to go to Hospital	1	Sensitizations forums	1

ARV: Antiretroviral (HIV drugs)

### Factors associated with HTS Visits among males and females

The results of the logistic regression analysis were shown in Table 6. Among the males, the main barrier was being engaged in fishing industry (OR:0.269, 95% CI: 0.093-0.778, P: 0.015), while the facilitators were having a friend to go with for testing (OR:3.873, 95% CI: 1.983-7.565, P: 0.042) and partner's positive attitude towards HTS visits (OR:1.909, 95% CI: 1.023-3.565, P: 0.000). The main barriers among the females were polygamy (OR:0.294, 95% CI:0.153-0.565, P:0.000) and the last HIV testing was the community HIV testing (OR:0.143, 95% CI: 0.071-0.289, P: 0.000), while the facilitators were having family support (OR:2.672, 95% CI:1.361-5.244, P:0.004) and affordability of transport cost for HTS centre (OR:4.926, 95% CI:2.300-10.549, P:0.000).

**Table 7: Factors to HTS visits by gender**

MALE			(n=284)		
			Multivariate analysis		
Factors	Items		OR	95%CI	P value
Individual	Occupation(Farmer)	Fishing Industry	0.269	0.093-0.778	0.015
		Small scale business	0.772	0.344-1.732	0.530
		Formally employed	1.261	0.498-3.194	0.625
		Others	0.996	0.388-2.559	0.994
Family and Partner	Partner's attitude(No)	Yes	1.909	1.023-3.565	0.042
Social Cultural	Friends(No)	Yes	3.873	1.983-7.565	0.000

OR, odds ratio; CI, confidence interval. Statistically significant at P<0.05. Input variables: Occupation, Education, Marital status, First sexual intercourse, No. of partner, Aware of HTS, HIV status, Place of HTS, Talking with partner, Partner's attitude, Couple testing, Family support, Friends, Disclosure, Cost to HTS, Easy to HTS. Adjustment variables: Age. Hosmer-Lemeshow test of goodness of fit, P<0.001. Negerlerke R2=0.181.

FEMALE			(n=361)		
			Multivariate analysis		
Factor	Item		OR	95%CI	P value
Individual	Marriage Type(Monogamous)	Polygamous	0.294	0.153-0.565	0.000
		Not applicable	0.947	0.472-1.901	0.878
	Place of HTS( Public Hospital)	Private Hospital	0.777	0.336-1.792	0.554
		Community	0.143	0.071-0.289	0.000
		Home	0.873	0.283-2.691	0.813
Family and Partner	Family Support(No)	Yes	2.672	1.361-5.244	0.004
Health System	Cost to HTS(No)	Yes	4.926	2.300-10.549	0.000

OR, odds ratio; CI, confidence interval. Statistically significant at P<0.05. Input variables: Religion, Occupation, Marital status, Marriage type, Last sexual intercourse, Condom use, No. of partner, Aware of HTS, HIV status, Place of HTS, Talking with partner, Partner's attitude, Couple testing, Family support, Friends, Disclosure, Time to HTS, Cost to HTS, Easy to HTS. Adjustment variables: Age. Hosmer-Lemeshow test of goodness of fit, P=0.231. Negerlerke R2=0.315.

## 5. Discussion

The study determined barriers and facilitators associated with the frequency of HTS visits among male and female adults. In this study, slightly more than half of the study population visited HTS centres at least once a year as recommended (NASCO, 2015). The Kenya Demographic Health Survey (KDHS, 2014) values for HTS visits of 58.9% and 70.9% for males and females respectively in Homa Bay County. In this study, 56.3% and 58.7% for males and females who visited HTS at least once a year. The rate of females was lower than it in the Kenya Demographic Health Survey. There was a significant difference between urban and rural based facilities. Literature from Mozambique shows that those who live in urban areas were more likely to visit HIV testing centres than those in rural areas (Agha, 2012). However, in this study, participants from rural area are more frequently visits HTS than urban areas. This was probably because of the heavy presence of agencies implementing HIV related activity in rural areas. We can see the challenges in Homa Bay, Kenya are in Urban area.

The HIV testing coverage remains low among various population groups. For example, global coverage rates for all HIV testing, prevention, and treatment are lower among men than women, men accounting for only 30% of people testing for HIV (KEMRI, 2019). In this study there was no significant difference between males and females.

