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**Prevalence, Associated Factors, Barriers and Facilitators for Oral HIV Self-Testing  
among Partners of Pregnant Women Attending Antenatal Care Clinics in  
Wakiso District, Uganda**

**By**

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**Reg No.: 2019/HD07/23592U**

**A Research Thesis Submitted to Makerere University School of Public Health in  
Partial Fulfilment of the Requirements for the Award of Masters of Health  
Services Research**

**November, 2023**

## Table of Contents

Table of Contents .....	i
Declaration.....	iv
Dedication .....	iv
Acknowledgement .....	vi
List of Tables .....	vii
List of Figures.....	viii
Acronyms and Abbreviations .....	ix
Operational Definitions .....	x
Abstract.....	xi
<b>Chapter One: Introduction and Background.....</b>	<b>1</b>
<b>1.1 Introduction.....</b>	<b>1</b>
<b>1.2 Background .....</b>	<b>4</b>
<b>Chapter Two: Literature Review .....</b>	<b>6</b>
<b>2.1 Prevalence of Oral HIV Self-Testing.....</b>	<b>6</b>
<b>2.2 Factors Associated with Oral HIV Self-Testing among Partners of Pregnant Women .....</b>	<b>6</b>
<b>2.3 Barriers to Oral HIV Self-testing .....</b>	<b>9</b>
<b>2.4 Facilitators of Oral HIV Self-testing .....</b>	<b>9</b>
<b>Chapter Three: Problem Statement, Justification, and Conceptual Framework.....</b>	<b>11</b>
<b>3.1 Problem Statement.....</b>	<b>11</b>
<b>3.2 Justification .....</b>	<b>13</b>
<b>3.3 Conceptual Framework.....</b>	<b>14</b>
<b>Chapter Four: Research Questions and Objectives.....</b>	<b>16</b>
<b>4.1 Research Questions.....</b>	<b>16</b>
<b>4.2 Objectives of the Study .....</b>	<b>16</b>
<b>4.2.1 General Objective .....</b>	<b>16</b>
<b>4.2.2 Specific Objectives .....</b>	<b>16</b>
<b>Chapter Five: Methodology .....</b>	<b>17</b>
<b>5.1 Study Area .....</b>	<b>17</b>
<b>5.2 Study Design.....</b>	<b>18</b>
<b>5.2.1 Research Approach.....</b>	<b>18</b>
<b>5.3 Methods for Objectives 1, 2 &amp; 3 .....</b>	<b>18</b>

5.3.1 Study Population.....	18
5.3.1.1 Inclusion and Exclusion Criteria.....	19
5.3.2 Sample Size Determination for Objectives 1, 2, and 3.....	19
5.3.3 Sampling Procedure.....	22
5.3.4 Description of Variables:.....	24
5.3.4.1 Dependent Variables: .....	24
5.3.4.2 Independent Variables: .....	25
5.3.5 Data Collection Methods .....	27
5.3.6 Data Collection Tools.....	27
5.3.7 Data Management.....	27
5.3.8 Data Analysis.....	28
5.4 Methods for Objective 4 .....	29
5.4.1 Study Population.....	29
5.4.2 Data Collection Tools.....	29
5.4.3 Selection of Participants .....	30
5.4.4 Data Collection Procedure .....	30
5.4.5 Data Management.....	30
5.4.6 Data Analysis.....	31
5.5 Quality Assurance and Control .....	31
5.7 Ethical Considerations.....	32
Chapter Six: Results .....	33
6.1 Results for Objectives 1, 2 and 3.....	33
6.1.1 Social Demographic Characteristics of Participants .....	33
6.2 Results for Objectives 1 and 2.....	34
6.2.1 Proportion of male partners who received the oral HIV Self-Testing kit from their pregnant women attending ANC at Wakiso HCIV.....	34
6.2.2 Proportion of male partners who used the HIV oral self-testing kits received from their pregnant women for HIV self-testing.....	35
6.3 Factors Associated with Oral HIVST among Partners of Pregnant women who received oral self-testing kits to deliver to their partners at bivariate analysis.....	35
6.4 Factors Associated with use of Oral HIVST kits among Partners of Pregnant Women.....	39
6.5 Qualitative Results .....	41
6.5.1 Facilitators for the use of HIVST Kits .....	43
6.5.2 Barriers to the use of HIVST Kits .....	46

<b>Chapter Seven: Discussion</b> .....	52
<b>7.0 Introduction</b> .....	52
<b>7.1 Proportion of Male Partners who received and used the Oral HIV Self-Testing Kits from Pregnant for HIVST</b> .....	52
<b>7.2 Factors Associated with Uptake of Oral HIVST among Male Partners of Pregnant Women</b> .....	53
<b>7.3 Facilitators and Barriers for Oral HIVST</b> .....	55
<b>7.3.1 Facilitators for use of HIVST among Male Partners</b> .....	56
<b>7.3.2 Barriers to the use of oral HIVST among Male of Pregnant Women</b> .....	57
<b>Chapter Eight: Conclusion and Recommendations</b> .....	60
<b>8.1 Conclusion</b> .....	60
<b>8.2 Recommendations</b> .....	60
<b>References</b> .....	62
<b>Appendix 2: Informed Consent to Participate in the Research Study</b> .....	75
<b>Appendix 3: Individual Questionnaire</b> .....	78
<b>Appendix I: In-Depth Interview Guide (Male Partners who used the HIVST)</b> .....	82
<b>Appendix II: In-Depth Interview Guide (Male Partners who did not use the HIVST after receiving it from their Pregnant women)</b> .....	83

## Declaration

I **Nduhukyire Lawrence** declare that this dissertation is my original work and has never been submitted for any award or obtaining any qualification in any other academic institution.

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## **Dedication**

I dedicate this work to my parents Mr. Levi and Mrs. Edith Rwamuhanda for their selfless efforts while ensuring I attain education. Thank you, my dad and mummy. May God bless you abundantly.

## **Acknowledgement**

I am thankful to God the Almighty for enabling me to go through this course and complete this research work.

In a special way I extend my sincere appreciation to the following, May the Almighty God bless you abundantly:

- My supervisors Ms. Juliana Namutundu and Dr. Juliet Ntuulo Mutanda for their enriching guidance, corrections, suggestions, constructive criticisms, dedication and time spent to make this research work a success.
- I acknowledge the great support by Implementation Science (MaK-ImS) for providing me with mentorship and funds that facilitated to carrying out this research.
- My Uncle Philemon Tumwebaze and my dear wife Janet Asiimwe for the support during the time I pursued the program.
- My classmates Dan Muramuzi, Ipola Patrick, and Claire Nnannyanzi for their thoughtful contributions during the development of this work. Your support, encouragement and great friendship helped me go through the ups and challenging moments of the course and field and research work.

## List of Tables

Table 1: Description of Independent Variables .....	25
Table 2: Social demographic characteristics of the male participants .....	33
Table 4: Factors associated with oral HIVST among partners of pregnant women who received the kits to deliver to their male partners for HIV testing and each Independent Variables .....	37
Table 5: Factors associated with use of oral HIVST kits among male partners of pregnant women attending ANC AT Wakiso HCIV, Wakiso district at multivariable analysis .....	40
Table 6: Characteristics of males who participated in in-depth interviews .....	41



## List of Figures

Figure 1: Conceptual framework for oral HIVST among partners of pregnant women (conceptual framework for healthcare utilisation behavior; Andersen’s behavioral model) .....	14
Figure 2: Selection for male partners to pregnant women attending ANC at Wakiso HC IV .....	24
Figure 3: Proportion of Male partners who received an HIVST kit from their pregnant partners .	34
Figure 4: Proportion of partners who used the HIV oral self-testing kit received from their women attending ANC at Wakiso HCIV .....	35
Figure 5: Thematic presentation of barriers and facilitators of oral HIV self-testing among partners of Pregnant women attending ANC .....	42

## Acronyms and Abbreviations

<b>AIDS</b>	: Acquired immunodeficiency syndrome
<b>ANC</b>	: Antenatal care
<b>ART</b>	: Antiretroviral Treatment
<b>EIAS</b>	: Enzyme immunoassay
<b>HC</b>	: Health centre: United Nations
<b>HCIV</b>	: Health center IV
<b>HIV</b>	: Human Immune Virus
<b>HIVST</b>	: HIV Self-testing
<b>HTC</b>	: HIV testing and counselling
<b>HTS</b>	: HIV Testing Services
<b>IDI</b>	: In-depth interviews
<b>IEC</b>	: Information Education and Communication
<b>MARPI</b>	: Most at risk population initiative
<b>MOH</b>	: Ministry of Health
<b>MSM</b>	: Men who have Sex with Men
<b>PLHIV</b>	: People living with HIV
<b>RDTs</b>	: Rapid diagnostic tests
<b>UNAIDS</b>	: Joint United Nations programme on HIV/AIDS
<b>UPHIA</b>	: The Uganda Population–Based HIV Impact Assessment
<b>WHO</b>	: World Health Organization
<b>YCC</b>	: Young child clinics

## **Operational Definitions**

**Oral HIV Self-testing:** in this study, this was referred to as an act where an individual collected his or her specimen of oral fluid from their mouth using a swab provided; to do an oral HIV test without the supervision of a health worker to obtain HIV results and report the outcome to the health worker at the facility where the self-test kit was picked.

**Partners of pregnant women:** according to this study, partners of pregnant women referred to a husband or a male person, a female has sexual relations with.

## Abstract

**Background:** Oral HIV self-testing (HIVST) among men is relatively low and still inadequate in Sub-Saharan Africa. Delivering HIVST kits by pregnant women attending antenatal care to their male partners is a promising strategy for increasing HIV testing among men. However, even amidst the interventions, most men still do not know their HIV status. This study, therefore, aimed at determining the proportion of male partners who received and used oral HIVST kits from their pregnant women, associated factors, barriers, and facilitators of oral HIVST among partners.

**Methods:** The study used an exploratory sequential mixed methods study design. 380 participants were recruited to determine the prevalence, and factors associated with oral HIV self-testing. Lists of male partners in the log books whose women picked an HIVST kit were obtained and systematic random sampling was done to obtain names of participants. 14 male partners were selected for in-depth interviews (IDIs) to identify barriers and facilitators. A modified poisson regression was used to determine the proportion association of Oral HIVST using STATA version 14 analysis software. IDIs were conducted with purposively selected partners of Pregnant women to identify the barriers and facilitators for Oral HIVST. Audio-recorded data were transcribed and analysed using Dedoose.

**Results:** Out of 380 male participants recruited into the study, 260 (68.4%) received an oral HIVST kit from their pregnant women. The proportion of male partners who used the received Oral HIVST kit was 215 (82.7%). Variables associated with oral HIVST were; Information Education and Communication CPR 1.64 [1.48-1.82], place of testing CPR 1.04 [1.01-1.08], and being aware of the woman's HIV status CPR 1.04 [0.99-1.09]. The barriers for oral HIVST were; lack of trust in the HIVST kit results, fear of test outcome in the presence of the partner, and the inclination that the HIV status of their women is the same as theirs. Facilitators included convenience, ease of use, prior awareness of their HIV status, and fear of relationship consequences and breakup.

**Conclusion:** Delivery of oral HIVST kits through pregnant women reached a high proportion of men. Based on the findings, 260 men received an Oral HIVST kit; of these, 82.7% used the kit. This was positively associated with IEC, place of HIV testing, and awareness of their woman's HIV status. Barriers were a lack of trust in the HIV self-testing kit and an inclination that the HIV status of their partners is the same as theirs; facilitators were convenience and fear of relationship consequences.

## **Chapter One: Introduction and Background**

### **1.1 Introduction**

Globally, HIV is a public health burden and as of 2020, an estimated 37.7 million people were living with HIV, 1.5 million became newly infected, and 1.5 million deaths occurred around the globe (UNAIDS, 2020). According to statistics, approximately 6.1 million people were not aware they had HIV in 2020 (UNAIDS, 2021) and Sub-Saharan Africa remains the most affected with more than 75% of which 45.7% of newly diagnosed cases are among adults (UNAIDS, 2020). The Joint United Nations Program (UNAIDS) set a 95-95-95 global health target to be reached by 2030 (UNAIDS, 2018), where the first stipulates that 95 of the population will test and know their HIV status, 95 of those who test positive be initiated on treatment, and 95 have a viral load suppression were-by reaching this cascade requires having more people tested for HIV.

HIV screening and testing is an entry point to providing linkage to HIV treatment, and care, in turn preventing transmission of HIV given the increasing optimism about achieving an AIDS-free generation across different countries (Fauci & Folkers, 2012). There are various approaches used for testing HIV but for many settings, the World Health Organisation (WHO) recommends the use of rapid diagnostic tests (RDTs) rather than conventional laboratory-based diagnostics such as enzyme immunoassay (EIA) to accelerate the uptake of HIV testing and counselling (HTC) services because RDTs allow the quicker provision of test results. With appropriate training, support, and supervision, lay counsellors/community health workers can use RDTs to perform HIV testing with accuracy and reliability (WHO, 2020). Employing these to perform testing may be a preferred option, particularly where healthcare professionals are overburdened (WHO, 2012).

In Africa, HIV testing is still low despite efforts by many countries to increase HIV testing with about 6.1 million adults not aware of their HIV status (UNAIDS, 2021). This means that most people living with HIV get tested when they already have advanced effects and have transmitted the virus to either the partners or to the child through child transmission for mothers who do not attend antenatal care (ANC) or causing a delay in treatment for the positives contributing to high mortality. These gaps in the tested and untested for HIV have attracted different countries across Africa to explore various interventions to expand testing and reach the neglected populations including men, adolescents, and men who have sex with men (Hlongwa, Mashamba-Thompson,

Makhunga, & Hlongwana, 2019). One of the approaches countries are adopting is oral HIV self-testing (HIVST) because conventional HIV testing has been less comprehensive in reaching men, but HIVST appears to be reaching more men.

To achieve the UN's 95-95-95 global HIV target by 2030; specifically the first 95 where individuals are tested to know their HIV status. WHO released the consolidated guidelines in 2015 after recommending oral HIVST to increase access to HIV testing as a self-guided intervention (WHO, 2020). During ANC visits, pregnant women are subjected to a mandatory HIV test together with their male partners who escort them. In addition, women's health-seeking behaviour is relatively high compared to men. However, most men in African countries do not escort their women during ANC visits missing a chance to be tested. In addition to the above, unlike men, uptake of HIV testing services by women during ANC is higher; and approximately 90% of women test for HIV during ANC, with male rates remaining much lower (Korte et al., 2020).

Thus, among men, HIV testing is still inadequate with the rate of men who remain untested over 33% (UNAIDS, 2020) and HIV-negative women remain at high risk of acquiring HIV/AIDS partially due to low testing rates among their partners. Men do not know their status and if positive, they miss the opportunity of entry into care and prevention services. This is because a substantial proportion of new infections come from persons unaware of their HIV infection (Marks, Crepaz, & Janssen, 2006). Partner testing linked to antenatal care is a potential strategy to increase testing coverage among men, and given the preference for HIVST testing, a study among Pregnant women delivering self-testing kits found that men had a preference for testing at home compared to testing at a clinic (Korte et al., 2019). HIV self-testing is a promising method for increasing testing in hard-to-reach and neglected populations and this strategy has the potential to facilitate the testing of more people (Izizag et al., 2018).

According to the WHO, oral HIVST is defined as a process in which an individual performs an HIV test using their oral fluid and interprets the result, often in a private setting, either alone or with someone, he or she trusts (UNAIDS, 2018; WHO, 2014, 2020). Individuals test themselves for HIV privately, at their convenience, overcoming several structural, psychosocial, and health systems barriers to HIV testing. Besides, the WHO report highlighted the need to improve and strengthen couple testing of HIV and promote partner disclosure (WHO, 2016). However, to date, most are still hesitant and unwilling to test despite the availability of HIV testing services close to them; and

given the introduction of oral HIVST kits with evidence of high sensitivity and specificity, several countries in Sub-Saharan Africa have developed policies implementing the intervention (Bhattacharjee et al., 2019). These countries have begun to explore ways of making it more widely available given the evidence that it bypasses barriers like stigma, privacy concerns, time and expenses in clinic-based HIV testing given the high acceptability in various populations and settings (De Schacht et al., 2022; Witzel, Rodger, Burns, Rhodes, & Weatherburn, 2016).

Oral HIV self-testing kits detect HIV antibodies in oral fluid, offering a user-friendly approach to HIV testing. The kits include a collection swab, a test device, and instructions. To use, individuals swab their gums and cheeks to collect oral fluid and the test device then identifies HIV antibodies in the sample (Estem, Catania, & Klausner, 2016; WHO, 2018). A non-reactive result suggests no detectable antibodies, indicating a negative result, while a reactive result indicates the presence of antibodies, suggesting a positive result (WHO, 2016). Several studies highlight Sensitivity for oral kits is at 98.7% with a specificity of 100% (Choko et al., 2016; Martínez Pérez et al., 2016). They provide a private and convenient method for initial testing in the absence of a health worker, but a positive result should be confirmed through traditional blood-based testing for diagnosis.

To most men, the short time waiting for results is about 15 minutes, and those who fear prickers to obtain blood for an HIV test have the opportunity to test at their convenience (C. C. Johnson et al., 2017; Njau et al., 2020), and can increase men's knowledge of their HIV status and facilitate linkage to care, in turn reducing transmission to their partners.

