ASSESSMENT OF FACTORS ASSOCIATED WITH HIV SELF-TESTING AMONG LONG-DISTANCE TRUCK DRIVERS ALONG UGANDA ROAD IN UASIN GISHU COUNTY, KENYA

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DECLARATION AND APPROVAL

Declaration by the student

This thesis is my original work and has not been presented for a degree in any other university or for any other award.

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Approval by the supervisors

We confirm that the work reported in this thesis was carried out by the candidate under our supervision.

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DEDICATION

I dedicate this research thesis to my parents Mr. and Mrs. Rotich and my siblings Patrick, Gladys, Carol, Anthony, Ida, Ruth and Thaddeus.

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ABSTRACT

HIV self-test refers to a process where individuals perform their own HIV test by taking an oral or blood-based test. HIV self-testing was introduced to increase the number of HIV testing rates among hard-to-reach populations such as long-distance truck drivers. However, little is known about its uptake in Kenya where it has been available since 2017, and the factors influencing its utilisation. The purpose of this study was to assess the sociodemographic and behavioural characteristics associated with HIVST among long-distance truck drivers along Uganda Road in Uasin Gishu County. It also sought to determine HIVST uptake and testing preferences. This cross-sectional study utilized proportionate stratified sampling and simple random sampling to recruit a total of 287 truck drivers. A questionnaire uploaded to Kobo Toolbox was used to collect data. A research license from MKU IREC and a permit from NACOSTI were granted. Downloaded data in an Excel sheet was imported to SPSS version 28 for coding and cleaning. Means, frequencies, and percentages were used for descriptive analysis of quantitative data. Association between variables was established by bivariate analysis/chi-square tests with a significant p-value of <0.05. To adjust for the impact of other variables, all statistically significant variables from bivariable analysis were subjected to multivariate logistic regression analysis using a generalized linear model. All logistic regression factors with a p-value of <0.05 were identified as true predictors of HIVST among long-distance truck drivers. A total of 287 truck drivers took part in the study, the majority being males (98.6%) compared to females (1.4%) with an average age of 38.66 years. HIVST uptake was 35.5%. Factors associated with HIVST testing included the duration of driving specifically 6-10 years (OR=3.0, 95% CI =1.3-6.9, p=0.008); moderate and high perceived risk of HIV infection (OR=4.1, 95% CI=1.9-9.1, p=<0.001 and OR=3.7, 95% CI=1.3-10.8, p=0.012); average and excellent HIV knowledge (OR=11.7, 95% CI =2.2-217.4, p=0.021 and OR=28.3, 95% CI =5.1-536, p=0.002). The majority of truck drivers (84.3%) preferred blood-based kits compared to 8.8% who preferred oral-based kits. Couple testing was preferred by over two-thirds of truck drivers compared to testing alone. HIV self-testing uptake is still low. There is a need to create targeted educational campaigns through peer-led programs and workplace sensitization, reinforcing HIV risk perception and knowledge and interventions tailored to meet the needs of drivers of varying degrees of experience. It's imperative to prioritize the availability and promotion of blood-based kits, considering their overwhelming preference. Despite their preference for blood-based kits, oral kit use should be encouraged by giving education and information about the advantages of oral testing.

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AIDS	Acquired Immunodeficiency Virus
ART	Antiretroviral Therapy
CDC	Centre for Disease Control
CHS	Center for Health Solutions
DAAD	German Academic Exchange Service
FDA	United States Food and Drug Administration
FSW	Female Sexual Workers
HIV	Human Immunodeficiency Virus
HIVST	HIV self-testing
ILO	International Labor Organization
MOH	Ministry of Health
MSM	Men who have Sex with Men
NACOSTI	National Commission for Science and Technology
NASCOP	The National AIDS and STI Control Programme
PITC	Provider Initiated Testing and Counselling
PLHIV	People Living with Human Immunodeficiency Virus
SSA	Sub-Saharan Africa
LTDs	Long Distance Truck Drivers
UNAIDS	The Joint United Nations Programme on HIV/AIDS
US	United States of America
VCT	Voluntary Counselling and Testing
WHO	World Health Organization

CHAPTER ONE: INTRODUCTION

1.0 Introduction

The first chapter gives context for the research. It provides background information, explicitly explains the topic of the research, and specifies the study's aims and questions. Furthermore, it explains why this research was conducted, the scope of the research, and the limits, as well as the underlying assumptions used throughout the investigation.

1.1 Background of the Study

1.1.1 HIV Landscape, Testing Evolution and the Emergence of HIVST

As of 2023, the Joint United Nations Programme on Human Immunodeficiency Virus and Acquired Immune Disease (UNAIDS) epidemiological estimates reported that approximately 39.9 million people were living with HIV (PLHIV) globally, while approximately 86% of all people living with HIV knew their retroviral status (UNAIDS, 2024). Although the prevalence of HIV was 5.7% among adults (aged 15-49) in 2023 worldwide, it was still high among key populations. These included sex workers who recorded 29.9%, gay men at 10.5%, people who inject drugs at 16.1%, transgender persons at 17.6% and 2.3% among prisoners (UNAIDS, 2023). Within the African Continent, there were 30.1 million PLHIV, with Eastern and Southern Africa carrying the bulk at 20.8 million cases (UNAIDS, 2014). In 2021 specifically, Kenya was home to approximately 1.1 million PLHIV (National Syndemic Disease Control Council Kenya, 2022).

There has been reported improved HIV awareness in the world. HIV testing is fundamental in meeting UNAIDS 95-95-95 goals, which require that by the year 2030, 95 per cent of people with HIV be diagnosed, 95 per cent to be taking antiretroviral medicine and 95 per cent to have their viral loads suppressed (UNAIDS, 2014). As of 2019, the worldwide effort regarding the

HIV epidemic had advanced considerably, and it is estimated that 81 per cent of all PLHIV were aware of their retroviral status. Despite these gains, a big population of approximately 7.9 million people had no clue that they were infected (UNAIDS, 2019). In most cases, unfavourable outcomes among PLHIV in Sub-Saharan Africa (SSA) have been blamed on late detection, ineffective linkage to care and inadequate ART adherence (World Health Organization, 2019). This diagnostic slowdown demonstrated that there was still more work to do to get testing and education to all populations, pointing to the fact that increased efforts should be made to increase access to healthcare, decrease stigma, and leave no one behind in the battle against HIV.

Voluntary Counselling and Testing (VCT) is among the primary strategies that were utilized to diagnose persons living with HIV until 2017. VCT services were the first to be introduced in the 1990s in SSA by UNAIDS (Costa et al., 2022). Its uptake has been relatively low, and only about 20% of Kenyan adults utilize its services (Ministry of Health Kenya, 2007). In this model, a person initiates the need for a test by availing themselves voluntarily at the VCT for testing purposes. Provider-Initiated Testing and Counselling (PITC) has also been a significant contributor, as it enabled individuals to request testing services voluntarily, usually at special centres which offered pre- and post-test counselling. PITC was introduced in 2005 into the clinical practice in Kenya to augment VCT. HIV testing in this approach is performed as a standard aspect of care at the clinical discretion of the health care provider with the patient's consent (NASCOP, 2014).

HIV testing innovations led to the development of HIV self-testing technologies (HIVST). The US Food and Drug Administration (FDA) approved the first at-home HIV test, Home Access® HIV-1, in 1996 (US FDA, 2022), followed by rapid diagnostic kits like the OraQuick in 2002.

The WHO officially recommended HIVST in 2016 as a convenient, accurate and private method of expanding testing reach, particularly for individuals less likely to visit health facilities (World Health Organization, 2019). HIVST allows individuals to collect specimens and interpret results independently (unassisted) or with trained support (assisted) (World Health Organization, 2016). It has been touted as a novel strategy that offers people a discrete and practical opportunity to assess themselves.

The HIVST series was launched in Kenya in 2017 by NASCOP with an aim of increasing HIV testing uptake and improving diagnosis rates across the country (NASCOP, 2019; WHO, 2017) Tasked with regulations of diagnostic and pharmaceutical products, the Kenya Pharmacy and Poisons Board has so far approved OraQuick- an oral-based kit; Biosure, INSTI, Atomo and Aware, all of which are blood-based kits (CHS Kenya, 2023; Little & Rosenberg, 2018). The main outlets for such HIVST kits include pharmacies, online pharmacies, e-commerce platforms and retail stores. Despite its introduction, little is known about its uptake, especially in Kenya. This raises apprehensions about the potential loss of opportunities to effectively involve this demographic.

1.1.2 Understanding HIV Vulnerability in Truck Drivers and HIVST Role

Long-distance truck drivers (LTDs) are an essential component of the hauling industry since their work ensures the smooth flow of commodities across a variety of geographic areas and nations, such as East and Central Africa. Because of the nature of their profession and the settings in which they find themselves, their circumstances place them at significantly greater risk of acquiring HIV. It requires them to be away for long periods, sexual intercourse for money at truck stops, and use of alcohol/ drugs which affect a person's decision-making process (Karimi et al., 2021). Additionally, they hardly receive any HIV education; and often engage

in multiple sexual relations along the transport corridors. Also, their mobility to other countries puts them in contact with other people, and social networks many of whom have high HIV incidence rates.

Various research findings in various nations have documented high rates of HIV among truck drivers. The pooled HIV prevalence among truckers varies widely, being the highest in Africa (14.34 per cent) despite a worldwide prevalence of 3.86 per cent (Mutie et al., 2024). Individual country findings include 19.00 % in India (Jindal et al., 2008) and 0.16 per cent in North America (Valway et al., 2009). Recent studies done within Africa include 26 per cent in South Africa (Delany-Moretlwe et al., 2014) and 15.4 per cent in Mozambique (Botão et al., 2016). Within East Africa, studies done in Uganda established a prevalence of 25 per cent to 32 per cent (Knowledge Management & Communications Capacity, 2014). Recent data from Kenyan tuckers is generally lacking. Despite this, truck drivers continue to face significant barriers to testing (Rao et al., 2021). Yet, not much research has been done on HIV testing among this group of people, but one study in South Africa revealed that out of 1,881 truck drivers, only 38.2% of them had ever undergone at least one HIV test throughout their lifetimes (Delany-Moretlwe et al., 2014).

Truck drivers hauling goods across the borders represent a distinctive demographic stratum based on occupational and lifestyle characteristics. Age, domicile, age at first sex, marital status, poverty, literacy, HIV knowledge, stigma and perception of being infected have all been associated with HIVST (Adugna & Worku, 2022). Behavioural factors such as intravenous drug usage (Adeoti et al., 2021) extended periods spent driving, frequent mobility, separation from intimate partners (Sileo et al., 2018). In addition, most of them engage in transactional

sexual encounters and non-condom use (Sawal et al., 2016) which have been established as predictors of HIVST.

Understanding the views of long-distance truck drivers towards HIVST is essential in determining factors that may either promote or impede its usage. Various studies looking at preference established a like towards oral-based kits and testing alone compared to blood-based kits (Kelvin et al., 2021) while others established a preference for blood-based kits (Ostermann et al., 2015; Shrestha et al., 2020).

The above findings highlight the promise of HIVST as a way of overcoming barriers and increasing the rates of HIV testing uptake among long-haul truck drivers in Kenya. By overcoming the barriers that include low access to healthcare services, stigma, and the mobile workforce character, HIVST offers a feasible and productive means of enhancing the rate of diagnosis among this high-risk population. The provision of self-testing holds promise in enhancing prompt identification, encouraging behavioural modifications, and expediting the receipt of medical attention and intervention for individuals who receive positive test results. Investigation of preferences has the potential to facilitate the creation of customized interventions and programs that are congruent with the distinct requirements and predilections of truck drivers.

1.2 Problem Statement

According to the available data, HIV testing is underutilised among long-distance truck drivers. Surveys done in South Africa established that only 38.2 per cent of truck drivers said they had ever been tested for HIV, while in Togo it was only 47.4 per cent (Delany-Moretlwe et al., 2014; Yaya et al., 2016). However, one study done in Zambia established that 83 per cent had ever undergone testing (Yaya et al., 2016). This is despite a high HIV pooled prevalence being

the highest in Africa (14.34 per cent) versus a worldwide prevalence of 3.86 per cent (Mutie et al., 2024). Individual African prevalence is even glaring, including 26 per cent in South Africa (Delany-Moretlwe et al., 2014) and 15.4 per cent in Mozambique (Botão et al., 2016). According to a study survey done in Kenya in 2018, only 4.1% of adults aged 15–64 had ever used HIV self-testing, with even lower rates among mobile populations, including truck drivers (Mwangi et al., 2022).

For this reason, HIVST has become a promising approach to expanding the testing frequency and enhancing access to HIV diagnostic testing. However, the current knowledge regarding the usage of self-test kits among truck drivers in Kenya is scanty, impeding the formulation of focused interventions and regulations to cater to their particular testing requirements. Hence, this study sought to establish the uptake of HIVST among truck drivers.

There are far-reaching consequences to low levels of HIV testing. People who are not tested can unwittingly spread it further, keeping the epidemic going. Delayed diagnosis leads to a delayed start of antiretroviral therapy and thus to more health problems and more expenses in the healthcare sector (Afrashteh et al., 2022). Additionally, the challenges involved in measuring HIV impact in these communities limit the development of specialised prevention programs.

Consequently, there is an urgent need to conduct an elaborate evaluation on HIV self-testing adoption by this demographic. This will facilitate the development of efficacious approaches to enhance HIV screening rates, encourage timely diagnosis, and mitigate transmission hazards. By establishing drivers that influence the use of self-testing in this key population, stakeholders in the sphere of public health can tailor their interventions in order to increase the testing coverage and improve the outcomes of HIV prevention.

