UNIVERSITY OF NAIROBI

DEPARTMENT OF SOCIOLOGY, SOCIAL WORK, AND AFRICAN WOMEN STUDIES

HIV Oral Self-Testing (HIVST) Strategy for Increased HIV Testing among Female Sex Workers (FSW) in Nairobi County, Kenya

By

ELOSY MUKIRI

C50/68351/2013

A Research Project submitted in partial fulfilment of the requirements for the award of the degree of Master of Arts in Sociology (Rural Sociology and Community Development), University of Nairobi

July 2023

DECLARATION

I declare that this is my original work and has never been submitted to any institution for the award of a certificate, Diploma, or Degree

Name: Elosy Mukiri

Signature: 

Date: 03.07.2023

This Project Proposal has been submitted for examination with my approval as the university supervisor

Name: Dr. Kathleen Ayako Anangwe

Signature: 

Date: 25.07.2023

DEDICATION

I dedicate this project to the Vulnerable and Minority populations in Kenya, especially the Female Sex Workers in the Starehe sub-county who voluntarily participated in this study. Special dedication to SWOP-Kenya and the Public Health Facilities within Starehe sub-county for continued support to tirelessly provide prevention and treatment services to this population.

ACKNOWLEDGEMENT

To almighty God for giving me the knowledge and courage to embark on this and for believing in myself. I highly appreciate my Current supervisor Dr Kathleen Anangwe and retired Supervisor Prof. Edward Mburugu for their guidance throughout this journey. To my family, my late great-grandmother Salome and her children for believing in me.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ABBREVIATIONS AND ACRONYMS

ART	Antiretroviral Therapy
FSW	Female Sex Workers
HIV	Human Immunodeficiency Virus
HIVST	HIV Self-Test
HTS	HIV Testing Services
HCPs	Health Care Providers
KPs	Key Populations
MOH	Ministry of Health
MSM	Men who have Sex with men
NASCOP	National AIDS and STD Control Program
PE	Peer Educator
PITC	Provider Initiated Testing and Counselling
CITC	Client Initiated Testing and Counselling
PIST	Provider Initiated Self-Testing
CIST	Client Initiated Self-Testing
PLHIV	People Living with HIV
PWID	People who inject drugs
ORW	Outreach Worker
STI	Sexually Transmitted Infection
SWs	Sex Workers
SWOP	Sex Workers Outreach Program
UNAIDS	United Nations Programme on HIV/AIDS

DEFINITION OF TERMS

HIV self-Testing: (HIVST) is a process where a person collects a sample, conducts a test in a private setting or with by themselves or with someone they trust.

HIV testing services: All of the services offered to a client in addition to HIV testing are referred to as HIV Testing Services (HTS). This covers pre- and post-testing counseling as well as referrals to clinical support services for HIV prevention, care, and treatment.

Reactive results: The test reveals whether HIV antibodies are present in the sample of blood or oral fluid.

Non-reactive results: It signifies that HIV antibodies were not detected in the blood or oral fluid sample during the test.

Key Populations: These includes Men who have sex with men (MSM), people who inject drugs (PWID), sex workers (SW) who are at risk of getting HIV infected

Drop-In center: These are "safe spaces" located in key population program implementing partners' facilities that give key population community members a friendly stigma free space for education and treatment

ABSTRACT

This study aimed at determining the uptake of HIV Self-Test kits for HIV Testing among Female sex workers (FSW) in Starehe Sub-County, Nairobi County. The specific objectives included ascertaining the accessibility of HIV Self-Test (HIVST) kits, identifying the preferred method of distribution for uptake, effects of HIVST towards HIV test uptake among FSWs and determine the effect of HIV Self-Testing towards Linkage of HIV Positive FSW to treatment. The study was guided by three theories namely Rational Choice theory and Behavioral Theory. The study utilized a descriptive survey methodology to collect both qualitative and quantitative data where 80 FSW from 18 hot-spots typologies (14 venue-based hot-spots and 4 street-based hot-spots) within Starehe sub-county, Nairobi county were interviewed and 6 Key informant interviews with peer educators, Outreach workers and Health Care Workers conducted. Data was collected through smart android phones on a KOBO Toolkit and transmitted to a central database for analysis and Key Informant Interviews emerging themes were analyzed through Nvivo 9/12 software. The study noted higher acceptance of HIVST when offered to FSW at hot spots by Peer educators as compared to picking from healthcare facilities and Drop In Centers or buying from chemists and pharmacies. Affordability and proximity to health facilities were some of the major challenges that affected the uptake of the HIVST. Data showed that HIV self-testing has the potential to enhance overall HIV testing uptake, increase HIV testing frequency, reach sub-groups of high-risk FSWs, and has few potential downsides among FSWs. The study recommends affordable HIVST from chemists and Pharmacies within the localities of FSW due to the proximity of chemists and pharmacies to the hot spots. The study also recommends that governments need to consider partnerships with private entities to distribute HIVST to FSW. In addition, stakeholders including Public, Private institutions and CSOs need to develop policies and guidelines that enhance same-day linkage to treatment especially when HIVST is being delivered at the hot spots and not within health facilities where the treatment is. Peer educators who also issue HIVST need to be sensitized on linkage messages and mechanisms that encourage clients to visit a nearby health facility and also offer client-friendly psychosocial support.

`

CHAPTER ONE:

INTRODUCTION

1.1 **Background of the study**

With around 1.5 million people living with HIV(PLHIV) globally, Kenya is among Africa's high-burden countries with different populations contributing to the highest number of new infections (HIV Incidence Indicator Registry, 2021). These include; female sex workers (FSW), men who have sex with men (MSMs) and people who inject drugs (PWIDs) with an HIV prevalence rate of 29.3 per cent, 18.2 per cent, and 18.2 per cent, respectively (Kenya HIV County Profile, 2016). As a method to deal with national incidence and prevalence levels, Kenya has implemented intensive HIV programs for Key Populations (KPs) that have improved the identification of people living with HIV, put in place interventions that have prevented them from new infections and availed free treatment for uptake within Drop-in Centers, Public and Private Facilities

Owing to fears of the FSWs learning their HIV status for the first time in front of a service provider; stigma and discrimination associated with HIV/AIDS; distance to and from the facility to access services; and the nature of their work based on time, venue, and days the Ministry of Health in Kenya has taken the lead through National Aids and STIs Control Program (NASCOP), National Aids Control Council (NACC) and other Civil Society Organizations (CSOs) have provided technical guidance and support for service delivery in line with the national guidelines for Key Populations. This as has led to friendly interventions such as HIV Self-Test Kits across Drop-in Centers, Public Health Facilities, physical/Online Pharmacies and Chemists where HIVST can be easily accessed. Programs including the Sex Workers Outreach Program (SWOP-Kenya), which have been providing a Combination Prevention for HIV prevention and Treatment services to Key Populations in Nairobi County and Its environs. SWOP-Kenya has reached over 30,000 female sex workers in the Starehe sub-county since 2008 with a minimal package of services that includes the distribution of condoms and lubricants, health education, HIV testing, and STI screening and treatment through a peer-led strategy within their hot spots.

`

HIV interventions aimed at female sex workers have been implemented across the country, to remove barriers to comprehensive HIV/STI services. Additionally, prevention of HIV transmission and acquisition, enhancement of health, particularly reproductive health, provision of HIV care and treatment, and enhancement of activism against sexual and gender-based violence are all aims of these initiatives (NASCOP, 2016). With this, FSWs would find it simpler to visit a medical facility, determine their HIV status, and begin treatment if they tested positive. Additionally, FSWs who have received negative HIV test results will be engaged in HIV prevention programs like Pre-exposure Prophylaxis, condom use, and regular STI testing and treatment.

HIV Self-Test (HIVST), among the FSW population has shown excellent outcomes in previous studies aligning with the UNAIDS 95-95-95 strategy to enable them to know their status. Of those diagnosed, a good number start ART as treatment, after which 95% attain viral suppression (UNAIDS, 2025 AID Targets, 2021).Among hard-to-reach sex workers, such as migrants between the ages of 15 and 24, transit sex workers and elderly sex workers, the use of HIVST go a long way towards putting Kenya on track to achieving zero new infections by 2030 as specified in the Millennium Development Goals (NACC, 2015)

The goal of this study is to investigate how HIVST influences the uptake of HIV testing services, identification of HIV status and enrolment into PLHIV among the FSW for sustainable treatment.

1.2 **Statement of the problem**

The number of PLHIV in Eastern and Southern Africa is 18.6 Million with around 1.5 million new infections (UNAIDS`, 2021). The HIV burden in Kenya is high, with an overall national prevalence of 4.2 % with about 1,400,000 million adults (15 years and above) living with HIV and 83,000 children of 14 years and above living with HIV (UNAIDS, 2021). Among the Aids adult-related deaths, 47% out of 19,000 deaths were contributed by women in 2021 (UNAIDS, 2021).

According to the 2018 KP mapping and size estimation, Kenya hosts 50,000 MSMs, 206,000 FSW 19,000 PWIDs, and 5,000 transgender people with 9-11% of the KPs in the hotspots <18 years (NASCOP, 2019). Although general population contribute to higher cases of new

`

infections, key populations present high HIV prevalence rates at a third of all new infections, with 29.3%, 18.2% and 18.2% among FSW, MSM, and people injecting drugs respectively, compared to a national prevalence of 5.9% among the general (NACC, 2020). It is also estimated that FSWs more likely to contract HIV infection compared to other groups of women based on their vulnerabilities associated with the nature of their work (Aids Map, 2021). Despite this, there has been a notable decrease in the number of FSWs who have tested positive in Nairobi by two-thirds between 2008 and 2017 (Aids Map, 2021) owing to new interventions and mechanisms for increased access.

The issues that need to be addressed are; the presence of barriers to one knowing their HIV status, fear of learning one's status in front of a health practitioner, negative attitudes from health providers, stigma and prejudice associated with HIV/AIDS, and the lack of a testing Centre near where the FSWs reside or solicit for sex are among the challenges faced by them (HIV Stigma and Discrimination, 2019). Despite these challenges, the Ministry of Health in Kenya has considered HIVST a possible intervention to help overcome these barriers, even though the uptake among sex workers is fully undetermined.

Therefore, there is vital to assess the uptake, distribution methods, use and the after use of the HIVST kit by the FSWs. Since its scale up, HIVST kits in Kenya have been disseminated to FSW through peer educators at the hot spots; bought over the counter at pharmacies, chemists and online; distributed within Drop in Centers as well within public health facilities. With these channels of distribution and uptake, it would be key to learn how sex workers have been receiving, using and if the HIVST has an effect towards identification and uptake of treatment to those who turned HIV positive. Therefore, this study will provide insights and understanding into current uptake of HIVST kits available to female sex workers, the knowledge of one's status and enrollment in treatment among Female Sex Workers in Kenya at Large.

1.3 **Research Questions**

The study will seek to answer the following questions:

i. How accessible is HIVST to Female sex workers?
ii. What are the preferred methods of distribution enabling Female sex workers adoption of HIVST?

`

iii. Why is HIVST uptake show among female sex workers?
iv. In what ways does the use of HIVST encourage HIV Positive Female sex workers to start treatment?

1.4 **Research Objectives**

1.4.1 Broad Objective

The broad objectives of this study are to determine the influence of using HIVST kits on increased uptake of HIV Testing services among Female sex workers in Starehe Sub-County, Nairobi County

1.4.2 Specific Objectives

The specific objectives that will guide the study are;

i. To ascertain the extent of accessibility of HIVST kits among Female sex workers.
ii. To identify the HIVST preferred method of delivery among Female sex workers.
iii. To determine effects of HIVST towards HIV test uptake among Female Sex Workers
iv. To explore the Link between HIVST and being HIV Positive FSW to treatment?

1.5 **Justification of the study**

HIV testing is a minimal package of care for high-risk individuals aim at addressing behavioral, biomedical and structural barriers towards prevention and treatment (NASCOP, 2016). Stigma, lack of understanding, provider attitude, prejudice, and fear of positive test results are barriers to FSW accessing HIV preventive services. However, innovations such a testing within the community, use of community gatekeepers to create awareness, us of HIVST facilitate the identification of FSWs living with HIV while enable timely access of HIV prevention, care, and treatment. Thus, HIVST can improve the number of persons who are aware of their HIV status because by overcoming various hurdles to the uptake of standard client- or provider-initiated HIV Testing Services. Data shows that, HIVST improves privacy, convenience, and control over one's health, and has significant impact on the health of FSW.

With Kenya embracing the structured self-testing, the first self-testing instructions were published by 2008 and later fully scaled up in 2016. The study assesses the journey of HIV Oral

`

Self-Test Kits uptake, usability, challenges and preferred methods of accessibility post-national scale-up.