In Uganda, the HIV prevalence is at 6.2% in the general population with 7.6 among women and 4.7% among men (MOH, 2016). In 2017, about 19% of HIV-positive clients did not know their status, especially men whose testing rates were lower compared to females. This is because access to testing services remains an issue in the country and fear of stigmatization and discrimination continues to affect HIV testing countrywide, especially among men (Byamugisha et al., 2011). Therefore, due to high fertility rates, coupled with high ANC attendance as 98.4% of the majority of women attend clinics; secondary distribution of HIVST kits could have a high potential to reach a large proportion of the male population since their attendance to clinics is low (UPHIA, 2019) and HIV-negative pregnant women are at high risk of acquiring HIV, partially due to low testing rates among their male partners (Bulterys et al., 2020).

Low HIV testing in sub-Saharan Africa could be due to stigma, discrimination, and confidentiality concerns among others (Hamilton et al., 2021). Thus, HIVST is an alternative HIV testing that would encourage men to test due to its advantages associated with traveling and waiting at the clinic to test for HIV. This indicates that health professionals need to address any health challenges as they transpire given the gaps in oral HIV self-testing amidst several interventions in place to have more men tested, my study focus was to determine the proportion of men who received and proportion that used the HIVST kits, associated factors, and barriers, and facilitators of HIVST among male partners of pregnant women after the three years of implementation.

## **1.2 Background**

In Uganda, HIVST has gained significant attention and has been implemented by the Ministry of Health in ANC clinics in a move to have men tested for HIV; launched in 2019. The results of the 2020 Uganda Population-based HIV Impact Assessment (UPHIA) indicate that the current prevalence of HIV among adults (15 to 49) years is 5.5%; thus, with this prevalence, increasing access to HIV testing and early diagnosis is crucial for controlling further spread of the disease. Determining the factors associated with oral HIVST among male partners is essential for identifying categories that need targeted interventions, improving the program and closing gaps in HIV testing coverage, especially among men. Low HIV testing, knowledge of HIV status, suboptimal treatment, and prevention coverage among men are key gaps in the HIV response.

The Implementation of HIVST in Uganda was supported by MOH, and funding stakeholders with evidence from studies and pilots that were done to guide the adoption (Korte et al., 2020; Wanyenze, 2019), which showed high acceptability, and use of HIVST by partners of pregnant women. The MOH thus recognised the potential benefits of HIVST in reaching men improving overall testing coverage and increasing access to HIV testing among populations which face barriers to accessing health facilities. More so, the WHO recommended HIVST given the advantages it has towards reaching many individuals who have limited time to visit health facilities (WHO, 2016).

A few key concerns by policymakers worldwide and Uganda about the introduction of HIV self-testing include; lack of policies and regulatory systems, quality of oral HIV self-test kits, ethical and human rights issues, lack of counseling that may increase suicidal cases and knowledge about HIVST kits before use (Muwanguzi et al., 2021; WHO, 2013; Wong et al., 2014). Where-as there



is a rationale for improving uptake of oral HIV self-testing services to improve HIV testing as a gateway to accessing lifesaving ART and prevention strategies, results from studies that informed enrollment of the oral HIVST kits in ANC setting in Uganda revealed uptake at 76% (Korte et al., 2020; Wanyenze, 2019). However, there is limited evidence-based research that has been carried out to evaluate the intervention since it was rolled out by the MOH, especially among partners themselves of ANC attending women to find out the gaps in the HIVST program despite its convenience.

The role of HIVST in increasing screening rates and early detection of HIV is promising because studies done have found high acceptability (Bulterys et al., 2023; Ssemata et al., 2022) as HIVST and self-testers can achieve high sensitivity and specificity with minimal errors. However, there are comparatively fewer or no studies that have heard from male partners themselves about oral HIVST. In Uganda, oral HIV self-testing kits were rolled and are used in health facilities, and as such, the views and numbers of men who are not coming forward to test for HIV are still poorly captured.

To inform the implementation process, findings from the study provide evidence about oral HIVST among partners of pregnant women. This study was therefore important in assessing the actual delivery and use of HIVST kits since its rollout and how well this intervention is working out among male partners. Most studies have targeted pregnant women who reported the use of the kits by their partners. However, this study aimed to hear from male partners themselves and ascertain those who received and used the oral HIVST kits.

In Wakiso, the HIVST was enrolled in August 2018 and implemented in three categories (Most at risk population initiative [MARPI]; targeting MSMs, and men through ANC) through the Infectious Disease Institute, Makerere as an implementing partner (IDI, 2020); but limited evaluation studies since the implementation of the HIVST programs have been done. HIVST is currently implemented at ANC clinics only in facilities targeting secondary delivery by pregnant women but some women don't deliver the kits to their intended partners. Therefore, this study is timely as no evaluation has been done ever since the MOH rolled out the secondary delivery of HIVST kits through ANC women attending clinics across the country.

This study therefore was done to determine the proportion of male partners who received the HIVST kits from the ANC attending women, the proportion of male partners who used the oral HIVST kits, factors associated, and facilitators and barriers of uptake among the male partners.

## **Chapter Two: Literature Review**

### **2.1 Prevalence of Oral HIV Self-Testing**

The WHO in 2015 released the consolidated guidelines on oral HIV self-testing and recommended HIVST method to increase HTS access, especially among men, adolescents, and key populations (WHO, 2016). Despite the advantages of convenience, speed, privacy, accessibility and easy administering of the oral HIVST kit, utilization among men is still unknown in many countries for example in a study done in a rural area, the prevalence of ever oral HIVST was 45% among men (Indravudh et al., 2020). According to a study done in the Peri-urban area of the democratic republic of Congo, about 18.6% were not willing to use the oral HIVST kit and the actual number of people who used the oral HIVST was not known (Izizag et al., 2018). In addition, another study carried out reported resistance to use the HIV self-testing services. According to the studies done about uptake, the accuracy of the HIVST kit prompted many participants to use the kit (Tahlil et al., 2020); in Malawi, a higher proportion (91.9%) of individuals opted to test for HIV using the oral HIVST option, however, 8.1% of the participants declined and chose not to use oral HIVST (Choko et al., 2011). Differences between those who accepted and declined oral HIVST were reported to be minor, and hence it's essential to identify the exact reasons behind declining use of the HIVST.

In a study carried out in Kenya in 2013, results revealed that 88% of pregnant women were tested for HIV infection compared to 4.5% of their male partners. This study shows low men testing rates may result in low treatment rates and also increases HIV transmission to female partners. In Peru and Brazil participants that were considered during a feasibility study, 98% used the HIVST by the end of the third month during the study (Katz, Golden, Hughes, Farquhar, & Stekler, 2012). In Zambia however, 76% of those who had not tested recently revealed that they were very sure they would use a self-test if it was available (Zanolini et al., 2018).

### **2.2 Factors Associated with Oral HIV Self-Testing among Partners of Pregnant Women**

The age of partners is reported to be associated with the use of oral HIVST in studies. Mothers with a higher age found it easy to convince their partners to test using the self-test kit (Matovu et al., 2018). In relation, according to (Zanolini et al., 2018), participants who had a higher age were not likely to be convinced to use HIVST compared to the participants who had a relatively moderate age. A study done in rural communities demonstrated that age was associated with HIVST in both

men and women, with evidence of a strong declining trend across the different categories of age. Evidence further showed that compared with adults aged 25–39 years, HIVST was low among adults of 40 years and older in participants (Indravudh et al., 2020). According to the study, a higher proportion of young men aged 20–24 years also used oral HIVST compared to adults. Therefore, age seems to be unique in influencing oral HIVST, and my study focused on finding evidence of the association of age and oral HIVST in male partners of pregnant women.

A study revealed that one's knowledge of the HIVST kits influences their ability to use the kits. According to a study done in Zambia, results showed that individuals who had knowledge about HIVST were very comfortable using a self-test and they also felt friends (76%) and partners (86%) would feel similarly comfortable using self-testing (Zanolini et al., 2018). This study shows that one's knowledge of the HIVST kits increased the ability to use the kits. Supplementing the instruction sheet that comes with the kit with a brief video increased the participant's confidence slightly in using an oral HIVST kit. Results also reveal that participants also felt their friends would have a strong interest in self-testing after receiving information from them about the HIVST which increased knowledge about the HIVST method.

Relatedly, a rural study found out that living with a household member who ever self-tested was associated with HIVST among men. About 64.4% reported household uptake and self-tested compared to 27.6% who did not report household uptake (Indravudh et al., 2020). Oral HIVST was more prevalent among individuals in a household who shared information after using the HIVST kit (Ritchwood et al., 2019). This study therefore focused on finding whether knowledge was associated with the use of oral HIVST.

Education level is another important factor found to be associated with use of oral HIV self-testing. A study carried out in 9 African countries reported that high numbers of respondents who utilised the HIVST service had higher education compared to less-educated participants (Indravudh et al., 2020; Van Empel et al., 2022). In relation, a study carried out in Malawi discovered that individuals with lower levels of schooling requested more assistance compared to those with High levels of schooling (Choko et al., 2011).

Phone call from health workers. Literature from some studies revealed that some women asked health workers to call their male partners before they delivered the oral HIV self-testing kit (Matovu et al., 2018). Few studies have looked at actual rates of accessing phone counselling in an event

that oral HIVST is being adopted by most countries. Previous studies highlight a preference for post-test counselling using phone calls (Krause, Subklew-Sehume, Kenyon, & Colebunders, 2013). In relation, a survey among university students from Canada and South Africa found that participants preferred to receive results from testing and counselling in person than through the internet or mobile phones, though however, this was not specific to HIV testing (Labacher & Mitchell, 2013), but related to privacy and confidentiality of personal information. Major factor this study intends to determine the influence of phone counseling oral HIVST among partners of women attending ANC.

In studies available, being aware of their own HIV status was a catalyst for use of HIVST kits. Regardless of how participants became aware of their partner's HIV status—whether through direct disclosure by the partner or being suspicious about the partner's health/status almost always, this was followed by a sense of urgency to do an HIV test (Okal et al., 2020). Another study revealed that having a history of HIV testing was one of the reasons for HIV testing because they were aware of their HIV status (Yang et al., 2018). However, a few studies have been done to determine if one's awareness of their HIV status motivated one to test using the delivered HIVST kit. This study provided information on whether male partners used the HIVST kit that was delivered by their pregnant partners because they were aware of their HIV status.

In addition, a study among women revealed that good communication with their male partners before giving them an HIVST kit created higher chances for their partners to use an oral HIVST kit. Male partners who had discussions with their wives before testing were 3.72 times more likely to test than those who had no open discussions with their wives (Chanyalew, Girma, Birhane, & Chanie, 2021). Though there are a significant number of studies about HIV testing after discussions and uptake, there is limited information about such in Uganda. This study therefore focused on providing evidence on the association between open communication and oral HIVST.

In a study carried out in Indonesia among men, participants acknowledged that HIV was transmitted through sex, but only men who perceived it as a life-threatening disease took an HIV test, compared to those who did not perceive HIV as a life-threatening disease (Wulandari, Ruddick, Guy, & Kaldor, 2019). In a study about the use of Oral HIVST willingness to self-test among Zimbabwean men was high (84.5%) and was associated with having previously tested for HIV (Cheryl Johnson et al., 2020). However, more information is required in an African setting.

### **2.3 Barriers to Oral HIV Self-testing**

Several studies have highlighted concerns about oral HIV Self-testing.

Barriers like fear of potential shame, embarrassment, confidentiality breach in accessing HIV testing; fear of social exclusion if positive; self-treatment and prevention; the distance to a clinic; time constraints, and cost of buying the kit, were barriers affecting HIVST (Njau et al., 2019a; Okal et al., 2020; Wulandari et al., 2019). Other studies have found mixed reactions of fears, anxiety, and concerns, unreliability about whether the HIVST kits delivered to them for testing could test for HIV (Matovu et al., 2018; Njau et al., 2019a). Other studies pointed to perceived fears of partner violence (Choko et al., 2017; Offorjebe et al., 2020).

In another study done in South Africa about HIVST women raised fear as an issue that would affect delivery of the kits (Spyrelis et al., 2017). Despite the reports from this study, some studies have no case of violence or suicide resulting from the use of the HIVST (Choko et al., 2015).

Several studies also revealed that lack of policies on HIVST, misperceptions of the quality of the self-test kits, and perceived adverse effects were some of the barriers to HIVST among male partners (C Johnson et al., 2014; Xun et al., 2013). A study done in Malawi revealed that there were few reported social harms due to HIVST, this indicated that though HIVST protected participants from experiencing clinic-based stigma, it did not address self-stigma (Bwalya et al., 2020).

In other studies, despite the vigorous enrolment of HIVST, results from a study in central Uganda revealed that most men doubted the ability of the oral HIVST to test for HIV (Matovu et al., 2018).

### **2.4 Facilitators of Oral HIV Self-testing**

Among the facilitators for use of oral HIVST, being convenient enables individuals to use them, the convenience of time it takes, the place of testing, the fact that one can test anywhere at any time; the provision of speedy results; and privacy, given that individuals can do it by themselves without anyone identifying their results (Hlongwa, Mashamba-Thompson, Makhunga, Muraraneza, & Hlongwana, 2020; Sarkar et al., 2016; Wulandari et al., 2019); including autonomy and self-empowerment, encouraging couple testing because the kit is delivered by women, opportunity to test and ease of use (Njau et al., 2019a). Another study described facilitators of HIVST as being aware of partner's status, confidentiality, and privacy, anticipated quality of kit (Okal et al., 2020).

In addition, a study among men in Indonesia revealed that most men expressed interest in oral HIVST and preferred using the service to clinic-based testing due to the privacy and confidentiality (Wulandari et al., 2019); a study among Men who have sex with men also reported confidentiality and privacy a common facilitator for the use of the oral HIVST (Tun et al., 2018). Related results reported in a systematic review of factors enabling uptake of HIVST revealed perceived facilitators like autonomy, and privacy as facilitators for use of HIVST (Njau et al., 2019a)

The illustrations make HIVST easy for people to use they provide a brief demonstration and instructions guiding use of the kit (Okoboi et al., 2019; Simwinga et al., 2019). In another study, evidence on illustrations and communication influenced the use of HIVST among male partners delivered by pregnant women as they found it easy to follow them (Matovu et al., 2018).

In rural India, a study among pregnant women revealed that HIVST was easy to understand, use administer and did not require the assistance of a supervisor (Sarkar et al., 2016; Tun et al., 2018). Relatedly, a study among men in Indonesia revealed that most participants preferred oral HIVST because kits were easy to use and interpret; and was convenient in time and place (Tun et al., 2018).

In conclusion; well as most literature provides a relatively high prevalence of uptake of HIVST by male partners, these studies were carried out among women who reported their male partners' use. According to a study carried out in the Peri-urban areas of the democratic republic of Congo, about 18.6% were not willing to use the oral HIVST kit and the actual number of people who used the oral HIVST was not known (Izizag et al., 2018).

In Uganda, 24% according to a study did not use the kits according to findings (Korte et al., 2020). According to the Literature, the prevalence of women who deliver kits to their male partners after receiving the kits is not known. The available studies have limited data obtained from men themselves concerning the delivered oral HIVST kits and used them for HIV testing providing gaps in evidence necessary for guiding the implementation of the HIVST intervention among men. Hearing from the men themselves was necessary to determine the pregnant women who deliver to their male partners the self-test kits, and of the males that received the kits how many used them. This study provides results to address the gaps in the literature reviewed including the associated factors.

## **Chapter Three: Problem Statement, Justification, and Conceptual Framework**

### **3.1 Problem Statement**

According to previous studies, 76.7% of partners to pregnant women used the delivered kits for oral HIVST as reported by pregnant women implying that 24% of male partners did not use them despite their pregnant women delivering the kits (Wanyenze, 2019). In addition, the proportion of pregnant women who surely deliver an HIVST kit picked from the clinic for their male partners to test for HIV is not known.

The non-use of oral HIVST kits may result in increased risks of HIV transmission to pregnant women who may be negative, thus increasing the risk of HIV acquisition, morbidity and mortality rates; increased the risk of negative health outcomes like premature death, and substantially increasing overall treatment cost as well as limiting chances of eliminating mother-to-child transmission of HIV in the unborn babies.

The factors associated with non-use of oral HIVST kits include the health policy about self-testing, information and education about the HIVST that ANC women give to their partners before using the kit, knowledge and techniques of convincing their male partners to use the kit (Matovu et al., 2018), health provider attitude, and cultural norms and beliefs. Other factors include; the chauvinistic tendencies of men since the test kit is given to them by their wives, stigma returning to the facility for the confirmatory test when results are positive, privacy concerns, and expense associated with traveling and waiting at the clinic for men, fear/feeling shy to be seen at the clinic for a confirmatory test, and men's belief that their status is implied in the woman's status.

At Wakiso HCIV, pregnant women attending the ANC clinic are taken through the process of using an oral HIVST kit and given a kit to deliver to their partners. Women are much more willing to deliver the kits since their partners never come along with them for ANC. However, even when the pregnant women pick the kits, implementors of the HIVST program are not sure if all partners receive the HIVST kits since large numbers do not report back results as instructed while picking the kit. Thus, there are various questions that needed to be answered to support the implementation process.

Partners like Mild-may Uganda, the Infectious Disease Institute, Wakiso local government, and health facilities are encouraging mothers at ANC clinics and young child clinics (YCC) to deliver

kits to their male partners; education sessions are being provided every morning with women attending ANC on how to deliver and administer the oral HIVST kits with their partners; follow-up has been strengthened through putting in place a health worker responsible to support testers using the phone to receive queries from women in case of a question when testing with the partner, sensitizing communities through dialogues on oral HIV self-testing among others.