Behavioural factors, including misuse of alcohol and drugs, number of sexual partners, dangerous sexual behaviours, perception of vulnerability and the length of time spent on the highways are key factors in deciding whether truck drivers use HIVST. There is, however, a scarcity of research on these behavioural factors and how they impact the use of HIVST among cross-border long-distance truck drivers.

Thus, the study sought to assess the factors associated with HIVST among long-distance truck drivers along Uganda Road in Uasin Gishu County, Kenya.

1.3 Objectives

1.3.1 Broad Objective

To assess the uptake and factors associated with HIV self-testing among long-distance truck drivers along Uganda Road in Uasin Gishu County, Kenya.

1.3.2 Specific Objectives

i. To determine the uptake of HIV self-testing among long-distance truck drivers along Uganda Road in Uasin Gishu County in Kenya.
ii. To establish the sociodemographic factors associated with HIV self-testing among long-distance truck drivers along Uganda Road in Uasin Gishu County in Kenya.
iii. To find out the behavioural factors associated with HIV self-testing among long-distance truck drivers along Uganda Road in Uasin Gishu County in Kenya.
iv. To establish the informational factors associated with HIV self-testing among long-distance truck drivers along Uganda Road in Uasin Gishu County in Kenya.
v. To establish HIV self-testing preferences among long-distance truck drivers along Uganda Road in Uasin Gishu County, Kenya.

1.4 Research Questions

i. What is the uptake of HIV self-testing among long-distance truck drivers along Uganda Road in Uasin Gishu County, Kenya?

ii. What are the sociodemographic factors associated with HIV self-testing among long-distance truck drivers along Uganda Road in Uasin Gishu County, Kenya?

iii. What are the behavioural factors associated with HIV self-testing among long-distance truck drivers along Uganda Road in Uasin Gishu County, Kenya?

iv. What are the HIV self-testing preferences among long-distance truck drivers along Uganda Road in Uasin Gishu County, Kenya?

1.5 Justification of the study

Despite being implemented as early as 2017, there is little information about HIVST among truck drivers in Africa and Kenya in general. Understanding HIV-preferred testing modalities among the special interest groups is important in planning, policy formulation and program intervention. In my capacity as a public health practitioner, I aim to contribute to the existing corpus of research on HIV, particularly since its integration into primary healthcare systems.

The findings of this research will facilitate the promotion of HIV screening among truck drivers and their aides by advocating for governmental support through the provision of free testing kits along the transport corridors. HIV prevention efforts along the transport corridors in Kenya have focused mainly on female sex workers, leaving out their main sexual clientele (long-distance drivers). As a result, concerted efforts to control new HIV infections are derailed. This is because the tactics that could work on long-distance truck drivers aren't being fully utilized, allowing new infections to slip through the cracks.

This study will provide information to the government through the MOH and other partners on the effectiveness of HIVST as an intervention in achieving the 95-95-95 strategy set by World Health Organization (WHO). It is of the utmost importance to focus on prevention in order to cut down on the number of newly arising infections occurring among long-haul truck drivers, as well as among the general population and their corresponding sexual partners. As a result, lower HIV infection rates will improve overall human health, leading to increased economic productivity in Kenya and neighbouring East African member states' hauling industries.

1.6 Scope of The Study

Voluntary recruitment of 287 truck drivers was conducted in Burnt Forest, Jua-kali and Roadblock truck parking stages along Uganda Road which transverses through the Uasin Gishu County. All of them were aged 18 years and above and spoke Kiswahili and/ or English. The Uganda Road or A104 is a major highway being the largest in East Africa. It stretches from Nairobi to Naivasha to Nakuru through Eldoret and Bungoma towns to Malaba Border Post. A104 is a major transit for truck drivers to Uganda, Rwanda, Burundi and to Southern Sudan. It traverses Uasin Gishu County starting from Timboroa Town located southeast of Eldoret Town, through Eldoret Town to Turbo Town located northwest of Eldoret Town.

1.7 Study Limitations and Delimitations

i. The research did not evaluate the utilization and proper utilization of the HIVST kits; hence, data on correct usage of the kits isn't available.

ii. Reliance on self-reported information could have led to unintended social desirability and recall bias, particularly on some delicate issues such as protection usage and the number of sexual partners on the highway.

iii. Data collection was done during daytime hours (7 am to 6 pm), hence, night shift drivers could have been excluded, limiting the representation of all potential participants.

Some of the mitigation measures include;

i. Obtained an HIVST kit for visualization purposes to aid in recall. It is noteworthy that in this study, no HIV test was conducted.
ii. Assured confidentiality on the sensitive questions.

1.8 Assumptions of the study

i. HIV being a sensitive topic, it was assumed that long-distance truck drivers would give out the right information. This was enhanced by building a good rapport, assessing the consistency of answers given and asking follow-up questions.
ii. The trucks were parked in an orderly manner to enable systematic random sampling to be done with ease. Sampling based on arrival time was utilized.

1.9 Operational definition of key terms

Directly assisted HIVST: This means a situation where professional health care staff or peer educators deliver face-to-face education, showing how to properly perform an HIVST and interpret the results, prior to or during testing.(World Health Organization, 2016).

HIVST: A novel approach where individuals perform their own HIV testing by taking an oral or blood-based test (World Health Organization, 2019).

Long-Distance Truck Drivers: Drivers who haul goods over a radius of 500 km and/or cross borders between Eastern Africa Region**.** They haul goods which normally require overnight stays on the road or more time

Uganda Road: Highway stretching from Nakuru to Malaba through Burntforest, Turbo Cheptiret, Eldoret and Roadblock towns in Uasin Gishu County. In this study, Uganda Road

means only the part of the Highway passing through Uasin Gishu County which was within the area of my study.

Unassisted HIVST: It involves an individual independently performing an HIV test with a self-testing kit provided and as guided by the manufacturer, without the direct assistance of healthcare personnel (World Health Organization, 2016).

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

The review of literature is aligned with the study's objectives. It covers general information on HIV/AIDS and testing, uptake of HIVST services, sociodemographic and behavioural factors associated with HIVST utilisation and HIVST preferences.

2.1 Uptake of HIVST Among Hard-to-Reach Populations

2.1.1 Global Uptake of HIVST

There is a wide range in utilization of HIVST among key populations like truck drivers due to differences in policies, cultural beliefs, where services are provided and the costs involved. A study carried out on men who have sex with men (MSM) in China, reported the uptake of HIVST at 40.4 per cent (Yang et al., 2022), while a survey done in Thailand established HIVST to be 87.8% (Phongphiew et al., 2021) highlighting substantial regional differences in uptake. In Myanmar part of Southeast Asia, 90% of MSM said they wanted to test more regularly if HIVST was offered, while 72% of transgender women preferred HIVST over testing in a clinic (Wirtz et al., 2022). Similarly, an American study established a 7.7 % uptake of HIVST among MSM in the previous year, with high uptake being among the young, wealthier and more educated individuals (Bien-Gund et al., 2022).

2.1.2 Adoption of HIVST across Africa

Self-testing of HIV has been increasing in uptake on the continent but there are a number of obstacles that impede its broader implementation. The acceptance and uptake of oral HIVST by previous studies has been established to be 62.7 per cent among South African college students (Mokgatle & Madiba, 2017), 59.3 per cent of female sex workers (FSW) in Ethiopia (Eskezia et al., 2023). In Malawi's Capital, the uptake was established to be 76.5% over 12

months (Choko et al., 2015). In contrast, findings from Nigeria revealed that just 35.8% of university students had used HIV tests and counselling, but there was a strong interest in self-testing at 70.4% (Iliyasu et al., 2020).

2.1.3 Kenyan Uptake of HIVST

HIVST has significantly increased testing uptake among key populations in Kenya, including MSM, FSW and young adults. Self-testing is appreciated by these populations because it offers privacy and convenience, unlike the conventional testing methods. However, practice reveals that awareness is not always enough to drive people into action. For instance, while a large majority of young people (78.6%) aged 18–35 years know about HIVST, only about a quarter (25.2%) reported having used it (West et al., 2023). The situation is even more concerning among truck drivers, where only 1.3% have ever self-tested (Kelvin et al., 2019). This value falls short of the 4.1% uptake seen in the Kenyan adult population at the national level (Mwangi et al., 2022) and well behind their younger counterparts. Among MSM in Nairobi, many are open to the idea, with 77% saying they're willing to self-test, but less than half (44.8%) have done so (Ndungu et al., 2023).

2.3 Socio-demographic Factors Associated with HIV Self-Test Utilization

There have been a lot of studies done on the parameters associated with HIV testing in various groups. In an Eastern African study of men aged 15 to 64, researchers found that factors including age, domicile, age at first sex, marital status, poverty, literacy, HIV knowledge, HIV stigma, and hazardous sexual activity were all significantly associated with men's adoption of HIV testing (Adugna & Worku, 2022). Another study among MSM in Kenya revealed that age, self-care and habitual testing were associated with HIV self-test (Ndungu et al., 2023).

Age is an important determinant of behaviour and perceptions, which impacts the risk of HIV transmission as well as the probability of utilising self-testing services. Younger people (below 35 years old), particularly those who are part of the key populations, such as truck drivers, often fail to use condoms consistently and have many sexual partners along the highways. The young drivers seem to have a perceived invulnerability to health risks. Thus, they may ignore things like using condoms. Research suggests that young drivers' perception of risky sexual behaviour may make drivers engage in risky behaviours with commercial sex workers. Kenya and South Africa, both with high HIV/AIDS prevalence, have shown similar trends (Delany-Moretlwe et al., 2014). Younger truck drivers have been found more likely to accept and use new health technologies like HIV self-testing than older counterparts, according to a South African study (Izizag et al., 2018). Yet another research conducted in Zambia discovered no appreciable variations in HIV self-testing absorption between younger and older truckers (Mutale et al., 2018). A Ugandan study showed that youth between 16 years-24 years of age had higher use of self-tests as compared to youth between 25 years-49 years (Matovu et al., 2020). Similar to this, research done in Zimbabwe showed that among the youth, youths between the ages of 18-24 utilized HIVST more frequently compared to the older persons (Kumwenda et al., 2019). Older truckers may not embrace self-testing because of reasons like low technical know-how on HIVST devices, resistance to change in their habits or status on HIV awareness, or because they feel that they are not susceptible to acquiring HIV.

Education level is the other important demographic component. Empirical evidence from Malawi and Zimbabwe indicates that truckers who had attained high educational status exhibited a higher tendency to utilise HIVST in comparison to those with lower educational qualifications (Kumwenda et al., 2019). Likewise, a population-based study done in Kenya indicated that secondary-level education was associated with a 3.5-fold greater chance of

having ever self-tested as opposed to individuals who never received any type of education at all (Mwangi et al., 2022). This result indicates the vitality of education in supporting awareness and acceptance of HIVST and that a better education awareness strategy could positively affect testing uptake, particularly among at-risk groups.

Another important consideration is marital status and sexual behaviour patterns as determinants of HIVST usage. Analysis of a Kenya-based study indicates that being single and female was highly correlated with the propensity of self-testing (Kalibala et al., 2014) which may develop a specific notion that this demography is at a high risk and therefore more inclined to access easy and private HIVST options (Harichund et al., 2019). For keep-it-to-themselves kind of truck drivers, self-testing may be preferred because test results can be obtained without visiting a clinic or discussing the behaviours with other people. On the other hand, married drivers may not bother being infected with HIV especially if they are married or do not engage in extramarital affairs. This perception of lower risk will thus play a part in the lowered likelihood of HIVST uptake, though technically, married persons remain at risk should either of them cheat or engage in extramarital affairs (Musheke et al., 2013). Besides, married drivers may opt for facility-based testing because in case of positive results healthcare personnel offer counselling services on the spot.

Truck drivers' uptake of self-testing varies based on income factors such as income levels. Better-earning drivers are in a better capacity to afford the HIVST kits due to high purchasing powers, especially in the areas where the kits are not provided for free as it is in most East African countries (Mwangi et al., 2022). Such drivers can commit more resources to health thus increasing the rates of self-testing. In contrast, low-income earners especially middle-aged truck drivers tend to have barriers; they pay bills first before thinking of health-related expenses and are likely to view the costs of self-test kits as expensive (Delany-Moretlwe et al., 2014).

This financial barrier might also result in low use of HIVST even if the drivers under this limited budget have understood the need to self-test. Research has also established that, with free or low-priced HIVST kits used, more of the low-income populations test for the virus, meaning that the cost is a hurdle (Mujwara et al., 2024).

The characteristic long travel times and high mobility profiles of professional truck drivers are part of the job description and constitute important factors that affect access to healthcare most particularly HIV testing. Since this population devotes most of their time to hauling and travelling where health facilities are unavailable (Greenfield et al., 2016; Makusha et al., 2015) the standard testing services could be inaccessible or limited along the trucking corridors, hence the need and flexibility offered by HIVST among the drivers. Self-testing provides the solution to the geographic challenge and other associated challenges with mobility since the drivers can test without going to any clinic. In general, several studies have pointed out that truck drivers for instance have preferred self-testing because of its flexibility and simplicity (Mantell et al., 2022; Strauss et al., 2018).

