HUMAN IMMUNODEFICIENCY VIRUS KNOWLEDGE, ATTITUDE AND PRACTICE AMONG FEMALE SEX WORKERS IN KOROGOCHO SLUM, NAIROBI, KENYA

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Human Immunodeficiency Virus Knowledge, Attitude and Practice among Female Sex Workers in Korogocho Slum, Nairobi, Kenya

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DECLARATION

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

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This thesis has been submitted for examination with our approval as University supervisors.

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DEDICATION

I dedicate this thesis to my husband Dr. Edward Sang, my parents Mr. & Mrs. Nyamu, my sisters Janet, Elizabeth and Gracie and my brothers Andrew and James for their support, and encouragement during this study.

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ACRONYMS

AIDS Acquired Immune Deficiency Syndrome

ERC Ethical Review Committee

FIDA International Federation of Women Lawyers

FSWs Female Sex Workers

HAART Highly Active Antiretroviral Therapy

HIV Human Immunodeficiency Virus

IEC Information, Education and Communication

KACP Kenya AIDS Control Project

KAP Knowledge, Attitudes and Practices

KAIS Kenya AIDS Indicator Survey

KDHS Kenya Demographic and Health Survey

KEMRI Kenya Medical Research Institute

NACC National AIDS Control Council

NASCOP National AIDS &STI Control Program

MARPs Most At Risk Populations

PEP Post Exposure Prophylaxis

PLWHA People Living With HIV/AIDS

PrEP Pre Exposure Prophylaxis

SSC Scientific Steering Committee

STIs Sexually Transmitted Infections

UOM University of Manitoba

UON University of Nairobi

UN United Nations

UNAIDS United Nations AIDS organization

UNGASS United Nations General Assembly

WHO World Health Organization

ABSTRACT

Sex workers are often looked down upon and regarded as illiterate, morally deprived and socially unfit. They are however, in any societal construct, at the core of many sexual relationships hence putting them as front runners in the spread of HIV as well as other STIs. Their risk of acquiring HIV is magnified further by their inconsistent condom use fuelled by among others inability to negotiate safer sex practices, poverty levels, client violence and substance use / abuse. This descriptive cross sectional study of the Knowledge, Attitudes and Practices (KAP) was undertaken to understand the factors influencing HIV prevalence rates among FSWs in Korogocho slum, Nairobi. A total of 297 female sex workers attending the Korogocho Sex Worker Outpatient clinic voluntarily participated in this study. The results show that 61% of the women commenced sex work between the ages of 15-20 years and 97% had no post-secondary education limiting their capacity to seek formal employment. In addition, 44% worked out of night clubs which increased their exposure to alcohol and other substances of abuse. Eighty four percent reported they had one regular partner of whom 43% never used condoms while engaging in sex with them. Furthermore 32%, 18% and 17% thought that coital interruption, vaginal douching and bathing immediately after unprotected sexual encounter respectively, would prevent them from getting HIV infection. The study results further showed that several other environmental factors such as inability to acquire formal employment due to low education levels, misconceptions and choice of place of work were associated with the risk of HIV acquisition among the Female sex workers. The recommendation emanating from the study are that the government and other key

stakeholders need to initiate appropriate programs to address formal education needs, HIV literacy as well as risk reduction awareness while at work for the female sex workers.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Sex work - taunted as the oldest profession which exists in virtually every human society has also been blamed as a practice that lent impetus to the HIV / AIDS epidemic (NACC, 2006). In Kenya, all kinds of sex work exist from home-based, hotel/bar-based to brothel-based, with many women moving in and out of the sex work trade (UNGASS, 2008). It is also primarily heterosexual, with men buying and women supplying.

The great majority of HIV infections are sexually transmitted and in many places the epidemic gained its first foothold among sex workers and their clients before it spread in the population more generally (UNAIDS, 2008). In this regard, commercial sex workers are a major factor in the management of the spread and control of HIV. Going by the national statistics as of 2003, 6.7% of Kenyan adults; 9.2% of who were women and 5.8% were men; were living with HIV. This equates to a total of 1.5 million people living with HIV (KDHS, 2003a). The KDHS 2008/09 states that "In Kenya, HIV prevalence has not changed significantly in the past five years for the HIV prevalence of 6.3% for women and men aged 15-49, closely compares with 6.7% in the 2003 KDHS and 7.4% in the 2007 Kenya AIDS Indicator Survey. There is however, a continuing rise in the population of people living with HIV, which reflects the combined effects of continued high rates of new HIV infection and the beneficial impact of ART therapy (WHO, 2008).

HIV prevalence among female sex workers has always been much higher than the national averages with a prevalence of 31% reported in 2005 and prevalence's of between 50 and 80% in 2006 (MAP, 2005a). In addition, it has been observed that in Kenya, women between 15 and 19 are three times more likely to be infected than their male counterparts, while 20 to 24 year old women are 5.5 times more likely to be living with HIV than men in their age cohort (NASCOP, 2009. Rosenberg (2001) working in Nairobi observed that these two age groups reflect the ages of the majority of female sex workers onset into the profession. It is thus not surprising that a cross sectional study carried out in late 2010 among FSWs in Nairobi revealed that their HIV prevalence was 29.3% (CI: 24.6–34.9%) which is almost five times the national HIV prevalence (Jerry, 2010a).

Despite high awareness of HIV/AIDS in the general population (98.4% in women and 99.3% in men) and rapid expansion of HIV testing and counseling services (especially VCT and PMTCT) in Kenya, less than 1 of 7 Kenyan consisting of 14.1% in adult men and 12.8% women know their HIV status (KDHS, 2003b). The high levels of awareness however, do not translate to high levels of knowledge or practice in respect to HIV which is further illustrated by the low levels of personal HIV status awareness.

The socioeconomic and political changes in Kenya have resulted in decreased women's economic opportunities and increased poverty levels resulting in dramatic increase in the number of sex workers despite the threat of HIV acquisition. Thus, attention to the more immediate concerns of food, housing and clothing often take priority over concerns of HIV infection. Several factors heighten sex workers HIV

and STIs vulnerability. These include limited access to health, social and legal services; sexual exploitation, violence, stigmatization; substance use and abuse, lack of knowledge, poor health seeking behavior and inability to negotiate safer sex practices (FIDA, 2009).

Sex work in Kenya is based on a legal double standard, CAP 63 (Penal Code section 153 & 154 (Government of Kenya) a law that penalizes women (or men) for living off the proceeds of selling sex, but not the client for buying it. This state of illegality drives the industry underground and leads to a strong distrust of both police and public health authorities by sex workers which further compromises their legal and health seeking behaviors (MAP, 2005b).

1.2: Statement of the problem

While sex work is a universal phenomenon, it is also frequently illegal and therefore clandestine in several countries such as Kenya. This makes it difficult to determine the true extent of the sex work industry, although it is acknowledged to be substantial and has been increasing in the recent years.