However, despite the efforts by implementors, the proportion of male partners who receive HIVST kits from their women is not known, and the proportion of those using the delivered oral HIVST kits is relatively low. Ever Since implementation, HIVST has not been evaluated to assess its performance, there is knowledge gap with limited research evidence and information regarding the oral HIVST kits picked and delivered by the women attending ANC. There is no evidence on the proportion of partners that receive kits from their women. There is limited or no evidence of reported uptake of HIVST by partners themselves as there is need for information to also inform Ministry of Health in formulating male engagement strategies in HIV testing. This study is important in the evaluation process of the program and will provide evidence-based data from the horse's mouth itself (male partners) and improve implementation of secondary delivery of HIVST kits.

This study sought to determine male partners that received oral HIVST kits from their women after picking the kits, the proportion that used the kits for HIVST after receiving them, factors associated, and barriers and facilitators for oral HIVST, to inform policymakers to make informed decisions about distribution of testing kits, outreach strategies, resource allocation, and the implementation of interventions targeting involvement of male partners in HIV prevention through increasing HIV testing.



### **3.2 Justification**

This study provides information on the proportion of male partners who received and used the HIVST kits from their pregnant women who attended ANC and picked a kit to deliver it to their partners, associated factors, barriers, and facilitators of oral HIVST in Wakiso district, central Uganda.

Information on use of oral HIVST by male partners may be adopted by public health facilities and health care administrators on the implementation strategies, scale-up kit pickups by women, understand behavior and factors associated thereby helping accelerate the use of the HIVST among male partners of pregnant women who receive oral HIVST at facilities.

The findings from this study may provide insights into whether the implementation of the delivered oral HIVST kits by pregnant women attending ANC to the male partners increases partner HIV testing as well as having more men tested for HIV, thereby strengthening the implementation of oral HIVST and follow up systems to avert the present missing male partners who do not use the oral HIVST to prevent consequences of HIV new infections in mothers and unborn babies.

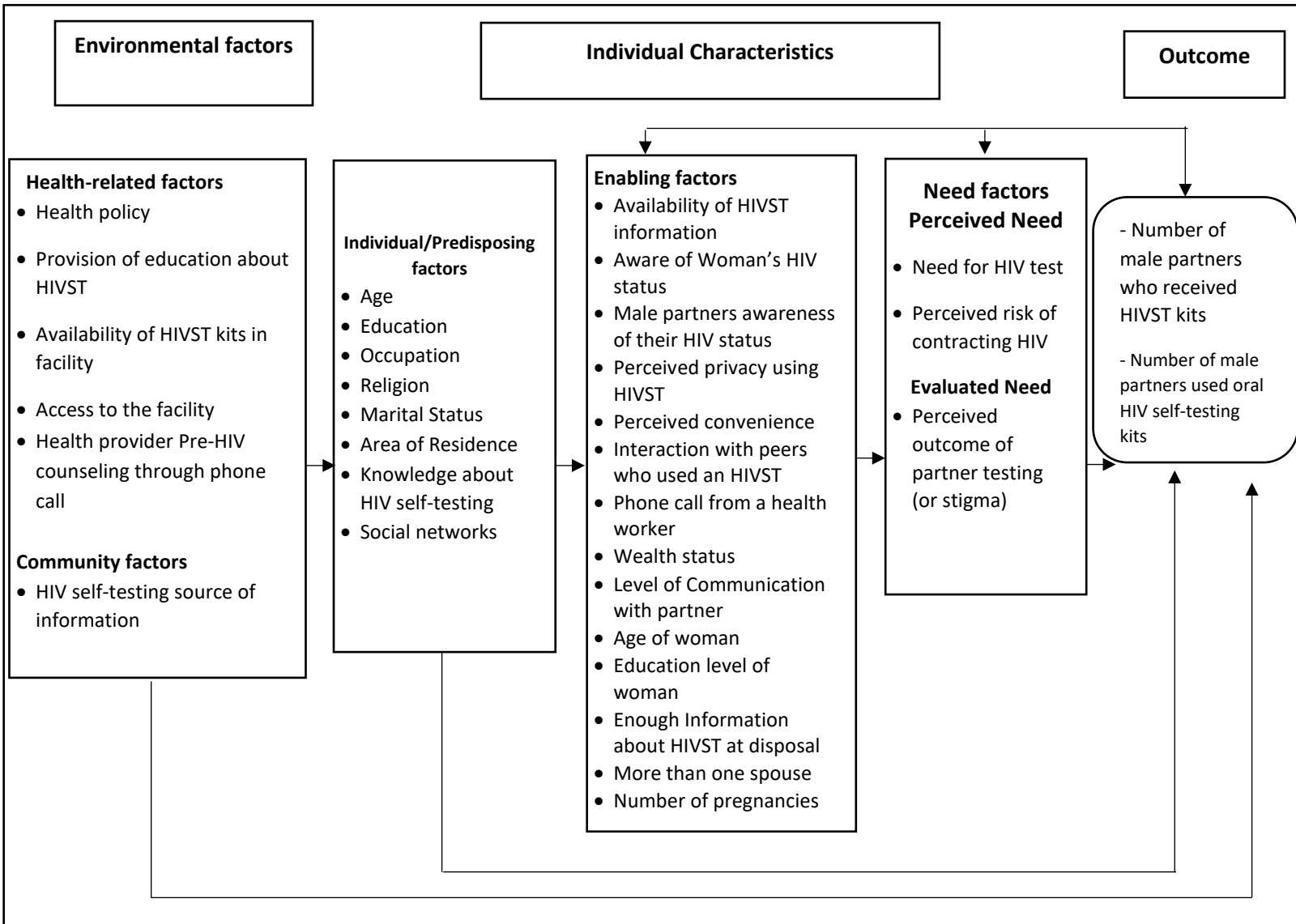
The study is relevant in providing evidence-based information that may be the basis for evaluating the HIVST program in Uganda since there has not been any formal evaluation done since the intervention was rolled out. The results from this study will inform improvements in policy and implementation, including decisions on whether adjustments can be made to improve the oral HIVST program in Uganda.

Policymakers and implementing partners may utilise the evidence-based findings from this study to make decisions on whether to invest in the delivery of oral HIV self-testing programs by pregnant women and scale up the services to other groups.

The results from this study provides important information to the existing body of knowledge about oral HIV self-testing and its use in future research and the field of academia.

### 3.3 Conceptual Framework

*Figure 1: Conceptual framework for oral HIVST among partners of pregnant women (conceptual framework for healthcare utilisation behavior; Andersen’s behavioral model)*



The conceptual model proposed assumed that oral HIVST among partners of pregnant women attending ANC is a result of the health system, population, and behavior factors. Andersen’s Model provides a comprehensive framework that considers predisposing, enabling, and need factors. The model allows the adaption of specific populations and can help better understand the factors associated with oral HIVST, leading to more effective policy interventions and improved healthcare access and outcomes related to HIV self-testing, informing policy and program. According to this

multilevel model, environmental factors, population characteristics and health behavior influence oral HIVST which later leads to early detection and reduced transmission of HIV to partners.

Individual factors like age, education, and occupation would have an influence on male partners' use of oral HIVST. These factors stimulate enabling factors like male partner's HIV status, and partners with more than one spouse, which are influenced by environmental factors like availability of kits at the facility, trained personnel handling the process of HIVST kit distribution to ensure women attending the clinics pick them for delivery. While individual characteristics are good influencers in Oral HIVST, environmental factors (like trained Health workers who carryout education sessions, access to the kits, and availability of information and education about HIVST kits) greatly influence use; In the long run affects the outcome behavior; making this model a suitable model to study male partner's use of HIV oral self-testing.

Health system factors and community factors indirectly influence oral HIVST kits, for example, trained health worker educators are likely to influence norms available in the community which positively shapes the behavior of an individual to use a service. Educated men with information on use of HIVST kits are more likely to use the HIVST kit.

Predisposing characteristics are confounding variables to the relationship between health behaviour and oral HIVST. For example, demographic characteristics like age, and education influence an individual's health behavior and use of oral HIVST kits. Personal health practices are mediating factors in the relationship between the need and use of oral HIVST. For example, a male partner married to more than one wife has a high perceived risk of acquiring HIV and hence may increase the likelihood of using an oral HIVST.

Enabling factors such as; Availability of friends who used an HIVST kit, and receiving a phone call from a health worker influence partners' use of oral HIVST kit. Previous studies indicate that men who received a call from the health worker before a self-test kit was delivered by the woman were more likely to use the HIV oral self-testing kit (Zanolini et al., 2018).

Need factors like perceived risk of HIV, influences the behavior of male partners to use oral HIVST kits. A study indicated that a perceived higher risk of HIV infection was associated with a higher intention to take up oral HIVST than those that had a lesser risk (Lau et al., 2021).

This study focused on variables indicated in the conceptual framework above.

## **Chapter Four: Research Questions and Objectives**

### **4.1 Research Questions**

1. What proportion of male partners received the oral HIV self-testing kits from their women who received the kits attending ANC at Wakiso HCIV?
2. What proportion of male partners used the oral HIV oral self-testing kits received from their women attending ANC, for HIV testing at Wakiso HCIV?
3. What are the factors associated with uptake of oral HIV self-testing kits among partners of Pregnant women who received the kit at Wakiso HCIV?
4. What are the facilitators and barriers of oral HIV self-testing among partners of pregnant women who received the kit attending ANC in Wakiso HCIV?

### **4.2 Objectives of the Study**

#### **4.2.1 General Objective**

To determine the proportion of partners who received and used the oral HIV Self-Testing kits, associated factors, and barriers and facilitators for oral HIV self-testing among partners of pregnant women who picked a kit attending Antenatal care clinics who picked an HIVST kit at Wakiso HCIV, Wakiso district.

#### **4.2.2 Specific Objectives**

1. To determine the proportion of male partners who received oral HIV self-testing kits from their women who picked a kit attending antenatal care at Wakiso HCIV.
2. To determine the proportion of male partners who used the oral HIV self-testing kits received from their women attending antenatal care for HIV testing in Wakiso HCIV.
3. To determine factors associated with uptake of oral HIV self-testing among partners of pregnant attending antenatal care at Wakiso HCIV, Wakiso district.
4. To identify facilitators and barriers of oral HIV self-testing among male partners of pregnant women attending antenatal care at Wakiso HCIV.

## **Chapter Five: Methodology**

### **5.1 Study Area**

The study was carried out at Wakiso Health Center IV in Wakiso district providing free ANC services to women. Wakiso is one of the district's housing most of the residents working in Uganda's capital city and business centre, Kampala; with men who are often busy working, and unable to escort their women for ANC—a point entry where men could have an opportunity to be screened for HIV. Wakiso was selected for this study because it is located in Central, a region with the highest HIV prevalence at 7.6% above the national adult prevalence of 5.7% (UPHIA, 2019).

Wakiso district lies in the central region, bordering districts of; Luwero in the North, Mukono in the East, Mpigi in the West, Masaka in the South-West, and Kalangala in the South. Wakiso District has 7 Health Sub-Districts of Entebbe; Busiro South, North, and East; and Kyadondo North, South, and East. It surrounds Kampala district which makes it absorb the social-economical stresses associated with urban establishments such as slums, poorly planned structures, and a large population (UBOS, 2014). The district has a total of 104 Government aided health facilities of which 67 are Government and 37 are Private Not for Profit (PNFPs). About 45% of the district population is within 5km of these facilities. The district projected population of Wakiso was 2,915,200 people by 2020 which comprised 1,381,000 males (UBOS, 2015). Thus, with the above, the health center serves a diverse patient population, allowing for a more comprehensive understanding of the factors influencing HIV self-testing uptake among different socioeconomic and cultural groups which made it more a resourceful site to carry out our study.

In Wakiso, the HIVST program was launched in September 2019, and the implementation began in January 2020. All public HCs with ANC clinics in the district are implementing the program.

HIVST kits are an oral quick intervention currently enrolled in ANC clinics to have men who do not escort their pregnant women tested for HIV. The aim is to promote partner HIV testing and men whose uptake of HIV testing services is low amidst the several interventions. When ANC women triage while attending the clinic in the morning every day, they are educated about the new oral HIV self-testing program for their partners and its advantages, ANC women are equipped with knowledge on how to use the HIVST kits and how to convince their male partner's test for HIV after delivering the HIVST. Pregnant women are prepared to help their partners during HIV self-

testing and report back the results to the facility through a phone number provided during distribution. After the education session, ANC women attending and willing to deliver the kits are asked to register in the HIVST registration log book the following details; Male partners' name, Male partners' phone numbers, and their name. Pregnant women willing to deliver the kit were given one HIVST kit each and Information Education and Communication materials (IEC) to deliver to their male partner.

## **5.2 Study Design**

This was a cross-sectional study employing a mixed methods design approach.

### **5.2.1 Research Approach**

This was a sequential explanatory mixed methods design. The quantitative approach was employed first to collect data from partners of pregnant women to determine the proportion of male partners who received an oral HIVST kit from their ANC attending women; the proportion of male partners who used the received HIVST, and associated factors for oral HIVST.

The qualitative approach then followed to identify the facilitators and barriers through in-depth interviews (IDI). The selection was purposively done. After obtaining quantitative data, a list of male partners who received and used the oral self-test kit for HIV testing together with those that did not use the received kits for HIVST were listed and their demographics recorded like Age, number of women partners married, number of sexual partners, education level and whether HIV status was known to them. Based on these, 7 male participants who used the kit for testing and 7 male participants that did not use the kit despite receiving it from their pregnant partners were selected.

The mixed methods approach was important in triangulating findings from quantitatively obtained results and gaining a richer understanding of factors that enabled the use of oral HIVST and barriers for oral HIVST.

## **5.3 Methods for Objectives 1, 2 & 3**

### **5.3.1 Study Population**

The study population was male partners of pregnant women who were attending ANC at Wakiso Health Center IV in Wakiso District. Male partners were targeted because the government enrolled

the HIVST at ANC clinics to have the male partner of pregnant women tested for HIV at their convenience since they have been found to have no time to come with their pregnant women for ANC where they would have an opportunity to be tested minimize the spread of HIV infections.

### **5.3.1.1 Inclusion and Exclusion Criteria**

#### **Inclusion criteria:**

Male partners whose pregnant women attending ANC at Wakiso HCIV willingly accepted and received an oral HIV self-testing kit to deliver to their male partner were included in the study.

#### **Exclusion criteria:**

Any male partner whose telephone number was not provided in the HIVST distribution log at the ANC clinic by their pregnant woman on receiving the kit were not considered in this study.

Male partners who were not willing to participate in the study were excluded.

### **5.3.2 Sample Size Determination for Objectives 1, 2, and 3**

To ensure adequate Statistical Power, the study sample size was calculated for each objective. This was done to ensure that the sample selected was large enough to provide statistically sufficient power to give meaningful results. Upon calculating the sample size for each objective, the highest sample size was used for the study.

#### **The proportion of Male partners who received HIVST**

The sample size for the proportion of male partners who received the HIVST kits from their pregnant women was calculated using a single proportion formula by Kish Leslie for cross-sectional studies with consideration of the following assumptions; a 95% level of confidence interval, 5% error of precision, and a prevalence rate borrowed from a study about HIV testing among men of 83%, 10% non-response rate.

$$N = \frac{Za^2 P (1 - P)}{\sigma^2}$$

Where;

n = Study sample size for male partners whose women attended the antenatal clinic

Z<sub>a</sub> = Standard normal deviate at 95% confidence interval corresponding to 1.96

P = The prevalence of use of HIVST among men was considered at a prevalence of 83% according to a study done in rural and peri-urban areas of KwaZulu-Natal, South Africa (Shapiro et al., 2020)

1 – P = Probability of Partner's use of HIV oral self-testing (1 – P = 1 – 83%)

σ = Error be of precision (σ = 0.05)

Therefore;

$$n = \frac{1.96^2 \times 0.83(1-0.83)}{0.05^2}$$
$$= 221 \text{ respondents}$$

#### **Considering a non-response rate of 10%**

$$s = n/1-NRR$$
$$= 221/1-0.1$$
$$= 221/0.9$$
$$= 259$$

The minimum sample size of the male partners who received the HIVST kits from their pregnant partners was 259 participants.

#### **Oral HIV self-testing among male partners**

The sample size for oral HIVST by male partners who received the HIVST kits was determined using a single proportion formula by Kish Leslie with consideration of the following assumptions; a 95% level of confidence interval, 5% error of precision, and prevalence rate used one of a study about HIV testing among men that was 67% (Nangendo et al., 2020), and considered a non-response rate of 10%.

$$N = \frac{Z_a^2 P (1 - P)}{\sigma^2}$$

Where;

n = Study sample size for male partners whose women attended the antenatal clinic



Z<sub>a</sub> = Standard normal deviate at 95% confidence interval corresponding to 1.96

P = For the prevalence of use of HIVST kits by male partners in Wakiso; I considered a prevalence of a study about HIV testing among men of 67% (Nangendo et al., 2020).