1.6 **Scope and limitations of the study**

1.6.1 Scope of the study

The study will be conducted in Starehe subcounty of Nairobi County targeting FSWs conducting sex work within different hot-spot. Starehe sub county hosts the highest number of FSWs in Nairobi due to its socio-economic activities. The study will utilize SWOP Kenya's existing gatekeepers namely; the peer educators who provide health education to FSW in the comfort of their hot-spots and refer them for HIV Prevention and Treatment Service. The study aims to assess the following: - accessibility of HIVST kits to FSW; preferred method for distributing HIVST kits to FSW; determine effects of HIVST towards uptake of HIV test among FSWs and determine the effects of HIVST towards Linkage of HIV Positive FSW to treatment.

1.6.2 Limitations of the study

The major limitation of this study is the legal environment around which sex work operates. Though the Kenyan constitution does not state sex work illegal, it criminalizes living off the proceeds of sex work. In addition, existing Nairobi city by-laws prohibits sex work and provides restrictions on living off its proceeds. Sex workers work in closed network to avoid identification and possible persecution and are very secretive and withdrawn for fear of being stigmatized, discriminated and persecuted. Therefore, collecting of data may be challenge due to the nature of the environment they work in and fear of discrimination and criminalization. Most of the hotspots are located within dingy streets, building that do not guarantee security. Additionally, the level of education may affect understanding and interpretation of the study questions by the FSWs. To solve this, the researcher will rely on the network of peer educators, SWOP -Kenya providers and gatekeepers to provide lead reaching out to the study participants and through data collection.

`

CHAPTER TWO:

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 **Introduction**

This chapter discusses various literature focused on acceptability, usability, distribution approaches and effects of HIVST among FSW towards increased uptake of HIV Testing Services locally, nationally and internationally.

2.1.1 The State of HIV in Sub Saharan Africa

The rates of HIV in sub-Saharan Africa, are more among adolescent girls and young women aged 15-24 compared to young men of the same age. In addition, Young people aged 15-49 years contributed the highest to the incidences among them sex workers and MSM (Statista, 2022). The proportion of young women at risk of contracting HIV has increased in numerous nations due to the frequency of transactional sex and sexual relationships between people of different ages. By the end of 2018, 19.6 million (81%) PLHIV in eastern and southern Africa were aware of their HIV status compared to 77% in 2016 (Moya-Salazar et al., 2022). In 2017, 12.9 million people in the region received ART while 1.7 million PLHIV were on the journey (Avert, 2019).

Region's governments, civil society organizations, foreign and local funders, researchers, and the community members in Kenya continue to champion mechanisms to reduce new HIV infections and mortality rates. Although the procedures aligned for increasing HIV testing services are judged workable, there are still gaps in implementation that include stigma and discrimination, gender disproportions and GBV. These, in combination with physiological concerns, have been affecting adolescent girls, especially those selling and transacting sex, exposing them to a heightened risk of new HIV infection (Bhattacharjee, P.,2020). With these efforts; at least 85% of people knew their HIV status to be positive as described in the table below.

`

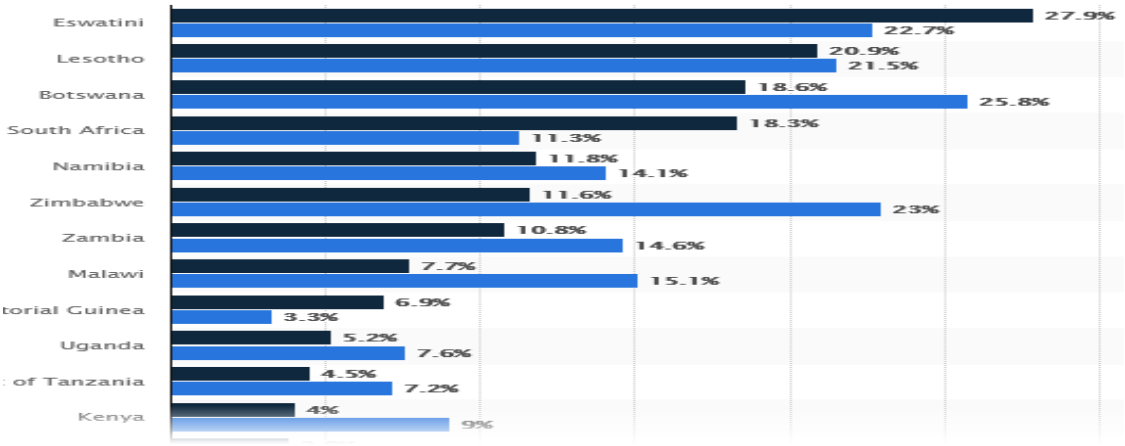


Figure 1:HIV Prevalence ranking in Sub-Saharan Africa in 2000 and 2021 (HIV prevalence country ranking, 2021)

Countries such as Eswatini and Lesotho in 2021 presented high rates of HIV prevalence of 28% and 26.5% respectively while Kenya's prevalence was at 4 among the top countries with high HIV prevalence (HIV prevalence country ranking, 2021).

2.1.2 Behavior and its effects to HIV prevention and response

Kenya has addressed barriers that increase the cases of new HIV infections in its communities. Policies such as Kenya National Guidelines for HIV/STIs for KPs Programming (NASCOP, 2016) and the standards for Peer-Education and Outreach Programs for Sex Workers (NASCOP, 2010) guide implementation. There are some of the policies that have been developed to guide the response towards HIV Prevention and Treatment. As outlined in the guidelines, peer education is a strategy for HIV prevention regarded as a successful intervention that improves knowledge, attitudes, beliefs, and behaviors. It is conducted in Small groups or one-on-one interactive sessions to increase HIV awareness and condom use among the target demographics. Peer education programs, when well-designed and implemented, aid in cascading down knowledge, attitudes, changing behavior, and increasing protective skills such as condom negotiation/use, improved access to HIV prevention, treatment, and other SRH services (Michielsen,2012). According to Mabuie (2020) advocacy is undertaken by peers they trust; behavior change is also achieved over time). Peer Education also promotes HIV education and safer sex behaviors among critical populations, particularly among African female sex workers.

`

Programs such as SWOP-Kenya have established best practices for engaging sex workers. Through sustained local and international funding. These programs utilize Peer Educators (PEs) who serve as contacts and relations between facilities and communities to provide services such as condom distribution, health education, and referrals for HIV Testing services among other services (NASCOP, 2016).

2.1.3 HIV Testing Services

A majority of PLHIV and especially those in low income countries are do not know their HIV status. Limited access to knowing their HIV status early, is still a significant barrier to understanding HIV infection prevention and treatment advances, such as pre-exposure prophylaxis and enrollment in Antiretroviral Therapy (ART) (Kayesu et al., 2022). Providing HIV testing services, according to the World Health Organization report 2012, is an important initial step towards HIV prevention and treatment. Additionally, it is where one's initial HIV status is said to be a recent positive or negative HIV test result. It's also an HIV prevention technique that promotes the use of condoms regularly.

HIV Testing Services (HTS) has a standardized delivery method. It is delivered within other minimum packages of services that ensure one has received a prevention or treatment intervention based on one's HIV (Positive/Negative) test result (Hatzold et al., 2019)

To understand methods of delivery; studies have been conducted for evidence-informed implementation. In 2017 a study between Burkina Faso, Kenya, Malawi, and Uganda on HIV Testing and Counseling was conducted to investigate the linkage between HIV testing modalities. The study assessed the consenting process, confidentiality, and establishing referrals across different service delivery points. It pointed out that assessment, counselling, confidentiality and treatment referral had no significant differences between different service delivery modalities including integrated facilities; biomedical therapies; stand-alone facilities among others (Hlongwa, et al., 2020). All interventions required the same quality counselling, confidentially and complete referral at the end of each service (Wringe et al.,2017). Based on the participants' responses, it was noted that the provider-initiated testing and counselling methodology yielded fewer satisfying results for clients than the traditional, client-initiated VCT (Pietersen, 2016). This also showed that HTS may be provided in a variety of methods without infringing on a client's rights

`

Advances like HIV self-testing enable the scale-up of very effective testing where the intervention is less expensive, encourages secrecy, empowers individuals, and enhances their confidence. HIV testing strategies that raise and promote optimum testing guarantee successful HIV prevention and treatment.

2.1.4 HIV Self-Testing (HIVST)

The first self-testing guidelines were published in Kenya's National Guidelines for HIV Testing and Counseling in 2009 (Kurth et al., 2016). According to Mugo et al. (2017), pharmacy HIV self-testing is practical and in high demand in Kenya. Self-testing for HIV entails taking one's own samples, performing the test, and analyzing the results independently. HIVST is considered a screening test for the presence of HIV antibodies or the HIV antigen, rather than a final diagnosis that requires a health worker to confirm any positive HIV result guided by the national testing algorithms (WHO, 2015).

According to Jamil et al., (2015) the first HIV test kit to be sold over the counter was in the United States in 1996. The user was required to obtain a blood sample, which was then transported to a laboratory for examination. The user of an HIV test kit would then be contacted by phone and informed of their test results. They could also inquire about additional details which aided in contacting HIV-positive patients who are undiagnosed, as well as persons who engage in behaviors that put them at high risk of contracting the virus (Kesler et al., 2016). Additional testing by a skilled practitioner was required to validate reactive results. It's a strategy that allowed people to test themselves discreetly and conveniently, allowing those who might not otherwise test, especially in high-risk communities, to know their HIV status (WHO, 2015).

In Kenya, The National HIV Testing Services Guidelines 2015 and the Guidelines for Antiretroviral Drugs for Treating and Preventing HIV Infections in Kenya 2016 are the driving forces behind the HIVST strategy. HIVST has the same criteria as existing HIV testing and counselling methods, such as commodity management, quality assurance, and care linkage, preventative services and procedures such as Pre-exposure Prophylaxis (PrEP) and elective medical male circumcision (WHO, 2017). Self-testing for HIV is a promising intervention that has the potential to raise the number of persons aware of their new HIV status.

`

By overcoming various challenges to the uptake of traditional client- or provider-initiated HTS in clinical settings, HIVST use among FSWs is likely to improve HIV testing and knowledge of HIV status for better outcomes. FSWs may be attracted to the improved convenience, privacy, and power to monitor their health.

2.1.5 Oral HIV self-Test Kit

Oral fluid-based HIV self-testing is a biomedical technology that has the potential to address barriers to HIV testing by FSW.The barriers include, fear of getting to know one's HIV status for the first time or since becoming a sex worker in the presence of a person who they do not want to know their HIV status (Kumwenda et al., 2021). According to Phanuphak 2020, frst-time testers, settle for non-supervised self-testing over provider-delivered HTS since it removes stigma pointed to HIV testing and boosted convenience and anonymity.

Testing oneself with an oral HIVST enables individuals in their own private spaces to collect and perform a simple, quick HIV antibody test. HIVST provides greater convenience, privacy, and autonomy, as well as the ability to improve the frequency of testing and increase the number of people who known their HIV status.

2.1.6 Usability of HIVST

Fifty-nine nations globally have HIV self-testing policies, with many more in the works (Ingold et al., 2019). HIVST has become possible in LMIC countries through donor support and coordination of public resources and coordination. At the International Aids Society (IAS) 2017 conference, HIVST was provided as an alternative tool for learning one's HIV status. Presenters highlighted new research that has shed light on use and upscale of HIVST programs in areas where they are most needed. Several studies from Sub-Saharan Africa have demonstrated the potential for increasing female sex workers' testing, re-testing, and speedy referral to care (Dhana et al., 2014). According to a randomized study in the United States, offering free HIVST kits to MSM via the internet is an effective strategy to raise the rate at which men tested for HIV (Wray et al., 2018). Even tough testing oneself is easy and requires limited assistance is one of the main reasons for its adoption. It saves time and money and ensures control over the testing process, as well as privacy and secrecy. It is simple to use where the user does not experience discomfort, particularly during the oral/fluid-based self-test. It is also evident form studies that there is a

`

reputable acceptability of HIVST that has enables availability of HIVST pharmacies and retailers in Kenya and South Africa (Wilson et al., 2022).

2.1.7 Acceptability of HIVST

Uptake of HTS is low in most part of the world due to stigma associated to testing where most at risk and vulnerable people fail to take up the test. On the other hand, Self-testing for HIV is gaining favour as a way to expand HIV testing procedures (Harichund et al., 2019) and assist in closing the HIV testing gap, especially for communities who have been hesitant to use current testing methodologies. Most FSWs expect to be able to acquire self-test kits from pharmacies as well as public health institutions, with ease of access being a critical attribute for a distribution outlet. Although FSWs recognize the significance of getting counselling before testing and doing a confirmatory test after testing , the results of an HIV self-test will almost certainly affect whether or not they seek treatment (Lillie et al., 2021). Sometimes, individuals may have a fear towards getting positive test results. Therefore, it is important to look at the acceptance of HIVST, its benefits and the challenges of implementing it.