Significantly higher rates of HIV infection have been documented among sex workers and their clients as compared to most other population groups within a country (UNAIDS, 1999a). A study conducted on 418 lower socioeconomic strata prostitutes in Nairobi, found that 62% of the women were sero-positive for HIV infection at enrollment (Simonsen *et al.*, 1990*)*. Another more recent survey conducted in Nairobi among 596 FSWs, found HIV prevalence was 29.3% (Jerry,

2010b). Though the latter study illustrates a significant drop in FSWs HIV prevalence rates, it is still much higher than national averages.

It is a fact that Kenya has a mixed epidemic with significantly different prevalence rates among regions and population groups. However, the HIV response has been with general overarching programs that stem mainly from the national level and do not focus on the unique needs of specific most-at-risk populations with targeted messages and approaches (KAIS, 2007b).

It is generally assumed that HIV infection often spreads among sex workers' and their clients before spreading into the general population and yet the dynamics and extent of HIV transmission from sex workers' and their clients to other populations remains generally unknown. (UNAIDS, 1999b).

According to WHO (2008b) and FIDA (2009b), female sex workers are highly vulnerable to the risk of HIV infection due to several factors that include limited access to health, social and legal services as well as to information and prevention means, sexual exploitation and stigmatization, police harassment and exposure to risks associated with sex work e.g. physical and sexual violence, substance use and abuse.

1.3: Justification

Acquired Immuno-deficiency Syndrome (AIDS) is a global problem today whose infection is spreading very fast and yet there is no cure and an effective vaccine is still a long way coming. Prevention and treatment is thus the mainstay of the HIV response and sex workers constitute an essential focal population for HIV prevention

programs. In this regard, HIV control can be by breaking transmission networks by countries acknowledging the existence of sex work and responding to the specific needs of HIV prevention, treatment and care of those involved (UNAIDS, 2001).

This study serves as an educational diagnosis of the FSW cohort that will give insight into what they know about transmission and prevention of HIV; how they feel about these conditions and also how they behave despite or in spite of their knowledge or lack thereof. The study also delves into any experienced or perceived risks of being a FSW as well as extent of substance use and abuse while on the job as factors that influence judgment and capability to negotiate for safer sex.

The findings can be used to identify specific strategies that can improve health care provision to sex workers. Therefore, understanding the FSWs Knowledge, Attitudes, Beliefs and Practices will enable a more efficient process of awareness creation as it will allow the existing comprehensive care programs to be tailored more appropriately to meet their HIV prevention needs.

1.4: Research questions

- What knowledge of HIV transmission dynamics and prevention do FSWs in Korogocho possess?
- What are the risky sexual attitudes among FSW in regards to HIV infection?
- What are the lifestyle risks and sexual practices for HIV infection among the Korogocho FSWs?

1.5: Objectives

1.5.1: Main objective

To determine the sexual knowledge, attitudes, and behavioral practices that are associated with being HIV positive among FSWs in Korogocho slum.

1.5.2: Specific objectives

- To assess the knowledge of FSWs on HIV transmission dynamics
- To determine risky sexual attitudes among FSWs that is associated with HIV status
- To determine lifestyle risks and sexual practices among FSWs and their association with a HIV status

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1: HIV origin

The acronym HIV stands for Human Immunodeficiency Virus the virus that causes the syndrome AIDS (Acquired Immunodeficiency Syndrome). There are many theories of HIV origin one of them being that HIV is a descendant of a Simian Immunodeficiency Virus (SIV), because certain strains of SIVs bear a very close resemblance to HIV-1 and HIV-2, the two types of HIV. This theory suggests that HIV is a zoonosis (viral transfer between animals and humans) whereby SIV became HIV and thus infective to humans (Bailes *et al.*, 2003)

Another common one is the hunter theory where SIV was transferred to humans as a result of chimps being killed and eaten or their blood getting into cuts or wounds on the hunter. Normally the hunter's body would have fought off SIV, but on a few occasions it adapted itself within its new human host and became HIV-1. The fact that there were several different early strains of HIV, each with a slightly different genetic make-up (the most common of which was HIV-1 group M), would support this theory. Thus, every time it passed from a chimpanzee to a man, it would have developed into a slightly different way within his body, and thus produced a slightly different strain (Wolfe, 2004).

Some believe that HIV is a 'conspiracy' or that it is 'man-made'. A recent survey carried out in the US, identified a significant number of African Americans who believe the conspiracy theory that HIV was manufactured as part of a biological

warfare program and designed to wipe out large numbers of black and homosexual people (Fears, 2005). Linked in to this theory is the belief that the virus was spread (either deliberately or inadvertently) to thousands of people all over the world through the smallpox inoculation program, or to gay men through Hepatitis B vaccine trials.

While none of these theories can be definitively disproved, the evidence given to back them up is usually based upon supposition and speculation, and ignores the clear link between SIV and HIV or the fact that the virus has been identified in people as far back as 1959.

2.2 History of HIV

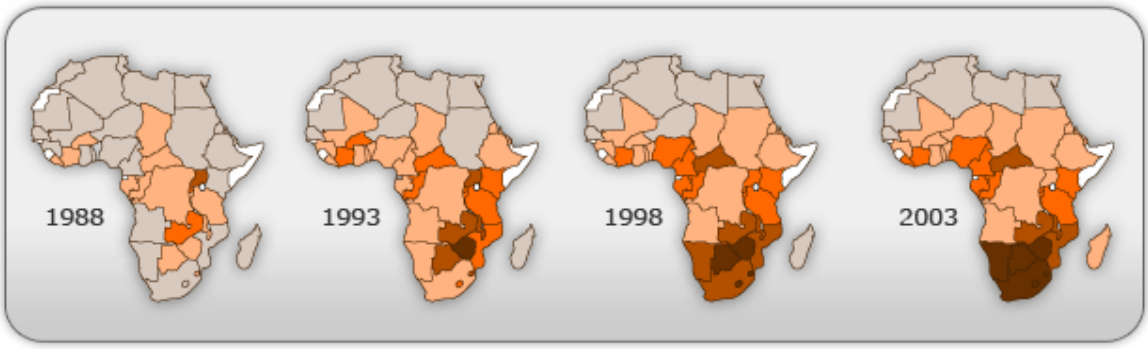
In USA

A number of gay men in New York and California suddenly began to develop rare opportunistic infections and cancers that seemed stubbornly resistant to any treatment. At the beginning of the 1980s various reports began to emerge in California and New York of a small number of men who had been diagnosed with rare forms of cancer and/or pneumonia. The cancer, Kaposi's Sarcoma, normally only affected elderly men of Mediterranean or Jewish heritage and young adult African men. The pneumonia, Pneumocystis Pneumonia Carinii (PCP), is generally only found in individuals with seriously compromised immune systems. However, the men were young and had previously been in relatively good health. The only other characteristic that connected them was that they were all gay.