One's religious beliefs can influence HIV testing. This includes perceived susceptibility, stigma and social acceptance (Kang et al., 2020; Pfeiffer et al., 2018). Within certain religious environments that are conservative, HIV is often linked with the vice that is regarded as contravening specific moral beliefs to exaggerate prejudice that dissuades people from conducting tests for the virus but self-testing HIVST has been effective in these communities since it provides individuals with confidentiality and privacy (Musheke et al., 2013). Faith-based initiatives in sub-Saharan Africa have particularly highlighted the dual role religion can play such as encouraging testing when faith leaders support it or downplaying it in places where cultures of stigma exist (Ochillo et al., 2017). Partnerships with healthcare providers, trusted community leaders and religious organisations have also played a critical role in unbiasing

testing messages to increase HIVST use in areas of high prevalence, especially among religious regions with restrictive cultures (Sundararajan et al., 2022).

HIVST among drivers in Africa depends on the country of origin because stigma, healthcare facilities, and HIV awareness programs differ from one region to another. For example, national STD/AIDS control programmes encourage HIV testing through progressive health communication campaigns (National Syndemic Disease Control Council Kenya, 2022). Availability of HIVST kits is also important; those from countries with well-developed health systems tend to report better access constituting both national health systems and workplace programmes aimed at high-risk populations such as truck drivers (Boakye et al., 2024; Matovu et al., 2023). Decisions related to economics and awareness campaigns also have an impact on uptake, barriers and facilitators linked to specific countries which is very important, as seen in trucker drivers

Persistent concerns about stigma and the potential risk of discrimination continues to hinder access to HIV testing services by many individuals including truck drivers. The fear of being known at a testing site or being judged by healthcare workers usually causes individuals to be reluctant to utilize the regular HIV testing services (Mulubale et al., 2022). These concerns attached to conventional testing can however be eased through self-testing since it affords the chance of testing in a private and accompanied by anonymity and discretion. Research has established that long-distance truckers particularly within the parts of the world where stigma is rampant are more likely to embrace HIVST because it spares one the indignity of being seen visiting testing centres (Maman et al., 2017). Zimbabwean-based research also suggests that individuals who believed they were the objects of social stigma when using traditional testing facilities were more inclined to choose HIV self-testing due to its ability to offer a discrete testing method (Makusha et al., 2015)**.** Convenience, speed and time to test results and a feeling

of being in charge of one's health decisions have also been associated with HIVST (Johnson et al., 2017). High-risk groups may be more effectively reached by HIVST, which confers an anonymous and private means to receive test results (Johnson et al., 2014).

An Asian survey on Singapore's heterosexual men identified privacy, anonymity as well as usability as key factors in self-testing. Participants noted that it lessened awkward circumstances such as running into friends at test locations or having to discuss their sexual behaviour with a medical expert. They also enjoyed the fact that no one would be aware of their HIV testing or the findings. Being in charge of one's health was another benefit (Tan et al., 2021). The confidence in using self-testing kits and the perception of the results accuracy had a strong influence on the willingness of persons to self-test. The individuals who had used HIV self-testing in the past were more likely to use it again, proving how familiarity and positive experiences could lead to sustained use as observed within the Malawi context (Choko et al., 2015). Most truck drivers involved in an Indian study reported that HIVST would be useful to them, and some believed that access to such a kit would enhance infection detection and establish new connections with anti-HIV drugs. The participants indicated that they were aware of being more susceptible to HIV and other infections, especially because of the type of work and lifestyle. They stressed that self-testing provided privacy that could not be matched by the traditional testing methods. Also, they appreciated the fact that they could conduct the test by themselves and at their own time without having to go to a health facility. Additionally, truck drivers preferred saliva over blood test kits due to rapid results, the ability to take the test by oneself, easiness of collecting and utilizing saliva, the lack of understanding of how to collect blood and the absence of needle anxiety (Rao et al., 2021).

HIVST as a possibility could get rid of some of the risks of testing that make some truck drivers not want to do it under the current system. It could do this by giving more privacy and making

it so they don't have to spend as much time in the clinic getting test kits for at-home use. So, self-testing could make HIV testing easier for some truck drivers to get than it is now.

2.4 Concerns Regarding HIVST

Still, there are questions about what constitutes an optimal HIVST kit that is effective, user-friendly, easily comprehensible, and liked by users.

To discern this, a user study in three African countries identified some of the major impediments, including a lack of coordinated testing elements, inadequate labelling and unclear instructions on how to administer the test and how to interpret the results (Peck et al., 2014). Nonetheless, according to other researchers, doubt was expressed by some of the participants in the accuracy of self-test kits and the need to establish contacts with counselling services after tests (Aizobu et al., 2023; Sarkar et al., 2016). Others noted discomfort, anxiety, fear and denial of test results as hindrances (Indravudh et al., 2017; Ngangue et al., 2017) and the absence of counselling before and after self-test (Hlongwa et al., 2020; Qiao et al., 2018). Also, follow-up services, including second testing and counselling in case a driver is found to be positive are sometimes scarce and would prove disadvantageous to drivers as they need immediate assistance if they test positive (Aizobu et al., 2023). This service gap depicts a structural barrier that could discourage self-testing even when kits are available.

Other related and relevant factors that influence the utilisation of self-testing include inadequate information and knowledge gaps (Mhango et al., 2022). It is quite concerning that many drivers may not have adequate knowledge about self-testing, starting from the locations where these kits can be purchased to how one should conduct the test correctly to how one should interpret the results if they are positive and what they should do next. This knowledge gap is a limitation given that drivers show limited use of self-test kits or regular HIV testing if

they have not been provided sufficient information (West et al., 2023). It has been suggested that simply giving truck drivers better information and more practical advice about where they might obtain these kits could help to increase self-testing demand, although existing awareness campaigns may not always reach this frequently moving population effectively.

Research conducted among heterosexual men established that prior to the study, the majority of this population knew little to nothing about self-testing. Even after learning about it, many older men continued to favour traditional HIV testing because they had more faith in medical professionals. Notwithstanding the structural obstacles and social stigma surrounding HIV testing, HIVST has proven to be efficacious in surmounting these barriers, as evidenced by the widespread adoption of this approach among younger heterosexual males (Tan et al., 2021).

As with other countries, the potential for HIVST kits is huge. The cost of HIV is however high. The cost of HIVST kits is an essential aspect that determines availability and utilisation since a considerable number of the target population are from low-resource settings. Research shows that kits costs differ depending on the area and the procurement model i.e., from low as $2 to as high as $28 per item in SSA (d'Elbée et al., 2021; Wong et al., 2019). Likely barriers to uptake that have been identified include the high cost of kits, purchase and use particularly among those living in resource-constrained environments (Aizobu et al., 2023; Mangenah et al., 2019; Ndungu et al., 2023). Spot checks on prices of HIVST kits in Eldoret Town and online retail stores were established to be ranging between Ksh. 200 to Ksh. 1500. Even for these relatively low costs, purchase and usage can remain out of reach for low-income groups like beginner drivers. In addition, out-of-pocket costs are a further hindrance to the uptake of HIVST by people who might benefit most by using the kits but cannot afford them without assistance from their governments (Aizobu et al., 2023). Subsidising the costs of the kits or

coming up with better financing models and policies including public private partnerships may ensure higher ratio of self-testing is achieved.

2.5 Behavioral Factors Influencing HIV Testing

Truck drivers are among the major populations targeted by HIV prevention services due to the assumed elevated vulnerability to risky sexual behaviour and substance use caused by work-related factors that make them stay away for long periods at a time. The main behavioural factors that may affect self-testing behaviour among truck drivers are therefore multifaceted and complex.

The mobility of long-distance truck drivers elevates the risk of their indulging in risky sexual activities. According to a Nigerian study, a significant portion of truck drivers engaged in such behaviour, putting them at risk for HIV infection i.e., 38.6% of respondents said they had several sex partners in the previous six months, while 34% admitted to having sex with commercial sex workers. Intravenous drug usage was reported by 7.4 %, with more than two-thirds of the truckers reporting interest in HIVST (Adeoti et al., 2021). Similarly, a research done in India established that a paltry 7 per cent were knowledgeable on HIV/AIDS subjects. More than half (54%) had sexed with a high-risk partner, and 38% had irregular condom usage (Pundhir et al., 2021). Another Indian study found that a large proportion of truckers and their assistants had sexual contact with commercial sex workers, with 30% of drivers and 50% of their assistants not using condoms (Sawal et al., 2016).

Truckers often suffer from specific social isolation and heavy pressure and often suffer from drug and alcohol dependency. Tobacco, alcohol, and substance use alter the ability to reason and think through decisions predisposing them to risky sexual behaviours and HIV infection (Pachauri et al., 2022). People who misuse drugs may not be consistent with self-care

behaviours and have lower appraised self-care, which poses a problem for self-testing interventions (Dolezal et al., 2020) hence, substance abuse may impede self-testing utilisation.

Due to their nomadic lifestyle, truck drivers frequently have several sexual partners, which is a well-known HIV-risky behaviour (Delany-Moretlwe et al., 2014; Dobra et al., 2017; Sileo et al., 2018). HIVST is very useful for those who often change their partners, as it can be done on one's initiative without having to physically visit health facilities. Studies indicate that individuals who have many partners will tend to use self-testing because of privacy reasons even though some will opt out of testing due to the reason of fear of a positive result or repercussions from their partners (Maman et al., 2017).

Pre-existing perceptions of HIV testing including perceived stigma and discrimination from healthcare givers may greatly influence those patients from engaging in future testing. HIVST is an okay solution for truck drivers for instance, as it does not require face-to-face interaction and they can test on their terms (Mulubale et al., 2022). Such perceptions are wrong since those who have had ugly or embarrassing experiences with the HIV test are more open to self-testing since no such negative things about the place are experienced. Implementing the above past experiences through the private HIVST will help boost testing among this population.

One's decision to get tested for HIV may be affected by how susceptible they feel to becoming infected with HIV. Many truck drivers consider themselves at risk of infection owing to reasons such as having long working hours, travelling frequently and partaking in risky sexual practices concerning transmission of the virus (Sileo et al., 2018). These beliefs could persuade truck drivers to use HIVST. Notwithstanding, some truckers may misjudge their susceptibility to HIV disease because of the absence of information or misinterpretations about HIV transmission. Hence, they rarely engage in HIV testing services that include HIVST.

The level of health literacy has a positive correlation with health behaviours (Sharifirad et al., 2012; Sørensen et al., 2012). Whenever people have adequate information about a particular disease, they are in a better position to protect themselves against the disease as well as opt for tests on their own (Nubed & Akoachere, 2016; Walter & Morocho, 2021). Pertaining to HIV, investigations show that enhanced HIV knowledge enhances testing likelihood (Okumu et al., 2017).

2.6 Preferences of HIV Testing among various populations

HIVST kits are classified into two types: oral and blood-based. Both provide the same level of precision. Oral tests, such as OraQuick, utilize saliva as the specimen, while blood-based kits use blood from a finger prick as the specimen. Based on research conducted on heterogeneous populations utilizing oral HIVST kits, the primary factors motivating individuals to engage in self-testing are the simplicity in the use and non-invasiveness of the oral-based kit, as well as the resulting cost and time savings, autonomy over the testing process, and the assurance of privacy and confidentiality (Mantell et al., 2022).

Another study found that an oral swab test was the most preferred at 69.9 per cent compared to blood rapid tests at 30.6 per cent, and provider-administered HIV testing over HIVST (Kelvin et al., 2021). The ability to self-test was the main reason for choosing oral test kits (Kelvin et al., 2021). In Nigerian research, young individuals shunned facility-based testing over oral HIV testing (Obiezu-Umeh et al., 2021). Oral-based kits were highly preferred compared to blood-based kits, based on research findings from both Malawi and Zimbabwe (Kumwenda et al., 2021; Mavhu et al., 2022). However, Malaysia's MSM chose fingerstick HIVST kits for oral swab testing (Shrestha et al., 2020).

Research conducted in Tanzania on male porters compared to the general male population showed a preference for venepuncture over oral swabs or finger-prick. However, weekend testing was the most preferred time for both groups. The same study also found that female sex workers preferred venepuncture over oral swab or fingerpick with distance to testing being the most important driver (Ostermann et al., 2015).

According to research, the placement of HIVST among truck drivers can significantly affect both its adoption and efficacy. For instance, Kenyan research discovered that encouraging HIV testing among truck drivers at roadside health clinics and truck stops improved their uptake (Chanda et al., 2017). Providing HIVST at truck stops and checkpoints improved testing uptake, particularly among people who had never been tested previously, according to South African research (Maman et al., 2017).

According to a study of Kenyan long-distance vehicle drivers, 49.7 per cent of drivers favoured testing alone, while 52.1% preferred testing with a companion (Kelvin et al., 2021). The majority of hard-to-reach groups, according to this research, prefer to do HIV self-tests alone, while some people may decide to discuss the results with friends and sexual partners (Kelvin et al., 2021).

Research conducted in Kenya found that just 8.5% of truck drivers used an at-home HIV test kit, whereas 64.6% opted for directly assisted HIV testing in a clinic, and 26.9% opted for traditional testing techniques (Kelvin et al., 2017). Using self-test kits, a similar study revealed that 66% of pharmacy customers chose home testing whereas 34% tested at the drugstore when using self-test kits (Mugo et al., 2017). In a survey conducted in seven sizable Kenyan hospitals, 85 per cent of the healthcare professionals in Kenya accepted unsupervised HIVST (Kalibala et al., 2014).

There is not much research on when truck drivers do HIV self-tests. However, just like with other populations, truck drivers may choose when to perform HIVST based on circumstances. Truck drivers may prefer to use HIVST at night or in the evening when they have more privacy and are less likely to be interrupted. This may be especially important for truck drivers who work long hours on the road and have limited daytime access to medical care.

2.7 Theoretical Framework

Individual determinants of health-seeking behaviour have been underlined by social models including the Theory of Planned Behaviour (TPB) and The Health Belief Model (HBM) (Ajzen, 1985; Rosenstock, 1974).