1 – P = Probability of Partner's use of HIV oral self-testing (1 – P = 1 – 67%)

σ = Error be of precision (σ = 0.05)

Therefore;

$$\begin{aligned}n &= \frac{1.96^2 \times 0.67(1-0.67)}{0.05^2} \\ &= 3.84(0.33)/0.0025 \\ &= 340 \text{ respondents}\end{aligned}$$

**Considering the non-response rate of 10%, a nonresponse considered for several online/phone surveys;**

$$\begin{aligned}s &= n/1-NRR \\ &= 340/1-0.1 \\ &= 340/0.9 \\ &= 378\end{aligned}$$

Therefore, the minimum sample size to determine male partners who used the HIVST kits was 378 participants

#### **Factors associated with oral HIV Self-testing**

For factors associated with the use of HIVST kits, marriage was considered as a significant factor as reported in the literature in a study done in Rural Kwazulu-Natal about the Implementation of HIV Self-Testing to reach Men. The study found out that of the overall men who were recruited, 52% had one partner and 44% had 2 or more partners. Overall results showed that 79% of males with 1 partner and 81% of men with 2 and more used the HIVST kit to test for HIV and reported back the results respectively (Sithole et al., 2021).

$$N = \frac{[Z_{\alpha/2} \sqrt{p(1-p)(\frac{1}{q_1} + \frac{1}{q_2})} + Z_{\beta} \sqrt{p_1(1-p_1)\frac{1}{q_1} + p_2(1-p_2)\frac{1}{q_2}}]^2}{(p_1 - p_2)^2}$$

$$Z_{\alpha/2} = 1.645$$

$$Z_{\beta} = 0.7$$

$$P_1 = 0.52$$

$$P_2 = 0.44$$

$$Q_1 = 0.79$$

$$Q_2 = 0.81$$

$$P = (P_1Q_1 + P_2Q_2)$$

$$= 0.77$$

$$N = 477$$

Adjusting for a non-response rate of 10%

$$N = 477 / 1 - 0.1$$

$$N = 530$$

Adjusting to a finite population

$$N = \frac{n}{1 + \frac{n-1}{\text{Total male partners}}}$$

$$N = \frac{530}{1 + \frac{530-1}{1300}}$$

$$= 376 \text{ participants}$$

Therefore, the minimum sample size to determine factors associated with the use of HIVST among male partners of the pregnant woman was 376 participants.

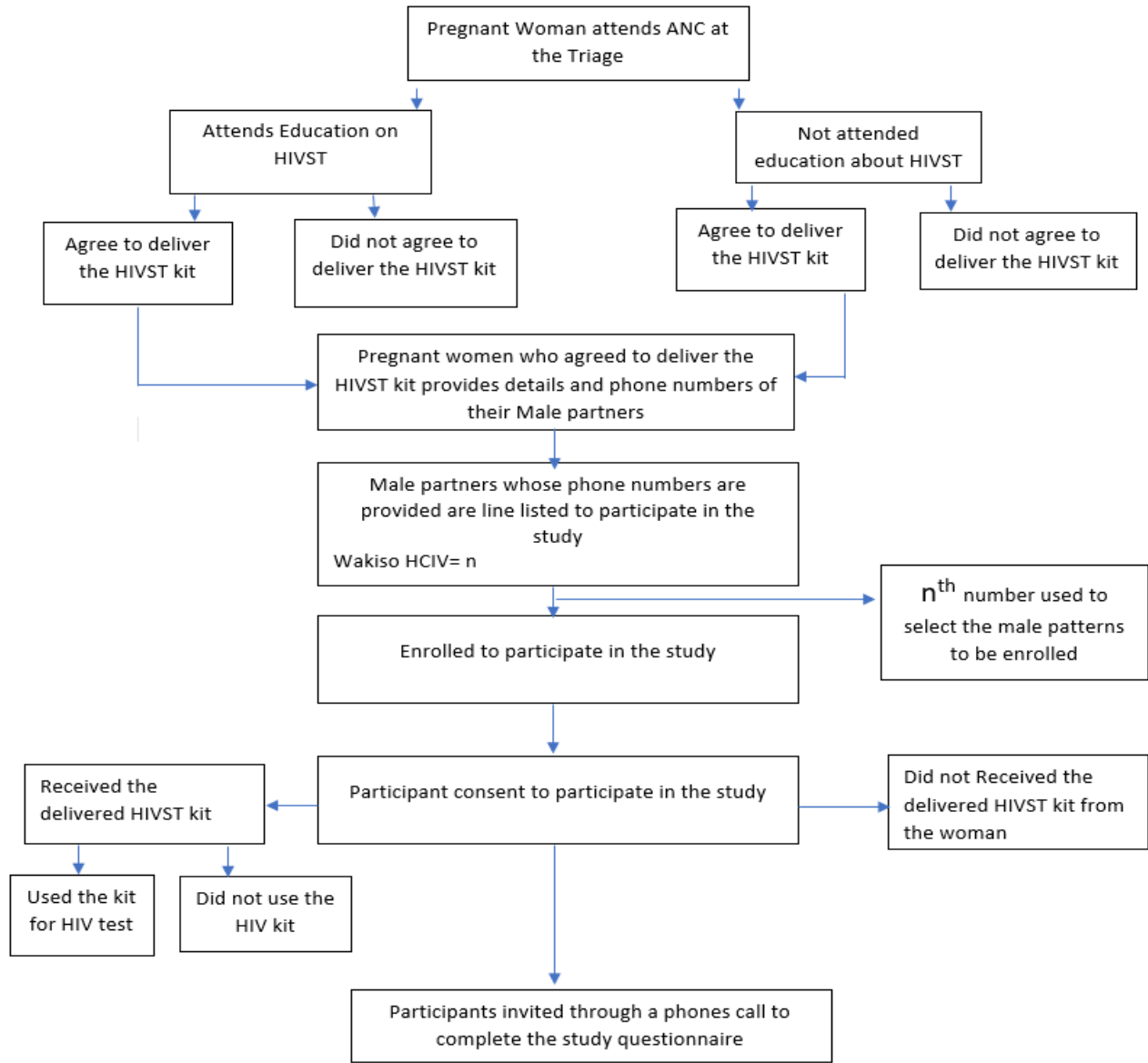
### 5.3.3 Sampling Procedure

The study selected participants using a systematic random sampling technique from the target population of partners of pregnant women who were attending to the ANC clinic. A minimum total number of 378 male partners to pregnant women attending ANC at Wakiso HCIV who accepted to

deliver HIVST kits were considered to participate in the study. To ascertain the number of male participants, the HIVST distribution log at the ANC clinic was reviewed and a list of all pregnant women who picked the kits for their male partners drawn from January 2021 to October 2022 were chosen and used as the study sampling frame for selection. After attaining the lists, the total number of pregnant women who accepted to deliver oral HIVST kits to their male partners were the numerator and the total sample size was a denominator to attain the sampling interval ( $n^{\text{th}}$ ) number during the recruitment of participants. The male participants were obtained using the  $n^{\text{th}}$  number and where every  $n^{\text{th}}$  fell, and a male partner's phone number was provided, was considered eligible to participate in the study.

Individual male partners eligible were then contacted to schedule an interview. We also asked them if they were willing to consent before participating in the study. During the phone call to schedule an interview, we introduced to the male partner the purpose of the study as; we are looking at every mother who received ANC from our facility Wakiso HCIV; “We got phone contacts of all ANC women and their partners and you have been contacted to participate in our study aimed at improving couple HIV testing and improving implementation of HIV testing interventions”. For male partners who were not willing to come to the study site for the face-to-face interviews, we scheduled to visit them in their community and collected data from them at their convenience areas. This is because men are rare and any chance, they are ready to provide information could not be missed.

**Figure 2: Selection for male partners to pregnant women attending ANC at Wakiso HC IV**



**5.3.4 Description of Variables:**

**5.3.4.1 Dependent Variables:**

The dependent variable was the outcome of the study; i) Receiving the oral HIVST kit ii) Using the oral HIV self-testing kit. The primary outcome variable was measured with a set of questions that were asked from male partners to determine those who received and used the HIVST. The questions were asked a way that would not directly involve the pregnant women and this was done to reduce the risk of increasing domestic violence in homes 1) Are you aware of your HIV status? 2) when

did you last test? **3)** have you ever received an HIVST kit? **4)** From whom did you receive the HIVST kit? **5)** Did you use the received HIV self-testing kit to test yourself for HIV? **6)** Where you able to obtain results after using the HIVST kit? Uptake of the oral HIVST was measured as “Yes” if a participant responded “Yes” for the question of whether the participant used the received HIVST kit.

**Numerator:** Total number of participants whose partners delivered an HIVST kit.

**Denominator:** Total number of male participants who used the HIVST kit.

### 5.3.4.2 Independent Variables:

Independent variables were factors associated with use of oral HIVST kits. These were considered to be factors like socio-demographics; age, marital status, education level, occupation, religion, and Partners with more than one spouse. Health system factors include; materials and education to use the kit, screening of pregnant women to receive the kit, and availability of the HIVST kits.

**Table 1: Description of Independent variables**

Variable	Type of variable	Measurement	Categories
<b>Social demographic and predisposing factors</b>			
Age	Continuous	Ratio	Age of respondent
	Categorical (grouped)	Interval	1) 15-24 2) 25-34 3) 35 and above
Marital status	Categorical	Nominal	1) Cohabiting 2) Married
Education level	Categorical	Nominal	1) Primary 2) Secondary 3) Tertiary
Religion	Categorical	Nominal	1) Anglican 2) Catholic 3) Muslim 4) Others.....
Type of place of residence	Categorical	Nominal	1) Urban 2) Semi-Urban
Occupation	Categorical		1) None 2) Unemployed 3) Employed 4) Business 5) Farmer 6) Informal sector 7) Others specify

Wealth status			1) .....Ugx
Knowledge about HIVST	Categorical	Dichotomous	1) No 2) Yes
Social network	Categorical	Dichotomous	1) No 2) Yes
<b>Enabling factors</b>			
Availability of information about HIVST	Categorical	Dichotomous	1) No 2) Yes
Age of female partner	Categorical	Nominal	1) 15-24 2) 25-34 3) 35-44 4) 45 and above
Education level of partner	Categorical	Nominal	1) No Education 2) Primary 3) Secondary 4) Tertiary 5) University
Partners' occupation			1) Not working 2) Self-employed 3) Employed 4) others.....
A phone call from the health partner	Categorical	Dichotomous	1) No 2) Yes
More than one spouse	Categorical	Dichotomous	1) No 2) Yes
Other sexual partners	Categorical	Dichotomous	1) No 2) Yes
Interaction with friends who used the HIVST kit	Categorical	Dichotomous	1) No 2) Yes
Guided to do the HIVST?	Categorical	Dichotomous	1) No 2) Yes
Who guided you to do the test?			1) None 2) Pregnant woman 3) Health worker 4) Friend 5) Family member
<b>Need factors</b>			
Perceived Risk of HIV	Categorical	Dichotomous	1) No 2) Yes
Fear of HIV test outcome	Categorical	Dichotomous	1) No 2) Yes
The perceived outcome of partner testing.	Categorical	Dichotomous	1) No 2) Yes

### **5.3.5 Data Collection Methods**

To determine the proportion and factors associated with use of HIVST kits, male partners with an active phone number we obtained through their pregnant partners attending ANC were contacted and invited to participate in the study.

Before the HIVST kit was given to the woman attending the ANC clinic, a health worker provided education at the ANC triage to explain the process of administering the kit while with their male partners at their convenience at home. The session was done for all women attending ANC at the clinic every morning before offering any ANC services at the clinic. Later, the health worker asked to know women willing to deliver the HIVST kit to their male partners despite their HIV status. Those who were willing to deliver the kits registered their details, their male partners' names and phone numbers. The health worker also provided a contact number to the Pregnant women to report back the results at the facility after carrying out the HIVST whether negative or positive.

### **5.3.6 Data Collection Tools**

Data was acquired through face-to-face interviews using a pre-coded semi-structured questionnaire that was administered by trained research assistants with a bachelor's level of education, fluent in English and Luganda languages with the supervision of the principal investigator between July 2022 to December 2022. The questionnaire consisted of questions to assess 1) demographic characteristics, 2) male partners who received an HIVST kit from their pregnant women 3) use of HIVST kit by male partners after receipt from their pregnant women, and 4) factors associated with Oral HIV self-testing. Interviews were carried out in Luganda, the commonly spoken local language in central Uganda, and English was used depending on the participant's interest administered by research assistants.

### **5.3.7 Data Management**

During data collection, data was collected using electronic Kobo-collect tools by research assistants and uploaded to the data server daily and checked for completeness by the PI to minimize errors and saved with a password to avoid access to information by anyone. Computer software packages during data management and analysis included Excel for data and STATA Version 14.0 for analysis. At this point, data was downloaded from the server and edited, coded for a few variables that were not coded, described to understand the patterns of the data that was collected. All the data

was uploaded into a password-protected folder storage designated for the HIVST study. Backup of stored data was also done using a hard disc.

### **5.3.8 Data Analysis**

Data analysis was conducted at three levels; univariable, bivariable, and multivariable analysis. In univariate analysis, the mean (standard deviation) of the age of respondents; frequencies and percentages of the independent variables were reported in form of frequency and percentage tables. Descriptive statistics were presented using proportions, frequency tables, and pie charts for data summarization and presentation.

For the outcome variable, Use of Oral HIVST kit by male partners; was computed as the proportion of male partners who self-reported using the HIVST kit delivered by their ANC woman out of the total number of male partners who received the HIVST kits from their women attending ANC at Wakiso HCIV, presented in numbers and percentage.

For those that received the HIVST kits; was computed as the proportion of male partners who reported receiving an HIVST kit from their ANC women out of the total number of the ANC women who picked the kit to deliver to their male partners; illustrated in numbers and percentage.

To determine factors associated with the use of the HIVST kits by male partners, bivariate and multivariable analysis was performed. A logistic regression was performed to determine the association between partners' use of HIVST kits and each independent variable. At this level, variables with a p-value less than 0.25 ( $P < 0.25$ ) were considered; those variables with a p-value above 0.25 ( $P > 0.25$ ) but were found to be significantly associated with male partners' use of HIVST in the literature were considered potential variables for the multivariable model building.

Before multivariable analysis, multi-collinearity was checked by running a correlation coefficient (corr) test. For all the potential independent variables with a correlation coefficient of ( $\geq 0.4$ ), multi-collinearity was suspected and one variable of those with a coefficient of ( $\geq 0.4$ ) was dropped according to the guidance of the literature. Variables with a non-collinearity were all considered for multivariable model building.

During analysis, the outcome was found to be relatively common, that was above 10%, (Bastos, Oliveira, & Velasque, 2015) and a modified poisson regression model was adopted and results reported in form of prevalent rate ratios since the odds ratio overestimated the associations between



the outcome and independent variables. The multilevel modified Poisson regression was conducted to determine factors associated with reported use of HIVST kits by male partners of pregnant women.

A stepwise elimination using a forward and backward approach was used during model building to exclude variables from the model. We started with an empty model that was then iteratively added all potential variables from the bivariate analysis that met our criteria. At each step, we kept on identifying the least significant variable based on a chosen criterion based on how it affected the model. The process continued until no more variables could be added or removed as that mode was seen fit. A goodness of fit test for the modified Poisson regression model was checked at all times a variable was removed or added from the model by looking at the AIC values. The model with the smallest AIC figure was finally considered. Results from the analysis are presented using frequencies/percentages and prevalent ratios organized in table shells.

#### **5.4 Methods for Objective 4**

A qualitative method was employed due to its interpretive approach which provides an understanding of how people make sense of their lives (Holloway, 1997). Qualitative studies are the only means by which people's attitudes to a new health technology can be properly understood because they allow respondents to report their views in detail at an individual level. It complements data from quantitative studies, which have the benefit of being applicable at a population level. Therefore, qualitative methods using IDIs to collect data suited the need to understand the barriers and facilitators of partners whose pregnant women picked an oral HIVST kit to deliver to their partners for HIV testing.

##### **5.4.1 Study Population**

The study population were male partners of pregnant women who were attending ANC at Wakiso Health Center IV in Wakiso District who received the oral HIVST from their pregnant partners and either used or did not use the kit for HIV testing.

##### **5.4.2 Data Collection Tools**

Qualitative data was collected using In-depth interviews and data was obtained using an IDI guide administered by research assistants from male partners whose pregnant women agreed to deliver an

HIVST kit to test HIV. The respondents were asked to discuss the facilitators for use of HIVST and barriers affecting the use of HIVST despite the kits being delivered at their homes.

### **5.4.3 Selection of Participants**

IDI participants were purposively selected to participate in the qualitative interviews. After obtaining quantitative results, a list of male participants to participate in the IDI was purposively developed and those selected were invited to the facility for a face-to-face in-depth interview as follows; Men who had received the delivered HIV self-testing kit from their pregnant women and used it for HIV testing and Male partners who did not use the delivered HIVST kit.

An appointment with selected male partners was done to confirm the presence of the participants so that they were ready for an interview. These participants were requested to come to the study site if they were willing to participate. 14 in-depth interviews were carried out considering 7male partners who did not use the HIVST kit and 7male partners who used the HIVST kit for HIV testing.

### **5.4.4 Data Collection Procedure**

Data was collected by the qualitative trained research assistants using an In-depth interview guide in January 2023. The IDIs were conducted with the male partners of pregnant women who picked oral HIV self-test kits to deliver to their male partners for HIV testing at home and registered a valid partner's telephone number in the HIVST distribution log. An exploration of barriers limiting the use of kits among men delivered by their pregnant partners were studied. Questions asked to male partners of pregnant women were about the process of how the HIVST kit was delivered to them, what their pregnant women told them, the process of testing, actions after testing, what motivated them to use the HIVST kit, and barriers related to none use of the oral HIVST kit. This helped to record the views of the men themselves on the barriers affecting the use and reasons for use of kits. All discussions and interviews were audio-recorded with permission from the participants. IDI lasted between 30-40 minutes.