The first official documentation of the condition was published by the US Centers for Disease Control and Prevention (CDC) on 5th June 1981 (CDC Report, 1981). The discovery of HIV was made two years later in 1983 (Moore, 2004).

In Africa and Kenya

The Human immunodeficiency virus has had a short but devastating history as illustrated in **Figure 1** below for Adult HIV prevalence in Africa between 1988 and 2003 (AIDS Newsletter, 2005) which shows a progressive and rapid increase in HIV prevalence in Sub Sahara Africa.



- 20%-30%
- 10%-20%
- 5%-10%
- 1%-5%
- 0%-1%

% (Prevalence Rates)

Figure 1: Progression of HIV prevalence in Africa

Between 1983 and 1985, 26 cases of AIDS were reported in Kenya (AIDS Newsletter, 1986) with female sex workers being the first group affected in a study conducted in 1985 that reported an HIV prevalence of 59 % amongst a group of female sex workers in Nairobi (Piott *et al.,* 1987).

2.3 HIV classification

Human immunodeficiency virus belongs to a special class of viruses called retroviruses that store their genetic material on RNA (Ribonucleic Acid) strands. Within this class, HIV is placed in the subgroup of lentiviruses thus like all viruses of this type, attacks the immune system.

HIV types and sub types

There are two types of HIV: HIV-1 and HIV-2 with several subtypes as shown in **Figure 2**. Both types are transmitted by sexual contact, through blood, and from mother to child, and they appear to cause clinically indistinguishable AIDS. However, it seems that HIV-2 is less easily transmitted, and the period between initial infection and illness is longer in the case of HIV-2. Human immunodeficiency virus type-1 is the predominant virus worldwide while HIV-2 type is concentrated in West Africa and is rarely found elsewhere.

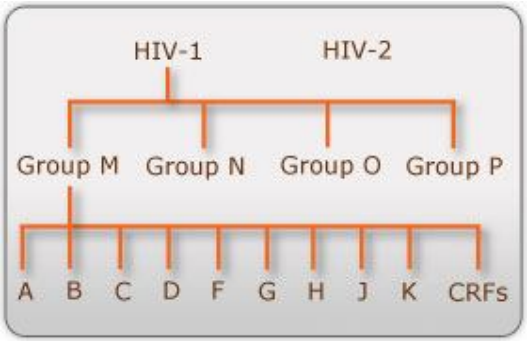


Figure 2: HIV types and subtypes

2.4: HIV Spread

According to the 2011 World AIDS Day report by UNAIDS (2011a), statistics for the end of 2010 indicated that around 34 million people were living with HIV. In addition, each year around 2.7 million more people become infected with HIV and 1.8 million die of AIDS. Furthermore, more than 30 million people around the world had died of AIDS-related diseases by 2010.

Although HIV and AIDS are found in all parts of the world, some areas are more afflicted than others. The worst affected region is sub-Saharan Africa where rates of HIV infection are still extremely high with an estimated 1.9 million people in this region became newly infected in 2010 (UNAIDS, 2011b). This means that there are now an estimated 22.9 million people living with HIV in sub-Saharan Africa. In this part of the world women are disproportionately at risk, accounting for 59% of all people living with HIV in the region (UNAIDS, 2011c).

Kenya is home to one of the world's harshest HIV and AIDS epidemics. An estimated 1.5 million people are living with HIV; around 1.2 million children have

been orphaned by AIDS; and in 2009, 80,000 people died from AIDS-related illnesses (UNAIDS, 2010a)

Kenya's HIV prevalence peaked during 2000 at 13.4% and, has dramatically reduced to 6.3% (UNGASS, 2010a). This decline is thought to be partially due to an increase in education and awareness, and high death rates (UNGASS, 2010b).

Transmission of HIV and associated factors

Human immunodeficiency virus can be passed from person to person through sexual fluids, blood and breast milk. The 3 primary modes of transmission currently are

- ✓ Sexual intercourse with infected person
- ✓ From mother to child (In pregnancy, during labor and while breastfeeding)
- ✓ Transmission through contaminated blood transfusions

Worldwide the majority of HIV infections are transmitted through sex between men and women, and half of all adults living with HIV are women (UNAIDS, 2011d). Nearly half of all new infections in 2008 were transmitted during heterosexual sex whilst in a relationship and 20 percent during casual heterosexual sex (UNAIDS, 2010b).

In Kenya the HIV epidemic has been categorized as generalized – meaning that HIV affects all sectors of the population (it is not selective), although HIV prevalence tends to differ according to location, gender and age.

Certain groups in society are at higher risk of both acquiring and transmitting the infection due to their multiple partner status often referred to as Most-At-Risk-Populations (MARPs). These groups include Female Sexual Workers (FSWs), Men who have sex with men (MSM), MSM-Sex Workers and Long distance truck drivers.

It is thought that FSWs played a large part in the accelerated transmission rate in East Africa. In Nairobi for example, 85 percent of female sex workers were infected with HIV by 1986 (Piott *et al.*, 1987).

2.5: Vulnerable and Most at Risk Populations (MARPs)

Vulnerable and most-at-risk populations are populations that are at higher risk of being infected or affected by HIV, who play a key role in how HIV spreads, and whose involvement is vital for an effective and sustainable response to HIV (IHAA, 2010a). They vary according to the local context and may include people living with HIV, their partners and families, people who sell or buy sex, men who have sex with men, people who use drugs, orphans and other vulnerable children, certain categories of migrants and displaced people, and prisoners.

Vulnerability to HIV is a result of a combination of factors, including more personal circumstances such as age, social mobility, education, gender identity, but also, crucially, the environment in which an individual lives such as poverty, gender discrimination or lack or inadequacy of services. Vulnerable populations involve groups that enjoy less legal, social or policy protection, which limit their ability to access or use HIV prevention services (IHAA, 2010b)

According to UNAIDS, populations most-at-risk/MARPs for becoming infected with HIV include injection drug users, sex workers and their clients, men who have sex with men, and prisoners. The MARPs are considered at risk for HIV due to behaviors and practices that heighten their vulnerability due to a variety of factors such as; more frequent exposure to the virus, involvement in risky sexual and non-sexual behaviors such as substance use and abuse, potentially weak family and social support systems, marginalization, lack of resources, and inadequate access to health-care services (UNAIDS, 2010c). At-risk populations are among the most marginalized and most likely to be stigmatized. In addition, resources and national HIV-prevention campaigns are not necessarily geared to their specific HIV prevention, treatment and care needs (UNAIDS, 2010d).

In many countries in SSA, there is criminalization of key populations, significant social stigma which put these populations at risk for HIV.