2.1.8 Scalability of HIVST

HIV self-testing is widely used across populations including teenagers, males, and FSWs (Nguyen et al., 2019). Studies in south and east part of Africa have found great accuracy, feasibility and acceptability with reassuringly low adverse effects (Indravudh et al., 2018). Data show that HIVST is less expensive than Health Care Worker based screening in settings with limited resources (Dovel et al., 2018). HIVST is anticipated to improve healthcare efficiency patients with positive self-test results who require additional testing, assistance, or referral when resources are allocated well. HIVST may be more convenient for users by reducing the frequency of visits to of locations visited for frequent non-reactive persons and eliminating the burden of persons to move to and from long distances or queue to receive HIV testing. Despite the profit potential, the high price of HIVST kits; the absence of market competition; the lack of knowledge on limited resource within communities; requirements for packaging and guidance on use of HIVST in various contexts all act as barriers to acceptance and uptake

`

In Zambia issuance of HIVST improved the delivery of HTS through facility-based Distribution (FBD) (Mangenah et al., 2019). Other strategies included distribution through voluntary medical male circumcision, testing in the community, door-to-door HIVST distribution by community health care workers as well as volunteers. In the intervention, the health care workers distributed and monitored stock levels using stock management cards and project-customized registers. The kits were also distributed to anyone who desired to obtain them from the institution rather than the community through a facility-based distributor (Mangenah et al., 2019). However, the study discovered that HIVST kits were accessible through the outpatient department (OPD) or any other location within the hospital in coordination with healthcare providers. A pack with an information leaflet; a return envelope for used HIVST; and a referral card and a leaflet with instruction on how to interpret the test results; when and where to seek a confirmatory test as well as where to seek treatment. Overall, scale-up of HIVST is dependent on lower prices, more demand, and more information about acceptability, practicality, and implementation.

2.1.9 Ethical Concerns on HIVST

Scaling up HIV testing should be done ethically and safely, with results that may not be any more life-altering than those of other conditions. Appropriate quality policies and guidelines, quality test kits, guidelines on quality control and assurance systems can eliminate any anticipated dangers that may outweigh the benefit of prevention and treatment (WHO,2021).

Even though HIVST is good for testing at one one's space, unsupervised HIVST has a couple of disadvantages such as the coercion to test, gender-based violence, emotional distress especially where violence has been experienced before. In addition, there is a heightened risk of violence among vulnerable populations where their surrounding host perpetuators of violence and where they are scared to obtain HTS services. Expanding testing in areas where there are no known treatments, increasing user autonomy without assistance, and raising the likelihood of these issues, pose ethical dilemmas. Additionally, HIVST may change who is in charge of partner notification and HIV care and may have an impact on laws that punish HIV transmission (Tih & Pius 2020).

`

Disengaging HIVST from the mainstream and tradition ways of HTS may reduce the burden of offering HTS at health facilities through a HCW. But may pose a challenge where testers have limited or not access to confirming their test results or posttest services. This is not unique to HIVST since it has been experienced at health facilities where testers to do a confirmatory test (Nguyen et al., 2019).

HIV self-testing is to be offered within a human right where appropriate information is given and regulated with enough community involvement in decision-making to minimize harm. Although there is no evidence that HIVST causes considerable harm, programs should be aware of the dangers leading to disclosure and coercion to coercive testing (Hermanus, 2019).

This study will examine context-specific approaches that have been applied in the distribution of HIVST that are ethical, safe, and acceptable, as is recommended for all HTS. Risk mitigation about social harm, as well as the implementation of active monitoring and reporting systems, will be observed for testing support and referral as well as for queries and psycho-social support.

2.2 **Theoretical Framework**

2.2.1 Rational Choice Theory

The Individuals rely on rational calculations to accomplish outcomes in line with their personal goals. If the options are accessible and in their best interests, these decisions bring the most benefit or satisfaction (Uhlaner &Carole, 1989). The method or the amount of time we spend influencing our decisions is not as important as the ultimate conclusion, which in most circumstances favors us and is most appropriate (Dunlosky, et al. 2013). The theory tries to explain all social phenomena, both conforming and deviant, in terms of how self-interested individuals make decisions based on their preferences. For example;

- Where do FSW prefer to access HIVST services?
- Where do they prefer confirming their Positive test results from?

To maximize the advantages or gains, individuals minimize disadvantages or losses. RCT's basic premises are that humans base their actions on rational calculations when making decisions and they act rationally. Their decisions are made to maximize their pleasure or profit (Wade, 2013).

`

In determining preferences, there is a need to consider existing knowledge, probabilities of the outcomes, pros and cons as well as factor in the cause of action in case of a reaction. The potential benefits of employing the HIVST affect the scale-up of HIVST to FSW, as well as its accessibility and usage hence difficulty in optimizing this utility function becomes an issue of economic decision-making, subject to constraints such as money to purchase HIVST, which may limit accessibility in the long run. The study will evaluate elements that encourage uptake and use as well as motivators to seeking a confirmatory test for linkage to treatment.

2.2.2 Behavioral Theory and Peer Education

Peer education is based on theories as a tool for behavioral change. This includes the social learning hypothesis, which contends that people serve as influences of human conduct and that some people have the effect to affect a person's behavior based on their system of values and interpretations (Allan, 2017). An individual's impression of social norms or beliefs about what individuals close to them do or believe about behavior is a major influence in behavior modification, according to the principle of reasoned action (Ajzen & Fishbein, 2000).

According to the behavioral change theory, community actors in a particular demography might operate as agents of behavior change by sharing information and altering group norms in their neighborhood (Heimlich & Ardoin, 2008). Peer education is based on each of the ideas mentioned above, hence peer educators can have an impact on behaviour modification among their peers. Peer educators are taught to use small group or one-on-one interpersonal interactions to change their peers' knowledge, attitudes, beliefs, or behaviours (Mwaikambo et al., 2011). The strategy has been linked to increased HIV awareness and condom use among the targeted communities. When peer education programs are well-designed and implemented, they can help raise awareness, modify behavior and attitudes, improve protective skills like condom negotiation/use, and build awareness towards seeking reproductive health including HTS services . The strategy is founded on the idea that if their friends, whom they like and trust, advocate for them, then behavior would change. Peer education has been shown to improve HIV knowledge and safer sex behaviours in important populations, particularly among African female sex workers.

`

A person tends to thick issues critically based on their pros and cons for informed decision making and what resonates with their personal goal. And it aligns to what they wish for they will pursue without hesitation for the benefits and satisfaction and therefor it shows the relationship of the two theories each where FSW's behaviors are influenced by service providers, and only they (the FSW) make decisions in taking up those services.

2.3 **Conceptual Framework**

The conceptual framework consists of logical connections between independent, intervening, and dependent variables (Park et al., 2020). The dependent variable is the most important, and its behavior must be understood through the influence of independent and intervening factors (Kusurkar et al., 2011). The patterns of influence of these variables on the two variables, HIV oral self-test and choice to seek antiretroviral therapy, are shown in Figure the below;

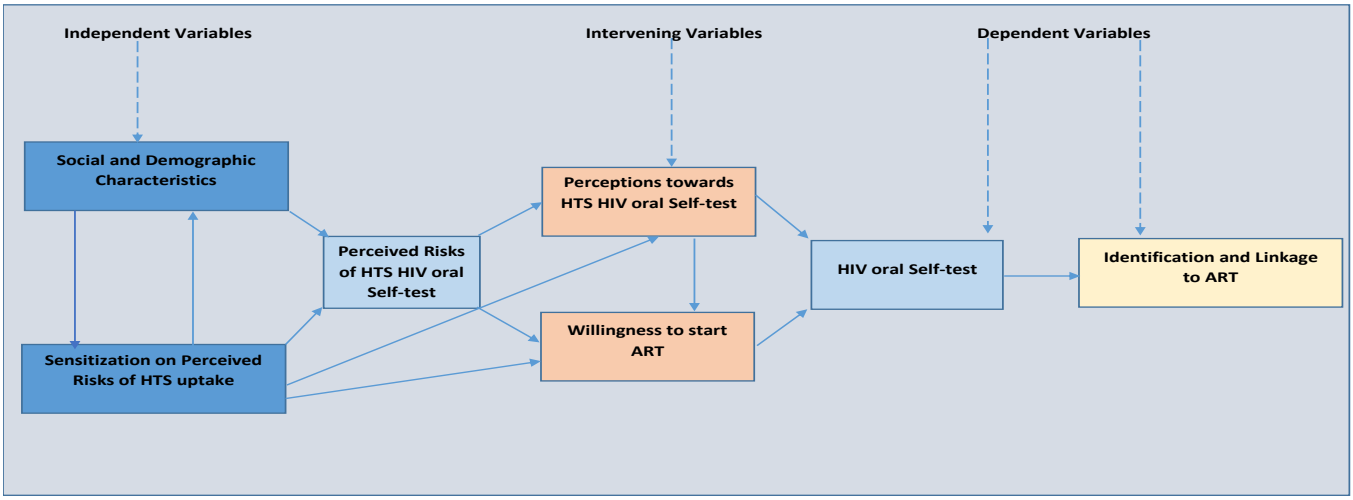


Figure 2:Conceptual framework showing independent and intervening factors influencing HIV Self-test and linkage to treatment

`

i. Independent Variables:

In this project, Independent Variables include the following:

a) Social and demographic characteristics

Uptake of services is influenced by social interactions and demographic variables. The character of sex workers is heavily influenced by social elements such as their clientele's financial stability, the nature of hot-spots in typology, and the effect of the environment in which they operate, as well as demographics such as age, nationality, gender and religion.

b) Sensitization on perceived risks of HIV Testing Services uptake

The FSW will be made aware of the perceived hazards of HTS adoption. This attempts to dispel some of the myths and misunderstandings that people may have about taking an HIV test. Fear of testing positive, which would result in shame and humiliation from family and the community at large, could be one of the perceived hazards.

c) Perceived Risks of HIV oral Self-test

These are the risks associated with utilizing an oral HIV self-test kit to determine one's HIV status. The dangers could be linked to the test's accuracy, quality control throughout the exam, and interpretation of the results. Testing positive, reporting a positive test result are two examples of perceived risks.

ii. Intervening Variables:

a) Perceptions towards HIV Oral Self-Test

The study is set to determine information FSWs have, attitudes and insights towards use of HIV self-test.

b) *Willingness to start treatment*

This is to assess the willingness of a client's starting ART after they have confirmed their HIV status as positive

iii. Dependent Variables:

a) HIV Oral Self-Test

The number of HIV self-testing that will be distributed

b) *Identification and Linkage to treatment*

The number of FSWs who test positive and are started on treatment

`

CHAPTER THREE:

RESEARCH METHODOLOGY

3.1 **Introduction**

This chapter discusses the study site, the units of analysis and observation, the target population, sample size and sampling procedures, data collection strategies, ethical considerations, and data analysis.

3.2 **Study Site**

The study was conducted under the auspices of SWOP-Kenya, a Key Population Program that offers biomedical, behavioural and structural health interventions to FSWs, MSM and MSW towards improved HIV prevention, care and treatment. The program was started in 2008 and currently operates 7 drops in Centres (DICES) in Nairobi County located at AJS house along Keekorok road in the central business within the Starehe sub-county of Nairobi. It serves approximately 9607 Female sex workers from 361 Hotpots in Starehe sub–County and Nairobi County.

Nairobi County is Kenya's second largest county with an area of around 696 square kilometers and a population of 3.138 million people. Starehe sub-county sits on 20.00 square kilometers of Nairobi County with about 166041 people according to the 2009 Census. It is the centre for the Nairobi Securities Exchange (NSE) Africa's second-oldest and one of the continent's largest stock exchanges (NCPD, 2013).

Starehe sub-county is divided into six wards: Ngara North, Pangani, Iwani/Kariokor, Landi Mawe, and Nairobi South. Nairobi Central, which is the central business district, has a 24-hour economy that has attracted a lot of sex work. Nairobi County accounts for 2032 FSW hot spots, with an estimate of 39,643 FSW (NASCOP, 2019) which is attributed to by building boom with new buildings, parks, and stations as well as revamped streets which have created opportunities for increased sex work. In addition, the sub-county hosts different ethnic groups of people among them; the Kikuyu ethnic group makes up 51.1% of the population of the Starehe Subcounty, followed by the Luhya ethnic group with 13.4%, the Luo ethnic group with 10.2%, and the Kamba ethnic group with 8.7%. (NCIC, 2015). It has attracted sex workers from all walks of life

`

and offers a variety of hot spots due to its 24-hour economy, entertainment, and varied ethnicity. Sex workers solicit for sex within which are hot-spots are places or venues where sex workers are recruited for sex or meet their connections for sex transactions. These populations are well hosted in bars, bars with lodgings, brothels/sex dens, massage parlours, casinos, strip clubs, and hotels among other venue-based hot spots. Lanes, corridors, verandas, streets, and highways are examples of street-based hot spots (NASCOP, 2019). These hot spots operate at different times; based on the activities carried out at the hot spots, physical locations, and intended clientele, there are days and hours that are most peak and off-peak. Despite the fact that the region's geographic mapping categorized FSW according to hot-spot typologies (FHI 360, 2020), FSW does not necessarily confine itself to a single hot spot. For a street FSW to find a client at night, they would go to a nearby bar or nightclub to hunt for one (or vice versa); or they may call their cab driver and proceed to a hotel, or they would go to a 'sex den' (a form of a brothel) to hunt for clients.