Developed by Icek Ajzen, TPB explains one's beliefs and behaviour. In fact, it has the proposition that intention to behave in a particular way serves as the finest forecaster of behaviour of that individual. It says that intention is influenced by three things namely perceived behavioural control, attitude and subject norms. This theory informs the current study in understanding the multiple factors that may influence the utilization of HIVST. Various studies have utilized TPB to understand HIVST among various critical groups (Lau et al., 2021; Mo et al., 2019; Njau et al., 2020).

Even though HBM inception was in 1950 and is one of the older models used to predict and explain health-seeking behaviours like HIVST, it is still useful today, hence its adoption in this study (Rosenstock, 1974b; Rosenstock et al., 1988). For example, HIVST enhances one's need to keep themselves negative. These factors are then related to other testing preferences, such as the type of test such as HIVST vs health provider testing, location and time of HIV testing. HBM has six concepts, namely, perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action and self-efficacy. To put this in context, HBM

theorizes that long-distance truck driver are likely to take action on their health if: they think they could get HIV; the motivation factors are evident such as stigma avoidance, convenience and privacy accorded by HIVST; the benefits of HIVST is beneficial to them while the demerits are less such as preventing infections and cost of the kits respectively; all the above triggers encourage HIVST action. In the HIV and HIVST context, HBM has been utilized in various studies to predict health-seeking behaviours (Ayosanmi et al., 2020; Buldeo & Gilbert, 2015; Lapsley et al., 2020; Zhang et al., 2023).

Demographic factors of the truckers such as age, gender and country of origin form an integral part of the factors which influence HIVST. Behavioural factors which increase the risk perception among truck drivers, such as sexual partners number and drug use are important concepts in the uptake of HIV tests. These factors are more closely related to testing decision-making with a likelihood to mediate relationships between interpersonal and extra-personal factors and may be modifiable. The main focus of this study is on how HIV self-testing is linked to these other things.

2.8 Conceptual Framework

The study's conceptual framework is illustrated in Figure *2. 1*. The study aimed to find out how often HIVST was used and what factors were linked to it among long-distance users by comparing unrelated variables like social and demographic factors and how people act. The dependent variable was HIVST utilization.

Demographic factors comprising gender, age, level of education, religion, income marital status, country of origin and length of driving were studied. Behavioural factors comprising drug and alcohol abuse, number of sexual partners, risky sexual behaviours, perception towards HIV susceptibility, time spent on the highway, previous HIV test experiences and level and

source of HIVST information formed part of the independent variables. The association of these factors with HIVST was tested by the use of various statistical tools.

The type of HIVST kit preferred, testing location, testing with/without a partner and preferred time of testing sought to establish the preferences associated with HIV self-testing. However, intervening factors in this study, such as government awareness programs and policies and external donor influence had an indirect effect on HIVST but were not studied.

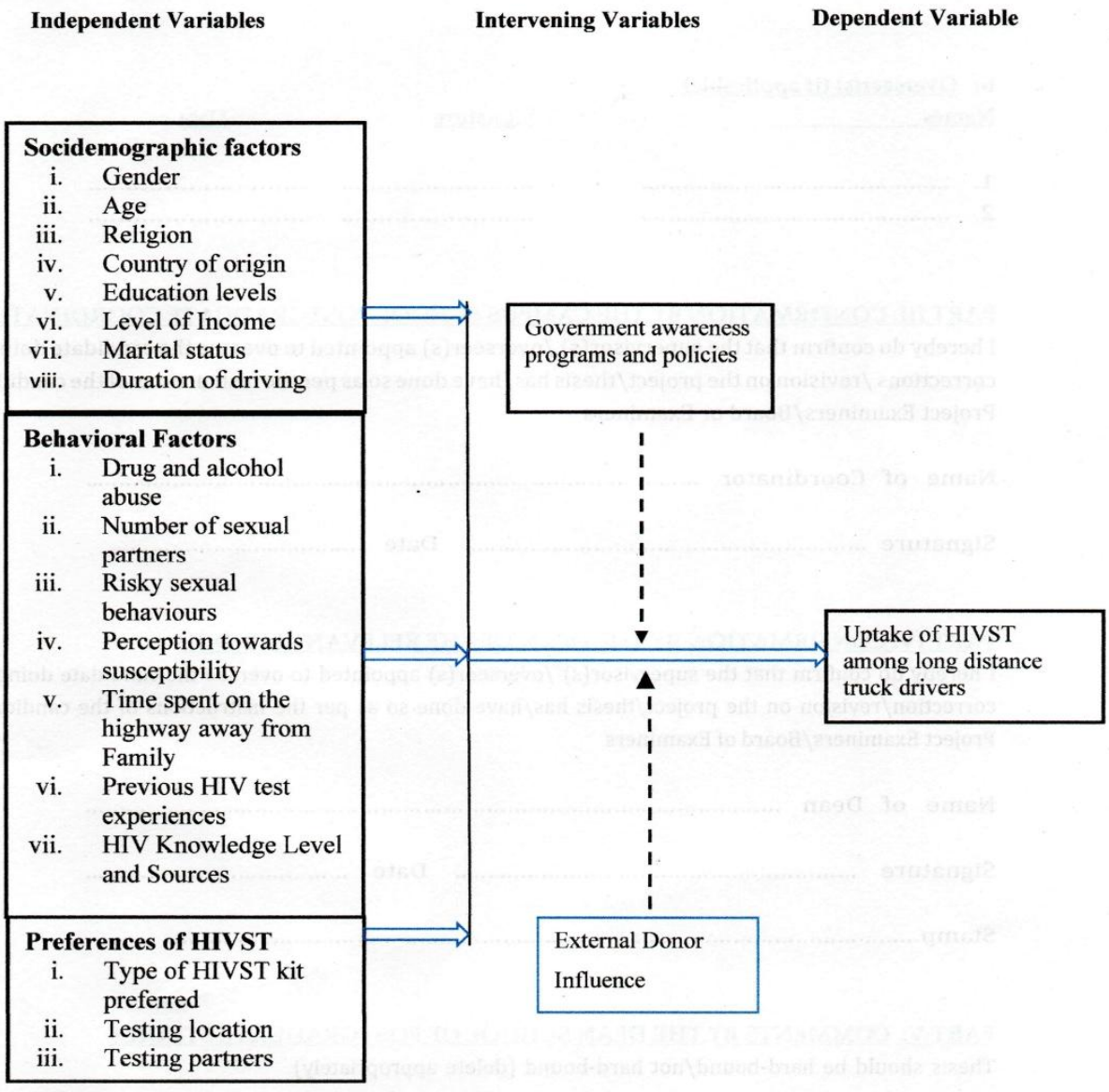

Figure 2. 1 Conceptual framework

2.9 Summary of Literature Review

HIVST was introduced by the WHO in an attempt to expand the coverage of testing in key populations such as truckers. This merged literature compiles current studies regarding the extent of HIVST implementation and the sociodemographic and behavioural determinants for using HIVST among truck drivers.

The literature suggests that HIVST uptake among key populations varies greatly. It varies from 15.6% to 97.7 % according to different studies. Challenges in its uptake include uncertainty about kit accuracy, anxiety and denial of results, unfamiliarity with HIVST, high costs of the kits, stigma, and limited access to testing facilities.

Extensive literature on factors of HIV testing among different population groups has also revealed strong relationships between testing and factors such as age, education, stigma, gender, health literacy and perceptions towards being infected. Literature from across the world and specific to selected SSA highlights influential factors relating to HIV testing behaviours. Such studies determined the demographic factors, privacy and convenience, and self-efficacy to be the factors that affect the use of HIVST on such target groups as truck drivers. HIV self-testing is more private, and faster and can be taken at the convenience of the individual about their health decisions.

Both HIV oral and blood self-testing kits have the same accuracy overall and several benefits such as convenience, confidentiality, and the possibility to take the test alone. Prior research indicates that diverse populations favour oral kits as compared to blood-based kits. For instance, in Nigeria, young people favour oral testing. However, in Malaysia, MSM prefers fingerstick kits. Individuals differ in their choices depending on the testing style, manner, and time.

CHAPTER THREE: MATERIALS AND METHODS

3.1 Introduction

The methodological approach of the study encompasses the study's design, location, target demographic, sample size calculation procedures and the research validity and reliability. It also discusses data collection methods and processes, data processing methodologies, and ethical issues observed throughout the research process.

3.2 Research design

To capture data on HIV self-testing usage and its associated factors at a single point in time, the study utilized a cross-sectional study design that enabled the collection of a broad snapshot of relevant behaviours and characteristics. This approach supported the comparison of key variables and was chosen for its practicality and cost-effectiveness.

3.3 Study Variables

The study aimed to assess the uptake and factors associated with HIVST among LTDs. The uptake of HIVST formed the dependent variable measured as a binary outcome, while sociodemographic factors, behavioural factors and testing preferences were considered as independent variables.

Sociodemographic factors studied included gender, age, level of education, religion, income, marital status, country of origin and length of driving. Behavioural factors included drug and alcohol abuse, number of sexual partners, risky sexual behaviours, perception towards HIV susceptibility, time spent on the highway, previous HIV test experiences and source and level of HIVST knowledge. HIVST preferences variables included the type of HIVST kit preferred, testing location, testing with/without a partner and preferred testing times.

3.4 Location of the study

This study was done along the Uganda Road or A104 Highway in Uasin Gishu County. A104 is a major highway. It is the largest in East Africa stretching from Nairobi to Naivasha to Nakuru through Eldoret and Bungoma towns to Malaba Border Post. It is a major transit for truck drivers to Uganda, Rwanda, Burundi and to Southern Sudan. It traverses Uasin Gishu County starting from Timboroa Town through Eldoret Town to Turbo Town.

The study was carried out at Turbo-Juakali, Roadblock and Burnt Forest truck parking stages as shown in Appendix 7. Burnt Forest is a town centre located on the South side of Eldoret, along the Nakuru-Eldoret Highway approximately 37 kilometres from Eldoret Town. Its longitude is 35.25765 while latitude is 0.50765. Turbo, also in Uasin Gishu County, is located northwest of Eldoret approximately 35 kilometres. Its latitude is 0.633948 while its longitude is 35.048561. Roadblock is located approximately 7.4 kilometres from Eldoret town centre. Its latitude is 0.54850556 while its longitude is 35.24504187. These towns are favourite stop and rest points because of the availability of accommodation, parking and other amenities aside from entertainment joints and female sexual workers.

3.5 Target population

Long-distance truck drivers along the Uganda Road in Uasin Gishu County who spoke Kiswahili and/or English were the intended target group.

3.5.1 Inclusion Criteria

- All long-distance truck drivers who were aged 18 years and above.
- Those who consented and agreed to participate volunteerely in the study

3.5.2 Exclusion Criteria

- Long-distance truck drivers with mental health issues (the mentally unstable) and those who declined to participate in the research, were excluded

3.6 Sample Size Determination

To ensure representativeness of the sample, Cochran's formula was adopted: $n = \frac{z^2.p.q}{e^2}$, (Cochran, 1977)

Where:

n = represents the initial desired sample size

z = the value confidence level of 1.96 (95%) in the normal distribution table.

p = Proportion of truck drivers who chose HIVST from previous studies =0.731 (Kelvin et al., 2017).

q = 1 – p

e = the margin error accepted (0.05)

Hence,

$$n = \frac{1.96^2 X 0.731 X 0.269}{0.05^2}$$

= 302 long-distance truck drivers

Cochran's adjustment formula for finite populations was utilized to significantly lower the sample size, as this was a small population under 50,000 illustrated below;

$$n_1 = \frac{n}{1 + \left(\frac{n}{N}\right)}$$

Where:

- n_1 = represents the adjusted sample size for a finite population.
- n = 302 (denotes the initial sample size calculated using Cochran's formula)
- N =2380 (The estimated population size of truck drivers during the study period.)

The estimated population size of truck drivers **N** was derived from the average parked trucks in all the parking points (170) multiplied by the average transit cycle (14 days) as follows;

$$N = 170 \times 14 = 2380$$

Hence,

$$n_1 = \frac{268}{1 + \left(\frac{268}{2380}\right)}$$

= 268 long-distance truck drivers

Accounting for an anticipated non-response rate of 10%, the final sample size was adjusted to 295 long-distance truck drivers, calculated as 268 + (268 × 0.10).

3.7 Sampling procedures and techniques

Research was carried out in Burnt Forest Town, Roadblock Town and Turbo-Jua Kali Town long-distance truck parking points. Due to the mobility and varying availability of the long-distance truck drivers, a combination of stratified sampling and systematic random sampling was employed to obtain a representative sample.

Stratified sampling with the parking points as the strata was used to establish the number of respondents to be interviewed per strata, as shown in Table 2. 1 below. Out of 170 total

available parking spots in the three towns, 23.5% were in Burnt Forest Town, 35.3% in Roadblock Town, and 41.1% in Turbo-Jua Kali Town. Based on proportionate sampling, the sampling units comprised 70 in Burnt Forest Town, 104 in Roadblock Town, and 121 in Turbo-Jua Kali Town. This ensured that the proportion of respondents from each parking point reflected the relative size and population density of the drivers at each site.

Table 2. 1

Population Strata Calculation Per Town

Parking points available per town	**Trailers parked per day (N)**	**Proportion (N/170)**	**Sample size per parking point**
Burnt Forest	40	0.235	70
Roadblock	60	0.353	104
Turbo-Jua Kali	70	0.411	121
Total	**170**	**1**	**295**

To recruit the truck drivers, systematic random sampling was used. The n^{th} selection interval was determined by dividing the overall number of eligible truck drivers by the necessary sample size i.e., 2380/295 = 8.06. Hence, the n^{th} value was established to be 8. In cases where trucks were parked in an orderly manner, every 8^{th} truck driver was selected based on the systematic count. Where the trucks were not parked in an orderly manner, trucks were counted, and every eighth driver was chosen based on the driver's availability in the parking area. Data collection was done from 7 am to 6 pm, maximising the availability of truck drivers.