The primary MARPs in Kenya include Sex workers and their clients, Men who have sex with men (MSM), Prisoners, People who inject drugs (IDUs), truckers, fishing and beach communities (NASCOP, 2010). They account for one third of new HIV infections in Kenya which is estimated to be about 100,000 per year (KAIS 2007c).

2.6 Prevention and Control of HIV

Human immunodeficiency virus is a global epidemic which despite having been identified 27 years ago has evaded the solution of a cure or a vaccine. Despite the fact that there is still no cure for HIV, treatment for people with HIV has improved enormously since the mid-1990s. Those who take a combination of three

antiretroviral drugs referred to as Highly Active Antiretroviral Therapy (HAART) can expect to recover their health and live for many years without developing AIDS, as long as they are adherent to taking the drugs.

Nevertheless, much that can be done to reduce the impact of HIV/AIDS, beginning with the prevention of HIV transmission. Anyone can become infected with HIV, and so promoting widespread awareness of HIV through basic HIV and AIDS education is vital for preventing all forms of HIV transmission. Interventions exist at the individual, community, local and national levels

- Averting sexual transmission involves
    - Abstain from sex or delay first sex
    - Be faithful to one partner
    - Condom use which means using male or female condoms consistently and correctly
    - Circumcision
- Mother-to-child transmission can be almost eliminated through use of antiretroviral drugs for mother and baby as well as avoidance of breastfeeding. The primary method to combat this mode of transmission fully would be prevention of primary infection in the mother and unwanted pregnancies in HIV infected women

- The spread of HIV through contaminated blood by injecting drug use can be slowed by outreach work, needle exchange and drug substitution treatment. While for accidental exposures to the virus post exposure prophylaxis (PEP) with antiretroviral drugs should be provided. Proper blood screening for HIV prior to transfusion should also be performed

Prevention campaigns aimed at sex workers not only reduce the number of HIV infection that result from paid sex; they can also play a vital role in restricting the overall spread of HIV in a country. Proof of this can be seen in countries such as Bangladesh, Benin, Cambodia, the Dominican Republic, India and Thailand, where general reductions in the national HIV prevalence have been largely attributed to HIV prevention initiatives aimed at sex workers and their clients (UNAIDS, 2010e).

A principle aim of the 2009/10-2013/14 Kenyan National HIV and AIDS Strategic Plan (KNASP III) is to reduce the number of new HIV infections by using evidence-based approaches to HIV prevention. Six main outcomes are outlined to be achieved in the latest Strategic Plan (KNASP III):

- Reduced risky behavior among the general, infected, most-at-risk and vulnerable populations
- Proportion of eligible PLWHA (people living with HIV/AIDS) on care and treatment increased and sustained
- Health systems deliver comprehensive HIV services
- HIV mainstreamed in sector-specific policies and sector strategies
- Communities and PLWHA networks respond to HIV within their local context

- KNASP III stakeholders aligned and held accountable for results

The country also has a distinctly new focus on MARPs (MSM, sex workers and injecting drug users) in the KNASP III, following a national study which highlighted that a third of all new infections are among this group (NASCOP, 2010f).

Recent advances in prevention and control of HIV reported in the International AIDS Scientific (IAS) conference 2011, held in Rome, Italy include two emerging approaches: Treatment as prevention in HIV infected individuals; where all individuals with HIV are put on HAART upon diagnosis and Pre-exposure prophylaxis (PreP); where with sero-discordant couples the HIV negative partner takes anti-retroviral drugs prior to exposure from the HIV positive partner (IAS, 2011).

2.7: Knowledge on HIV transmission in FSWs

This refers to understanding the basics on how HIV is acquired and the different infection prevention mechanisms as well as infection risk reduction for MARPs groups.

The area of Knowledge Attitude and Practice (KAP) influencing HIV prevalence among any high risk group is often overlooked and sidelined by studies involving the diseases, HIV and STIs, themselves due to the high prevalence rates of these diseases in MARPs as a target population as opposed to the general population. Yet, HIV and other STIs are diseases which the ultimate prevention strategy would be a social vaccine – a social approach to prevention of infection. Nevertheless, the studies

already done have managed to highlight several gaps in information on KAPs by MARPs groups, necessitating the need for a more comprehensive study.

It is commonly believed that having basic HIV/AIDS education enables people to protect themselves from becoming infected (UNESCO, 2009).The acquiring of knowledge and skills, encourages people to avoid or reduce behaviors that carry a risk of HIV infection (Paul-Ebhohimhem *et al.*, 2008).

High rates of HIV infection among sex workers may not be wholly due to the fact that they have multiple partners and may be influenced by a combination of other factors that compound this risk. These include: - poverty, limited access to healthcare and legal services, substance use and abuse as well as low educational levels and knowledge about HIV transmission and prevention (UNAIDS, 2002).

In Cambodia HIV/AIDS epidemic is currently spreading faster than anywhere else in Asia with heterosexual transmission of HIV through prostitution is believed to be catalyzing the epidemic (WHO, 2003). Sex workers were surveyed and found to be predominantly young, uneducated, poor women from rural areas, many of whom remain isolated in brothels. Brothel-based FSWs are probably at greatest risk for acquiring HIV for they reported twice as many sexual contacts per day and used condoms less frequently than community-based FSWs. The majority of FSWs surveyed knew that condoms offered protection against HIV/AIDS, although one-quarter of FSWs did not always use them further highlighting the disconnect between knowledge and actual practice. It is disappointing to note that despite their high level of baseline HIV/AIDS knowledge; nearly all FSWs requested that additional health

education materials be made available to them and their customers (Prybyliski and Alto, 1999).

However, several other studies indicate that sex workers are among those most likely to respond positively to prevention programs relating to HIV and STIs for instance by increasing their condom use with clients (Leoanard *et al.*, 2000). An interventional study was carried out in Malawi to measure the impact of a behavior change intervention among commercial sex workers and their potential clients (Vivien *et al.*, 2002). The study evaluated a peer education HIV/AIDS prevention program for bar-based sex workers and their potential clients who were long distance truck drivers. The results showed that in the active study districts, the presence of sex worker peer educators led to an increase in condom distribution and use with paying partners. Condom use with regular non-paying partners had however, not increased. The study recommended the need to investigate reasons behind inconsistent condom use especially with regular, 'trusted' clients to understand why they don't consider them a risk for transmission.

A KAPs survey conducted among prostitutes, pregnant women and truck drivers in Burkina Faso revealed that most of those studied i.e. 98%, 98% and 96% respectively, had heard of HIV /AIDS (Meda *et al.*, 1998). However, the level of knowledge on HIV transmission routes, of risk factors of HIV transmission and of available preventive measures was low. In spite of this, when asked if they considered themselves at risk for HIV infection 41% of the pregnant women, 40% of the long distance truck drivers and 61% of FSWs reported they didn't consider themselves at risk. From this study it is significant that a relatively high proportion of

truck drivers and FSWs, didn't consider themselves at risk of contracting HIV despite their high risk status as opposed to the pregnant women.