3.3 **Research design**

The design of the research aids the researcher in determining appropriate and cost-effective approach for completing specific study tasks. The current study will use a descriptive survey methodology to collect both qualitative and quantitative data to respond to the study questions and meet study objectives. The study will identify peer educators who will be trained on research ethics and data collection as study assistants

3.4 **Target population**

The study identified an estimated 80 FSW, dispersed throughout 18 hot-spots in the Starehe Sub-County.

Eligibility criteria;

i. Participants should be 18 years old or older and
ii. should give an informed consent,

FSW under the age of 18 were excluded from the study.

`

3.5 **Sample size and Sampling procedure**

3.5.1 Sample size determination

This is the process of selecting replicates for statistical sampling. Several aspects were considered when determining sample size, including data collection costs and the necessity for sufficient statistical power. 80 FSW (22 per cent of the 360 Female sex workers) were selected through a randomized sampling from a total estimated population of 360 FSW within 18 selected hot spots for the study. The hot spots included; Bars with lodging, Bars without lodging, Sex Dens/Brothels, Strip Clubs, Streets and Highways, Home, Casino, Beach, Guest/Hotels/Lodgings, Massage Parlours, and Parks.

The FSW and hotspots distribution proportionally represented in the sample below;

SN	Sub County	Ward	Hotspot Name	Physical Location	Type of Hot-spot	Est. No of FSW Distribution.	Sample Size
1	Starehe	Central	Accra Hotel Lodge	Accra Road	Guests/Hotels/Lodgings	10	2
2	Starehe	Central	Amka	OTC	Bar with Lodging	32	7
3	Starehe	Central	Brackets Bar and Restaurant	Nyati House	Bar with Lodging	18	4
4	Starehe	Central	County Hotel	Gwasi Road	Sex Den/Brothel	32	7
5	Starehe	Central	Duruma Rd	Duruma Road	Streets	25	6
6	Starehe	Central	Good Hope	River Road	Bar with Lodging	26	6
7	Starehe	Central	Jerry City1	Dubois Road	Bar Without Lodging	10	2
8	Starehe	Central	Kericho East	Near Coast Bus	Bar with Lodging	37	8
9	Starehe	Central	Lazarus	Moi Avenue	Guests/Hotels/Lodgings	11	3
10	Starehe	Central	Mang Hotel	Bus Station	Bar with Lodging	24	5
11	Starehe	Ngara	Mururuini	Park Road	Guests/Hotels/Lodgings	27	6
12	Starehe	Central	Njumbi House	Munyu Road	Sex Den/Brothel	8	2
13	Starehe	Central	Out Southern Blue	Equity	Streets	17	4
14	Starehe	Central	Relax Sokoni	Luthuli	Bar with Lodging	20	5
15	Starehe	Central	Samar G.	Tom Mboya Street	Bar Without Lodging	19	4
16	Starehe	Central	Sky Lounge	Standard Street	Bar Without Lodging	23	5
17	Starehe	Central	Steps Club	Accra Road	Bar Without Lodging	8	2
18	Starehe	Central	Terrace	Mfanagano Street	Bar Without Lodging	10	2
Total						357	80

Figure 3:Study Population size, hot-spot and proportion samples distribution of respondent (KPSE, 2019)

`

3.5.2 Sampling Procedure

Sampling is a method of picking a subset of things from a larger population for study purposes (Ogula, 2005). In this study, a sample of 80 respondents was selected using a probability sampling method employing the stratified sampling strategy. In each hot spot, the rotating technique was used to produce an equal probability response selection. In addition, qualitative data was gathered through interviews and six Key Informants Interviews (KII) using the Likert scale, open-ended, and closed-ended questionnaires with numerous choices.

The Interviews were conducted as follows:

- In-depth Interviews with 80 selected FSW

The six (6) KII were conducted as follows:

- Key informant interview with Peer educator on Oral HIV self-test among FSW in Starehe and Kamukunji sub-county of Nairobi
- Key informant interviews with Health Care Providers, (HTS counsellor, Prevention Officer, Nurses and Clinical Officer) on the use of Oral HIVST among FSWs in Starehe and Kamukunji sub-county of Nairobi.

3.6 **Methods of data collection**

3.6.1 Quantitative data collection

Quantitative data was collected through electronic-based data collection tools on the Kobo toolkit, the tools consisted of the respondent's bio-data form, and a questionnaire on FSW knowledge, access and use of HIVST. The data was then pushed to a centralized database in excel form for analysis. The data was password protected as well as backed up in a hard drive to ensure data security. To maintain quality, periodic data quality checks were conducted and cross-checked for completeness and accuracy.

3.6.2 Qualitative data collection

Qualitative data was collected through in-depth individual interviews to the key informants. Participants were identified by trained study assistants and consented through a written informed consent for participation. Participants were instructed on the importance of confidentiality during the informed consent process by research assistants who were peer educators from SWOP

`

Kenya, trained by the study lead on topics of qualitative research, study ethics, language use, recording, probing tactics, and how to deal with distressing situations in the field. To aid with intentional sampling and selection, consented participants were interviewed on basic demographic information and questions regarding their experiences with the HIV Self-tests. Upon completion of the interview's audios were transcribed, themes identified and coded for analysis.

The qualitative data collection is as follows;

1. Interviewing Procedures

The goal of the study was to interview primary research participants and Key Informants. The study prepared data collection instrument; secured study permits; pretested study materials; selected participants; trained research assistants and collected qualitative and quantitative data for analysis.

2. Data Storage

All study data was adequately secured within lockable cabinets and stored within password-protected PCs. Hard copies of data with open-ended and closed-ended questionnaires will be stored in secure filing cabinets until they are destroyed. Only trained study assistants who signed confidentiality agreement will have access to these forms and electronic data.

3.6.3 Data analysis procedure for the qualitative and quantitative data.

Data were inspected and cleaned for quality information used to propose conclusions and assist in decision-making. Descriptive statistics were utilized to examine the data; effectively arranged and summarized and later presented through frequency tables, charts, and other basic statistical analytical techniques. Incomplete and inaccurate data was recognized, repaired and presented in a descriptive manner.

3.6.4 Ethical considerations

In line with the American Psychological Association (APA) Ethics Code; ethical considerations and applications applying to social science studies (Rogerson, 2011). The research began after the academic board of the University of Nairobi and the National Commission for Science, Technology, and Innovation (NACOSTI) study approval. In addition, the study was also by the

`

HIVST operational handbook per Kenya's HIV testing services requirements from 2015 which establishes a structure implementing HIVST in a safe, effective, and precise manner and also outlines the engagement of FSW in research setup for learning. Study participants were consented to by a trained research assistant who ensured confidentiality throughout the study. Participants' personal information data was only on the consent forms and kept under lock and key. The consent forms clearly described the benefits and risks of participating into the study. The consent form clearly defined that participants are free to decline to answer any question with which they are not comfortable. Choosing not to take part will not lead to penalty or loss any health services they receive during the study period or in the future from the DICE or any other Ministry of Health facility. Study, participants received an actual fare reimbursement of up to Ksh 150/- as a token of appreciation for their time spent in the interview.

`

CHAPTER FOUR:

DATA PRESENTATION, ANALYSIS, AND DISCUSSION OF FINDINGS

4.1 **Introduction**

This chapter will analyze, report, discuss and present study findings around thematic areas such as social demographics; acceptability of HIVST among Female sex workers; preferred methods of delivery of HIVST among FSW; adopted approaches for correct usage of HIVST among FSW; linking potentially seropositive Female Sex Workers to HIV treatment

4.2 **Response Rate**

The 80 FSW selected from 18 hot-spots typologies (14 venue-based hot spots and 4 street-based hot spots) within the Starehe sub-county, Nairobi County. Through a standardized questionnaire, respondents were interviewed about their usage of HIV-related services, use of HIVST kit, where they received the services from and what their response was to services. The questionnaire was set into the Kobo tool kit where data was collected through smart android phones and transmitted to a central database for analysis and the KII themes were analyzed through NVIVO 9/12

Trained 5 female research assistants administered questionnaires to selected and consented participants at the hot spot within their preferred time and especially during off-peak hours.80 selected participants responded to the questionnaires translating to a 100% response rate. The response rate was aided by: - meeting the respondents at the hot spots at their convince and during the less busy times of operation; the research assistants were also accompanied by a SWOP-Kenya prevention officer and the study lead during the questionnaire. This assured confidentiality and hence the 93.3% response rate. It was also a study requirement that all questionnaires would be passed to the study lead for filling to ensure confidentiality. Each participant was reimbursed Kes.150 upon completion of the questionnaire as compensation for their time

Key informants' interviews were conducted to select Peer Educators, Health Care Providers and Outreach Workers at a time and location that suited them. Interviewers described the study's goal and received signed informed consent before beginning data collection. The interviews were

`

conducted in English, and participants consented to be audio recorded. Questions focused on the perceived benefits and drawbacks of HIV testing, as well as uptake preferences of HIVST among FSW.

4.3 **Social and Demographic Characteristics**

FSWs above 18 years found in hot spots within the Starehe sub-county were identified as study participants. The study analyzed their age, hotpot typologies, religion, level of education and marital status to understand their social characteristics.

4.3.1 Distribution of study participants by age

Age can be associated with behaviour, preferences and perceptions. The study analyzed participants' age to understand their contribution and relation to the study objective. Data were analyzed and categorized as follows;

Age	Frequency	Percentage
18-22	19	24%
23-27	13	16%
28-32	22	28%
33-37	5	6%
38-42	8	10%
43-47	6	8%
48+	7	9%
Total	**80**	**100%**

Table 1:Showing distribution of study participants by age

The average age of the respondents was 28-30 years of age.

`

4.3.1 Distribution of study participants by hot-spot typology

The type of hot spots is associated with class and the amount of money a sex worker makes in a 'shot' sex encounter with a male client. Analyzing the typology of hot spots, the participants solicited from would also inform the level of literacy, knowledge and access to service. Data were analyzed as follows;

Venue Based Hot-spot Typology	Frequency	Percentage	Street Based Hot-spot typology	Frequency	Percentage
Bar with lodging	2	11%	Streets	2	50%
Bar without lodging	8	44%	Highways	2	50%
Guest houses	4	22%			
Massage parlors	2	11%			
Brothels	2	11%			
Total	**18**	**100%**		**4**	**100%**

Table 2:Showing distribution of study participants by hot-spot typology

The hot-spot typology differed from venue based to street-based hot spots. The venue-based hot spots included:

Bar with Lodging, Bar without Lodging, Sex Den, Strip Club, Guest Houses, Massage Parlor and Brothels. The Street base included; highways, outside corridors, lanes and streets. These hot spots have variant dynamics that define them and influence HIV prevention and treatment to HIV/AIDs.

4.3.2 Distribution of study participants by religion

Religion is a factor that defines beliefs and practices among different communities. Religion is also a factor to look at among FSWs and its influence and relation to the uptake of HIV

`

prevention services among this population. Data showed that a majority of the FSW were Christians as compared to the number of Muslim participants.

Religion	Frequency	Percentage
Christians	67	84%
Islam	13	16%
Total	**80**	**100%**

Table 3:Showing distribution of study participants by religion

4.3.3 Distribution by level of education

The study analyzed the level of education of each of the participants. The data were evaluated to determine their highest level of education and completion and their contribution to the study objectives. The majority 44% (N-35) had never attended while 36% (N-29) had primary education has their highest level of education which showed that the level of education and literacy among FSW in the Starehe sub-county was relatively low.

Level of Education	Frequency	Percentage
Primary	29	36%
Secondary	9	11%
College	6	8%
University	1	1%
None	35	44%
Total	**80**	**100%**

Table 4:Showing distribution of study participants by level of education

`

4.3.4 Distribution by marital status

The study analyzed the marital status of the study participants to understand their contribution towards perceptions, beliefs, behaviors and attitudes towards the study objectives. The following was analyzed

Marital Status	Frequency	Percentage
Single	36	45%
Married	3	4%
Widowed	9	11%
Divorced	1	1%
Separated	31	39%
Total	**80**	**100%**

Table 5: Showing distribution of study participants by marital status

4.4 **Accessibility of HIVST to Female Sex Workers**

A majority of FSW (62.4%) reported accessibility of HIVST at any time of the day from the health facilities, Chemists, Peer educators and Drop in Centers around their hots-pots. They also mentioned reported stock outs and this discouraged uptake of the HIVST. Of the FSWs, 81% reported having ever used an oral -fluid based since it was painless and easy to use. A few had seen and used blood-based HIVST before. Convenience, privacy, and reduced stigma were among the perceived benefits of HIVST. Half (49.5%) of the participants mentioned that they easily accessed HIVST from Drop in Centers while 11% picked from public health facilities and others bought from Pharmacies and chemists. Additionally, 28.5 % also mentioned receiving HISVT from peer educators and outreach workers while 7.8 % were not sure they would recommend the HIVST to FSW because of feared stigma and discrimination. When asked if they would recommend the HIVST to others, 86.9% said that they would highly recommend the test kits to their sex partners, especially regular sexual partners. The table below describes the accessibility rate, modes of uptake and perceptions of uptake.