3.8 Research instruments

A questionnaire designed specifically for the study and delivered by the researcher and research assistants was used to collect data. The questionnaire was divided into three sections: demographics, behavioural characteristics, and HIVST preferences.

In order to measure HIV-related knowledge tailored to the needs of truck drivers, ten questions were adopted and modified from the HIV Knowledge Questionnaire-18 (HIV-KQ-18) developed by Carey and Schroder (Carey & Schroder, 2002). These 10 items, which focus on HIV transmission, prevention, and consequences of AIDS, were formatted as "Yes" or "No" questions. Scoring was done where “Yes” was given a 1 and “No” a 0, resulting in a possible score range of 0 to 10. The scores were divided into three knowledge levels, which are poor (scores of 0-4), average (scores of 5-7), and excellent (scores of 8-10).

Participants’ perception of their risk of HIV infection was evaluated using the Perceived Risk of HIV Scale (PRHS), a standardized and psychometrically validated questionnaire originally developed by Napper and colleagues (Napper et al., 2011). It is an eight-item tool which addresses sexual behaviours and attitudes related to HIV risk. The vulnerability to HIV perspective of the drivers was assessed by adding their responses across the eight items, which were graded using a five-point agreement scale. This generated total scores of 8-40, with 8 representing an extremely low perceived risk and 40 representing an extremely high sense of personal risk. To facilitate analysis, total scores were collapsed into three perceived risk levels, including low (scores of 8 to 18), moderate (scores of 19 to 29), and high (scores of 30 to 40). This classification facilitated the stratification of the participants according to their subjective measure of HIV risk, which is a major element in determining the behavioural outcome and subsequent targeted intervention.

3.9 Testing for validity and reliability/trustworthiness

A questionnaire was developed to guarantee consistent outcomes. Reliability was assured by selecting and training research assistants, involving them in the pilot study in the parking stage area before the main study to pretest the data collection tools.

The pilot study was conducted at the Cheptiret parking stage located in Cheptiret Trading Centre along the Nakuru-Eldoret Highway, approximately 23.3 kilometres South-East of Eldoret Town. Twenty-seven questionnaires were administered on a convenience basis during the pilot study. Cronbach's alpha coefficient for sociodemographic, behavioral and HIVST preference sections was 0.733, 0.85 and 0.81 respectively. The summary of validity and reliability is shown in Table 2. 2 below.

Table 2. 2

Validity and Reliability Testing Results

Validity/Reliability	Method Used	Description	Result/Indicator
Face Validity	Pilot Testing	Conducted with 27 drivers for clarity assessment	Clear and understandable
Internal Consistency - Sociodemographic Factors	Cronbach's Alpha	Sociodemographic factors' reliability	$\alpha = 0.733$ (acceptable)
Internal Consistency - Behavioural Factors	Cronbach's Alpha	Behavioural factors' reliability	$\alpha = 0.85$ (good)
Internal Consistency - HIVST Preference	Cronbach's Alpha	HIVST preference reliability	$\alpha = 0.81$ (good)

Data on demographic factors, behavioural factors and testing preferences among truck drivers were collected by use of a questionnaire coded into KoboToolbox. Analysis was done and all the discrepancies and gaps were corrected. Completed questionnaires were verified daily, and any inaccuracies in the questionnaires were addressed before data collection began.

3.10 Data collection methods and procedures

Data collection was done using a questionnaire formulated by the researcher and captured in KoboToolbox from different study sites. Verification and conciliations were done continuously to ensure the high quality was captured. The language of instruction used was English and /or Kiswahili, as this was understood locally and within the East-African region. Translation of the questions from English to Kiswahili was done verbatim during the on-site administration of the questionnaire by bilingual research assistants trained in administering the questionnaire. This ensured the accuracy and appropriateness of on-site Kiswahili translations. A consent form was signed by the respondents before filling out the questionnaire. Errors and missing data were checked before the drivers left to ensure completeness.

3.11 Data analysis techniques and procedures

Data downloaded from the KoboToolbox was imported to SPSS version 28 for coding and cleaning. Out-of-range and missing data values were cleaned and validated. Continuous variables were presented as means. Quantitative data was analysed using frequencies, and percentages. Data was presented using graphs and tables.

At 95% confidence, a bivariate analysis was performed using the Chi-square test. A contingency table was used to compare long-distance truckers who had used HIV testing and those who had not against other variables such as demographic and behavioural factors. The association was established, with a significant p-value of <0.05. To adjust for the impact of other variables, all statistically significant variables were subjected to multivariate logistic analysis using a generalised linear model. All logistic regression factors with a p-value of <0.05 were identified as true predictors of HIVST among long-distance truck drivers.

3.12 Ethical considerations

Participants were recruited willingly after being given a full description of the research goal upon initial contact. A typed consent form was issued to the participants explaining clearly the benefits accrued from participating and their freedom to decline participation anytime they wished without any repercussions. One copy of the consent was retained while the respondent was issued the second copy. Confidentiality of the information was safeguarded by not using any identifiers on the questionnaire.

The Institutional Research Ethics Committee of Mount Kenya University (MKU IREC) approved the research before data collection (MKU/ISERC/2917) as number 1961 as shown in Appendix 5. Authorisation was also obtained from the National Commission for Science, Technology and Innovation (NACOSTI), under license number NACOSTI/P/23/27627 as shown in Appendix 6.

CHAPTER FOUR: RESEARCH FINDINGS AND DISCUSSIONS

4.0 Introduction

This chapter presents the research findings and discussions. It documents the sociodemographic characteristics of the truck drivers, the uptake of HIVST among truck drivers, the demographic and behavioural factors associated with HIVST, and preferences of HIVST among truck drivers.

4.1 Response Rate

The number of validated questionnaires selected to participate in the analysis totaled 287. This was a 97.2 percent response rate.

4.2 Sociodemographic Characteristics

The sociodemographic information of the truck drivers is provided in Table 4.1 below.

The truck drivers' average age, monthly wage, and driving duration were 38.7 years, Ksh. 29,750.9, and 11.9 years, respectively. The oldest truck driver was 66, while the youngest was 19. The highest-paid driver received Ksh. 50,000, and the lowest paid earned Ksh. 3,000. This shows a huge variability in age and pay grade among truck drivers. The most experienced truck driver had driven trucks for 43 years, while the least experienced had driven trucks for only one year. Male truck drivers (98.6%, n=283) outnumbered females (1.4%, n=4). This indicates that truck driving remains a male-dominated profession. Other studies have found this to be a trend (Sicard, 2012). One study in the USA established that female truck drivers comprised 3.2% (Scott & Davis-Sramek, 2023). This underrepresentation of women in this profession could be driven by factors such as long hours on the road, physical needs of the job, and a lack of women serving as role models. Table 4. 1 below summarises the sociodemographic characteristics;

Table 4. 1

Sociodemographic Characteristics of Long-Distance Truck Drivers

Variable	Frequency (n)	Percentage (%)
Gender		
Male	283	98.6
Female	4	1.4
Age (Years)		
18-24	19	6.6
25-34	94	32.8
35-44	91	31.7
45-54	66	23.0
Over 54	17	5.9
Mean ± SD	38.7 ± 9.6	
Education Level		
None	4	1.4
Primary	127	44.3
Secondary	136	47.4
Tertiary	20	7.0
Religion		
Christian	186	64.8
Muslims	97	33.8
Unaffiliated/Other	4	1.4
Marital Status		
Single	47	16.4
Married	234	81.5
Previously married	6	2.1
Salary (Ksh)		
≤20,000	57	19.9
20,001-40,000	203	70.7
≥40,000	27	9.4
Country of Origin		
DRC	4	1.4
Kenya	237	82.6
Rwanda	4	1.4
Sudan	1	0.3
Tanzania	22	7.7
Uganda	19	6.6
Driving Experience	86	30.0
0-5	55	19.2
6-10	65	22.6
11-15	81	28.2
Over 15		

Note. SD is standard deviation. KSh. Is Kenyan Shillings

4.3 Uptake of HIVST

Although 69.7% of the truck drivers were aware of HIVST, only 35.5 per cent reported having ever utilized HIVST as a form of HIV testing as shown in Figure 4. 1 below.

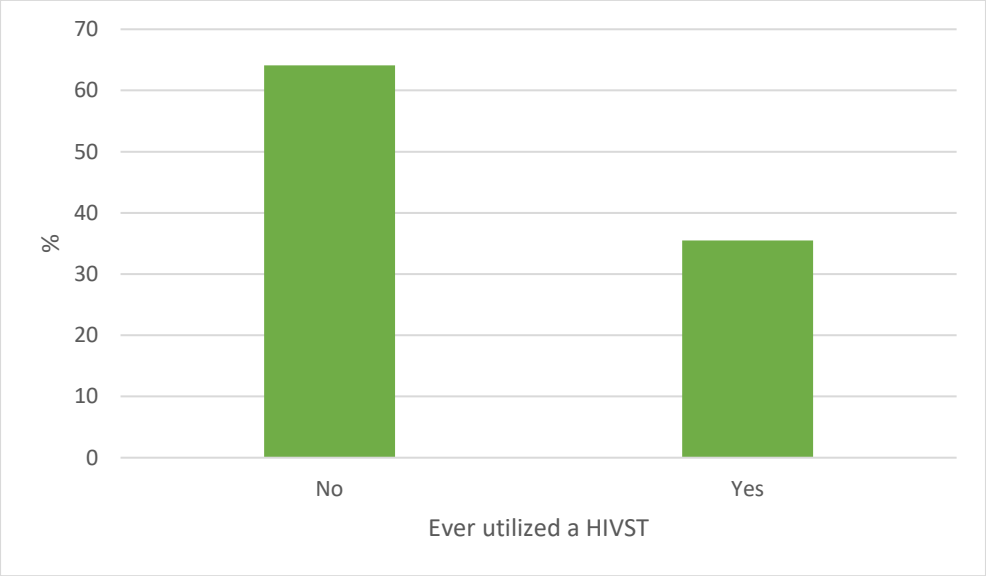

Figure 4. 1 Uptake of HIVST

The current study found that the uptake of HIVST was surprisingly low given the high awareness of its existence. This is comparatively low compared to similar studies (Eskezia et al., 2023; Mokgatle & Madiba, 2017; Yang et al., 2022). Nonetheless, it is higher than a study conducted in Kenya which showed that despite 78.6% of young adults having ever heard of HIVST, only 25.2% had ever used it (West et al., 2023). This considerable gap between awareness and practice implies that while many truck drivers may know the existence of self-testing, they are unable to utilise the services.

Hindrances cited among those aware of HIVST included insufficient knowledge on the use of the kits (47.2%, n=102), anxiety based on outcome (42.6%, n=92), self-harm potential (36.6%,

n=79) and high costs (35.6%, n=77). Others included absence of pre-testing and post-testing counselling services (32.4%, n=70) and accuracy concerns of the kits (17.6%, n=38). The outcomes of the perceived obstacles to the implementation of HIVST are consistent with previous articles, which affirm that some hindrances include the high cost of the kits (Aizobu et al., 2023; Ndungu et al., 2023), discomfort, anxiety, fear and denial of positive test results (Indravudh et al., 2017; Ngangue et al., 2017). Others noted anxiety, fear and denial of test results (Indravudh et al., 2017; Ngangue et al., 2017), lack of counselling before and after the self-test (Hlongwa et al., 2020; Qiao et al., 2018) and accuracy concerns about the kits (Aizobu et al., 2023; Sarkar et al., 2016) as impediments. Subsequent efforts for scaling up HIVST should consider these barriers while elucidating the main advantages of self-testing, including access, privacy, and timely results. It is possible that raising awareness about HIVST ease and significance could reduce the gap between awareness and actions.

The main reasons for the use of HIVST cited included convenience (81.2 %, n=82), need for privacy (73.3 %, n=74, need for self-care (47.5%, n=48) and the accessibility of the kits (36.6%, n=37). Others included ease of use of the kits (27.8%, n=28), tight driving time schedules (26.7%, n=27) and stigma associated with conventional methods (16.8%, n=17). This coincides with research among comparable groups of the population that identified perceived advantages of HIVST as privacy and confidentiality (Johnson et al., 2014, 2017; Mantell et al., 2022), convenience (Johnson et al., 2017; Tan et al., 2021), discrimination and reduced stigma (Bogart et al., 2021; Makusha et al., 2015; Obiezu-Umeh et al., 2021).

The willingness to use HIVST among those who had never utilized HIVST stood at 63.3 per cent. The majority of truck drivers (89.5 %, n=257) reported having ever tested for HIV in the past compared to 10.5% (n=30) who had never tested for HIV. Although this falls below the 95-95-95 targets by UNAIDS which emphasizes the importance of early detection, access to

treatment, and viral suppression, it still represents a relatively high rate of HIV testing among truck drivers (UNAIDS, 2019). Comparatively, this is high compared to earlier studies done in South Africa, Togo, and Zambia which found that 38.2%, 47.4%, and 83 % of truck drivers, respectively (Delany-Moretlwe et al., 2014; Yaya et al., 2016). Although the present study does not meet the 95-95-95 objectives, there has been considerable success in HIV testing among truck drivers, as seen by the comparatively high prevalence of HIV testing among this cohort when compared to earlier surveys.