The link between lack of comprehensive knowledge and misconceptions related to HIV risk has been elaborated in a study carried out in Addis Ababa. The study investigated patterns of knowledge and condom use among ten high risk target groups. These were female sex workers, defense forces, police force, pastoralists, truck drivers, intercity bus drivers, road construction workers, teachers, factory workers and people in ANC catchment areas. They revealed that overall knowledge of the three preventive methods, misconceptions and comprehensive knowledge was 57%, 75% and 18.5% respectively. It thus, concluded that misconceptions about the transmission of HIV were high and comprehensive knowledge about HIV / AIDS was very low (Kassie *et al.*, 2008).

Awareness of HIV in the Kenyan general population is high at 98.4% among women and 99.3% among men (KDHS, 2003c). However, this cannot be interpreted to infer that these people know about HIV transmission dynamics and prevention based on what percentage know their current HIV status, which is the first step in good behavior and practice for HIV infection prevention. The study further correlated awareness with actual practice among various education levels showed that, 20% of those who completed secondary education and 33.3% with higher education knew their HIV status, while less than 10% of those with no or incomplete primary education knew their HIV status (KDHS, 2003d). These results having come from the general population which is considered to be much less at risk of acquiring HIV infection than FSWs, highlighted the need to identify how many FSWs who

participated in this study know their current HIV status at the point of data collection considering their significantly higher chances of acquiring and transmitting HIV infection.

2.8: Human immunodeficiency virus infection- related Sexual attitudes and practices among FSWs

Attitudes refer to a way of thinking that is influenced by - Myths and misconceptions. These Attitudes are then expressed as practices. In the arena of HIV, sexual attitudes and practices are major factors that are highly influenced by limited or lack of comprehensive knowledge, poverty and survival as well as stigma and discrimination.

Among FSWs, safer sex options based on the decision and ability to use condoms is complex and depends on among other factors their availability, client acceptability and the FSWs safer sex negotiation skills. Even in the backdrop of the HIV epidemic, condom use has been shown to be a bargain able choice among individuals having casual and consenting sexual intercourse.

A study on `Reasons for not using condoms among female sex workers in Indonesia' revealed that about 53% of sexual intercourses were reported to be protected and 12% of these protected intercourses were preceded by client's arguing against use of protection (Basuki and Wolffers, 2002).This study also showed that other reasons female sex workers do not use condoms were influenced by the belief that boyfriends and healthy looking clients cannot spread STIs and taking preventive measures like swallowing antibiotics prior to exposure protects one from acquiring HIV. This

study reflects on one of the many misconceptions surrounding HIV that create a false sense of security thereby increasing sexual risk taking behavior.

In Durban, South Africa, a similar study looking into 'The barriers to condom use among commercial sex workers' revealed, financial strain, negative symbolism of condoms –were seen as suggestive of filth, disease, infidelity and mistrust to be factors discouraging use of condoms (Varga, 2004). In this regard, HIV/AIDS awareness had minimal impact on condom use and HIV/AIDS was viewed as a remote threat, overridden by immediate practical and emotional concerns.

A study conducted in 3 major Ugandan towns of Kabale, Kampala and Lira to investigate whether and why there were changes of sexual behavior and practices among 5 risky groups – Men who have Sex with Men (MSM), MSM-Sex Workers, FSWs, Long distance truck drivers and immigrants - as a consequence of the HIV /AIDS epidemic (Ntozi *et al.*, 2003). Results indicated that despite the HIV /AIDS epidemic these groups had not reduced their multiple sexual partners and risky sexual behavior such as sex without condoms and anal sex. The females engaged in high risk sexual relations as a means of economic survival and perceived their acts as a strategy to improve their socioeconomic wellbeing. On the contrary, men in the high risk categories reported to involve themselves in such acts out of pleasure and as avenues for attaining fulfilled sexual lives. Another study carried out on 460 FSWs based in Nairobi, investigating the associations of sexual risk taking among Kenyan FSWs after enrollment in an HIV-1 prevention trial. This study revealed that FSWs often lack the ability to negotiate for safer sex and are at a higher risk for HIV-1 infection and STIs (Ngugi *et al.*, 2001). The study also portrayed how

demographics and age influenced their use of condoms and revealed that female sex workers working in night clubs were younger, charged more for sex and used condoms more frequently than female sex workers working from home. The latter were older, charged less and used condoms the least, while those working in bars were intermediate in charges and condom use. This study revealed an inverse relationship between better pay for sex and use of condoms and requires further investigation.

The studies already listed, serve to show that there is a need to investigate FSWs knowledge levels on HIV and STIs transmission and prevention in relation to attitude based dynamics such as beliefs, myths and misconceptions as they relate to actual behavior and practice related to HIV. This area will give us a better understanding on what we need to educate them on or clarify as healthcare professionals working with this highly vulnerable cohort. We may not need to educate them but need to identify points of intervention in the KAP cycle.

There are negative practices associated with beliefs that influence HIV acquisition among FSWs. One such practice is vaginal douching (The act of directing/applying a stream of water, often containing medicinal or cleansing agents to the vagina for hygienic or therapeutic purposes) which has been indirectly linked to HIV infection in FSWs (Rosenberg, 2001). This study showed that, Kenyan FSWs who douche are more likely to have bacterial vaginosis than those who don't douche. Bacterial vaginosis is the infection of the vagina by multiple bacterial organisms and is not sexually transmitted It is associated with increased risk of acquiring HIV infection. In a sample of 500 Nairobi sex workers 72% who reported they douche regularly,

49% had bacterial vaginosis and 30% were HIV positive (Vanwesenbeeck, 2001). Douching raised the risk of bacterial vaginosis by 60%, and bacterial vaginosis was significantly more common among HIV-positive women than among those who were HIV-negative (odds ratio, 1.5). No direct relationship was found between douching and HIV infection, however, a result that the researchers attribute to greater condom use among sex workers who douche. This study suggested further investigation into many other practices that increase risk of HIV infection which include having sex during menses and performing anal sex.

2.9: Life style risks of sex work

Occupational risks

Since sex work is illegal in several countries across the globe including Kenya, and thus sex workers are often outside the protection of the law and are particularly vulnerable to coercion, rape, police harassment, sexual and physical abuse (UNAIDS, 1999). In addition, social stigma and discrimination against sex workers create an environment that perpetuates a culture of violence (David, 1997).

The basic human rights to protection and redress are commonly disregarded for commercial sex workers, they are often penalized and regarded as criminals. They are also often targets of harassment, extortion and arrests from within their own networks of clients, pimps, regular partners and law enforcers (Decarlo *et al.,* 1996). For a FSW, especially in Sub- Sahara Africa, these issues are aggravated by gender inequality and the socio-cultural position of a woman in society which does not allow for a neutral environment for negotiation of safer sex.