`

SN	Attribute	S/A	Agree	Neut	D/A	S/D	Total Freq	%
1	The HIV self-test are accessible at any time of the day	62.4	30.3	5.5	1.8	0	68	100
2	It is convenient using the HIV self-test at any time of the day	64.2	33	2.8	0	0	68	100
3	I can easily access HIVST from Drop-In centers	49.5	40	9.5	1	0	68	100
4	I receive HIVST for peer educators and outreach workers	54.6	28.7	7.4	9.3	0	68	100
5	I would recommend the HIV self-test to other Female sex workers	48.6	42.8	4.7	2.9	1	68	100
6	I would recommend the HIV self-test to my sex partner	43	43.9	8.4	2.8	1.9	68	100

Key: S/A Strongly agree, Agree, Neut-Neutral, D/A-Disagree, S/D Strongly disagree

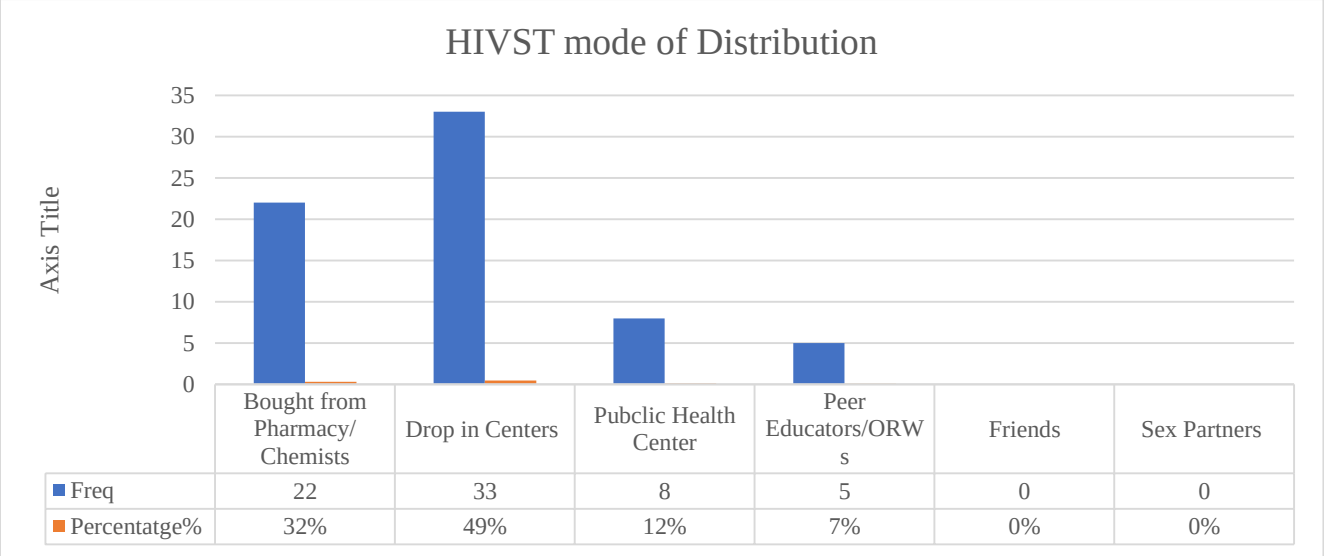
Table 6:Showing accessibility of HIVST to Female Sex Workers

4.5 **Preferred Methods of delivery of HIVST among Female Sex Workers**

Data showed that there were methods that were highly preferred to others due to proximity to distribution facilities, time to access the HIVST, and pricing of the HIVST among other factors. Out of the 80 participants, 68 participants reported having used an HIVST before. Out of the 68 FSWs who reported to have ever used an HIVST, 32% of them reported having picked the HIVST from pharmacy/Chemists, 49% from Drop In centers,12% from Public Health Facilities, and 7% from Peer educators/ORWs. During the interview, those that picked from DICEs and Public Health Facilities mentioned that sometimes they would experience stock outs which forced them to buy from pharmacies/Chemists. A majority of participants preferred getting HIV

`

test kits from health centers within their hot-spots since these facilities provided HIVST for free compared to chemists who they would be required to pay for. FSW mentioned picking from health facilities (DICEs and Public Health Facilities) which encouraged counselling from a health provider. Due to a lack of sufficient counselling or storage and worries that store owners would profit from kit sales, 45 (56%) of the FSW felt that private for-profit health institutions such as chemists, internet stores, and pharmacies, were not suitable for distributing HIVST kits. When the participants were asked if they have ever purchased an HIVST, 54 (68%) responded 'yes' to purchasing HIV testing supplies. The table below shows the channels of distribution and pick-up that the FSW used to access HIVST.



	Bought from Pharmacy/ Chemists	Drop in Centers	Pubclic Health Center	Peer Educators/ORWs	Friends	Sex Partners
Freq	22	33	8	5	0	0
Percentatge%	32%	49%	12%	7%	0%	0%

Table 7:Showing the mode of delivery and distribution of HIVST

4.5.1 Pricing of the HIVST

Of the respondents, 25% had ever bought an HIVST. When asked how much they paid, the range was 150 to 300 Kes (US $1.30 to $2.60). However, 67 (84%) of FSW suggested a range of below 50 to 100 Kes. (US $ 0.43-0.87); 9% 100 to 200 (UD $ 0.87 -1.73); 3% 200-300 ((US $ 1.73-2.60); with 4 (5%) suggesting free delivery of the HIVST. They praised the convenience of alternative distribution mechanisms such as through peer educators/Outreach workers. It was also noted from the responses that FSW would prefer HIVST kits given at their hot spots where they solicit for sex the same way as they receive condoms at these venues. This encouraged accessibility since regular service provision hours did not align to their hours of operation.

`

4.5.2 Confirmatory Test

The study reported that 5 of the 68 FSW who reported having ever used an HIVST had a positive HIV test from the kit, whereas the other 63 (94%) reported to have tested HIV-negative from HIVST use. Out of the 5 who reported to have tested positive from the HIVST, 69% reported to have followed up with a confirmatory test by a service provider in a health facility. When asked if they had shared their test result with anyone or exchanged their HIVST Kits with someone, 43 of the respondents said they had discussed their test results, while 25 had ever exchanged HIVST kits with regular sex partners, 15 with a family member, 8 with friends, and 3 with non-regular sexual partners client. The majority of participants 92.6% said oral HIVST was extremely straightforward to use, while 5/68 (7.4%) thought it was fairly easy.

4.5.3 HIVST use experience

From the data shown below, HIVST had encouraged 99% of the FSW to know their HIV status.69% stated that it was easy using the kit and it was not complicated read through the instructions outlined in the user guide but were assisted by health care worker to use. They further mentioned that the assistant was through a detailed explanation of pre and post-test, which entailed collect sample collection, testing, timing, interpretation of test results and disposable of the kit. 75% responded to have been confident thorough out the testing process and would do it again without hesitation. While 47% said that it was easy to interpret the test result presented on the KIT. 100% of the FSWs who used and ever tested positive from the test kit reported to have confirmed their results at a health facility.

							Total	
SN	**Attribute**	**S/A**	**Agree**	**Neut**	**D/A**	**S/D**	Freq	%
1	HIVST encouraged me to know my HIV status	99%	0%	1%	0%	0%	68	100%
2	It was easy using the HIV self-test kit	69%	23%	0%	8%	0%	68	100%
3	I was assisted by a health care provider to use the HIVST	100%	0%	0%	0%	0%	68	100%
5	I was confident using the HIVST	75%	17%	8%	0%	0%	68	100%

`

6	It was easy interpreting the test results	47%	23%	0%	16%	14%	68	100%
7	I went for a confirmatory test after testing Positive	100%	0%	0%	0%	0%	68	100%
Key:	**Strongly agree, Agree, Neutral, Disagree, strongly disagree**							

Table 8: Showing the HIVST use experience among FSWs

4.6 **Effects of HIVST towards HIV Test uptake among FSWs**

Respondents in the key informant interviews indicated a limited knowledge about the HIVST kit, fear of testing positive due to expected stigma, mistrust of the test's accuracy, uncertainty about their ability to administer the test, and worries about not connecting to care as barriers to HIVST.

FSW and health care workers mentioned fear as a factor hindering FSW to access HIV Testing services within static service delivery points. Healthcare providers highlighted HIVST as a method of encouraging the uptake of HIV testing services. Some FSWs said that HIVST gave them time to process and collect personal courage before visiting a health facility for confirmatory testing. FSW highlighted the social stigma associated with HIV-positive status. They stated that this affected HIVST usage in both good and negative ways. Some mentioned that self-testing kits were stigmatized in the same way that other HIV services were. For example, a peer educator during an FGD said:

> *"...FSWs are afraid of being seen with these kits, they are afraid others will stigmatize them''*

Several FSWs during the FGDs mentioned the stigma involved with obtaining HIV treatment at clinics, as well as their fears of being shamed by medical personnel. Although others said that the Kits encouraged privacy, others mentioned that the HIVST encouraged stigma. The respondents also said that it was safe to use since no one would know when you pick or buy the kit, where you will use it, and the kind of test results you may get it.

4.7 **Effects of HIVST on linkage to ART among Female Sex Workers**

A healthcare provider's assistance was considered a way to offer emotional support, however, there were worries about privacy violations. Providers voiced concern over FSW's inadequate

`

literacy, which could hinder their ability to administer tests and analyze outcomes as well as knowledge of test instructions. Respondents suggested that HIVST be widely disseminated, peer educators to be utilized in information sharing and education, test kits be made available in FSW-friendly DICES, and clear instructions for connecting to healthcare and support to be given.

4.8 **Thematic Presentation of Key Informant Interviews**

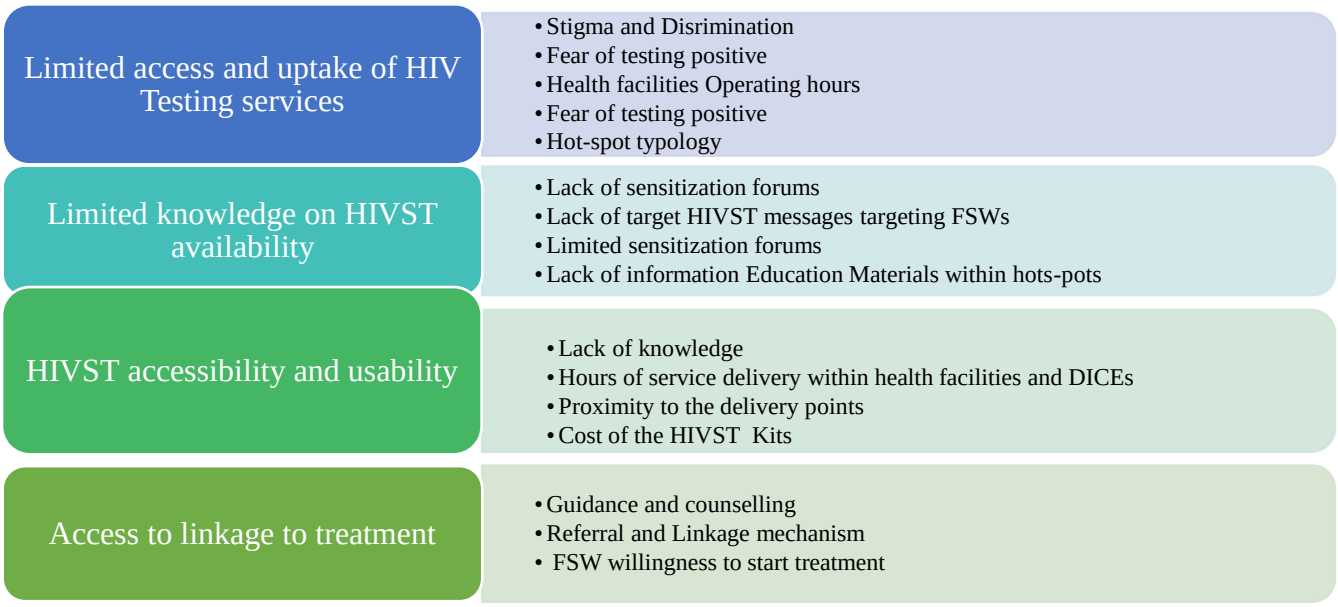


Figure 4:Thematic presentation of the Key Informant Interviews by hierarchy

The table above shows the thematic areas that come out during the FGDs. On the left column it indicates the main thematic areas, whereas the right column indicates the sub themes pointed out as discussions from the main theme.