4.4 Factors Associated with HIVST

4.4.1 Bivariate Analysis of Sociodemographic Factors Associated with HIVST

Appendix 9 shows a bivariate analysis of sociodemographic factors associated with HIVST.

On bivariate analysis, the level of education (χ^2=8.681, df=3, p =0.034) and the duration of driving long-distance trucks (χ^2=1.649, df=3, p =0.009) were statistically significant ($p<0.05$) and hence entered into multivariate regression analysis. However, age (χ^2=8.202, df=0.084, p=0.084), gender (χ^2=2.757, df=1, p=0.097), religion (χ^2=5.167, df=2, p=0.076), salary (χ^2=, df=, p=0.065), marital status (χ^2=3.670, df=2, p=0.160), and country of origin (χ^2=1.737, df=5, p=0.884) were not statistically insignificant.

Previous research has pointed out that age is a major factor in HIVST, which is not the case in this study. Adugna & Worku (2022) and Ndungu et al., (2023) discovered that different aspects, including age, affected HIV testing among East African men. More risky sex is often reported by young truck drivers, which may encourage them to have self-testing (Delany-Moretlwe et al., 2014; Pachauri et al., 2022). Results from South Africa, Uganda and Zambia (Izizag et al., 2018; Matovu et al., 2020; Mutale et al., 2018) point out the fact that there was an increased

likelihood of self-testing among the younger population, even though the study in Zambia did not show a clear age-related difference.

While gender and marital status did not have a statistically significant effect, earlier research has shown that they influence HIVST (Adugna & Worku, 2022; Kalibala et al., 2014). Both single people and females tended to opt for HIVST because they perceived risk more strongly and valued being inconspicuous (Kalibala et al., 2014). Some married truck drivers might think they are less at risk and less likely to be tested since their behaviour is monogamous (Musheke et al., 2013). In regions where strict social norms are found, privacy is important to many people, thus, they tend to use self-test more often (Harichund et al., 2019).

Though not statistically significant, salary showed a borderline association with HIVST uptake. Previous work shows that having enough money greatly affects a person's option to use HIVST kits. If free HIVST kits are not provided to drivers, their utilization remain largely limited to those with the financial means to acquire (Delany-Moretlwe et al., 2014; Mwangi et al., 2022). Similarly, because lower-income drivers often have less money, they may not self-test even when they know how crucial it is (Mujwara et al., 2024).

No significant relationship was found between country of origin and HIVST uptake. However, existing studies point out that people's perceptions of HIV, the quality of healthcare and HIV education programs affect who decides to get tested (Boakye et al., 2024; Matovu et al., 2023). National programs, free test kits and opinions about HIV screenings differ widely among countries and might have obscured real differences in the truck drives.

The finding that religion has a nearly significant relationship agrees with studies that discuss how religion can both positively and negatively influence a person's decision to undergo HIV testing. In some traditional religious environments, calling HIV a sinful condition may make

individuals less willing to test (Kang et al., 2020; Pfeiffer et al., 2018). Instead, the option of confidential HIV screening through HIVST helps to prevent the stigma that often affects clients. Religious officials have also successfully propelled the use of HIVST among groups facing stigma (Ochillo et al., 2017; Sundararajan et al., 2022).

4.4.2 Bivariate Analysis of Behavioural Factors Associated with HIVST

Appendix 10 Appendix 10: Bivariate Analysis of Behavioural Factors Associated With Hpresents a bivariate analysis of the behavioural factors associated with HIVST.

Significant behavioural factors established in the bivariate analysis included having had sexual intercourse along the highway in the past 6 months (χ^2=5.198, *df*=1, *p*=0.023), level of HIV knowledge (χ^2=12.539, *df*=2, *p*=0.002) and perceived risk of infection (χ^2=12.274, *df*=2, *p*=0.002) hence were entered into multivariate regression analysis.

Substance use (χ^2=2.481, *df*=1, *p*=0.115), time spent on the highway away from family (χ^2=0.341, *df*=1, *p*=0.559), number of sexual partners along the highway (χ^2=3.954, *df*=3, *p*=0.266), previous HIV test experiences (χ^2=1.091, *df*=1, *p*=0.296), protection/condom use within the last 1 year (χ^2=0.258, *df*=1, *p*=0.611) and STD infection on highways (χ^2=3.752, *df*=1, *p*=0.053) were statistically insignificant.

While this study didn't find a strong statistical link between HIV self-testing and behaviors like substance use, time spent away from family, or having multiple sexual partners, earlier research suggests these factors still matter. Using drugs has been related to acts of unprotected sex and not frequenting HIV testing (Harichund et al., 2019; Musheke et al., 2013). Spending long periods away from home often results in truck drivers feeling lonely and risk-taking, but access to HIVST might help balance that out (Greenfield et al., 2016). Similarly, having many partners along the transport corridors often goes along with a higher risk of testing (Izizag et al., 2018).

Previous experience with HIV testing didn't seem to influence self-testing much either, which could mean other issues, like stigma or limited access, are playing a bigger role (Choko et al., 2015). The lack of association with condom use might be because those who use protection feel safe, while those who don't may avoid testing out of fear or denial (Tan et al., 2021). Interestingly, past STD infections were just shy of showing a significant link to self-testing (p=0.053), hinting that those who've had STDs might be more motivated to test privately. Even if the numbers weren't statistically significant, these factors still align with what we know from other studies and shouldn't be overlooked. For truck drivers—constantly on the move and often at higher risk—understanding these subtle influences can help shape better, more tailored HIV testing approaches (Delany-Moretlwe et al., 2014; Johnson et al., 2017; Makusha et al., 2015; Mantell et al., 2022; Obiezu-Umeh et al., 2021).

4.4.3 Multivariable Analysis of Sociodemographic and Behavioural Factors Associated with HIVST

Table 4. 2 below shows the multivariable analysis of factors associated with HIVST among long-distance truck drivers.

Table 4. 2

Multivariable Analysis of Sociodemographic and Behavioural Factors Associated with HIVST

Variable	Odds Ratio (OR)	95% CI Lower	95% CI Upper	*p*-value	β coefficient
Education Level					
None	1		Ref		
Primary	1.5	0.1	35.0	0.738	0.405
Secondary	1.6	0.1	36.6	0.716	0.470
Tertiary	5.2	0.4	133.3	0.223	1.649
Duration of Driving Trucks (Years)	1		Ref		
0-5	3.0	1.3	6.9	0.008	1.099
6-10				*	
11-15	2.0	0.9	4.4	0.101	0.693

Over 15	1.3	0.6	2.8	0.521	0.262
Sexual activity along the highway					
No, in the last 6 months	1		Ref		
Yes, in the last 6 months	0.927	0.5	1.9	0.831	-0.076
HIV knowledge					
Poor	1		Ref		
Average	11.7	2.2	217.4	0.021*	2.460
Excellent	28.3	5.1	536.7	0.002*	3.343
Perception of being infected with HIV					
Low risk	1		Ref		
Moderate Risk	4.1	1.9	9.1	<0.001*	1.411
High risk	3.7	1.3	10.8	0.012*	1.308

Note. * Significant variables (p <0.05). Ref is the Reference value

Multivariate regression analysis, as shown in Table 4.4, established that the duration of driving long-distance trucks was the sole significant sociodemographic factor associated with HIVST, particularly among the 6-10 years group (OR=3.0, 95% CI=1.3-6.9, p=0.008). Education level did not show a statistically significant impact on HIVST in the analysis.

Behavioural factors analysed in Appendix 9 Table 4.4, revealed that perceptions towards being infected with HIV/AIDS and knowledge of HIV/AIDS were significant predictors of HIVST. However, variables such as sexual activity along the highway in the last 6 months did not demonstrate statistically significant impacts on HIVST in this context.

HIVST use was more common among the group of drivers with a driving duration of 6-10 years; they were 3 times more likely to use HIVST than the group of drivers with a driving experience of less than 6 years (OR=3, 95% CI: 1.3-6.9) as shown in Table 4.4. This shows rather an interesting scenario. Analytically, age is most often connected with driving

experience, risk perception and resulting behaviour change. Lower utilisation of HIVST services from younger drivers, particularly less experienced or recent drivers might be explained by reasons like having lower perceived personal risk for HIV infection, unawareness or bearing prejudice about HIV testing. Conversely, those drivers with 6 to 10 years of driving experience might have accumulated knowledge of HIV transmission mechanisms and an understanding of the need for prevention. Such a heightened sensitivity might make them choose to use HIVST. Consequently, they might perceive the danger even more than they used to and therefore tend to use HIVST. This increased exposure could make them more knowledgeable about HIVST and its benefits (Kelvin et al., 2017). Moreover, with ageing individuals, health problems start to emerge. Drivers of this age bracket might put general health screenings as a priority hence HIVST can be made available or promoted during these visits which might then increase uptake. Through learning the reasons for which mid-range truck drivers use HIVST, interventions and campaigns for awareness can be designed in such a way that they can; target directly the drivers of this category and increase the number of users.

Truck drivers with a moderate and a high perceived risk of HIV infection had 4.1 times (95% CI=1.9-9.1, p=<0.001) and 3.7 times (95% CI=1.3-10.8, p=0.012) higher odds of using an HIVST kit compared to those with a low perceived risk respectively. HIV risk perception affects a person's decision to be tested for HIV. This agrees with the Health Belief Model which suggests that perceived risk is an important element affecting health behaviours (Rosenstock, 1974). Earlier studies have shown that a large proportion of truck drivers feel at risk of HIV infection due to factors that include indiscriminate drug and alcohol use (Adeoti et al., 2021; Mutie et al., 2021), constant mobility and separation from intimate partners (Dobra et al., 2017; Sileo et al., 2018) transactional sexual encounters with female sexual workers and non-condom use (Pundhir et al., 2021). These results highlight the significance of a re-measurement and

possible modification of the risk perceptions of truck drivers as a primary technique in fostering the use of HIV self-testing.

Similarly, truck drivers with average and excellent HIV knowledge exhibited significantly higher odds of utilizing HIVST compared to those with poor knowledge, with odds ratios of 11.7 (95% CI =2.2-217.4, p=0.021) and 28.3 (95%= CI 5.1-536.7, p=0.002) respectively. This is in concordance with other studies done which have established that the degree of health literacy one possesses is positively linked to health behaviours (Sharifirad et al., 2012; Sørensen et al., 2012). It has been established that when people have adequate information about a disease, they are in a position to make the right choices where prevention is concerned (Nubed & Akoachere, 2016; Walter & Morocho, 2021). As regards HIV, the findings show that increased knowledge of HIV transmission and testing enhances the likelihood of testing (Okumu et al., 2017). This is why there is need to come up with sexual health education focused on enhancing HIV health literacy among LTDs who may not afford to visit conventional health facilities. This is very important as it is only when a person is informed does one takes action to protect their sexual health. This finding emphasises health literacy as an antecedent of preventive health behaviours.

4.4 HIVST Preferences

Table 4. 3 below shows the HIVST preferences among truck drivers.

Table 4. 3

HIVST Preferences

Variable	**% (n)**
Type of test kits preferred	
Oral	8.7 (9)
Blood	84.3 (86)
Either oral and Blood	6.9 (7)

Testing with a partner	
Yes	60.8 (62)
No	39.2 (40)
Mode of testing	
Unassisted	68.6 (70
Directly assisted	31.4 (32)

Note. N is 102.

The majority of truck drivers who utilized HIVST kits preferred blood-based kits at 84.3 per cent (n=86) compared to 8.7 per cent (n=9) who preferred oral-based kits and the remaining 6.9 per cent (n=7) preferred either oral and blood-based kits. Similar studies done in Tanzania among truck drivers and Malaysia among MSM showed a preference for blood-based kits over oral swabs (Ostermann et al., 2015; Shrestha et al., 2020). However, studies done in Malawi and Zimbabwe found that oral-based kits were highly preferred to blood-based kits (Kumwenda et al., 2021; Mavhu et al., 2022). Accuracy of the kit (60.8 %, n=62), knew only blood-based kits (50.0 %, n=51), immediate HIV testing results (43.1 %, n=44), painless procedure (3.9%, n=4) and knew only oral kits (2.0%, n=2) were found to be the largest contributors to the preference of the kits.

On the mode of HIV self-testing, 60.8 per cent (n=62) of truck drivers reported testing with a partner while 39.2 % (n=40) preferred testing alone. This observation correlates with a study conducted in Kenya that discovered that 49.7 per cent of the drivers preferred to be tested alone, whereas 52.1 per cent of the drivers were keen to be tested in the presence of a companion (Kelvin et al., 2021). Many drivers preferred to test with a partner, which could be due to emotional intimacy and social support. But others preferred testing alone, valuing things privacy and fear of discrimination.

Testing unassisted was the most preferred form of testing at 68.6 per cent, while 31.4 % preferred testing with assistance or under supervision. These findings show that the majority of truck drivers preferred to conduct HIVST in private settings, either at home/lodging/guest house/trailer or in a hospital, also known as unassisted HIVST. These results contrast with a study conducted in Kenya which found out that 64.6% of truck drivers opted for supervised HIV testing in a clinic (Kelvin et al., 2017). However, one previous study showed no preference between direct assisted HIVST and unassisted self-testing (Strauss et al., 2018), while another showed that 85 per cent of the accepted unsupervised HIVST among at-risk populations (Kalibala et al., 2014). Possible explanations for this preference for unassisted HIVST could include convenience, flexibility and confidentiality. Directly assisted HIVST, on the other hand, provides expert guidance and support but may require more effort and time from the individual. This preference for couple testing underscores the need for tailoring the assessment and management of sexual health to the social and emotional aspects of drivers and/or other high-risk populations.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

Included here are the study's summary findings, conclusions, recommendations and suggestions for future research.