Meanwhile, for males, the quantitative study showed that fishing activity, having a friend to go with to HTS centre and partner's attitude were significantly associated with HTS visits. Those who were involved in fishing were less likely to go to the HTS centres. From the qualitative interviews, it was also evident that men who are busy in their occupation including fishing are not likely to visit the HTS centres. Although this population appears to be at risk of contracting HIV/AIDS., they have not been previously identified as a risk group for HIV testing (Kenya HIV County Profiles 2016, 2016). With the fishermen migrating from beach to beach and having sexual relations with multiple women, HIV/AIDS is expected to be on the increase at the beaches. (Okello, A. E., & Osamba, J., 2015). In Homa Bay County the spread of HIV has been enhanced by retrogressive cultural practices of wife inheritance, commercial and fish-for-sex exchanges especially around the beaches and bars, multiplicity of partners, alcohol and drug abuse (County, E., 2013).

The males who had friends to accompany them to the centres were more likely to go for HIV testing. From the qualitative interviews, having a friend was a facilitating factor of HTS visits. These findings suggest that "Friends testing" can be effective in involving males to HTS. The presence of close friends has been linked to positive HIV testing behavior. According to Siu et al. (2014), "There is a friend who can receive an HIV test together", "A friend who can talk about HIV", "'A friend from a similar position has tested it".

The males whose partners had a positive attitude towards HIV testing were more likely to visit the HTS centres. According to Article (2003), negative attitudes towards HIV testing may pose barriers to learning one's HIV test results.

This study also indicated that the females who were in polygamous marriages were less likely to visit HTS than those who were in monogamous marriages. In South Africa, gender inequality, infidelity, and polygamy have been associated with an increased risk of violence (Jewkes RK, 2002). In Kenya, those who were in polygamous marriages were also more likely to be HIV positive than those in monogamous marriages. (Negin, J., 2009). These suggest that polygamy has a negative influence on HTS visits.

The place of last HTS visits those who had the last HIV testing was community HIV testing were also less likely to visit HTS centres than those who visited a public hospital for testing. Outreach HTC aims at enhancing access among hard to reach populations, including key populations that have limited access to health care systems due to structural, policy and legal barriers as well as stigma and any other constraints such as distance from stand-alone sites and health facilities (Aids, N., & Programme, 2015). These findings suggest that HIV testing activities in the community had an impact on the population HIV testing coverage. However, it is important that these community outreaches refer the people to the HTS centres for future visits. “Door to door test” was also commonly reported in this study. This is recommendable and should be encouraged. The recently released self-testing guidelines have been shown to nearly double the frequency of HIV testing among men who have sex with men, and recent studies in Kenya found that male partners of pregnant women had twice the uptake of HIV testing when offered self-testing compared with standard testing (KEMRI, 2019). The OraQuick is a rapid testing kit with swabbing your mouth for an oral fluid sample in the home (CDC, 2019). It can suggest that many new products which they can access easily to HIV testing will coming more in the near future. This study also found that the females who had family support were more likely to visit HTS centres than those who did not have support. The disclosure has been found to be more common among mothers and sisters who are perceived as more supportive than other family members (Kalichman, S. C., 2003). Transport cost to HTS centres was also significantly different for females because those who had money for transport were more likely to visit than those who did not have the money for transport. This was also confirmed by the qualitative findings where the most common barriers were “lack of fare to HTS” and “long distant to HTS”. This was because of other competing needs such as food for the family.

## 6. Conclusion

In this study, slightly more than half of the study population visited HTS centres at least once a year as NASCOP recommended. This study confirmed that there are gender differences in factors that determine visits to HIV Testing centres. For men, occupation and public relations determine their frequency of visits to the HIV Testing Services centres, while for the women, the distance and the cost of transportation to the nearest centre, as well as type of marriage and family support network, determine how frequent they can visit HIV Testing Services.

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### III. Reflection to the GLTP in Africa

#### o **Your motivation to participate in the GLTP**

After two years in Kenya where I spent as a JOCV, what I felt was “the lack of continuous support to get men into HIV services”. There are many projects for women, and the HIV tests that accompany maternal screening were particularly effective. However, I wanted to think about what kind of program is needed to work on HIV services for men who rarely have a chance to go to the hospital. This research can be used to design a program that will promote the HIV services visitation rate in consideration of gender differences in Kenya.

- **Field experiences**



Picture 1 (left): Training of research assistant; Picture 2 (right): With my research assistants after work



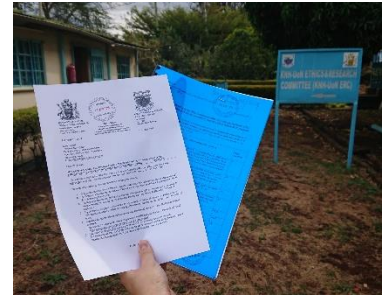
Picture 3 (left): Receiving a book from Jane Achieng; Picture 4 (right): Lake Victoria from my study site

I set up a site near the area where I originally stayed for two years as the target survey site, so I could quickly get to the site. I was able to get cooperation while adjusting to the flow of time on the spot and the motivation of the people. Also, I was able to get a lot of realistic information on the ground. For example, I thought that Men Sex with Men was still a small amount in this area, but I realized that it is increasing more than I expected. After all, going to the field is important both for current research and for considering the contents of the next research, and I was able to learn from grassroots what to think now.