Below is a detailed discussion of the thematic areas of the key informant interviews by hierarchy;

4.8.1 Theme 1: limited access and uptake of HIV Testing Services

Peer educators mentioned that FSWs were afraid of going for HIV Testing Services because they feared meeting fellow sex workers at the DICEs. They stated sex work has a lot of competition and when one is seen seeking this kind of service they are assumed to be living with HIV. This might negatively impact the number of clients they get if this kind of rumor gets to the hotspots and hence low Income. The Peer Educators and Outreach workers also mentioned that they received humiliation and judgment from HCWs. FSWs are not treated equally as the general

`

population and hence not encouraging FSWs to seek these services. Self-stigma come out strongly from the discussion where the participants mentioned that FSWs were afraid to test positive for HIV. For example, peer educator 4 responded:

> *"…How would a sex worker go back to a hot spot knowing that she has just tested positive for HIV? One will definitely hate herself for being exposed to HIV, and so they prefer not to test, they better live without knowing".*

Health facility Operating hours are also hinder FSWs from receiving HIV Testing Services. They mentioned that most of the public facilities and DICEs operated from 8 am-5 pm. For example, a peer educator during the FGD responded as follows:

> *"…Yes, some sex workers access services from the facilities, but the majority of them do not. Especially those in massage parlours and brothels. The venues operate well during the day, sex workers are busy".*

The respondents also mentioned that outreaches from programs such as SWOP-Kenya aided access since the services were delivered at night within the hotspots. Some went ahead and mentioned that it would be wise if the number of outreaches would be increased for proximity.

4.8.2 Theme 2: Limited Knowledge on HIVST availability

Knowledge was noted to be a factor that influence acceptance and uptake of HIVST among FSWs. For example, an HCW during the interviews said:

> *"…FSWs knowledge on HIVST is still low," a Health Care Worker mentioned. She went ahead to state that targeted sensitization within the circles of the FSW has not been done. HIVST sensitization targets the general population without specific targeted messages. Therefore, it is not likely for FSW to know that there are commodities such as self-test kits that would encourage them to test on their own''.*

One of the HCWs also mentioned that FSW may be willing to buy the test kit to use with the regular clients if they knew they exist and are aware of where to find them and at what cost.

> **FGD respondent 8 said:** *"…I have not seen a pamphlet to advertise the HIVST when the Kits were rolled out, we had them in the facilities, but within the facilities, there are not materials to inform the FSWs at all".*

`

Some peer educators also said that stockouts of the HIVST commodity were a common discussion among FSWs. They said that FSW frequently complained that they would go to DICEs and public health facilities and they would be told there are kits. In addition, they also mentioned there are no targeted sensitization forums targeting Peer educators and FSWs. HIVST sensitization should be given equal weight in education as other interventions.

4.8.3 Theme 3: HIVST accessibility and uptake

FSWs are keen to use HIVST to know their HIV status, but where to pick the commodity from is unknown to most of them. Peer educators highlighted proximity and opening hours of the health facility being a hindrance to uptake. They mentioned that FSWs worked during the night and slept during the day since these were within their off-peak hours and this hindered access since the health facilities are open during the day. FSWs are now using the HIVST to test themselves and would be willing to recommend it to their sex partners both regular and casual but more sensitization would encourage even more of them to seek and use the commodity. HCWs suggested that peer educators would be good channels for distributing this commodity to FSWs. They added that this method of distribution needs good planning and sensitization of the Peer educators. Other respondents also mentioned that pharmacies and chemists are ideal for distribution since they are within the hot spots and are easy to access. One of the respondents proceeded to say "The chemists are very ideal for distribution, but the government needs to avail them for free, sex workers will not hesitate to use them."

4.8.4 Theme 4: Access and linkage to treatment

Guidance, counselling and psychosocial support are factors that encourage the linkage of FSW to treatment regardless of the testing methodology. The HCWs mentioned that good guidance and counselling are what determined if a person would get treatment or not. They also mentioned successful confirmatory test of FSWs who tested positive is dependent on the information they received at the issuance level and that depends on the kind of person issuing the kit and their training. One of the interviewed health care workers during the KIIs said:

> *"…Is it a counsellor, a clinical officer, a pharmacist, a nurse or even a peer educator issuing the kit? It depends on the information one gives. Counsellors tend to give quality guidance counselling, just to say".*

`

The respondents also mentioned that peer educators need to be sensitized on offering psychosocial support to FSWs in case they tested positive for the FSW. This is so that they accept the test results they get from the HIVST. They also mentioned this would be difficult since the FSW would not be comfortable to testing in the presence of a peer educator or even sharing their test results. This is because peer educators are sex workers and compete for clients within hotspots.

> **Respondent 2 of the FGD:** *"…I usually share my contact or the facility contact for the FSW to call whenever they are having issues testing or have tested positive. I always make sure they understand that it is just a screening test and they need to confirm the positive test results."*
>
> **Respondent 5 of the FGD**: "*…In my facility when issuing the HIVST we give them a referral coupon with contact details of the facility and the peer educator manning their hotspot, this encourages them to keep in touch in case of anything and especially if they cannot interpret the results. I once received a call from a sex worker asking if she could use the same kit to test her partner. So, this kind of linkage helps them."*

This shows that linkage mechanisms are critical for a successful referral for linkage of treatment as well as follow-up mechanisms. Participants also mentioned that it was also important for HCWs to receive airtime to reach out to FSWs when they issue the kits so that they can keep track of their test results.

A person's willingness was also pointed out to be a factor that would influence linkage. The respondents mentioned that one cannot be forced to start treatment and it was upon them to do so. This showed that uptake of these services is voluntary. They mentioned that self-stigma is a hindrance where one does not accept the outcome positively and understand the importance of starting treatment early and hence a need to targeted counselling and guidance.

The responses in this chapter addressed the study questions and will be discussed further in the next chapter.

`

CHAPTER FIVE:

SUMMARY, CONCLUSION AND RECOMMENDATIONS.

5.1 **Introduction**

This chapter aims to provide a summary of the study findings, conclusion and recommendations.

5.2 **Summary of the study findings**

This study was conducted in Starehe Sub-county, Nairobi County and its main objective was to determine the influence of using HIVST kits on increased uptake of HIV Testing services among Female sex workers in Starehe Sub-County, Nairobi County. The four (4) specific objectives of this study intended to (i) ascertain the extent of accessibility of HIVST kits among FSWs; (ii) identify the HIVST preferred method of delivery among FSWs; (iii) determine effects of HIVST towards HIV test uptake among FSWs; (iv)explore the Link between HIVST and being HIV Positive FSW to treatment.

Further to this, four (4) research questions were constituted to support the achievement of the specific objectives. These questions included; (i)How accessible is HIVST to FSWs? (ii) What are the preferred methods of distribution enabling FSWs adoption of HIVST? (iii) Why is HIVST uptake show among FSWs? (iv)In what ways does the use of HIVST encourage HIV Positive FSWs to start treatment?

The findings of the study align with the existing literature, which highlights the importance of accessibility, affordability, and privacy in promoting HIVST uptake among key populations such as FSWs. The study identifies barriers and facilitators to HIVST uptake, providing insights for the development of targeted interventions and strategies to increase the use of HIVST among FSWs. From the interviews with the FSWs, data show that FSWs can easily access HIVST at any time of the day from the health facilities, Chemists, Peer educators and Drop in Centers around their hot-spots even though stock-outs of the kits are barriers to uptake. Convenience, privacy, and reduced stigma are perceived to be benefits of HIVST and hence an increase in uptake among the FSW. Even though FSW would access the HIVST from health facilities, Chemists majority picked and preferred picking from Drop-in Centers. This concurs with the

`

literature review that HIVST is user friendly, convenient to use, accessible among FSWs and can encourage uptake of HIVST.

In Zambia distribution of HIVST kits improved the delivery of HIV healthcare through facility-based Distribution (FBD) (Mangenah et al., 2019). In addition, pharmacy HIV self-testing is practical and in high demand in Kenya (Mugo et al. 2017) which aligns to the study findings where FSW accessed HIVST easily from the Drop in Centers as compared to picking from healthcare facilities, peers, and educators, as well as purchasing from chemists and pharmacies. This is because they then did not fear the peer educators and they related with them better rather than visiting health facilities where they may have been familiar with the Health care Providers.

According to Phanuphak 2020, people testing for the frst time testers prefer self testing over provider-delivered HTS. Data showed that Oral-based HIVST is a more preferred Kit as compared to blood-based HIVST among FSWs. Access from the peer educators and Outreach workers was highly affected by stock out and hence they would not receive the kits from the DICEs to distribute at the hot spots. Distribution through health facilities (DICEs and Public Health Facilities) encourage counselling from health to provide and hence a good platform for linkage to treatment in case of a positive test result FSW are not willing to purchase kits and hence private for-profit health institution such as chemists, internet stores, and pharmacies, are not suitable for distributing HIVST kits unless there are dispensing points attached to them that would issue the kits for free.

Several studies from Sub-Saharan Africa have demonstrated the potential for increasing female sex workers' testing, re-testing, and speedy referral to care (Dhana et al., 2014). The study findings justify this where findings show that HIVST can reduce the barriers to HIV Testing services. It encourages one’s autonomy to make own decisions to know their status and take control of the test results.

According to Harichund et al., (2019) Self-testing for HIV is gaining favour as a way to expand HIV testing procedures and assist in closing the challenges and barriers of HIV testing, especially for communities who are not open or interested in current methodologies of testing for HIV. The study concurs with this where it shows lack of knowledge on the existence of the HIVST kit; fear of testing positive due to expected stigma; mistrust of the test's accuracy; uncertainty on ability to administer the test; and worries towards testing positive for HIV.

`

Static delivery points such as health facilities hinder access to HIV Testing. This is because FSWs face stigma from health care workers as well judgement from fellow sex workers. HIVST encouraged privacy. Even though it is easier to perform the test alone, prior guidance and counselling would encourage FSWs to take up the test without fear and seek treatment in case they tested positive. Improved access within distribution points encourages uptake and hence improved testing

Finally, HIVST is less expensive than Health Care Worker based screening in settings with limited resources (Dovel et al., 2018). The study highlights that health care providers' guidance and counselling are a support mechanism for supporting a seropositive FSW. Even though privacy is a dilemma in getting to the Health care provider for the service, the FSWs depend on the support of the HCW when starting the treatment. In addition, inadequate literacy among FSW hinder their ability to administer tests and analyze outcomes and this would highly delay treatment initiation. It concurs with Indravudh et al., (2018) on their findings towards HIVST great feasibility, acceptability, and accuracy, with reassuringly low adverse effects.

5.3 **Conclusions of the study**

First, HIV self-testing can enhance HIV test uptake. It increases the frequency of testing, reach FSWs with a likelihood of HIV exposure. Self-testing for HIV among FSWs decreases barriers that hinder HIV Testing compared to facility-based.

Second, test kits stockouts can be a barrier to the distribution of HIVST to FSWs willing to know their HIV status. The price of HIVST is also a factor that can hinder uptake of the kit and hence a need to subsidize the prices or distribute for free at designated points within the hot-spot. On the other hand, the proximity of the delivery points and the attitude of the HCWs distributing will determine the uptake and use

Thirdly, Information, guidance and counselling encourage the FSW to take up HIVST and use it. Prior counselling by health care providers encourages negative FSW to seek prevention services and Sero-Positive FSW to seek treatment immediately. Additionally, regular health education and sensitization by peer educators encourage uptake and use.

`

5.4 **Recommendations of the study**

The study sought to evaluate the acceptability of HIVST; preferred methods of delivery of HIVST; effects of HIVST towards HIV test uptake; effects on linkage to treatment among Female Sex Workers. It recommends the following that;

- Training and sensitization of HCWs within Public and Private Facilities on FSWs-friendly services should be undertaken to reduce the level of stigma and discrimination felt by FSWs.
- Institutions such are health care facilities, schools among others should include training as a requirement for distributing HIVST to encourage uptake in a friendly manner.
- The Oral based HIVST kits should be distributed within the hot-spots the FSWs solicit sex in the same way they receive condoms at these venues for accessibility outside of regular clinic hours or on short notice. This is viable as long as quality control measures are put in place for tracking and accounting.

In addition, strategies to improve linkage-to-care should be considered and evaluated and especially when HIVST is delivered in hot spots and not within facilities.

- Peer educators who also issue HIVT to be sensitized on linkage messages and methods that encourage FSWs to visit a nearby health facility and also offer client-friendly psycho-social support.
- Toll-free numbers should be availed as communication channels to respond to questions and follow up once HIVST is distributed by peer educators or HCWs

Finally, it is necessary to put in place a mechanism for tracking seropositive FSWs who test positive at the hot spots to ensure immediate linkage to treatment and counter the delayed start of ART.