A study in Australia conducted in-depth interviews with 24 purposively selected female sex workers who were perceived to be vulnerable to risks associated with their lifestyle and occupation (Pyett and Warr 1997). The results indicated that brothel workers were considerably less exposed to risk than the women working on the streets. This study showed that client resistance was the major obstacle to women maintaining safe sex practices. Physical threats and coercion from clients, the absence of legal protection for street workers, the workers' extreme social isolation and lack of community support added to the difficulties experienced by women in their attempts to insist on condoms for all sex services. Furthermore, youth, homelessness and heavy drug use also contributed to women being at times even more vulnerable to infection because they had less capacity to manage situations of potential violence or STI risk.

Another study in Thailand, sought to compare sexual risk and STI symptoms among FSW based on recent violence exposure (Decker *et al.*, 2010). Approximately one in seven FSW (14.6%) had experienced violence in the week before the survey. Compared with their unexposed counterparts, FSW exposed to violence demonstrated a greater risk of condom failure (19.6% versus 12.3%) and client condom refusal (85.7% versus 69%). They concluded that physical and sexual violence against FSW appears to be common, with women experiencing such violence demonstrating diminished capacity for STI/HIV harm reduction and greater prevalence of STI symptoms. This results of the study recommended that efforts to reduce violence towards this vulnerable population must be prioritized, as a means of

protecting the health and wellbeing of FSW, and as a key component of STI/HIV prevention and control.

There are few studies that examine street-based female sex workers' vulnerability to HIV from both clients and intimate partners. A study based in India documented street-based female sex workers' experiences of client and intimate partners, examines the interactions of violence, alcohol use, condom use, and highlights survival strategies used to avert harm (Panchanadeswaran *et al.*, 2008). Results showed that FSWs experienced multiple forms of severe client and intimate partner violence. This study revealed that sexual coercion and forced group sex in the context of alcohol use posed formidable barriers for condom use negotiation. Further, traditional gender norms dictated women's inabilities to negotiate condom-use with intimate partners. However, there was evidence of adoption of successful survival strategies in the face of danger in relation to women's positive evaluations of the benefits of sex work and their contributions to family well-being. The study concluded that harm reduction efforts with female sex workers needed to reduce their vulnerability to HIV from intimate partners in addition to clients. In addition HIV prevention programs needed to include male clients in order to reduce harm among street-based female sex workers. A third conclusion regarded the urgent need of building on sex workers' strengths and involving them in designing individual level, community, and structural interventions that could help in reducing women's vulnerability to intimate partner violence and HIV.

Substance use and abuse

The sex work milieu frequently includes alcohol consumption and in some regions, drugs such as Miraa (Khat), Bhang (*Cannabis Sativa*), cocaine, heroin and the date rape drug, rohypnol. Miraa is a mild stimulant herb whose use and growth is legal in Kenya. Bhang, cocaine and heroin are illegal but are also widely consumed in the slum setting.

Alcohol consumption has been shown to decrease inhibitions and is associated with increase in STIs, probably due to non- or incorrect use of condoms (UNAIDS, 2002).The use of alcohol and drugs alters judgment and ability to negotiate for safer sex, which is their association with HIV infection. The HIV/Sexually Transmitted Infection (STI) risk associated with alcohol use between FSWs and their customers has been understudied.

A study in the Philippines showed that multiple sexual risk behaviors were observed with more frequency for FSWs if alcohol was used before commercial sex or if the episode involved a customer perceived to be intoxicated (Chiao *et al*., 2006). In this study, forty-two percent of FSWs who had sex with an intoxicated customer were STI positive, significantly more than FSWs who did not have sex with an intoxicated customer (28%, $p < .01$). Similar significant differences were found for FSWs who did not consume alcohol before having sex and were STI positive (29%) versus FSW who did consume alcohol before sex and were STI positive (33%, $p < .01$).

Drug use in commercial sex work, play interlinked roles in the spread of HIV. A study among migrant female sex workers in the US Virgin Islands explored the connections between substance use and HIV risk (Surratt, 2007). In the month prior

to the interview, 25.7% reported no substance use, 57.4% reported alcohol use only and 16.8% indicated use of an illicit drug. Drug using sex workers reported a significantly greater number of past-month sexual partners than alcohol-only and non-drug users. In logistic regression analyses, illicit drug users were significantly more likely to report unprotected sexual activity, client violence and sexually transmitted infections as well. The multiple interlinked risk factors for HIV identified among drug-involved sex workers in the region, including unprotected sexual activity with multiple partners, violent victimization and migration between high and low HIV prevalence areas. These intersections suggest that illicit drug use may play an important role in driving the growing heterosexual HIV epidemic and are areas that require more studies.

This analysis of studies reinforces accumulating evidence in the field that sexual risk reduction interventions need to go beyond the behaviors of individual FSWs to meet the layering of risks and seek to gain wholesome understanding of their KAPs influencing HIV prevalence. Insight into the knowledge, attitudes and practices of most-at-risk populations gives us invaluable information from a patient's vantage point, which can be channeled towards effective and efficient prevention strategies.

2.10: Sexually Transmitted Infections (STIs) and HIV in sex work

The predominant transmission mode of both HIV and other STIs is through sexual intercourse. In addition, strong evidence supports several biological mechanisms through which STIs facilitate HIV transmission by increasing both HIV infectiousness and HIV susceptibility. Methods for preventing sexual transmission of

HIV and STIs are the same, as are the target audiences for interventions. Sexually transmitted infections are diseases that can be transmitted by unprotected sex between two people and include Chlamydia, gonorrhea, herpes, chancroid, syphilis and trichomoniasis. Not everyone with an STI will have signs and symptoms of the condition. If a person does present with symptoms, these may include abnormal vaginal or urethral discharge, pain or ulcers in the genital area.

Individuals who are infected with STIs are at least two to five times more likely than uninfected individuals to acquire HIV infection if they are exposed to the virus through sexual contact. In addition, if an HIV-infected individual is also infected with another STI, that person is more likely to transmit HIV through sexual contact than other HIV-infected persons (Wasserheit, 1992a).

Treatment of STI reduces an individual's ability to transmit HIV. Studies have shown that treating STIs in HIV-infected individuals decreases both the amount of HIV in genital secretions and how frequently HIV is found in those secretions (Wasserheit, 1992b).

Female Sex Workers and other MARPs groups are susceptible to increased risk of HIV infection and acquisition as a result of their increased risk of being infected with STIs due to occupational exposure.