### **5.4.5 Data Management**

Audio recorded voice tapes and notes taken during IDIs were securely kept after data collection to ensure that they were not misused. All audio-recorded verbatim were transcribed by experienced

research assistant and translated to English using a computer Microsoft 2010-word package in preparation for data analysis. Back up of the data was done throughout the study and thereafter.

#### **5.4.6 Data Analysis**

Translated soft copies were printed into hard copies for review by the PI and 2 other qualitative researchers to assess accuracy and completeness. This helped to familiarize with the transcripts.

All transcribed interviews were imported into Dedoose for analysis and identify any key codes and themes based on the primary objective of the study; barriers and facilitators to oral HIV self-testing among male partners of pregnant women who received HIVST kits from the clinic. The qualitative analysis followed a systematic approach of organizing, describing, and reporting the themes. All emerging subthemes about barriers and facilitators applied initial codes for inductive thematic analysis (Javadi & Zarea, 2016; Nangendo et al., 2020). Extraction of key quotations, explanations, and interpretations from the analysis as well as cases was done.

#### **5.5 Quality Assurance and Control**

Before data collection, a team of research assistants, were trained for two days on how to collect data using the kobo collect tool designed for the study. Quality assurance of data to be collected and ensuring confidentiality of participants were emphasized during training and before dispersing them to collect data.

Pretesting of the questionnaire and IDI guide was done by the research assistants to determine challenges and in order to minimize errors that would maybe arise during data collection. Appropriate changes in the questionnaire and IDI guide were made for the tools to be able to capture relevant and appropriate information during data collection.

The questionnaire was as well reviewed by the academic supervisors for guidance and updated for errors that were identified during pretesting and validation exercises before actual data collection.

Face-to-face interviews with systematically and purposively selected participants from a list of male participants was conducted after giving a written informed consent to the participants and signed it willing to participant in the study. We explained the purpose and procedures of the study to create a rapport with the participants before conducting the interviews. This helped the research assistants to freely hold conversations, ask questions, and obtained results from participants without fear.

## **5.7 Ethical Considerations**

Ethical approval was obtained from Makerere University School of Public Health (MUSPH) Higher degrees research and Ethics Committee and the National Council for Science and Technology (UNCST). Permission was sought from the district health officer of Wakiso district to conduct the study at the ANC clinic at Wakiso HCIV facility. Male partners who met the inclusion criteria received information about the study objectives, procedures, and benefits; and asked to consent to participate in the study. Informed consent for participants interviewed was obtained before being interviewed.

Privacy and confidentiality of data was done by masking participants with personal identifiers like names and were addressed by assigning a unique code to each participant. Participants were free to accept or refuse to participate in the study. The participants were also informed that they had a right to withdraw from the study at any time and they were further informed that the study did not involve any invasive procedure or introduction of any medicinal product into their bodies and their participation or non-participation would not affect their families or themselves seeking care at the health facility. There was no anticipated harm to the participants during this study except for the time they gave in during data collection.

## Chapter Six: Results

### 6.1 Results for Objectives 1, 2 and 3

#### 6.1.1 Social Demographic Characteristics of Participants

The mean age of the participants was 30.1 (SD 6.2) years and the level of income was 18554 (SD 29239) per individual. The majority of the study participants were aged 25-34 years constituting 239 (62.9%), followed by those aged 35 years and above 81 (21.3%) and at least 60 (15.8%) of the participants were between 15-24 years. More than half of the respondents 205 (53.9%) were married while 175 (46%) were cohabiting and 207 (54.5%) participants at least had one sexual partner besides their wife. The majority of the respondents had secondary education 252 (66.9%) and the least respondents had primary education 57 (15%). Most of the respondents were Catholics 144 (37.9%), followed by Anglican 80 (21.1%), Muslims 94 (24.7%) and 62 (16.3%) for other religions.

*Table 2: Social demographic characteristics of the male participants*

Variable (Categories)	Frequency (n=380)	Percentage (%)
Mean Age of Participants (SD) 30.1(6.2)		
Level of income per day Mean (SD) 18554 (29239)		
<b>Age groups</b>		
15-24	60	15.8
25-34	239	62.9
≥35	81	21.3
<b>Education level</b>		
Primary Education	57	15
Secondary Education	252	66.9
Tertiary	71	18.7
<b>Marital status</b>		
Married	205	53.9
Cohabiting	175	46
<b>Number of spouses</b>		
I have one spouse	367	96.6
I have more than one spouse	13	3.4
<b>Other Sexual Partners</b>		
No sexual partner	173	45.5
At least one sexual partner	207	54.5
<b>Place of residence</b>		
Semi-Urban	72	18.9
Urban	308	81.1

<b>Living with the partner</b>		
Living with partner	339	89.2
Staying elsewhere	41	10.8
<b>Employment</b>		
Informal employment	212	55.8
Formal Employment	168	44.2
<b>Religion</b>		
Anglican	80	21.1
Catholic	144	37.9
Muslim	94	24.7
Other religion	62	16.3
<b>Subscribe to a social group</b>		
No	236	62.1
Yes	144	37.9

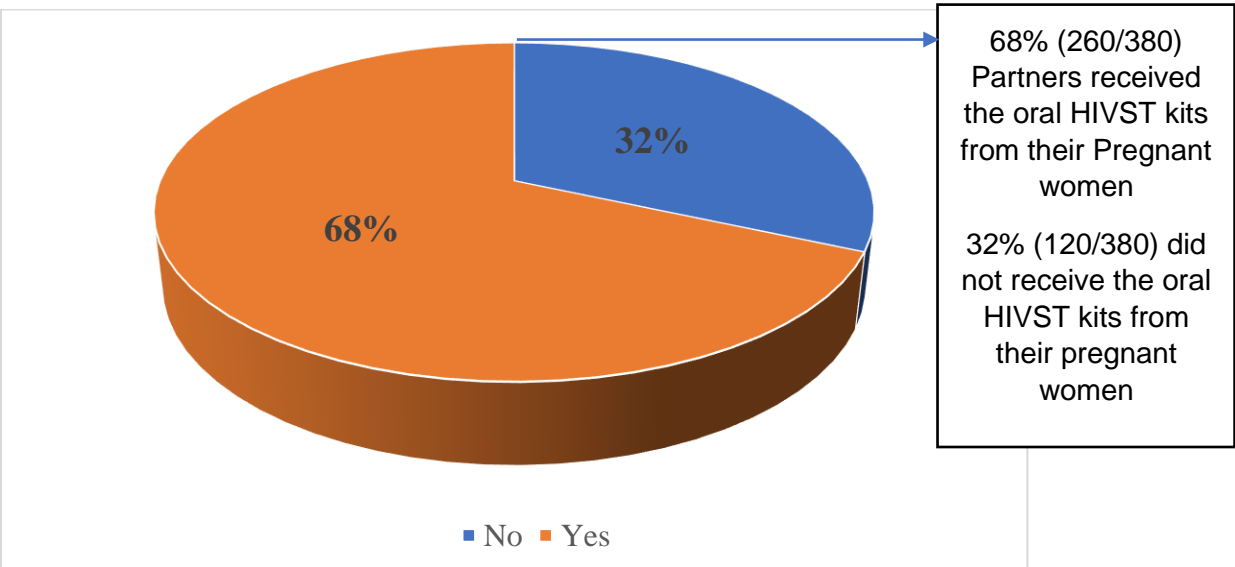
**6.2 Results for Objectives 1 and 2**

**6.2.1 Proportion of male partners who received the oral HIV Self-Testing kit from their pregnant women attending ANC at Wakiso HCIV**

Overall, 260/380 of the male partners to pregnant women attending ANC at Wakiso HCIV received an oral HIVST kit from their pregnant women.

The proportion of those who received the oral HIVST from their partners was 260 (68.4%)

**Figure 3: Proportion of Male partners who received an HIVST kit from their pregnant partners**

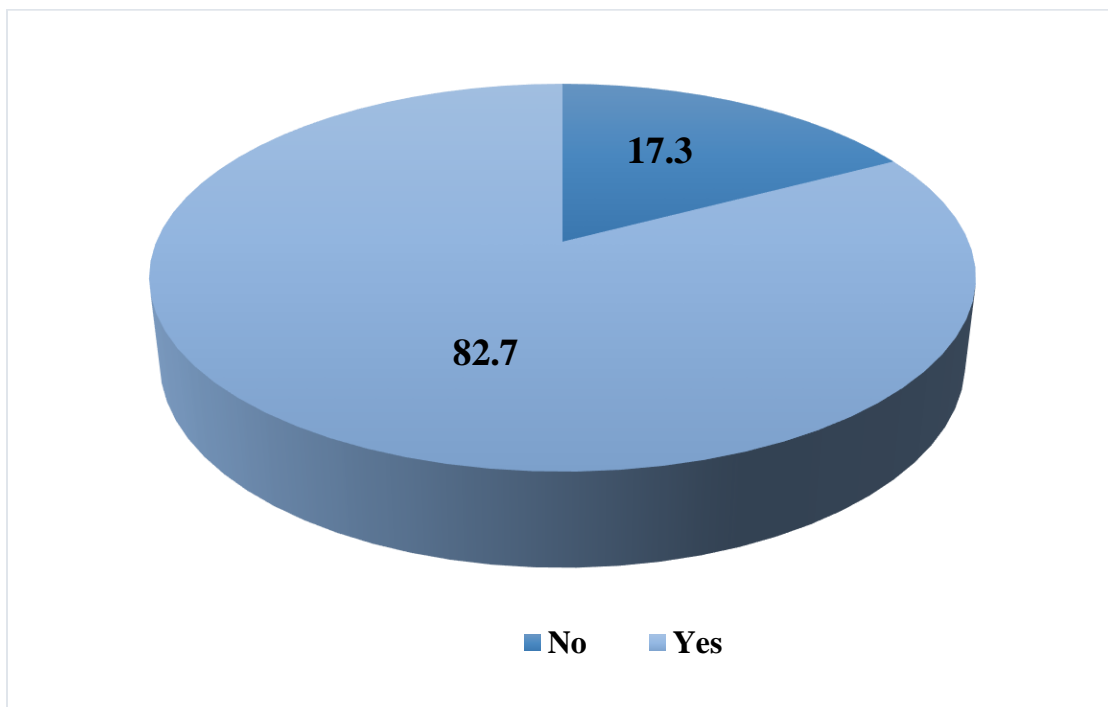


### 6.2.2 Proportion of male partners who used the HIV oral self-testing kits received from their pregnant women for HIV self-testing

Overall, 215/260 partners to pregnant women attending ANC at Wakiso HCIV used the oral HIVST kit delivered by their pregnant women to test for HIV.

The uptake of oral HIVST among partners of pregnant women attending ANC was 215 (82.7%)

**Figure 4: Proportion of partners who used the HIV oral self-testing kit received from their women attending ANC at Wakiso HCIV**



### 6.3 Factors Associated with Oral HIVST among Partners of Pregnant women who received oral self-testing kits to deliver to their partners at bivariate analysis

At bivariate analysis; marital status, living with a partner, information Education and communication (IEC), Pre-phone counselling, place of HIV testing, spouses' education, being aware of their HIV status and perceived risk of contracting HIV were positively associated with oral HIV self-testing. Men who were cohabiting were 1.80 times less likely to take up oral HIV self-testing compared to married men; CPR 1.80 95% CI [1.01-1.11]. Those who were staying with their pregnant partners were 1.19 times more likely to take up oral HIV self-testing compared to

the male partners who were staying elsewhere CPR 1.19 95% CI [1.00-1.43]. More significantly, male partners who received information and education about HIVST were 1.70 times more likely to use the HIVST kit compared to those who did not receive CPR 1.70 95% CI [1.55-1.87]. On the other hand, male partners who received pre-phone counselling from the health facility were 1.10 times likely to use the oral HIVST kit compared to their counterparts CPR 1.10 95% CI [1.07-1.13]. The spouses' education level was another significant factor associated with the use of the HIVST kit by male partners to pregnant women; pregnant women who had a tertiary level of education 1.09 times likely to use HIVST kits compared to their counterparts from secondary and primary levels CPR 1.09 95% CI [1.01-1.19].

Other factors that were significantly associated were; men who were aware of their HIV status before self-testing were 1.34 times more likely to use HIVST compared to male partners who were not aware of their HIV status CPR 1.34 95% CI [1.05-1.71]. Male partners who were also aware of their Spouses' HIV status were 1.12 times more likely to take up HIVST compared to those male partners who were unaware of their pregnant women's HIV status CPR 1.12 95% CI [1.01-1.24]. More important, men who tested from home were 1.18 times likely to use the HIVST services compared to health facility testing CPR 1.18 95% CI [1.12-1.23].

Perceived risk of acquiring HIV was statistically associated with uptake of oral HIVST. Male partners who perceived themselves at low risk of acquiring HIV were 1.08 times likely to use the received oral HIVST kits compared to those who perceived their risk as high CPR 1.08 95% CI [1.04-1.13].



**Table 3: Factors associated with oral HIVST among partners of pregnant women who received the kits to deliver to their male partners for HIV testing and each Independent Variables**

Variable	Use of HIVST		CPR (95% CI)	P-Value
	No N=45	Yes N=215		
<b>Age</b>				
15-24	8(17.8)	38(17.7)	Ref	
25-34	27(60)	137(63.7)	1.01[0.94-1.08]	0.88
Above 35	10(22.2)	40(18.6)	0.99[0.90-1.07]	0.74
<b>Education</b>				
Primary	7(15.6)	34(15.8)	Ref	
Secondary Education	30(66.7)	144(66.9)	0.99[0.93-1.07]	0.98
Tertiary	8(17.8)	37(17.2)	0.99[0.91-1.09]	0.93
<b>Marital status</b>				
Cohabiting	29(64.4)	99(46.1)	Ref	
Married	16(35.6)	116(53.9)	1.8[1.01-1.11]	0.03**
<b>Number of spouses</b>				
One spouse	41(91.1)	207(96.3)	Ref	
More than one spouse	4(8.9)	8(3.7)	0.91[0.77-1.07]	0.24
<b>Other Sexual Partners</b>				
I don't have a sexual partner	23(51.1)	73(45)	Ref	
I have at least one sexual partner	22(48.9)	118(54.9)	1.02[0.97-1.07]	0.47
<b>Place of residence</b>				
Semi-Urban	11(24.4)	42(19.5)	Ref	
Urban	34(75.6)	173(80.5)	1.02[0.96-1.09]	0.49
<b>Living with the partner</b>				
Staying elsewhere	6(13.3)	7(3.3)	Ref	
Staying with partner	39(86.7)	208(96.7)	1.19[1.00-1.4]	0.05*
<b>Employment</b>				
Informal employment	25(55.6)	119(55.4)	Ref	
Formal Employment	20(44.4)	96(44.7)	1.00[0.95-1.05]	0.98
<b>Religion</b>				
Anglican	12(26.7)	45(20.9)	Ref	
Catholic	15(33.3)	75(34.9)	1.02[0.95-1.10]	0.51
Muslim	9(20.0)	59(27.4)	1.04[0.96-1.12]	0.25
Other religion	9(20.0)	36(16.7)	1.01[0.92-1.09]	0.89
<b>Subscribe to a social group</b>				
No	32(71.1)	130(60.5)	Ref	
Yes	13(28.9)	85(39.5)	1.04[0.98-1.09]	0.16

<b>Received IEC and Education before use of HIVST</b>				
No	38(84.4)	7(3.3)	Ref	
Yes	7(15.7)	208(96.7)	1.70[1.55-1.87]	0.001***
<b>Source of information</b>				
Friends	8(17.8)	29(13.5)	Ref	
Radio	24(53.3)	116(53.9)	1.03[0.94-1.11]	0.55
Television	13(28.9)	70(32.6)	1.03[0.95-1.12]	0.45
<b>Perceived distance</b>				
Far	17(37.8)	51(23.7)	Ref	
Near	28(62.2)	164(76.3)	1.06(0.99-1.13)	0.08
<b>Type of residence</b>				
Urban	11(24.4)	42(19.5)	Ref	
Semi-Urban	34(75.6)	173(80.5)	1.02[0.95-1.09]	0.49
<b>Pre-HIV phone counselling</b>				
No	45(100)	199(92.6)	Ref	
Yes	0(0)	16(7.4)	1.10[1.07-1.13]	0.001***
<b>Place of HIV self-testing</b>				
Facility	43(97.7)	96(44.7)	Ref	
Self-testing	1(2.3)	119(55.4)	1.18[1.12-1.23]	0.001***
<b>Spouses' age</b>				
15-24	24(53.3)	108(50.2)	Ref	
25-34	17(37.8)	98(45.6)	1.02[0.97-1.07]	0.47
Above 35years	4(8.9)	9(4.2)	0.93[0.79-1.08]	0.36
<b>Spouses' Education Level</b>				
Primary Education	12(26.7)	38(17.7)	Ref	
Secondary education	31(68.9)	150(69.8)	1.04[0.96-1.12]	0.31
Tertiary Education	2(4.4)	27(12.6)	1.09[1.01-1.19]	0.03**
<b>Spouses' Employment</b>				
Business/Farming	11(24.4)	55(25.6)	Ref	
Professional	5(11.1)	8(3.7)	0.88[0.74-1.05]	0.15
Housewife	29(64.4)	152(70.7)	1.00[0.95-1.06]	0.9
<b>Aware of the woman's HIV status</b>				
No	11(24.4)	21(9.8)	Ref	
Yes	34(75.6)	194(90.2)	1.12[1.01-1.24]	0.03**
<b>Level of Communication with the spouse</b>				
Regularly	41(91.1)	211(98.1)	Ref	
Unregular	4(8.9)	4(1.86)	0.82[0.65-1.03]	0.08
<b>Awareness of HIV status before HIVST</b>				
No	5(11.1)	3(1.4)	Ref	
Yes	40(88.9)	211(98.6)	1.34[1.05-1.71]	0.02**