- Phone follow-ups for linkage
- Linkage to a peer educator for follow-up and directing FSWs to the facility
- Routine biomedical outreaches within the hot spots to encourage linkage at the hot spots

5.5 **Areas for further study**

This study focused on HIV Self-Testing for improved uptake of HIV Testing Services among Female Sex Workers and recommended Free HIV Self-Tests be distributed within the reach of

`

FSWs at their workplaces through peer educators or distribution points where they can freely pick from. Therefore, more research is needed on; Mechanisms for HIVST distribution quality control within hot-spots; HIV distribution points that are suitable for hot spots set-up and how best they can be regulated for good use; HIVST use among clients of FSWs, in order to improve uptake of HIVST among the FSWs and for easy scale up of such interventions.

`

REFERENCES

Ajzen, I., & Fishbein, M. (2000). Attitudes and the attitude-behavior relation: Reasoned and automatic processes. European review of social psychology, 11(1), 1-33.

Allan, J. (2017). An analysis of Albert Bandura's aggression: A social learning analysis. CRC Press.

Dhana, A., Luchters, S., Moore, L., Lafort, Y., Roy, A., Scorgie, F., & Chersich, M. (2014). Systematic review of facility-based sexual and reproductive health services for female sex workers in Africa. Globalization and health, 10, 1-13.

Dovel, K., Shaba, F., Nyirenda, M., Offorjebe, O. A., Balakasi, K., Phiri, K., ... & Hoffman, R. (2018). Evaluating the integration of HIV self-testing into low-resource health systems: study protocol for a cluster-randomized control trial from EQUIP Innovations. Trials, 19, 1-9.

Dunlosky, J., Rawson, K. A., Marsh, E. J., Nathan, M. J., & Willingham, D. T. (2013). Improving students' learning with effective learning techniques: Promising directions from cognitive and educational psychology. Psychological Science in the Public interest, 14(1), 4-58.

Harichund, C., Moshabela, M., Kunene, P., & Abdool Karim, Q. (2019). Acceptability of HIV self-testing among men and women in KwaZulu-Natal, South Africa. AIDS care, 31(2), 186-192.

Hatzold, K., Gudukeya, S., Mutseta, M. N., Chilongosi, R., Nalubamba, M., Nkhoma, C., ... & Corbett, E. L. (2019). HIV self-testing: breaking the barriers to uptake of testing among men and adolescents in sub-Saharan Africa, experiences from STAR demonstration projects in Malawi, Zambia and Zimbabwe. Journal of the International AIDS Society, 22, e25244.

Heimlich, J. E., & Ardoin, N. M. (2008). Understanding behavior to understand behavior change: A literature review. Environmental education research, 14(3), 215-237.

Hermanus, T. (2019). An Ethical Analysis of HIV Self-Testing In South Africa Using Principlist, Utilitarian And Human Rights Approaches, Including A Benefit/Harm Analysis (Doctoral dissertation, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg)

HIV incidence | Indicator Registry. (n.d.). ttps://indicatorregistry.unaids.org/indicator/hiv-incidence-rate

HIV prevalence country ranking 2021 | Statista. (2022, August 17). Statista. https://www.statista.com/statistics/270209/countries-with-the-highest-global-hiv-prevalence/

Hlongwa, M., Mashamba-Thompson, T., Makhunga, S., & Hlongwana, K. (2020). Barriers to HIV testing uptake among men in sub-Saharan Africa: a scoping review. African Journal of AIDS Research, 19(1), 13-23.

Indravudh, P. P., Choko, A. T., & Corbett, E. L. (2018). Scaling up HIV self-testing in sub-Saharan Africa: a review of technology, policy and evidence. Current opinion in infectious diseases, 31(1), 14.

`

Ingold, H., Mwerinde, O., Ross, A. L., Leach, R., Corbett, E. L., Hatzold, K., ... & Baggaley, R. C. (2019). The Self-Testing Africa (StAR) initiative: accelerating global access and scale-up of HIV self-testing. J

Jamil, M. S., Prestage, G., Fairley, C. K., Smith, K. S., Kaldor, J. M., Grulich, A. E., ... & Guy, R. J. (2015). Rationale and design of FORTH: a randomised controlled trial assessing the effectiveness of HIV self-testing in increasing HIV testing frequency among gay and bisexual men. BMC infectious diseases, 15(1), 1-10.

Kayesu, I., Mayanja, Y., Nakirijja, C., Machira, Y. W., Price, M., Seeley, J., & Siu, G. (2022). Uptake of and adherence to oral pre-exposure prophylaxis among adolescent girls and young women at high risk of HIV-infection in Kampala, Uganda: A qualitative study of experiences, facilitators and barriers. BMC women's health, 22(1), 1-14.

Kesler, M. A., Kaul, R., Liu, J., Loutfy, M., Gesink, D., Myers, T., & Remis, R. S. (2016). Actual sexual risk and perceived risk of HIV acquisition among HIV-negative men who have sex with men in Toronto, Canada. BMC public

Kumwenda, M. K., Mavhu, W., Lora, W. S., Chilongosi, R., Sikwese, S., Taegtmeyer, M., ... & Desmond, N. (2021). Feasibility and acceptability of a peer-led HIV self-testing model among female sex workers in Malawi: a qualitative study. BMJ open, 11(12), e049248.

Kurth, A. E., Cleland, C. M., Chhun, N., Sidle, J. E., Were, E., Naanyu, V., ... & Siika, A. M. (2016). Accuracy and acceptability of oral fluid HIV self-testing in a general adult population in Kenya. AIDS and Behavior, 20, 870-879.

Kusurkar, R. A., Ten Cate, T. J., Van Asperen, M., & Croiset, G. (2011). Motivation as an independent and a dependent variable in medical education: a review of the literature. Medical teacher, 33(5), e242-e262

Lillie, T., Boyee, D., Kamariza, G., Nkunzimana, A., Gashobotse, D., & Persaud, N. (2021). Increasing testing options for key populations in Burundi through peer-assisted HIV self-testing: descriptive analysis of routine programmatic data. JMIR Public Health and Surveillance, 7(9), e24272.

Mangenah, C., Mwenge, L., Sande, L., Ahmed, N., d'Elbée, M., Chiwawa, P., ... & Terris-Prestholt, F. (2019). Economic cost analysis of door-to-door community-based distribution of HIV self-test kits in Malawi, Zambia and Zimbabwe. Journal of the International AIDS Society, 22, e25255

Moya-Salazar, J., Barrial-Vega, M., Arrieta-Calderón, R., & Contreras-Pulache, H. (2022). Changes in liver function test levels in HIV patients undergoing highly active antiretroviral therapy (HAART). Longitudinal study in Lima, Peru. Revista de la Facultad de Medicina, 70(1).

Mugo, P. M., Micheni, M., Shangala, J., Hussein, M. H., Graham, S. M., Rinke de Wit, T. F., & Sanders, E. J. (2017). Uptake and acceptability of oral HIV self-testing among community pharmacy clients in Kenya: a feasibility study. PloS one, 12(1), e0170868.

Mwaikambo, L., Speizer, I. S., Schurmann, A., Morgan, G., & Fikree, F. (2011). What works in family planning interventions: a systematic review? Studies in family planning, 42(2), 67-82.

`

NASCOP. (2010, September). Standards for peer-education and outreach programmes for Sex workers in Kenya

NASCOP. (2014). National guidelines for HIV/STI Programming with the Key Population. Ministry of Health. https://www.icop.or.ke/wp-content/uploads/2016/10/KP-National-Guidelines-2014-NASCOP.pdf

National AIDS and STI Control Programme (NASCOP). (2019). Key Population Mapping and Size Estimation in Selected Counties in Kenya. Ministry of Health. https://hivpreventioncoalition.unaids.org/wp-content/uploads/2020/02/KPSE-Phase1-Final-Report.pdf

National AIDS Control Council. (2016). Kenya HIV county profiles.

Nguyen, V. T. T., Phan, H. T., Kato, M., Nguyen, Q. T., Le Ai, K. A., Vo, S. H., ... & Johnson, C. C. (2019). Community-led HIV testing services including HIV self-testing and assisted partner notification services in Vietnam: lessons from a pilot study in a concentrated epidemic setting. Journal of the International AIDS Society, 22, e25301.

Park, K., Grace, J. B., & Ewing, R. (2020). Conceptual Frameworks. In Basic Quantitative Research Methods for Urban Planners (pp. 76-87). Routledge.

Phanuphak, N., Jantarapakde, J., Himmad, L., Sungsing, T., Meksena, R., Phomthong, S., ... & Phanuphak, P. (2020). Linkages to HIV confirmatory testing and antiretroviral therapy after online, supervised, HIV self-testing among Thai men who have sex with men and transgender women. Journal of the International AIDS Society, 23(1), e25448.

Pietersen, I. (2016). Cost and effectiveness of HIV testing and counseling service delivery strategies in Namibia (Doctoral dissertation, University of Namibia).

The Kenya HIV Testing Services Guidelines (Third Edition). (2015). Ministry of Health.

Tih, P. M. (2020). Partner Notification of HIV Status among Cameroonian Men Who Have Sex with Men (Doctoral dissertation, Walden University).

Uhlaner, C. J. (1989). "Relational goods" and participation: Incorporating sociability into a theory of rational action. Public choice, 62(3), 253-285.

Wilson, K. S., Mugo, C., Katz, D. A., Manyeki, V., Mungwala, C., Otiso, L., ... & Kohler, P. K. (2022). High acceptance and completion of HIV self-testing among diverse populations of young people in Kenya using a community-based distribution strategy. AIDS and Behavior, 26(3), 964-974.

World Health Organization. (2012). Service delivery approaches to HIV testing and conselling (HTC): a strategic HTC programme framework.

World Health Organization. (2015). Consolidated guidelines on HIV testing services: 5Cs: consent, confidentiality, counselling, correct results and connection 2015

World Health Organization. (2017). Consolidated guideline on sexual and reproductive health and rights of women living with HIV. World Health Organization

World Health Organization. (2021). HIV drug resistance report 2021.

Wray, T. B., Chan, P. A., Simpanen, E., & Operario, D. (2018). A pilot, randomized controlled trial of HIV self-testing and real-time post-test

`

counseling/referral on screening and preventative care among men who have sex with men. AIDS patient care and STDs, 32(9), 360-367.

Wringe, A., Moshabela, M., Nyamukapa, C., Bukenya, D., Ondenge, K., Ddaaki, W., ... & Renju, J. (2017). HIV testing experiences and their implications for patient engagement with HIV care and treatment on the eve of 'test and treat': findings from a multi-country qualitative study. Sexually Transmitted Infections, 93(Suppl 3).

`

LIST OF APPENDICES

Appendix I. Study Questionnaires

Dear respondent;

Mukiri Elosy a master's student at the University of Nairobi, is undertaking a study among FSW who are at increased risk of contracting HIV in collaboration with SWOP-Kenya. As an FSW you have been invited to participate in this study.

This study is for academic use only. In this regard, the responses obtained will be handled confidentially and no personal details that that identify with you will be collected

Kindly provide accurate information on the questions below.

Respondent Bio Data

***Study title**: HIV Oral Self-Testing (HIVST) as a Strategy for Increased HIV Testing and Linkage to Treatment among Female Sex Workers (FSW) in Starehe Sub County in Nairobi County, Kenya*	
Participants Code	
Date	
Study hot-spot:	
hot-spot Typology:	
D.O.B: dd/mm/ yyyy:	
Religion:	□ Christian □ Islam □ Other _____□ None
Highest education level:	□ none, □ primary, □ secondary,□ college, university
Marital status:	□ Single □ Married □ Widowed □ Divorced/Separated
Interviewer Name: _____Date_____	

Section 1. Accessibility of HIVST among Female Sex Workers

1. For how long have you engaged in sex work? _____*Number of Years (2 Digits)*
2. Have you ever been tested for HIV? □*Yes* □*No*
3. What type of HIV testing do you know of?

   □Provider Initiated Testing Counselling (PITC) □ Self Assisted testing

4. If self-assisted testing, what type of HIV self-test Kit did you know of?

   □ *Oral-Fluid Based* □ *Blood- Based*

5. What is your current HIV Status? □ *Negative* □*Positive* □*Unknown*
6. If positive, are you currently receiving ART? □*Yes* □*No*
7. Have you ever tested your self-using an HIV self-test? □*Yes* □*No*

   If no skip to Question 18

   If yes Continue

8. In your opinion, to what level do you concur with the following statement on the scale of 1-5; where: 5- Strongly agree; 4 – Agree; 3-Neutral; 2-Disagree; and 1- Strongly disagree

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The HIV self-test are accessible at any time of the day					
It is convenient using the HIV self-test at any time of the day					
I can easily access HIVST from Drop-In centers					
I receive HIVST for peer educators and outreach workers					
I would recommend the HIV self-test to other Female sex workers					
I would recommend the HIV self-test to my sex partner					

Preferred Methods of delivery of HIVST among Female Sex Workers

9. Where did you get your HIVST from?

   □*bought from Pharmacy/Chemist,* □ *Drop-In Center* □ *Public Health Center,* □*peer educator/ORW,* □ *Friend* □*Sex Partner*

10. If bought, how much did it cost to buy the HIVST?

□*<50* □*50-100* □ *100-200* □ *200-300* □ *300-400* □*400-500* □*>500*

11. After testing, what test results did you get*?* □ *Negative* □*Positive* □*Unknown*

12. If tested Positive, did you go for a confirmatory test? □*Yes* □*No*

13. Where did you go for confirmatory test?

□ *DICE* □*Public Health Facility* □*VCT* □*Private Facility* □*VCT* □*other*

14. After how long did you visit a health facility for confirmatory test?

□*< 7 days* □*2 weeks* □ *1 month* □ *3 months* □*6 months* □*12months* □*>1 year*

15. What test result did you get from the confirmatory test? □ *Negative* □*Positive* □*Unknown*

16. Would you use an HIV self-test Kit again? □*Yes* □ *No*

17.