5.2 Summary of the Findings

In summary, the study found that there is a low uptake of HIVST despite high awareness of its existence suggesting an awareness-to-action gap. The study established that the duration of driving long-distance trucks (6-10 years), perception towards being infected with HIV/AIDS and knowledge of HIV/ AIDS were associated with HIVST. In addition, blood-based kits were majorly preferred for testing than oral kits. Couple testing was preferred by over two-thirds of truck drivers compared to testing alone. In addition, unassisted HIVST was preferred by more than two-thirds of truck drivers compared to directly assisted HIVST.

5.3 Conclusion and Recommendations

5.3.1 Conclusion

In regards to the uptake of HIVST, the study revealed that only 35.5% of truck drivers had ever used HIVST in the past despite the majority of them being aware of its existence, indicating that there are some obstacles to adoption such as insufficient knowledge of the use of the kits, anxiety associated with test results, lack of pretest and posttest counselling and high cost of the kits. The findings show the need for specific programs to boost the HIVST uptake among truck drivers.

With respect to the sociodemographic determinants of HIVST, the study established that mid-range driving duration (6-10 years) was associated with higher rates of HIVST uptake,

implying that older drivers might use HIVST more due to accumulated knowledge and perceived risk.

In regards to the behavioural factors associated with HIVST, the research found that HIV risk perception and HIV knowledge were important predictors of HIVST acceptance among truckers. Truck drivers with a high perceived risk of HIV infection and those with good knowledge of HIV were likely to use HIVST. The study results indicate that the probability of testing is enhanced by individual risk perception and the provision of accurate information regarding HIV testing and transmission.

As per the preferences of HIVST, analysis revealed that blood-based kits were highly preferred at 84.3 per cent compared to 8.8 per cent who preferred oral-based kits and the remaining 6.9 per cent preferred either oral and blood-based kits. In addition, couple testing was popular by over two-thirds of truck drivers.

The present study underscores the need to deal with health barriers of HIV testing among truck drivers, who are an over-risky group. Based on the results, it has been shown that truckers choose blood-based HIVST for accuracy, the simplicity of it and the sense that it raises awareness about HIV. Emotional support and plenty of privacy are the other features that were revealed to be important as people indicated in either a good mood when testing with a partner or alone depending on the situation. In the same breath, it underlines the fact that accessibility and anonymity in the testing process are appreciated by drivers and the source preferred for such is at home or in a location where they can be free and relax most.

5.3.2 Recommendations

Drawing from this study's results, the following recommendations are presented to inform policy and future interventions as follows;

1. Regarding the uptake of HIVST, the study found that there was low uptake. In order to boost HIVST uptake and close the awareness-to-action gap, the study calls for the establishment of HIVST services that are accessible and subsidized, targeting key populations such as truck drivers, facilitated by the MoH and supporting partners. It should integrate counselling support, which will address barriers like cost, anxiety and lack of knowledge thus increasing uptake and promoting effective HIV management in such at-risk populations.
2. Regarding the sociodemographic factors associated with HIVST use, the study established that mid-range driving duration (6-10 years) was associated with higher uptake of HIVST. Targeted interventions by stakeholders through peer-led programs and workplace sensitisation by employers should be used to conduct targeted educational campaigns focousng on needs of drivers of varying degrees of experience, realizing that older drivers can have their knowledge and perceived risk capitalized on through tailored programs, with a consequent increase in HIV self-testing uptake within this age cohort.
3. Regarding to the behavioural factors associated with HIVST, the research found that HIV risk perception and HIV knowledge are important predictors of HIVST acceptance among truckers. It is recommended that there is a need to create targeted educational campaigns reinforcing HIV risk perception and knowledge among truck drivers, with a focus on the significance of individual awareness of behavioural risk and accurate information on HIV transmission and testing.

4. Regarding HIVST preferences, it's imperative to prioritize the availability and promotion of blood-based kits, considering their overwhelming preference. Educational campaigns should emphasize these kits' accuracy and immediate results, addressing potential concerns and fostering confidence in their use. Despite their preference for blood-based kits, oral kit use should be encouraged by giving education and information about the advantages of oral testing. Additionally, efforts should focus on making HIV self-testing accessible in private and comfortable settings such as lodging, or guest houses, potentially through partnerships with truck stops or rest areas. Leveraging peer recommendations and support networks can further encourage uptake and address any hesitations or misconceptions surrounding HIVST, ultimately enhancing its acceptance and effectiveness within the truck driver community.

5.4 Suggestions for Further Study

The research identified that the awareness of HIVST did not match its uptake. Future research should explore the awareness-to-action gap factors, such as barriers to testing, perceived stigma, and access to HIVST services. Furthermore, the present study provides imperative information for future research to design promotion programs for HIVST among truck drivers, including health promotion campaigns, peer intervention programs, or mobile unit testing services.

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APPENDICES

Appendix 1: Consent Form

Hello. I am Dennis Rotich, a second-year postgraduate student at MKU Thika. As a student, I am undertaking research titled, *Assessment of Factors Associated with HIV Self-Testing Among Long-Distance Truck Drivers Along Uganda Road in Uasin Gishu County, Kenya*.

You will be asked to answer a set of structured questions probing your knowledge and practices on HIV self-testing in 15 minutes. The questions will include topics like awareness of self-testing, the experience of testing in the past, likes or dislikes, and impediments or accelerators of self-testing HIV kits. Your sincere answers will add to the enhancement of knowledge regarding the best strategies to use in HIV testing on populations similar to yours.

The study is of low risk and we do not anticipate physical, psychological and social risks to you. There will be no direct advantages of taking part in this study. Hopefully, this research study will assist the government in implementing more specific and efficient HIV testing programs that will ensure that it is easier to have you and other people to be tested. You will also be shown an HIVST kit after the data-gathering process.

Your answers will be kept anonymous. Kindly do not include any personal details in your survey. You may opt out of the research without any consequence.
I attest that I have been informed of the study procedures, I have read and comprehended them, and I realise that my participation is purely voluntary. I can discontinue from the study when I want without stating my reason and without any penalty.

Consent is given: YES

Investigator's signature _____ Date _____

Appendix 2: Questionnaire

SECTION 1

A. Social Demographics

1. **Demographic characteristics of respondents**

	Response
Sex	a) Male b) Female
Year of Birth	
Age (years)	a)18-25 b) 26-44 c) 45-59 d) over 60
Education level	a) Primary b) secondary c) tertiary
Religion	a) African-Traditinalist b) Christian c) Muslim d)Other (specify)……..
Marital status	a) Single b) Married c) Other ……..
Monthly Salary ('000 Ksh)	a)0-20 b)21-40 c)41-60 d) 61-80 e) more than 80
Country of origin	a)Kenya b) Uganda c) Tanzania d) Sudan e) DRC

SECTION 2 and 3

B. Behavioral Patterns

2. Alcohol and drug abuse

i. Do you take alcohol and/ or drugs of abuse? Yes …… No

If yes ,

ii. How many times have you had alcohol and/ or drugs of abuse? Within the past 1 year/6 Month/ week (whichever is recent)

a) Daily
b) weekly
c) once in two weeks
d) once per moth

iii. Which kind of drug substances do you use

a) Alcohol
b) Tobacco
c) Miraa / Khat
d) Medical prescriptions

3. Sexual interaction experiences

a) During your travels in the last six months, have you had sexual contact with more than one partner?

a) Yes b) NO

If **YES,** which type

a) Casual b) regular

iv. Did you use any protection/condom a) Yes b) No

v. How many sexual partners do you have along the route apart from your spouse/regular sexual partner?

a)1 b)+ 2 c) >3

vi. Do you know their HIV status?

A) Yes b) No

vii. Have you ever been infected with an STI/ sexually transmitted disease within the transport corridor?

a) Yes b) NO

If yes…..

Which kind of STD……

viii. In what facility did you receive care?

a) self-medication
b) Chemist
c) Private health facility
d) Public Health Facility
e) Herbalist
f) No therapy

4. HIV testing history and Preferences

ix. Have you ever been tested for HIV

a)Yes b) no

If **NO;**

Have you ever heard about HIVST

a) Yes b) NO

Are you open to use of HIVST kit?

a)Yes b) NO

If **YES**,

x. When did you last get your HIV test?

<3 months ago b) 3-6 months ago c) 6- 12 months ago d) > 1 year ago

xi. How often do you take an HIV test/ Get tested for HIV

a) Every 3 months b) Greater than 3 months

xii. **Where was the test done?**

a) Public Health Facility

b) Home

c) Pharmacy

d) Private Health Facility

xiii. **Have you ever used an HIVST Kit**

a) Yes b)No

If yes, Which type

a) Oral

b) Prick test (Blood)

c) Either

When was the last time you used the kit

a) <3 months

b) 3-6 months

c) >6 months

Within the past 1 year, how many times have you used the HIVST kit

a) 1-3

b) 4-6

c) > 6

xiv. Why do you prefer this method?

a) Painless

b) Fear of needles

c) accuracy

d) cross infection

xv. Where did you do the HIV test?

a) Home unassisted

b) Hospital facility/pharmacy assisted

c) Hospital/pharmacy unassisted

d) In the trailer/vehicle unassisted

xvi. **Mode of testing** a) Alone b) with a partner

xvii. Where did you buy/source your kits

a) Pharmacy

b) public Hospital facility

c) supermarket

d) Online store

e) private owned facilities

f) NGOs

xviii. What was the cost of the kit in Ksh?

a) less than 150

b) 151-250

c) 250-350

d) 351-450

e) 451-550

f) more than 551

xix. What motivates you to use the HIVST kit (multiple can be marked)

a. Ease of use

b. Cheap

c. Convenience

d. No time to go to VCT centres

e. Privacy

f. Accessibility of the kits

g. Need for self-care/ self-empowerment

xx. **What are some of the challenges that hinder you from using HIVST Kits (Mark all that apply)**

a) Lack of knowledge of the usage of the kit

b) Inability to read instructions and interpret results

c) Anxiety associated with the outcome

d) Lack of post-test counselling

e) Don't trust the accuracy of the kit

f) Cost is too high

xxi. Compared to the normal VCT visits and HIV self-tests, what motivates you to use them

a) Past bad testing experiences

b) Attitudes of the health care workers

c) Privacy

d) No time to visit the VCTs

xxii. Do you have any recommendations for HIV Self-tests?

a) Packaging be redone as its big

b) Cost be reduced free kits

c) health Education and awareness

d) Identify resources for pre- and post-test counseling and treatment links.

xxiii. Answer the following questions based on your understanding

a) "Sharing needles with an HIV-positive person can spread the virus." (Yes/No)

b) "Engaging in unprotected sex with someone who has HIV can lead to transmission." (Yes/No)

c) "HIV can be passed through a mosquito bite." (Yes/No)

d) "Condom use helps lower the risk of contracting HIV." (Yes/No)

e) "Taking PrEP can reduce the chances of getting infected with HIV." (Yes/No)

f) "Abstaining from sex completely can prevent HIV infection." (Yes/No)

g) "HIV testing is important for all individuals." (Yes/No)

h) "HIV-positive individuals can live long, healthy lives if they take their medication consistently." (Yes/No)

i) "Everyone with HIV shows signs and symptoms." (Yes/No)

j) "HIV can be transmitted by sharing a beverage with someone who has it." (Yes/No)

xxiv. HIV Infection Perception

“For the following statements, please indicate your level of agreement using a scale from 1 to 5: (1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree)”

a) I consider myself to be at risk of acquiring HIV.

b) I believe that HIV poses a significant threat to my personal health.

c) I do not consistently use condoms during sexual encounters.

d) In the past 12 months, I have slept with more than 1 partner.

e) I understand the behaviours that can increase the likelihood of HIV infection.

f) I am knowledgeable about how to protect myself from HIV.

g) Concerns about HIV influence the choices I make in my sexual relationships.

h) I feel anxious about the possibility of getting HIV during sexual activity.

xxv. **Have you ever been counselled before/after tests?**

a) YES

b) NO

xxvi. If YES, what was the mode

a) WhatsApp

b) In person counselling (by Health provider)

c) Telephone call

xxvii. Would you recommend an HIVST to someone?

a) Yes b) No

Appendix 3: Introductory Letter to NACOSTI

Mount Kenya University

DIRECTORATE OF GRADUATE STUDIES

MPH/2021/87644

30th June, 2023

National Commission for Science Technology & Innovation (NACOSTI)
Off Waiyaki Way, Upper Kabete,
P.O Box 30623- 00100
NAIROBI, KENYA

Dear Sir/Madam,

RE: DENNIS K. ROTICH– REGISTRATION NO. MPH/2021/87644

The purpose of this letter is to introduce the above named student who is pursuing **Master of Public Health** in the department of **Public Health** in the school of **Public Health.**

The title of the research is **"Assessment of Factors Associated with HIV Self- Testing among Long- Distance Truck Drivers Along Uganda Road in Uasin Gishu County, Kenya."** It has been cleared by the University's Ethics Review Committee (Certificate attached) and now has to proceed to the field to collect data between **July, 2023 and September, 2023.**

Any assistance accorded to the student will be highly appreciated.

Thank you.

Mount Kenya University
P. O. Box 342 - 01000, THIKA
Office of the Director
Graduate Studies

Dr. Samuel M. Karenga, Ph.D
Director, Graduate Studies
Enc.