<b>Number of sexual partners</b>				
I don't have any other sexual partner besides my wife	23(51.1)	97(45.1)	Ref	
I have at least one Sexual partner	22(48.9)	118(54.9)	1.01[0.97-1.072]	0.47
<b>Number of children</b>				
None	10(22.2)	33(15.4)	Ref	
One child	12(26.7)	82(38.1)	1.06[0.98-1.15]	0.16
More-than one child	23(51.1)	100(46.5)	1.03[0.95-1.11]	0.54
<b>Number of Antenatal visits</b>				
At least 3 ANC	26(57.8)	115(53.5)	Ref	
More-than 3 ANC	19(42.2)	100(46.5)	1.01[0.96-1.07]	0.59
<b>Number of spouses</b>				
Only one	41(91.1)	207(96.3)	Ref	
More than one	4(8.9)	8(3.7)	0.91[0.77-1.07]	0.25
<b>Perceived risk of contracting HIV</b>				
High	44(97.8)	189(87.9)	Ref	
Low risk	1(2.2)	26(12.1)	1.08[1.04-1.13]	0.001***

**P values \* <0.05; \*\*<0.01; \*\*\*<0.001**

#### **6.4 Factors Associated with the use of Oral HIVST kits among Partners of Pregnant Women**

At multivariable analysis, three factors were found positively associated with the uptake of oral HIV self-testing after controlling for confounding. These included information Education and communication on HIVST and the place of HIVST. Men who had enough and access to information about HIVST were 1.64 times more likely to use the received HIVST for HIV testing as compared to individuals who did not receive or have access to information, education and communication APR: 1.64 95% CI [1.48-1.82]. Male partners who were aware of their partner's HIV status were 1.04 times likely to use HIVST kits compared to their counterparts who did not know the HIV status of their pregnant women; APR:1.04 95% CI [0.99-1.09]. Finally, male partners to pregnant women were 1.04 more likely to be reached at home with an HIVST kit and tested compared to facility HIV testing; APR 1.04 95% CI [1.01-1.08]

**Table 4: Factors associated with use of oral HIVST kits among male partners of pregnant women attending ANC AT Wakiso HCIV, Wakiso district at multivariable analysis**

Variable	Use of HIVST		Crude PR CPR (95% CI) P- value	Adjusted PR CPR (95%CI) P- value
	No	Yes		
<b>IEC on HIVST use</b>				
No	38(84.4)	7(3.3)	Ref	Ref
Yes	7(15.7)	208(96.7)	1.70[1.55-1.87] ***	1.64[1.48-1.82] ***
<b>Place of HIV self-testing</b>				
Facility	43(97.7)	96(44.7)	Ref	Ref
Self-testing	1(2.3)	119(55.4)	1.18[1.12-1.23] ***	1.04[1.01-1.08] **
<b>Aware of the woman`s HIV status</b>				
No	11(24.4)	21(9.8)	Ref	Ref
Yes	34(75.6)	194(90.2)	1.12[1.01-1.24] **	1.04[0.99-1.09] *

**P values (level of significance): \* <0.05; \*\*<0.01; \*\*\*<0.001**

## 6.5 Qualitative Results

*Table 5: Characteristics of males who participated in in-depth interviews*

<b>Characteristic</b>	<b>N= 14 Participants</b>
<b>Age group</b>	
15-24	2
25-34	8
35 and above	4
<b>Education</b>	
No formal education	2
Primary	3
Secondary	5
Tertiary	4
<b>Marital status</b>	
Currently married	14
<b>Number of spouses</b>	
Had only one spouse	10
More than one spouse	4
<b>HIVST kit use</b>	
Used	07
Did not use	07

Fourteen (14) in-depth interviews (male partners to pregnant women who were accessing ANC services at Wakiso HCIV between January 2022 to November 2022 and received an HIVST kit to deliver to their male partners) were contacted, invited and interviewed. Of the participants, seven (7) had received and used the received HIVST kit and seven (7) had received but never used the received HIVST kit for HIV testing. We based on participants' age, education, marital status, used and did not use and having more than one spouse. Findings are presented in two major themes as shown below.

*Figure 5: Thematic presentation of barriers and facilitators of oral HIV self-testing among partners of Pregnant women attending ANC*

<b>Themes</b>	<b>Sub-themes</b>	<b>Categories</b>
<b>Facilitators for Oral HIVST among partners of ANC women</b>	Being a convenient, easy, and harmless way of HIV testing	<ul style="list-style-type: none"> <li>❖ HIVST is believed to be used anywhere</li> <li>❖ HIVST does not need movements to facilities</li> <li>❖ HIVST saves time, waiting in lines and facilities</li> <li>❖ Mention of no plinks that could harm them</li> <li>❖ Me of no side effects</li> </ul>
	Being aware of their HIV status before using the self-testing kit	<ul style="list-style-type: none"> <li>❖ Partners first testing in hiding before using the HIVST kit delivered</li> <li>❖ Partners who had tested before receiving the kit from their partners</li> <li>❖ Those who knew their HIV status</li> </ul>
	Fear of Negative Relationship Consequences	<ul style="list-style-type: none"> <li>❖ Male partners identifying violence if they don't use the kits delivered</li> <li>❖ Mention of possible breakup in case the partner did not use the kit</li> <li>❖ Mention of being intimidated to be left alone in case they fail to use the kit</li> </ul>
<b>Barriers to Oral HIVST among partners of ANC women</b>	Concerns over the accuracy of the kit and fear of obtaining incorrect results	<ul style="list-style-type: none"> <li>❖ Fear of obtaining wrong results</li> <li>❖ Being uncomfortable using the test kit</li> <li>❖ Mention of fears about the accuracy of the kits</li> <li>❖ Mention of blood tests as a trusted HIV way of testing</li> </ul>
	Lack/limited understanding of how to use an HIVST kit	<ul style="list-style-type: none"> <li>❖ Lacked understanding of using the kit</li> <li>❖ Failure to read the instructions in the kit package</li> </ul>
	Fear of obtaining wrong results and HIV test outcomes in the presence of the partner	<ul style="list-style-type: none"> <li>❖ Lack of confidence to perform HIVST in the presence of the partner</li> <li>❖ Mention of having multiple partners without understanding their partners</li> <li>❖ Mention of doing a blood test instead of using the delivered kit by the ANC woman</li> <li>❖ Mention of stigma testing in the presence of a partner</li> </ul>
	Male superiority complex and inclination that women's HIV status is the same as theirs	<ul style="list-style-type: none"> <li>❖ Mention of not being directed by their women to test</li> <li>❖ Thinking that if their pregnant partners are negative means they are also negative</li> <li>❖ Partners feel that they are family heads and decision-makers, there is no need to be told to do something</li> <li>❖ Partners thinking that their women were making fan of it.</li> </ul>

### 6.5.1 Facilitators for the Use of HIVST Kits

When asked about reasons for using the HIV self-testing kit delivered by their pregnant partners, participants raised several reasons why they happily used the kit to test for HIV even in the presence of their wives. Most men appreciated the fact that these days health workers do not force their pregnant women to come along with their men for HIV testing something that hindered their activities and search for money to take care of families as men. The different sub-themes that emerged during interviews about facilitators included; Being a convenient and easy way to use for HIV testing; Fear of breaking up with the partner; Being aware of their HIV status before using the kit; A way of understanding each other's status as a couple and having an educated partner.

Most partners agreed that they tested in the presence of their pregnant women which promoted partner testing. When asked if they tested in presence of their women, respondents said;

*R: yes, she was there, after swabbing, she picked it from me and put it in the buffer, and showed me the control test [P002U, 25years]*

*R: yes, we tested very well, it was 7 pm, and that day I went home early, I tested at about 7:30 minutes and when each of us found that we were safe, each of us slept very well when we understood that each of us was HIV Negative [P001, 31years]*

*R: aaaaaaaaahh, when she brought it, we used it there and then and we even got the results when she was there [P008U, 29years]*

#### **HIVST is a convenient, easy, and harmless way of HIV testing**

One of the themes that emerged from all KIIs was the convenience and harmless side of HIVST kits. Participants revealed that there is no waste of time moving to facilities since these kits are delivered to them at home and do not involve piercing or blood to test for them themselves. One of the respondents reported that he was able to test for HIV because of the convenience of the HIVST kit delivered by his wife.

*“Actually, it is because I didn't have time because when the time approached to come there, she then told me they wanted us to go together then I said no because my job can't allow me to go there so, then she told me now, they have given me this, it is the thing to test HIV, I said it okay if it is like that.... then I can use it no problem... okay!” [P010U, 28years]*

Besides, another respondent reported that HIVST kits would be important for all

*“I like that kit so much because it’s convenient to us; who are so busy to wait at the hospital, women access the hospital more compared to the men, usually ahhh... the men are busy working so if the kit is given to my wife, regardless of the time I come back home, am sure I will be able to get the kit” [P013, 28years]*

In support, one more participant revealed that;

*“It’s cheap since a man avoids the expenses of having to go to the hospital for the test, so it also saves time [P009, 36years]*

Regarding being harmless, one participant said,

*“I haven’t seen any barriers concerning the use of the HIVST kit, in my own point of view, it is actually very convenient and good, instructions are understandable, easy to use, and they don’t prick you to obtain blood for the test” [P012U, 31years]*

Another participant in addition relatedly said;

*“The HIVST kit is a very good tool, it’s painless, doesn’t vibrate, you don’t have any fear of wounds” [P002U, 25years]*

In addition, one participant when asked; What do you say about the HIVST KIT?

*R: In my own opinion, if you agree with your spouse or any other side dish, it’s an appropriate method to use to test for HIV, as for me I am a builder, it’s very efficient, fast, no transport costs involved and then it really doesn’t waste a lot of time” [ P002U, 25years]*

*“I think it’s a good initiative by the government to see that. More so people who are expected to bring another life into the world and it would be very important that they protect the life of the unborn baby. I think it’s a good thing especially when you are fighting the spread of HIV. I think it’s good to have something that people can easily access and use. Umm.... Personally, I also don’t get time to go to the hospital and test, it is a faster way to get to know your status, I think it’s a good thing” [P004U, 38years]*

Besides being convenient, some participants acknowledged how easy the instructions in the kit are easy to understand facilitating its use among the male partners. One of the respondents reported;



*“The instructions in the kit were clear, they were in different languages, so we used English and we did not find any side effects. They were enough for anyone to carry out the test successfully” [P004U, 38years]*

### **Being aware of their HIV status before using the self-testing kit**

According to findings, male partners who knew their HIV status easily used the HIVST kit delivered by their pregnant partners as the responses revealed. A respondent reported that using the HIVST kit was not a problem since he had tested and knew his status before his pregnant wife delivered the kit. He said,

*“I actually knew my status when my wife brought the kit so I was comfortable when using the kit. We had tested prior to that but I think it was a while since we tested at the beginning of our relationship. I was not scared because I was very sure I was going to be negative and of course, I trust that she was negative” [P004U, 38years]*

Some male partners first went to do an HIV test privately before they accepted to use the kit that was delivered by their partners according to our findings. For example, when asked,

**I: When your spouse brought the kit at home you were hesitant to use it; when you later went to the clinic what eventually motivated you to go ahead and use it**

*R: When my wife brought the kit, I did not use it immediately because I was not sure because of my before so I went to a clinic. from the nurses' explanation, she said this one is a better [the HIVST] method for testing for HIV because if properly used, gives genuine results and when she checked me, indeed I got the results, I was negative but she as well encouraged me to use the one my wife had brought at home. The nurse explained to me very well and convinced me that it's the best and gives very honest results. She charged me 7000 shillings as service for testing but further emphasized I use the one at home as well, she explained to us how to use it with some other gentlemen who were around and I even asked for some more four to take for the people at home and she gave me [P012U, 31years]*

Another participant revealed how comfortable he was using the HIVST kit delivered by his wife simply because he was aware of his HIV status.

*“I felt comfortable because I knew my lifestyle..... it was comfortable by the way because I knew my lifestyle and my movement. Or for her maybe it was scary at that time but for me, I was very comfortable because I knew I was okay. Maybe you never know when we are moving physically, maybe by accident and so on... but I was very comfortable because even I had tested before and I knew my Status” [P010U, 28years]*

### **Fear of Negative Relationship Consequences**

Some partners revealed that they used the oral HIVST kit due to the fear they developed related to losing their women if they did not use the kit, they brought home. One participant said when asked **what motivated him to use the HIV self-test kit.**

*R: she threatened me to leave.*

**I: ohhh...so, you tested because you had pressure from your wife....**

*R: yes, I didn't want to lose her and for the safety and health of our baby, I had to. [P002U, 25years]*

Relatedly, another participant revealed that he was scared to use it at first but then later he did it to make his partner happy;

*“At first, I was scared but My wife insisted that she needed to know my status because she was expected to know when she went for another ANC, thus I had to use it to make her happy and satisfied” [P005U, 37years]*

These responses reveal that male partners used the HIVST kits because they developed fear of having negative relationship issues and or breaking up with the partner if they did not do what the pregnant women wanted them to do.

### **6.5.2 Barriers to the Use of HIVST Kits**

The sub-themes that emerged for the barriers included; concerns over the kit accuracy and fear of obtaining incorrect results, being born to an HIV-positive parent/parents, fear of the HIVST outcome in the presence of the partner; male incuriosity of male partners, an inclination that a woman's HIV status is the same as theirs, loss/use of the kit intended for the male partner. Participants revealed that they were willing to use the HIV self-testing.

### **Concerns over the accuracy of the kit and fear of obtaining incorrect results**

Participants raised concerns over the accuracy of kits and obtaining incorrect results that could cause violence. They revealed that however willing they would be to use the kits, they were uncomfortable with the results., This shows that male partners did not trust the HIVST kits to perform and provide correct HIV results.

*“Me personally I still doubt how genuine the results turn out because what I know is; HIV is transmitted through blood, even if you give me 100, it’s hard for me...” [P003U, 27years]*

Another participant lamented that;

*Some have fear and others just refuse/hesitate, they just say, I will not test myself and if you don’t trust me let’s go to the facility thinking that the kit does not work and sometimes, they develop anger; why do you test me? but, if you are cooperative, it’s not bad to use it. [P001, 31years]*

These responses reflect why male partners did not use the kit when delivered to them by their pregnant women. Some respondents raised concerns about how one could control himself in case he tested positive using the kit. One participant revealed in worry!

*“What if a person used it and got positive results? Usually, such a person is given counseling. However, in such a scenario, you’ve given it [testing kit] to this person, when he has not asked for it. He does the test from his home and gets results yet there isn’t any counseling. What could happen next to such a person? How can you help such a person when you are not there with him? [P011, 31years]*

These findings highlight the need for pre- and post-counseling of individuals before using the HIVST kit. Information and communication about the kit are also of great help for individuals’ resilience and facilitating HIVST testing.

### **Lack/limited understanding of partners to use an HIVST kit as a barrier to use of the HIVST**

Understanding how to use the kit is key for partners of pregnant women to be able to use it. Men do not use the HIVST kit because of the lack of efficient and appropriate explanations on how to use it. Most men who understood how to use the HIVST used it and tested for HIV using the HIVST

kit delivered by the pregnant woman. When asked about why they later used the kit yet they were hesitant to use it immediately their partners brought the kit home, partners said;

*The nurse explained it to me very well and convinced me that it's the best and gives very honest results. She charged me 7000 shillings as service for testing but further emphasized I use the one at home as well, she sensitized us about how to use it with some other gentlemen who were around and I even asked for some more four to take for the people at home and she gave me [P012U, 31years]*

Another respondent said;

*"I remember someone calling me some time back and I told them it was brought home, but I never used it since it had no instructions at all on its use, it had no way of reading someone's results. So, I asked myself, this thing has been given to me. How do I use it, and after checking myself, what comes next? When she brought it home, she told me that I check it myself. I asked her, how was I to do that? All I saw was a box and I didn't know what was inside. The truth is I never used it. The reason I refused to use it was that even the person you gave it to wasn't given adequate training on its use. I asked her how it was used and she just told me, here you go! When I read the box, I never saw any instructions on its use. I even never saw the expiry date. [P011, 31years]*

This explanation by the participant automatically explains how difficult it is for men whose partners don't explain to them how the kit is used find it hard to use the kit delivered. However, the participant raised a concern that in case he received adequate education about using the kit, he would be willing to use it.

*"But if I get adequate instructions from a medic about its use, I can use it" [P011, 31years]*

Similarly, another participant raised the concern of equipping women with knowledge so they can explain and guide their partners on how the kit can be used in the absence of the health workers.

*"Ahhh.... hmmm I read the instructions but did not understand them, I feel it's better for expert or health personnel to teach those instructions for better and clear understanding" [P014, 24years]*

Another participant revealed that;

*“The instructions are not clear, that’s the whole reason I did not use the HIVST kit. I would suggest the instructions are made clear, personally, I fear using things where I have not understood the instructions, I prefer someone teaching me, and then I go ahead to use something. When my wife brought it, she tried to explain the instructions to me but still did not understand them, but I still have it at home. But when I get time, I will go to the Wakiso healthy facility and get taught on how to use it then I use it” [P013, 28years]*

This shows that by the time we held an interview, the participant was still unable to use the kit because he never understood from the partner how the kit is used a big barrier affecting uptake of the kits.