17. In your opinion, to what level do you concur with the following statement on the scale of 1-5; where: 5- Strongly agree; 4 – Agree; 3- Neutral; 2-Disagree; and 1- Strongly disagree

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
HIVST encouraged me to know my HIV status					
It was easy using the HIV self-test Kit					
I was assisted by a health care provider to use the HIVST					
I was confident using the HIVST test kits					
I It was easy interpreting the test results					
I went for a confirmatory test after testing (Answer if positive)					

Effects of HIVST to access of HIV Testing Services

18. Do you think an HIVST would encourage FSW to take up HIV Testing Services? □*Yes* □*No*

19. In your hot-spot, do FSW have access to HIVST? □*Yes* □*No*

If no skip to Question 24

20. Where did you FSW in your hot-spots get your HIVST from?

□*bought from Pharmacy/Chemist,* □ *Drop-In Center* □ *Public Health Center,* □*peer educator/ORW,* □ *Friend* □*Sex Partner*

21. How much do you think an HIVST cost within your hot-spots?

□*<50* □*50-100* □ *100-200* □ *200-300* □ *300-400* □*400-500* □*>500*

22. Do you think FSW go for a confirmatory test? □*Yes* □*No*

23. Where do you think FSW go for confirmatory test?

□ *DICE* □*Public Health Facility* □*VCT* □*Private Facility* □*VCT* □*other*

24. What are some of the reasons FSW do not access or use HIVST?

□*Expensive kits* □*Unavailability of Kits* □*Lack of Information on Self-test kits* □*Use of other methods of testing* □*Fear of testing Positive* □*Stigma and discrimination* □*They do not feel at risk of acquiring HIV*

25. What information would encourage FSW to use a HIV Self-test Kit?

□ *Counselling Information* □*Interpretation of Information* □ *Use /Procedure information*

□*Confirmatory test information*

26. Whom do you think FSW share their test results with?

□*Friend* □*sex partner,* □*boyfriend, peer educator/ORW,* □ *relative* □*other*

Effects of HIVST to linkage and uptake of HIV treatment

27. Do you think the HIVST encourages FSW to access the comprehensive HIV prevention, care and treatment services?

28. Do you think HIVST would encourage FSW into linkage and uptake of HIV treatment?

□Yes □No

Appendix II. Key Informant Interview schedule for Peer Educators

Key Informant Interview schedule for Peer Educators on the use of Oral HIVST Kits, among FSW in Starehe Sub County of Nairobi

The study is interested in hearing about your thoughts and opinions because you are a peer educator. Your comments and suggestions will be used to better inform the scale up of HIVST. There are no right or wrong answers. Your responses will help to improve the health services provided to sex workers.

1. How acceptable do you think an HIV self-test is among FSW?

- Do you think FSW within your hot-spots use the HIVST?
- Do FSW within your hot-spot seem to like the HIVST?
- What are some of the benefits for FSW testing themselves?
- What are the benefits of not having to go to a facility to get tested?
- Is HIVST more acceptable than going to the health facility?
- What are other potential benefits?

2. How do FSW access HIV self-test kits?

- What method of delivery do FSW prefer to access the HIVST?
- What price do sex workers pay for HIVST?
- What barriers do FSW face in accessing the HIVST Kits?

3. Do you think the HIV Self-test encourages FSW to take up HIV Testing Services?

- What encourages FSW to visit a health facility after using the HIVST?
- Do you think the message included in a HIVST kit encourages FSW to go to DICE to get a confirmatory test after they complete a self- test?

4. Do you think the HIV Self-test would encourage Linkage to ART if tested positive?

- Have you noticed any changes in uptake of HIV treatment when the HIVST were being distributed?
- What are some of the reasons that encouraged treatment uptake?
- What other factors affects Treatment uptake among FSW?

Appendix III. Key Informant Interview schedule for Health Service Providers

Key Informant Interview schedule for Health Service Providers (HIV testing counselor, Prevention Officer, Nurses and Clinical Officer) on the Use of Oral HIVST among FSW in Starehe Sub County of Nairobi

We are interested in hearing about your thoughts and opinions as a health service provider towards use of HIV self-test among Female sex workers in Starehe subcounty of Nairobi County. Your comments and suggestions will be used to better inform the scale up of HIVST. There are no right or wrong answers, your responses will help to improve the health services provided to sex workers.

1. How acceptable do you think an HIV self-test is among FSW?

- How often do FSW get HIVST from your facility
- What are the benefits of not having to go to a facility to get tested?
- Is HIVST more acceptable than going to the health facility?
- What are some of the benefits for FSW testing themselves?
- What are other potential benefits?

2. How do FSW access HIV self-test kits?

- How do you ensure delivery of HIVST to the FSW?
- Do you have adequate HIV self-test supplies within your areas of coverage?
- How do you ensure adequate supply of HIV self-test kits within your areas of coverage?
- Have you recently experienced HIV Self-test kits stock outs?
- What barriers do FSW face in accessing the HIVST Kits?
- What price do sex workers pay for a HIVST?

3. Do you think the HIV Self-test encourages FSW to take up HIV Testing Services?

- What encourages FSW to visit a health facility after using the HIVST?
- Do you think the message included in a HIVST kit encourages FSW to go to DICE to get a confirmatory test after they complete a self- test?

4. Do you think the HIV Self-test would encourage Linkage to ART if tested positive?

- Do you know of a FSW who used an HIVST and got a Positive HIV result?

- What kinds of changes in ART Uptake did you notice when the HIVST were distributed and used by?
- What other factors affect Linkage of FSW to ART?

Appendix IV. Informed Consent

Informed consent form for participation in the Study

Study Title: HIV Oral Self-Testing (HIVST) as a Strategy for Increased HIV Testing and Linkage to Treatment among Female Sex Workers (FSW) in Starehe Sub County in Nairobi County, Kenya

Study Coordinator and contact info: Mukiri Elosy **Tel:** 0723705560

Introduction: The Ministry of Health has scaled up the use of HIVST among general populations and Key populations to improve PLHIV identification and early linkage to ART, for improved viral suppression. HIV Self-Testing (HIVST) has the ability to raise HIV status. Mukiri Elosy, a master's student at the University of Nairobi, is undertaking a study among FSW who are at increased risk of contracting HIV in collaboration with SWOP-Kenya. As an FSW you have been invited to participate in this study.

Purpose of the study: The information you provide will assist us in determining whether technique or methods can enable FSW can encourage FSW take up HTS services and link them up for HIV prevention and treatment services.

Role in the study: If you agree to participate in the study, you will be asked to share your thoughts and experiences as an FSW, peer educator, or service provider via an open and closed ended questionnaire.

Risk: The risks of participating in this study are extremely low. There's a potential that someone will find out you're in the study and look at your data, but we'll make every effort to keep your information private.

Benefits: You will receive no immediate benefit. Your participation in this study will contribute to the improvement of HIV prevention strategies for FSW in Kenya.

Alternatives for not participating in the study: The services you are presently receiving will not be affected. All services are still available at the DICE or any Ministry of Health facility.

Privacy: To the degree permitted by law, the information you provide will be kept private. We will make every attempt to keep the information you provide us secret. All paper information will be kept under lock and key.

Compensation: If you agree to participate in the study, we will compensate for your time up to ksh.150.

Contact: The Study Coordinator, Mukiri Elosy through this phone number: **Tel. 0723705560**.

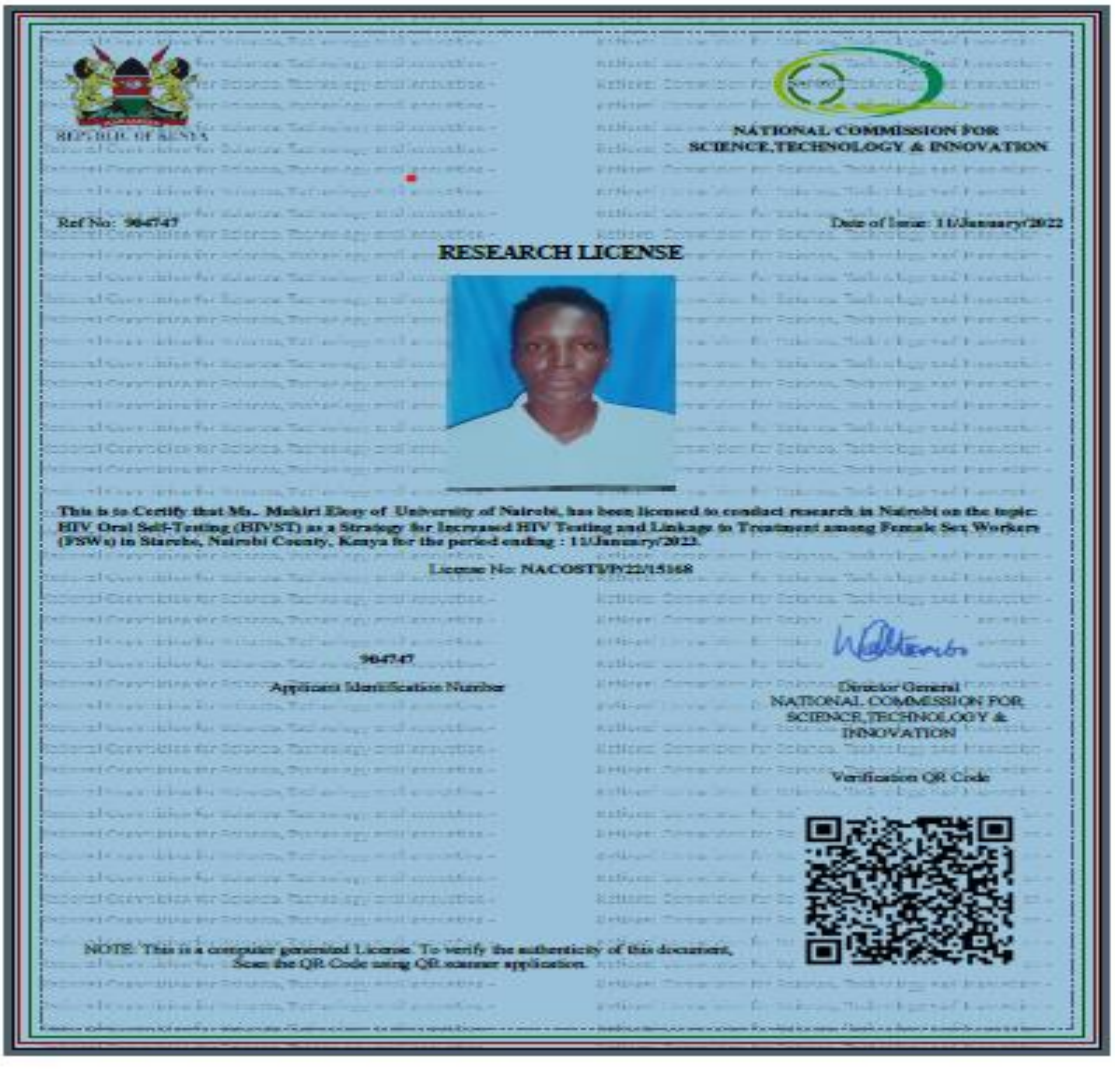
Participant Statement: I've been briefed on the research. I've had the opportunity to ask several inquiries. These have been satisfactorily addressed. By signing below, I willingly consent to participate in the study. I am aware of the option to leave the study at any time.

Name of Participant_____ Signature _____or Thumbprint Date_____

CONSENT ADMINISTERED BY:

Name: _____ Signature_____ Date_____

Appendix V. Research Permit



REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: 904747

Date of Issue: 11/January/2022

RESEARCH LICENSE

This is to Certify that Ms.. Makiri Eloy of University of Nairobi, has been licensed to conduct research in Nairobi on the topic: HIV Oral Self-Testing (HIVST) as a Strategy for Increased HIV Testing and Linkage to Treatment among Female Sex Workers (FSWs) in Starehe, Nairobi County, Kenya for the period ending : 11/January/2023.

License No: NACOSTI/P/22/15168

904747

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

Appendix VI. Map of study