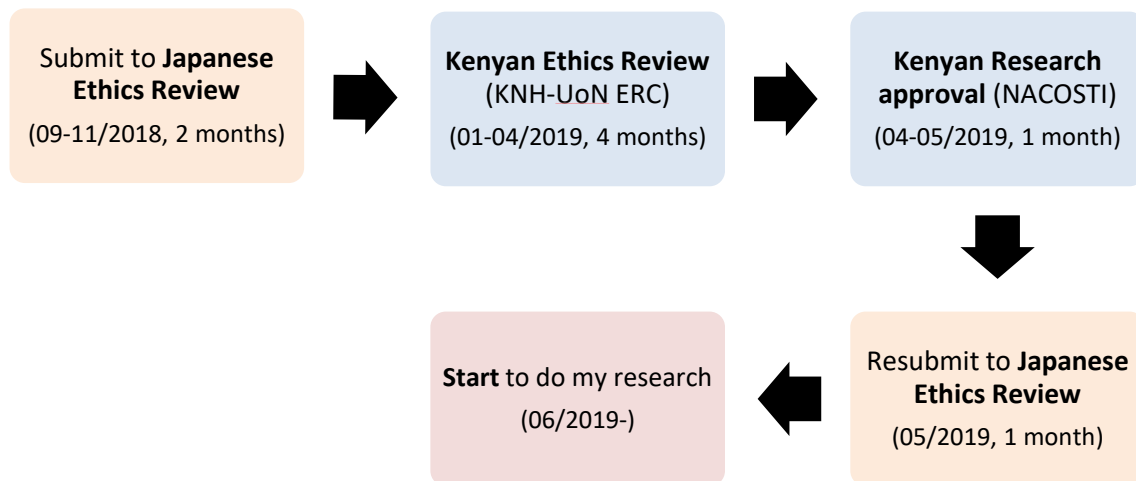
Also, I would like to write about another story. While I was waiting for research permission, I used the library. When I was there, I got a friend from the librarian who introduced me to Jane Achieng who writes about Luo culture. Luo is an ethnic group in my study site. The hour I talked with her was very valuable time. It changed my way of thinking. I have heard various opinions on HIV and Luo culture until now, but all opinions were that culture had a negative impact on the spread of HIV infection. However, listening to her story this time that culture may have a positive influence, instead of changing culture, I thought that the idea of restoring culture would be put in the corner of my head. It is important to hear the opinions from various experts, but after studying the culture itself without bias, then I want to summarize the factors causing the spread of HIV infection. "If you think that you should pursue the truth, then that makes you a true, pure researcher," she said. Her words encouraged my research passion to become a true, pure researcher.

- **Challenges**

- Difference in research plan between Japan and Kenya  
(Because I had to rewrite my research plan)
- Getting approval from Ethics Review Committee in Kenya  
(Takes longer in Kenya than in Japan)
- Managing the budget for the Research Assistants



Picture 5: Ethics review committee office with my approval letter



- **How to make use of this experience to my future career development**

I prefer participating in research or projects related to Africa. When I come back in the future for PhD course, or when I come to Africa in a different way, I would be glad if I came to manage projects together with those people who have made a good relationship in this term.

At the same time, I would like to be involved in the education of a younger generation of students who also want to study in Africa. In particular, the field of nursing science is still domestic. I want to continue to challenge Africa as I can develop human resources who can think globally.

At this stage, I learned to identify problems from a local perspective and think about solutions. In the future, I want to further extend these skills and at the same time, move into practice by entering an organization that matches the locality, or by creating an organization, and will continue to intervene. And I would like to learn and gain experience so that I can become a person who can be transmitted globally from the perspective of thinking locally.

- **Encouragement to other students**

GLTP has given me a very valuable opportunity. It was also a unique opportunity to gain experience of research in distant Africa from my university, where there is not yet a system of research expenses abroad. In particular, having a supervisor at a local university is a great advantage. As I want to continue to work mainly in Africa, I want to cherish this relationship.

Everyone considering the challenge to GLTP, I recommend that you apply now!



Picture 6: With my supervisors from UNU-IAS and University of Nairobi (School of Public Health)