CHAPTER THREE

3.0 MATERIALS AND METHODS

3.1: Study Area

The study was conducted at Korogocho Sex Worker Out-Patient (K-SWOP) Clinic, located in Korogocho slum which is estimated to be the fourth largest slum in Nairobi and home to 150,000 – 200,000 people occupying a 1.5 Km^2 area (UN-HABITAT, 2006). The slum is a "location" (an administrative unit) of Kasarani division, Nairobi County and located 11 kilometers northeast of the Nairobi's city centre. The main economic activities are running small market enterprises which involve trading in second hand goods and "jua kali" work (non-formal employment that usually requires semi-skilled labor, often performed out in the open under the sun), casual labor in and around the city and sex work.

The K-SWOP clinic is an out-patient centre housed within the Korogocho Health Centre, which is a local government health facility and provides comprehensive care for FSWs HIV and STI needs as well as conducts research on HIV/ STI.

3.2: Study design

This was a descriptive cross – sectional study. Data collection was conducted from December 2010 to January 2011.

3.3: Study population

It is not clear how many female sex workers live and work in the Korogocho slum. All FSWs enrolled within the K –SWOP clinic were eligible for the study as long as

they met the inclusion criteria. As at 31st January 2010, it had a total of 273 FSWs enrolled into the research program.

Inclusion criteria

The inclusion criteria for the study consisted of those who were:

- FSWs, 18 years and older (adults who can consent)
- Actively participating in commercial sex work (Woman who has exchanged sex for money or goods in the past one month)
- Currently enrolled at Korogocho CSW clinic
- Consenting to participate

Exclusion criteria

Those who were below 18 years old, were not longer in commercial sex work not enrolled at the K SWOP clinic; could not give informed consent for they were too sick or under the influence of drugs or did not consent to participate were excluded from the study.

3.4: Sampling

3.4.1: Sample size determination

Estimates of variance at 0.5 were used and applied in the Cochran's Formulae as shown (Cochran's, 1977) in order to estimate population proportion with absolute precision. Using proportion estimates of 0.5/0.5 provided the largest and most conservative sample size.

Cochran's Formulae

$$n_0 = \frac{(t)^2 * (p)(q)}{(d)^2}$$

$$= \frac{(1.96)^2 * (.5)(.5)}{(.05)^2}$$

$$= 385$$

n_0 = required sample size

t = 1.96

p, q= proportion estimates

d = acceptable margin of error.

However, this sample size was greater than 5% of the study population. This was adjusted by using Cochran's (1977) Correction formulae (Chadwik., 2001).

$$n_1 = \frac{n_o}{(1 + n_o/\text{Population})}$$

$$= \frac{385}{(1 + 385/273)}$$

$$= 159.73404323$$

= 160

n_1 = required return sample size after correction.

n_0 = required sample size

Assuming an anticipated response rate of 80% then

$n_2 = 160 / 0.80$

= 200

n_2 = sample size adjusted for return rate.

However since the sample size was close to the target population and had been calculated from a finite population of FSWs currently enrolled at the Korogocho Sex worker clinic, a census was done.

3.4.2: Sampling design

A census approach was used thus all FSWs attending the clinic at the time of data collection and those who met the inclusion criteria were enrolled into the study.

3.4.3: Sampling procedure

Every patient was approached by the principal investigator and one trained nurse assistant after their clinic visit within the clinic consultation rooms and requested to participate. Individual screening for suitability to participate in the study was then carried out behind closed doors, followed closely by explanation of the study and signing of informed consent form (See Appendix 1 & 2). During soliciting of

informed consent from all who met the inclusion criteria, participants were informed of purposes of the study, were required to disclose their HIV status and were informed that they could opt out of the study if they were not comfortable with it, and no ill consequences would befall them.

3.4.4: Data collection

Data was collected in the form of a questionnaire administered face-to-face by the investigator and the trained nurse counselor assistant (See Appendix III&IV). The questions included both open – ended coded and close – ended questions designed in respect to the study objectives. HIV testing during the interview was not carried out, however, the participants were requested to disclose their current HIV status for the study. The questionnaire was available in both English and Kiswahili language and either was administered as per the participant's preference.

3.4.4.1 Study Variables

Data on the following variables was collected.

Independent variables

- Socio demographics –marital status, educational level, age of onset of sex work and duration
- Client numbers
- Substance use and abuse practices
- Sexual practices - condom use, douching

- Experienced and perceived risks of commercial sex work
- Knowledge on HIV prevention and transmission

Dependent variables

- HIV sero- status

3.4.5: Data Management and analysis

Data collected for the study was thoroughly checked and validated for accuracy and completeness for double entry into Statistical Package for Social Scientists. The electronic data was stored in compact discs and external hard disks for back up before and after analysis.

Both the hard copy filled in questionnaires and disks were kept under lock and key at the Principal investigators office, while electronically stored data was further protected by password.

The data analysis presented in the results section was however done using STATA. Descriptive statistics including mean, mode, frequency distributions cross tabulations were used. Bivariate analysis was performed using the Pearson's chi-square test for testing associations between the various categorical variables. Multivariate analysis was done using logistic regression to examine the effects of selected factors on HIV status following bivariate analysis on categorical variables to determine factors to take further to the multivariate model. A p value of <0.05 was used as the cut-off for determining factors to be retained in the model based on a likelihood ratio test (LRT).

3.5: Ethical Considerations

Approval for the study was obtained from the JKUAT - Board of Post graduate Studies (BPS), KEMRI - Centre for Public Health Research; Scientific Steering Committee (SSC), and finally the Ethical Review Committee.

Institutional ethical clearance was also granted by the Clinical Director of the the Korogocho Sex Worker Outpatient clinic.

In respect to the study participants, a written informed consent was obtained from and a copy of it was issued to them to take home if they so wanted to (Appendix 1 & 2). They were duly informed that participation was voluntary and they reserved the right to opt out at any point in the study without any negative consequences. In respect to privacy and confidentiality, participants were reassured of complete confidentiality and intractability of data to the source since all questionnaires were stripped of all personal identifiers and labeled with codes. The interviews took place within the premises of the Korogocho Sex Worker Outpatient (K-SWOP) Clinic and data collected by the principal investigator and her two trained nurse counselors behind closed doors.

Participants benefited from free medical consultations and treatment of any conditions they had during the study period which was provided on site at the clinic by the onsite medical staff.

CHAPTER FOUR

4.0 RESULTS

Presented here are findings regarding the sexual knowledge, attitudes, and behavioral practices that were associated with being HIV positive among FSWs in Korogocho slum.

4.1: Socio-demographic information

A total of 297 FSWs were interviewed and taken through the questionnaire and results show that 61% started sex work while in their teens between the ages of 15-20 years and 29% started between 21-26 years of age. Only 3% of the total sample commenced sex work while in the higher reproductive ages of >33 years as shown in **Figure 3** below.