Main Campus, General Kago Road, P.O. Box 342-01000 Thika.
Tel: 020-2878 000, Cell: +254 709 153 000

Appendix 4: Letter of Authorization

REPUBLIC OF KENYA

MINISTRY OF EDUCATION

State Department for Basic Education

Email: cdeuasingishucounty@gmail.com
: cdeuasingishucounty@yahoo.com
When replying please quote:

County Director of Education,
Uasin Gishu County,
P.O. Box 9843-30100,
ELDORET.

Ref: No. MOE/UGC/TRN/9/VOLL. V/97

11th September, 2023

Mr. Dennis K. Rotich
Mount Kenya University,
P.O Box 342-01000
THIKA.

RE: RESEARCH AUTHORIZATION.

In reference to your License Ref no. **NACOSTI/P/23/27627** dated 25th July,2023 from National Commission for Science, Technology and Innovation (NACOSTI), you are hereby granted the authority to carry out research on ***"Assessment of factors associated with HIV self – testing among long-distance truck drivers along Uganda road," Period Ending 25th July, 2024,"*** Within Uasin Gishu County.

We take this opportunity to wish you well during this data collection.

FOR: COUNTY DIRECTOR OF EDUCATION
UASIN GISHU COUNTY
P O Box 9843 - 30100, ELDORET

Samwel Kimaiyo
For: County Director of Education
UASIN GISHU.

Appendix 5: Ethical Clearance Certificate

Mount Kenya University

REF: **MKU/ISERC/2917**
TO: **DENNIS K. ROTICH**

Date: 29 June 2023

REG: **MPH/2021/87644**

Dear Sir/Madam,

RE: ASSESSMENT OF FACTORS ASSOCIATED WITH HIV SELF-TESTING AMONG LONG-DISTANCE TRUCK DRIVERS ALONG UGANDA ROAD IN UASIN GISHU COUNTY, KENYA

This is to inform you that **Mount Kenya University** has reviewed and approved your above research proposal. Your application approval number is **1961.** The approval period is **29/06/2023 - 28/06/2024.**

This approval is subject to compliance with the following requirements;

i. Only approved documents including informed consents, study instruments, MTA will be used
ii. All changes including amendments, deviations and violations are submitted for review and approval by **Mount Kenya University**
iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to **Mount Kenya University** within 72 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affect the safety or welfare of study participants and others or affect the integrity of the research must be reported to **Mount Kenya University** within 72 hours
v. Clearance for export of biological specimens must be obtained from relevant institutions
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal
vii. Submission of an executive summary report within 90 days upon completion of the study to **Mount Kenya University**

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://research-portal.nacosti.go.ke and also obtain other clearances needed.

Yours sincerely,

The Chairman
Mount Kenya University
Ethics Review Committee
P. O. Box 342 - 0100, Thika

Dr. Alfred Owino, PhD
Chairman, Mount Kenya University ISERC

Main Campus, General Kago Road, P.O. Box 342-01000 Thika.
Tel: 020-2878 000, Cell: +254 709 153 000
Email: info@mku.ac.ke. Web: www.mku.ac.ke

Appendix 6: Research License NACOSTI

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **518783**

Date of Issue: **25/July/2023**

RESEARCH LICENSE

This is to Certify that Mr.. DENNIS K. ROTICH of Mount Kenya University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Uasin-Gishu on the topic: ASSESSMENT OF FACTORS ASSOCIATED WITH HIV SELF-TESTING AMONG LONG-DISTANCE TRUCK DRIVERS ALONG UGANDA ROAD IN UASIN GISHU COUNTY, KENYA for the period ending : 25/July/2024.

License No: **NACOSTI/P/23/27627**

518783

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

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See overleaf for conditions

Appendix 7: Turnitin Report

ASSESSMENT OF FACTORS ASSOCIATED WITH HIV SELF-TESTING AMONG LONG-DISTANCE TRUCK DRIVERS ALONG UGANDA ROAD IN UASIN GISHU COUNTY, KENYA

by Dennis Kipkosgei Rotich

Submission date: 17-Jun-2025 07:12PM (UTC+0300)
Submission ID: 2701167719
File name: Dennis_Rotich_Thesis_Latestt.docx (12.85M)
Word count: 21425
Character count: 120333

ASSESSMENT OF FACTORS ASSOCIATED WITH HIV SELF-TESTING AMONG LONG-DISTANCE TRUCK DRIVERS ALONG UGANDA ROAD IN UASIN GISHU COUNTY, KENYA

ORIGINALITY REPORT

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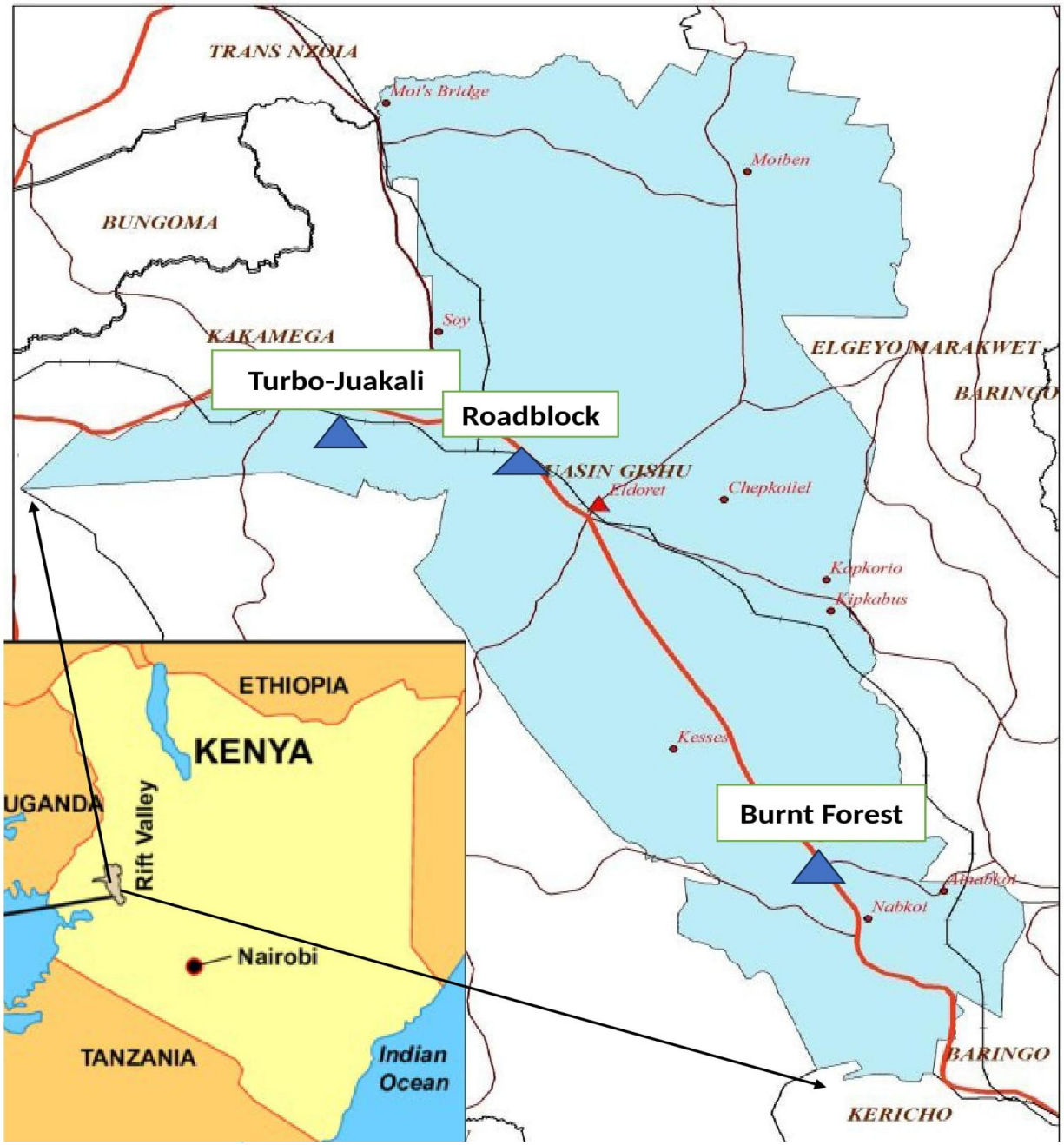
Appendix 8: Map of Uasin Gishu County and its Towns



Source: internet, Google Maps

Appendix 9: Bivariate Analysis of Sociodemographic Factors Associated With HIVST

Variable	HIVST Utilization			χ^2	df	*P*
	Total(N=287)	Y (n=102)	N (n=185)			
	% (n)	% (n)	% (n)			
Gender				2.757	1	0.097
Male	98.6 (283)	35.5 (102)	65.0 (184)			
Female	1.4 (4)	75.0 (3)	25.0 (1)			
Age (Years)				8.202	4	0.084
18-24	6.6 (19)	3.9 (4)	8.1 (15)			
25-34	32.8 (94)	28.4 (28.4)	35.1 (65)			
35-44	31.7 (91)	41.2 (42)	26.5 (49)			
45-54	23.0 (66)	22.5 (23)	23.2 (43)			
Over 54	5.9 (17)	3.9 (4)	7.0 (13)			
Education Level				8.681	3	0.034
None	1.4 (4)	1.0 (1)	1.6 (3)			*
Primary	44.3 (127)	39.2 (40)	47.0 (87)			
Secondary	47.4 (136)	47.1 (48)	47.6 (88)			
Tertiary	7.0 (20)	12.7 (13)	3.8 (7)			
Religion				5.167	2	0.076
Christian	64.8 (186)	69.6 (71)	62.2 (115)			
Muslims	33.8 (97)	27.5 (28)	37.3 (69)			
Unaffiliated/Other	1.4 (4)	2.9 (3)	0.5 (1)			
Marital Status				3.670	2	0.160
Never Married	16.4 (47)	10.7 (11)	19.5 (36)			
Married	81.5 (234)	87.3 (89)	78.4 (145)			
Previously Married	2.1 (6)	2.0 (2)	2.2 (4)			
Salary (Ksh)				5.475	2	0.065
≤20,000	19.9 (57)	12.7 (13)	23.8 (44)			
20,001-40,000	70.7 (303)	75.5 (77)	68.1 (126)			
≥40,000	9.4 (27)	11.8 (12)	8.1 (15)			
Country of Origin				1.737	5	0.884

DRC	1.4 (4)	2.0 (2)	1.1 (2)			
Kenya	82.6 (237)	80.4 (82)	83.8 (155)			
Rwanda	1.4 (4)	2.0 (2)	1.1 (2)			
Sudan	0.3 (1)	0.0 (0)	0.5 (1)			
Tanzania	7.7 (22)	7.8 (8)	7.6 (14)			
Uganda	6.6 (19)	7.8 (8)	5.9 (11)			
Driving Experience				11.649	3	0.009
0-5 Years	30.0 (86)	23.5 (24)	33.5 (62)			*
6-10 Years	19.2 (55)	28.4 (29)	14.1 (26)			
11-15 Years	22.6 (65)	25.5 (26)	21.1 (39)			
Over 15 Years	28.2 (81)	22.5 (23)	31.4 (58)			

Note. HIVST = HIV self-testing. Y= Yes. N=No

χ^2 = chi-square test statistic. df = degrees of freedom. *$p < 0.05$

Appendix 10: Bivariate Analysis of Behavioural Factors Associated With HIVST

Variable		HIVST utilization		χ^2	df	*P*
	Total (N) % (n)	Y(n=102) % (n)	N(n=185) % (n)			
Substance use						
Yes	58.5 (168)	69.7 (66)	60.7 (102)	2.481	1	0.115
No	41.5 (119)	30.3 (36)	39.3 (83)			
Sexual Activity on the Highway						
Yes, within the last 6 months	54.7 (157)	58.6 (92)	71.5 (93)	5.198	1	0.023
No, within the last 6 months	45.3 (130)	41.4 (65)	28.5 (37)			*
Number of Sexual Partners						
1, along the Highway [A]	42.3 (66)	33.8 (22)	48.4 (44)	3.954	3	0.266
2, along the Highway [A]	26.3 (41)	27.7 (18)	25.3 (23)			
3, along the Highway [A]	12.8 (20)	16.9 (11)	9.9 (9)			
>3, along the Highway [A]	18.6 (29)	21.5 (14)	16.5 (15)			
Time spent on the highway away from Family						
≤ 1 week	18.5 (53)	16.7 (17)	67.9 (36)	0.341	1	0.559
> 1 week	81.5 (234)	85)	149			
Previous HIV test experiences						
Good	66.8 (173)	70.6 (72)	64.3 (101)			
Bad	33.2 (86)	29.4 (30)	65.1 (56)	1.091	1	0.296
Condom use in the last 1 year [B]						
Yes	73.2 (115)	75.4 (49)	71.7 (66)	0.258	1	0.611
No	26.8 (42)	24.6 (16)	28.3 (26)			
STD infection on highways						
Yes	29.3 (84)	36.3 (37)	25.4 (47)	3.752	1	0.053
No	70.7 (203)	63.7 (65)	74.6 (138)			
HIV Knowledge						
Excellent	44.6 (128)	53.9 (55)	39.4 (73)	12.539	2	0.002
Average	47.7 (137)	45.1 (46)	49.2 (91)			*
Poor	7.7 (22)	1.0 (1)	11.4 (21)			

Perception of HIV infection						
High risk	15.0 (43)	17.6 (18)	13.5 (25)	12.274	2	0.002
Moderate	36.9(106)	48.0 (49)	30.8 (57)			*
Low risk	48.1(138)	34.3 (35)	55.7(103)			

Note. * Significant variables ($p < 0.05$). N=287. Y= Yes. N= No

[A] Only truck drivers who engaged in sexual practices along the highway
[B] Only truck drivers who engaged in sexual practices along the highway