### **Fear of obtaining positive results and HIV test outcomes in the presence of the partner**

Participants expressed the fear of obtaining wrong results due to using the HIVST kit brought home by their women. This hinders the use of these kits delivered by the women. Male partners lack confidence in using the HIVST kits due to a lack of education on the kits and limited information available to them about the functionality of the HIVST kits.

*“I had a lot of pressure scared whether I would get the right results reason being that I had one friend of mine who went to a facility to test for HIV and he was told from the results, that he had HIV and when he went to another facility in Nankulabye, he was told he was negative and he ended up suing the previous facility for giving him wrong results. So that pressure of false results really discourages me. Another issue would be the fear of the outcome; so, most times I send my spouse, once I know her results, and then I can conclude what my results are hahaha. [P012U, 31years]*

According to another respondent, most men fear to test because they are scared of the outcome given that they have multiple partners and never knew their status.

*“Actually, most men know that they are immoral, so they drag themselves on the blood test diverting their wives not to insist carry out the HIV test using that kit they bring’ [P009, 36years]*

Another participant revealed that there is always fear because as men, they meet several women whom they are not sure of their status. Therefore, from nowhere receiving an HIV testing kit to

carry out the test scares male partners from using it to test themselves worst of all in the presence of their women.

*“Now like I myself have explained to you my scenario, it was hard for my case to agree to move with my wife to a facility to test for HIV because before going to the facility, I went when I knew I was HIV positive because my parent was HIV positive so I knew I was born infected so, if as a wife you understand that I am positive you will run. Or maybe as men, we cheat a lot like you maybe there and you vibe some girl, in one day and she does what!! So, in that one day, that’s when the wife tells you, you know what let’s test and she finds you are infected, so at times, that’s what prevents us from testing. But if you could be understanding that you have one, you can’t hesitate, you can’t fear being tested by your partner’ [P001, 31years]*

### **The male superiority complex and inclination that women’s HIV status is the same as theirs**

Male partners who did not use the delivered HIVST kits expressed feelings that defined they feel they are bigger and could not use the kits unless they wanted to do so. In Uganda, men are heads of the family and are respected by their women and children. They are decision-makers thus if they refused to use the kit nothing would go wrong or could they be scared due to the level of respect accorded to them. When asked to express themselves and what prevented them from using the delivered kit at home, the following were their responses;

*“I felt, as usual, only the time it is not there, the testing would take time, I saw some papers to first read, and what, it will take time actually. Me, I know I am normal and so there was no need for me to use the kit” [P006, 35years]*

Some male partners thought their women were making fun revealing that HIV testing could be done at home using a swab. When asked about reasons for not using the kit, one of the participants said;

*“At first I thought she was doing comedy, then after I used it. Because I asked her how it is used and then she told me. The truth is it took some time because at first, she brought it at night, she got it during the day and brought it and gave it to me... uhh it was 9 pm. I first resisted and became mad at her, but it took about 3days to back to my normal senses.*

**I:** *So, what made you mad towards your wife, did you think she was making fun of you?*

**R:** *I thought she was just playing over me [nga] she thinks I am HIV positive. I thought she bought this kit herself thinking I was not safe. I told her the time I have been with you; you think I am not safe; She replied No, [Nedda] the health workers are the ones who gave it to me. I asked her why did you ask me to go for HIV testing the first time I met you? Or why didn't you ask me if I had ever tested? She said that the truth is that's not what I was aiming at, I have been given this kit by health workers and they asked me to come and test when we are all here and so we don't need to go to the hospital but we can test from here; like I brought the pregnancy test, I have also brought this! [P001, 31years]*

Some male partners also revealed that due to the stigma related to HIV testing, they consider themselves to have the same HIV status similar to that of their female partners. They claimed that if their woman tested for HIV, they did not need to retest for HIV as they considered the outcome of females as theirs too.

*"Most times I send my spouse, once I know her results, and then I can conclude what my results are ....hahaha..... [P012U, 31years]*

## **Chapter Seven: Discussion**

### **7.0 Introduction**

HIV testing among men remains low despite of interventions to have men tested and to reach the first UNAIDS strategy of 95. HIV self-testing (HIVST) offers individuals the opportunity to test on their own, reducing many barriers associated to facility-based HIV testing including the waiting time. Because of this, the MOH of health with partners introduced secondary distribution of HIV self-testing through pregnant women who attend Antenatal care at facilities. Pregnant women are given the oral HIV kits to deliver to their husbands at home for testing and report results back at facility through the phone provided. Since the enrolment of the intervention, there are limited research that has been done to evaluate the success of the program. The present study is a contribution towards the evaluation of the program by ascertaining the number of male partners who receive the oral HIVST kits from their pregnant partners, the proportion that use the received kits for HIV testing, factors associated, facilitators and barriers for uptake of the Oral HIV self-testing kits among partners to pregnant women at Wakiso HCIV.

### **7.1 Proportion of Male Partners who received and uptake of Oral HIV Self-Testing Kits from Pregnant for HIVST**

Overall, (68.4%) male partners received the oral HIVST kit from their ANC women for HIV testing. This indicates that the strategy of delivering HIVST kits through pregnant women attending antenatal care has the potential to reach a significant portion of men who may not have otherwise accessed testing services.

Besides not all ANC women who picked the kit to deliver to their partners delivered it to their intended partners for HIV testing hence this limits the cascading of the HIV testing strategy. This is lower to a study which found that 91% of ANC attendees reported successfully distributing HIVST kits to their male partners, which facilitated couples testing (Thirumurthy et al., 2016). The percentage of women who did not deliver the oral HIV kits is relatively high given purpose of intervention which intends to reach to all men whose women are attending Antenatal care Clinics. Studies to determine how many ANC women successfully deliver HIVST kits to their male partners are still limited. In a study done in Uganda, according to findings, some women never delivered the HIVST kits due to fear of their partners' reactions (Matovu et al., 2018). In-depth results of our



study revealed that some women used the oral HIVST kits on other family members and by the time the partner came back home, the Oral HIVST kit was already used, other women had misplaced the kits and did not know where the kits were among other reasons. These results suggest the need to strengthen strategies that will ensure women deliver the Oral HIV self-testing kits to the intended population. Studies can be done to explore why women pick the kits to deliver them but end up not giving them to the intended persons.

Uptake of HIVST among partners of pregnant women was at 82.7%. Results from the study are slightly higher than those of a randomized trial whose uptake was 76% (Wanyenze, 2019). The high uptake evidenced in this study is a significant achievement in addressing the longstanding challenge of low HIV testing rates among men, particularly in Uganda and the sub-Saharan Africa. This positive uptake indicates that once men have access to the kits, they are generally willing to self-test for HIV. This high uptake rate suggests that oral HIVST is an acceptable testing method for this population.

The present study results however is slightly lower than that of similar studies whose uptake was high at 86% and 97.7% respectively (Kalibala et al., 2014; Tun et al., 2018); but higher than that of the study in men in Chongqing, China and Zambia whose uptake was at 15.6% and 24% respectively (Liu et al., 2020; Neuman et al., 2021). These results may be attributed to the convenience and accessibility; the trust and influence women hold as they are perceived to be good caregivers and knowledgeable individuals regarding health matters in families. This shows that the confidentiality created through this unique delivery approach has collectively contributed to a high number of male partners using the oral HIVST kit delivered by their pregnant women to their partners at home.

## **7.2 Factors Associated with Uptake of Oral HIVST among Male Partners of Pregnant Women**

From this study, three factors were found to be positively associated with the uptake of oral self-testing for HIV among male partners of pregnant women. The findings of this research align with previous studies that have examined the factors influencing the uptake of HIV self-testing among male partners of pregnant women. The positive association between information, education, and communication (IEC) on HIVST, place of HIV self-testing, being aware of the woman's HIV status and uptake of oral HIV self-testing is consistent with the literature.

Male partners who had sufficient information about HIVST were significantly more likely to take up the delivered oral HIVST kit compared to those who did not receive such information. Male partners who had access to IEC and materials easily understood how to use the Oral HIVST kits and were more likely to use it for HIV self-testing. The finding is in line with previous studies (Boye et al., 2021; PATH, 2023). This highlights the importance of effective communication and education campaigns targeted at promoting awareness and knowledge about HIV self-testing. Providing comprehensive and accessible IEC materials can empower individuals with the necessary information to make informed decisions about their health. These results hence suggest that by increasing awareness and understanding of the benefits and process of HIVST, male partners are more likely to participate in testing using the delivered oral kits by their pregnant women, ultimately contributing to better prevention and early detection of HIV in this population.

Findings show that providing adequate education to ANC women equips them with the knowledge to pass on the explanation of how to use the kit by their partners. Women who received education were able to convince their male partners to use the oral HIVST kit to test for (Maman et al., 2017). In the qualitative findings of this study, male partners attributed the smooth explanation of how to use the HIVST kits to the education level of their partners. Most partners that used the kit reported that their pregnant women were able to explain and help them to use the kit while guiding them. These findings suggest that comprehensive education campaigns that provide accurate information and address potential concerns surrounding HIVST be done. These campaigns can help increase awareness, and knowledge of self-testing among male individuals.

This is in line with other studies that have recommended the need to intensify health education and communication through various medias about oral HIVST, as this approach would get men convinced to test for HIV and to accept HIVST kits delivered by their pregnant (Conserve et al., 2020; Matovu et al., 2018). However, the gaps in the IEC strategy about the HIVST have limited access to oral HIVST information, to the extent that some participants are unable to perform self-testing due to a lack of knowledge and awareness on how to the kit. There is need to intensify awareness about HIVST use and education on its use among the communities to ensure the secondary delivery of oral self-test kits yields the best results intended.

Awareness of Partner's HIV Status was significantly associated with use of HIVST kits. Male partners who were aware of their pregnant women's HIV status were more likely to engage in HIV

self-testing compared to those who did not know their partner's status. Men who knew their pregnant partner's HIV status were more likely to use the oral HIV self-testing kit delivered by their partner. Results of this study are in line with (Masters et al., 2016; Pintye et al., 2019). These findings although underscore the importance of couple HIV testing and disclosure among themselves. In addition, when individuals are aware of their partner's HIV status, it may increase their motivation to get tested themselves. This calls for interventions in encouraging open communication, promoting partner testing hence helping to reduce stigma and improve adherence to HIVS preventive measures.

Results also indicated that more male partners tested at home than testing at the facility. The preference for delivered oral HIV self-testing, as demonstrated in this study, is in line with existing evidence. Findings from a previous study found that when given a choice between clinic-based HIV testing and HIV oral self-testing, the overwhelming majority preferred using HIVST at comfort of their own time and at home (Pettifor et al., 2020). In relation, HIVST has been appreciated by men; and in a previous study, its uptake was relatively high among male self-testers than among the women (Hatzold et al., 2019). Findings of this study indicate that the secondary delivery of HIVST kits could improve male partner HIV testing due to the convenience and time issues. The flexibility provided by the delivered HIVST Kits can address barriers associated with facility-based testing, such as stigma and time constraints. This Scaling up secondary delivery of HIVST is essential. This is as well advocated by (Li et al., 2021; Yilu et al., 2018), for policies to incorporate HIVST by extending, empowering and reaching HIV testing services to individuals who may not regularly access healthcare facilities. These results suggest that by making testing more accessible and user-friendly, secondary delivery of oral HIV self-testing can potentially reach a larger population and improve overall testing rates.

### **7.3 Facilitators and Barriers for Oral HIVST**

In Uganda, there have not been any evaluation studies on HIVST among male partners after the implementation of secondary delivery of kits by pregnant women to their male partners, yet such data is necessary to guide further implementation and potentially help improve the HIVST services. This study utilised in-depth interviews with male partners that used the HIVST kits and those that did not use the HIVST kit which were delivered by their pregnant partners to understand facilitators

and barriers for use HIV self-testing among male partners in Wakiso. This provided us with rich data of lived experiences of HIVST through the secondary delivery.

### **7.3.1 Facilitators for use of HIVST among Male Partners**

The study findings indicated convenience and ease of oral HIVST as a prominent theme in the interviews with male partners. Participants expressed appreciation the simplicity and accessibility of the self-testing kits through their women without necessarily moving to the facility. This aligns with previous research whose results highlighted that HIVST was convenient and time efficient (Okoboi et al., 2019; Sarkar et al., 2016; Wulandari et al., 2019). The secondary delivery of oral HIV self-testing kits addresses barriers such as transportation costs and time constraints, enabling men to test for HIV at their convenience.

A common view among male partners was that fear of relationship consequences as a significant motivating factor revealed by participants. Men highlighted concerns about potential negative impacts on their relationships if they did not use the HIVST kit that was delivered by their pregnant partners. As a result, men had to test so that they could save their relationships. Related findings from the participants revealed the fear to breakup with their partners if they did not use the kit. This however echoes stigma in the process. Previous studies have found fear of stigma and discrimination as barriers to HIV testing among men (Harichund & Moshabela, 2018; Hlongwa et al., 2023; Wirtz et al., 2017). More so, the study findings showed that Prior awareness of HIV Status encouraged male partners to do an HIV Self-test. Some male participants mentioned having prior understanding of their HIV status before using the self-testing kit facilitated their easy use of the delivered oral HIVST kit. This suggests that self-testing serves as a means of regular monitoring for individuals already aware or even engaged in HIV care / prevention programs. Similar findings have been reported in studies highlighting that previous knowledge of and individual's HIV status easily made them test for HIV (Thirumurthy et al., 2016).

More interestingly, most male participants revealed that they were motivated to use the HIVST kit because it would help them understand each other's HIV status as a couple. The theme emerged as a significant motivation for use of the self-testing kits by male partners. Participants expressed the desire to have a mutual understanding of their HIV status within the context of their relationship even the fact that their partners were expecting to give birth to a new born. This finding aligns with research emphasizing the importance of couple-oriented HIV testing and counseling (Kumwenda

et al., 2019). Findings from this study indicate that testing together with as partners allows for shared responsibility, open communication, and support in maintaining a healthy relationship. The findings also revealed an educated female partner was a facilitator of HIVST. Some participants revealed that they were guided by their educated pregnant women to hold the HIVST. Other respondents reported that their women never taught them how to use the kit nor directed them. This finding suggest that partner support and knowledge play a crucial role in HIV self-testing. An educated partner can contribute to reducing misconceptions, increasing awareness, and promoting a supportive environment for HIV self-testing.

### **7.3.2 Barriers to the use of oral HIVST among partners of Pregnant Women**

A common view among male partners about the barrier for failure to use the HIVST kit was concerns over the kit and fear of obtaining incorrect results. Participants expressed concerns about the accuracy of HIV self-testing kits and the fear of obtaining incorrect results. This barrier aligns with previous studies that highlighted the psychological issues of obtaining inaccurate results (Biello et al., 2021; Jennings et al., 2017; Njau et al., 2019b; Tun et al., 2018). In view of the study, there is need to address these concerns through awareness campaigns, information, educational and communication materials, with clear instructions on kit usage and interpretation can help eliminate doubts, ensure confidence, user friendly, trust and encourage uptake of oral HIV self-testing.

Relatedly, participants also expressed the fear of the HIVST outcome in the presence of the partner as it emerged as a significant barrier among participants. This fear may raise from concerns about potential consequences within the relationship, being stigmatized, blamed, or even bringing about violence. Similar findings have been reported in studies highlighting the role of fear and stigma as barriers to oral HIV self-testing among men (Dzinamarira, Mulindabigwi, & Mashamba-Thompson, 2020; Khawcharoenporn, Chunloy, & Apisarnthanarak, 2016; Tan et al., 2021). The findings suggest that promoting pre/post-HIVST partner counseling, and confidentiality, can help address this barrier.

Interestingly, some of the participants revealed that they did not need to test for HIV because their partner's status is the same as theirs. Participants had an assumption that a woman's HIV status is the same as theirs, leading to a decreased perceived need for the individual using the delivered kit to test themselves. Similar findings were reported in a study highlighting misconceptions that their wives' health reflect theirs (Dzinamarira et al., 2020). Such misconception likely are caused by a

lack of communication and understanding about the dynamics of HIV transmission and prevention. In view of the findings, providing accurate information about HIV transmission, the importance of individual testing, and the potential for sero-discordant relationships can help demystify the misconception and encourage individuals to carryout HIV testing.

Finally, findings indicated that being born to an HIV-positive parent was a barrier to HIV self-testing. This finding highlights the impact of individual experiences and past trauma on individuals' attitude towards using an HIVST kit. Research has shown that individuals with a history of HIV-related trauma may have an increased fear and reluctance to engage in HIV adherence to treatment and others to testing (Lopez et al., 2023; Verhey et al., 2020). The study also reveals that pregnant women attending ANC are given one HIVST kit for their male partners hence if the kit is misplaced, testing is not done. Participants mentioned instances where the kit was misplaced, used by someone else, or not readily available having lost or used the kit on another family member. This logistical barrier can be addressed through improved distribution strategies, ensuring sufficient availability and promoting proper storage and safeguarding kits within households when given for delivery.

### **Study strength**

The strength of our study was the ability to reach out to men and get to hear from the horses' mouth about the oral HIVST kits which they receive through secondary delivery strategy especially since there has not been any follow since its implementation in ANC clinics across the country. The findings from our study are important to inform practice, policy, and the MoH in designing male engagement strategies regarding oral HIVST services.

### **Study limitations**

The main limitation of this study is the fact that uptake of HIVST was self-reported by male partners themselves and this study was unable to confirm their response. The study entirely depended on the respondents' reported response to determine the outcome. This could have been misreported and may also have been subject to desirable responses.

To better understand the differences in men who received the test kits, it could have been important to explore the demographic and contextual factors associated with the HIVST kits like variations in age, education, income, or geographical location among men who receive the kits compared to those who did not. This could help provide insights into which subgroups of men more likely benefit

from this intervention and guide targeted strategies for improvement; the detailed nature our study did not determine.

The study enrolled male participants who were willing to come to the facility when we invited them, a sense that these participants were motivated and could easily test for HIV than other men making it hard to generalize the results.

The study explored barriers and facilitators through an in-depth approach and was unable to conduct FGDs with male partners who on the other hand, would have provided a more argument on an exploration of barriers on the HIVST field of discussion.

ANC women who knew they would not be able to deliver the HIVST kits to their male partners and picked the kit likely provided inappropriate/incorrect telephone contacts of their male partners thus the study missed out on this category of men that would be important in this study.

## **Chapter Eight: Conclusion and Recommendations**

### **8.1 Conclusion**

HIVST kits delivered through pregnant women reached a high proportion of men 260 (68.4%) received the HIVST kits, of these 82.7% used the kits for oral HIVST some of whom had never tested to know their HIV status. This percentage was positively associated with access to HIVST Information, Education and Communication, place of HIVST, and awareness of the spouses' HIV status. HIVST offers an advantage over the standard facility HIV testing when provided in addition to existing services, and scaled up to all facility departments, can contribute to closing the gap towards the first 95 UNAIDS track target; hence having more men and young people tested given low uptake of HIV testing in these groups. Convenience and ease of use of self-testing, fear of relationship consequences like breakup, prior awareness of HIV status, understanding each other's HIV status as a couple, and having an educated partner facilitated oral HIV self-testing among male partners. Barriers like lack of trust in the oral HIVST kit and fear of obtaining incorrect results, an inclination that a woman's HIV status is the same as the male partners were reported to affect oral HIVST. Innovative approaches like the delivery of HIVST through women seeking health care in all departments at facilities is, therefore an essential and good strategy for having men and young people tested to know their HIV status, including circulation of information, education and communication materials about HIVST using various channels and media to reach a larger population aiding them to understand oral HIV self-testing kits and use for HIV testing.

### **8.2 Recommendations**

Delivering HIV self-testing can be integrated to reach high populations. There is a need to integrate the secondary distribution of HIVST kits among men, primarily through women seeking healthcare at all departments in the facility in alignment with policies to promote male engagement in HIVST since more men have been reached using the kits for HIV testing. Policymakers should encourage the integration of HIVST as a routine service within healthcare facilities, ensuring that men are specifically targeted through this method. Policy changes should support and incentivize healthcare facilities to incorporate this approach emphasizing the importance of reaching those who may not regularly visit healthcare facilities or face barriers to HIV testing services. In addition, a policy



framework can be advocated to support and promotes widespread HIVST distribution of HIVST kits as part of routine activity at facilities.

There is a need to provide Accurate Information, education, and Awareness. The Ministry of Health (MOH) and its partners should develop and implement policies that mandate the dissemination of accurate information and awareness through various channels, particularly using social marketing and local media channels promoting HIVST to reach a wider population. These policies should explicitly show the government's commitment to normalizing self-testing and promote it as a practical and feasible strategy for HIV prevention.

There is a need to conduct further research. Policy guidelines following findings from this study should encourage researchers to carry out further research to explore facilitators of HIVST in diverse populations and settings. There is a need for more funding as well regarding more research. The policies should outline and make it clear that research should aim to gain a comprehensive understanding of motivations for HIV self-testing, particularly in men. There is a need to ensure that these policies include provisions for the translation of research findings into practical strategies and interventions for male engagement in HIVST

There is a need to Enhance Information, Education, and Communication (IEC): Health facilities should have policies in place that mandate healthcare workers to instil HIVST information among ANC women during health education sessions, focusing on empowering them with the confidence and skills to deliver HIVST kits to their male partners. These policies should outline specific guidelines for healthcare workers to empower women with information that builds their confidence and capabilities to administer, educate, and guide their male partners during oral HIV self-testing.

There is a need to develop policies by health facilities to provide virtual and phone counselling before and after HIV self-testing, with a focus on addressing potential risk factors. Policymakers should outline the standards and guidelines for such counselling, with an emphasis on addressing risk factors and emotional support.

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### Appendix 1: Male Partner-Participant Appointment Form

Greetings; You are receiving our call because you are one of the male partners of women who attend Wakiso HCIV for ANC services. We are looking at every woman who received ANC services during her pregnancy. We obtain contact of all the women and their partners during our registration at the facility and we are contacting every partner of these women to ask them a few questions about their HIV status.

We are asking you to schedule with us an appointment to come to the facility. We shall have an interactive session with you for approximately 30 minutes and in case you are not comfortable with any question; you will not be penalized for not responding to the question. You will be reimbursed your transport amounting to 10,000ugx for coming to the study site both ways.

1. Male participant details

Unique Identifier	
Contact	

2. Sir, will you be willing to be part of this activity? (Tick)

Yes	
No	

3. If No probe if the use of the telephone can be a good option for the participant; What is the best way to contact you? (Tick)

1.	Face-to-face interview at the facility	
2.	The face-to-face community agreed on the venue	

4. Date of male partner’s interview scheduled \_\_\_\_ / \_\_\_\_ / \_\_\_\_ **Time** \_\_\_\_\_  
**Venue** \_\_\_\_\_

**Thank you for your cooperation and willingness to participate in this activity.**

## **Appendix 2: Informed Consent to Participate in the Research Study**

### **(Prevalence, Associated Factors, Barriers and Facilitators for Oral HIV Self-Testing among Partners of Pregnant Women Attending Antenatal Care Clinics in Wakiso District)**

#### **Introduction**

Thank you for agreeing to take part in this important study. I am called..... on behalf of Lawrence Nduhukyire, a student of Masters of Health Services Research at Makerere University School of Public Health (Principal Investigator) of the study. You are being asked to take part in a study that assess the uptake of HIV self-testing (HIVST) kits to promote HIV testing among partners of pregnant women attending ANC at Wakiso HCIV. Your answers in this questionnaire will help us to understand your opinion and/or experience concerning HIV self-testing, particularly HIV self-testing. We are asking you for your consent to be interviewed as part of this study because your female partner has been receiving care in this HCIV where the study is being carried out.

#### **Purpose of the study**

This study will gather information mainly on the uptake of oral HIV self-testing and the associated factors among male partners of pregnant women attending ANC at Wakiso HCIV. This study is intended to gather information on oral HIV self-testing as a driver for promoting couple HIV testing across the country through ANC women who deliver the kits to their partners for testing. The results of this study will also help to inform improvements in the oral HIVST policy and implementation.

#### **Procedure**

If you consent to participate in this study, we will ask you questions about yourself including your contact information and your views about the use of the oral HIVST. They may include sensitive questions about yourself and we will ask you to answer them to the best of your knowledge, you are also free not to answer any questions if you wish so. The questionnaires will not bear your name, but rather your initials, and your responses will be kept confidential.

Please feel free to ask any question you will need to help you understand the study before you consent to participate

## **Risks**

This study is expected to result in minimal harm to the study subjects and will not contain questions on personal issues that would inflict harm on the respondents; however, you may experience some psychologically related risks such as discomfort while answering some of these research questions.

## **Benefits**

There are no direct benefits to you for participating in this study. However, your participation in this study will add to the knowledge and guide the implementation and improvement of the HIV self-testing and couple testing program.

## **About Participating in this Study**

Your participation in this study is voluntary. You may stop participating in this study at any time. Your decision not to take part or to stop your participation will not affect you in any way. There is no consequence for stopping to be in the study and this will not affect the health care you or your family receives at this Health center. The interview will take about 30 minutes. If you feel unsafe discussing HIV and testing, we will provide you with information to support you during our discussion.

## **Reimbursement**

You will be reimbursed 10,000 Uganda shillings for your time and transport to participate in this study.

## **Confidentiality**

The answers you give us will only be known to the study team members and will be kept confidential. We will do our best to keep your information private and safe.

## **Names of Contacts for Questions About the Study**

If you have any questions about taking part in this study, or if you think you may have had any consequences because of the study, call Lawrence Nduhukyire (Principal Investigator) at 0774153511. If you have any questions about your rights as a research subject, you can call the Chair of the Higher Degrees, Research and Ethics Committee (HDREC) (Dr: Kagayi Joseph on 0773785333).



**Volunteer’s Statement**

I have been given a chance to ask questions about this research study. These questions have been answered to my satisfaction. I have been informed that if later I have any questions about taking part in this study or research-related injury, I may contact Lawrence at 0774153511.

I understand that my participation in this research project is voluntary. I know that I may quit the study at any time without losing any benefits to which I might be otherwise entitled. I also understand that the Investigator in charge of this study may decide at any time that I should no longer participate in this study.

I have read and understand the above information. I agree to participate in this study.

<b>Name of Study Participant</b>	<b>Signature of Study Participant</b>	<b>Date</b>
<b>Name of Person Obtaining Consent</b>	<b>Signature of Person Obtaining Consent</b>	<b>Date</b>

### Appendix 3: Individual Questionnaire

**Topic:** Prevalence, Associated Factors, Barriers and Facilitators for Oral HIV Self-Testing among Partners of Pregnant Women Attending Antenatal Care Clinics in Wakiso District.

**Individual questionnaire English: Partners of Pregnant women attending ANC**

**Interviewer administered**

<b>RESPONDENT IDENTIFICATION</b> INITIALS (Recode participant ID) _____
--

s/n	QUESTION	CODE	CATEGORY
	<b>Language: English</b> <b>Luganda</b>		
<b>SOCIAL DEMOGRAPHIC CHARACTERISTICS (Individual)</b>			
<b>001 a)</b>	In what year were you born?	___	Year of birth
<b>001 b)</b>	How old were you on your last birthday (complete years)	___	year
<b>002</b>	Where do you live?	1 2	Rural Urban
<b>003 a)</b>	What is your current marital status?	1 2 3 4 5	Never Married/Single Cohabiting Married Widowed Separated/divorced
<b>003 b)</b>	Are you living with your spouse	1 2	Living with partner Staying elsewhere
<b>004</b>	What is your highest level of education completed?	1 2 3 4	No formal school Primary Secondary Higher institution
<b>005</b>	What is your current occupation?	1 2 3 4 5 6 7	None Unemployed Employed Business Farmer Manual labour Others specify

006	What is your religion?	1 2 3 4 5 6	None Catholic Anglican Muslim Pentecostal Others specify_____	
007	How much money do you earn per day? (Wealth index) <i>(Record total amount reported)</i>			
008	Do you subscribe to any social group/network?	1 2	No Yes	
009	What is your major source of information	1 2 3	Radio Television Social Media	
010	How long do you take listening to a radio per week <i>(Record the described time per week)</i>		_____	
011	How long do you take watching a television per week			
<b>Prevalence and Factors and factors associated</b>				
I would like to ask you a few questions about oral HIV self-testing kits				
012	Do you think you can be infected with HIV?	1 2	No Yes	
013	Do you know the risk factor for contracting HIV	1 2	No Yes	
014	What is your risk of contracting HIV	1 2 3 4	Low High Very high Other specify .....	
015	How many other sexual partners do you have besides your spouse <i>(Record the number)</i>		_____	
016	Are you aware of your HIV status?	1 2	No Yes	
017	When did you last test for HIV/AIDS? <i>(Record in months)</i>			
018	Did you test from the facility or self-tested?	1 2	Facility testing Self-testing	
019	Have you ever received an the HIVST kit during the ANC period of your wife?	1 2	No Yes	
	<i>Skip to Question 026 if response is No to 019</i>			

020	From whom did you receive the HIVST kit before testing yourself	1 2 3 4 5	Health facility Health worker Pregnant partner Friend Pharmacy	
021	<b>Did you use the received HIV self-testing Kit to test yourself for HIV</b>	1 2	<b>No</b> <b>Yes</b>	
022	Did you receive enough information/education about the HIVST kit and its use	1 2	No Yes	
023	Whom did you receive help/education from during the HIV self-testing	1 2 3 4	Health worker Pregnant partner Friend Pharmacist	
024	Were you able to obtain and read the results from the HIV self-test you carried out	1 2	No Yes	
025	Were you aware of your status before using the HIVST kit for HIV testing?	1 2	No Yes	
	<b><i>From Qn 19</i></b>			
026	Would you be willing to use the oral HIV self-testing kit to test yourself for HIV if availed to you	1 2	No Yes	
025	Have you ever received a phone call from a health worker concerning HIVST	1 2	No Yes	
026	Do you have any of your friends who have used the HIVST	1 2	No Yes	
027	Is there enough information about oral HIV self-testing available to you?	1 2	No Yes	
	<b>Information about the spouse</b>			
028	How free are you with your partner; (how freely do you communicate with your partner)	1 2 3 4	Very free free unfree very unfree	
029	How regularly do you communicate with your partner	1 2 3 4	Very regular Regular Unregular Very regular	
030	How many ANC visits do you think your partner has attended during pregnancy? ( <i>Record the times as reported</i> )			

031	How many spouses do you have? ( <i>Record the number of spouses-married to-</i> )			
032	Do you know your spouses' HIV status?	1 2	No Yes	
033	What is the age of your spouse ( <i>Record age reported</i> )			
034	What is your spouses' level of education	1 2 3 4	No formal school Primary Secondary Higher institution	
035	What is the occupation of your spouse	1 2 3 4 5 6 7	None Unemployed Employed Business Farmer Manual labour Others specify	
036	How many children do you have with your partner ( <i>Record the number of children reported</i> )			
	<b>Questions about the distance</b>			
037	What is the estimated distance to the health facility from your home? ( <i>Capture in KM</i> )			
038	How do you travel to the health facility to seek medical services?	1 2 3 4	By foot Bicycle/moto-cycle Private means Public means	
039	How do you perceive the distance to the facility?	1 2 3	Near Far Very far	

## Qualitative questionnaire

### Appendix I: In-Depth Interview Guide (Male Partners who used the HIVST)

**Title of The Study:** Prevalence, Associated Factors, Barriers and Facilitators for Oral HIV Self-Testing among Partners of Pregnant Women Attending Antenatal Care Clinics in Wakiso District.

#### 1. Let us share about oral HIV self-testing

*Probe: what have you heard about oral HIV self-testing kits*

*Probe: how the HIV self-kits are used*

*Probe: Opinions about the currently practiced HIV oral self-testing intervention*

#### 2. (Experiences) Please share with me what you experienced after receiving the self-test kit delivered

*Probe: Did your partner deliver the HIVST kit to you for HIV testing*

*Probe: How did you feel (general experience)*

*Probe: the colour, brand of the kit*

*Probe: did you test in the presence of your wife*

*Probe: share with me how you felt during the testing process*

*Probe: tell me about any effects associated with the use of the HIVST known to you. (Could have experienced or heard of them from your friends)*

#### 3. Facilitators of use oral HIV self-testing by male partners

In your opinion, what motivated you to test for HIV using an oral HIV self-testing kit that was delivered to you by your pregnant partner?

*Probe: share with me what motivated you to immediately use the HIVST kit, Ease*

*Probe: procedure of using the kit*

*Probe: describe what your partner told you about the HIVST kit*

*Probe: if he received a phone call from the facility if he had friends that ever used the kit*

*Probe: tell me about any effects associated with the use of the HIVST known to you. (Could have experienced or heard of them from your friends)*

#### 4. We have discussed quite a lot. You may have what to ask, please ask me, it's your turn.

## **Appendix II: In-Depth Interview Guide (Male Partners who did not use the HIVST after receiving it from their Pregnant women)**

**Title of The Study:** Prevalence, Associated Factors, Barriers and Facilitators for Oral HIV Self-Testing among Partners of Pregnant Women Attending Antenatal Care Clinics in Wakiso District.

### **1. Let us share about oral HIV self-testing**

*Probe: what have you heard about oral HIV self-testing kits*

*Probe: how the HIV self-kits are used*

*Probe: Opinions about the currently practiced HIV oral self-testing intervention*

### **2. (Experiences) Please share with me what you experienced after receiving the self-test kit delivered**

*Probe: Did your partner deliver the HIVST kit to you for HIV testing*

*Probe: How did you feel (general experience)*

*Probe: the colour, brand of the kit*

*Probe: did you test in the presence of your wife*

*Probe: share with me how you felt during the testing process*

*Probe: tell me about any effects associated with the use of the HIVST. (Could have experienced or heard of them from your friends)*

### **3. Barriers to partners' use of HIVST kits (Male partners who used and those who did not use the HIVST kit)**

May you share what are the barriers to male partners' use of HIV oral self-testing?

*Probe: what barriers affect the use of oral HIVST*

*Probe: if the partner has fear of the outcome*

*Probe: if the Male partner trusts the HIVST kit, could report back to the facility in case of positive results*

*Probe: concerns you have on the HIVST kits being delivered by your wives*

*Probe: do you think it's proper for women to deliver self-testing kits to you*

*Probe: did you know your status before your partner delivered the HIVST kit to you*

*Probe: what could be appropriate ways of reaching you with self-test kits given the continued non-use of the other HIV testing services*

### **4. We have discussed quite a lot. You may have what to ask, please ask me.**