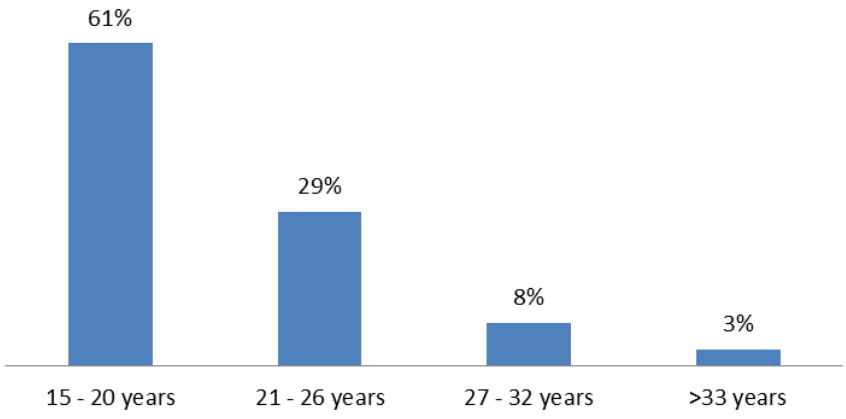


Figure 3: Age of participant at commencement of sex work

As shown in **Figure 4**, forty percent of the respondents had been in commercial sex work for between 1-5 years and 33% between 6-10 years while those who started over 10 years ago made up 20% of the study sample.

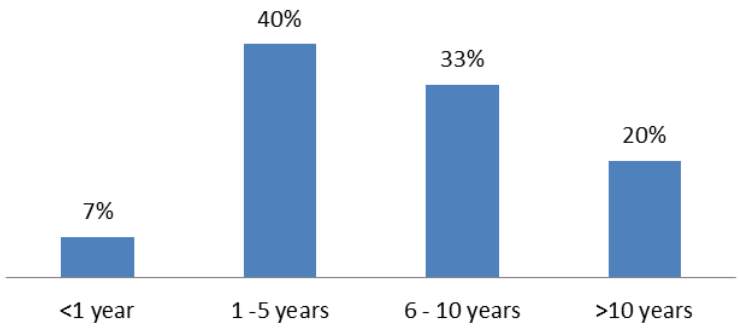


Figure 4: Length of time in commercial sex work

Two hundred and forty six (83%) of respondents were single with 42%, 26% and 15% being having never married, were divorced and widowed respectively. Of the others, 17% were in a relationship; 16% were cohabiting and 1% was married as shown in **Figure 5**.

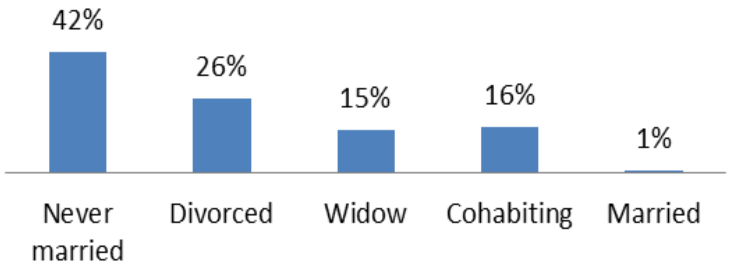


Figure 5: Marital status of participants

As shown in **Figure 6** below, a total of 66% of respondents dropped out of school after primary education. Only 31% had secondary level and 3% had tertiary level education.

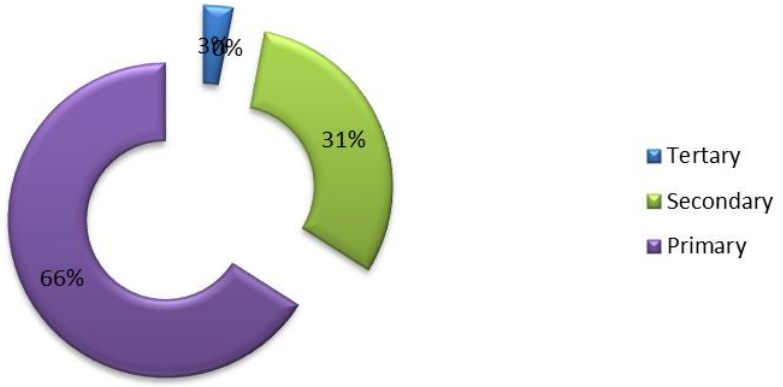


Figure 6: Highest levels of education among the participants

The questionnaire sought information regarding participants' earnings. **Figure 7** shows these were low with 11% earning less than Ksh.1,500 and only 36% earning over Ksh.4500 per month

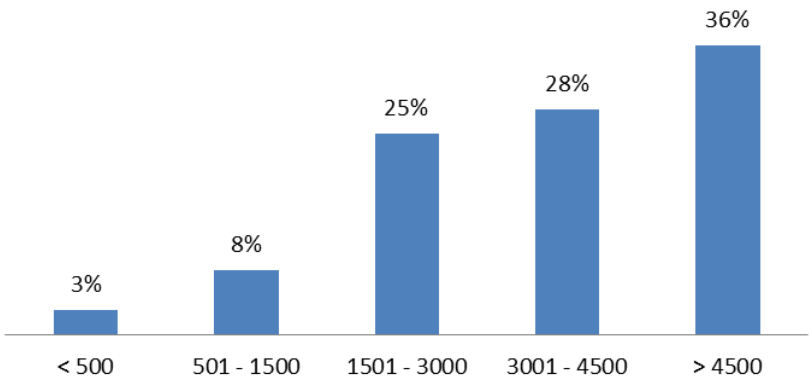


Figure 7: Participants monthly earnings

In respect to the work area, 44% operated from nightclubs, 23% from the streets, 28% from lodgings and 4% from their homes as shown in **Figure 8**.

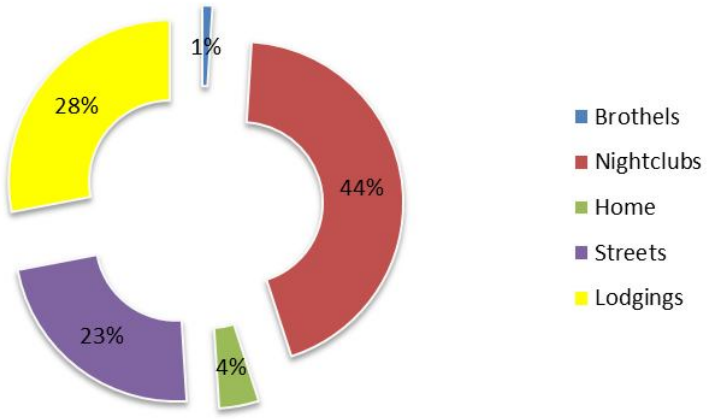


Figure 8: Participants work locations

The HIV status of the women was investigated by asking this information in the questionnaire. Thirty seven percent of the respondents reported that they were HIV positive, 35% HIV negative and 28% reported that they did not know their HIV status as shown on **Figure 9**.

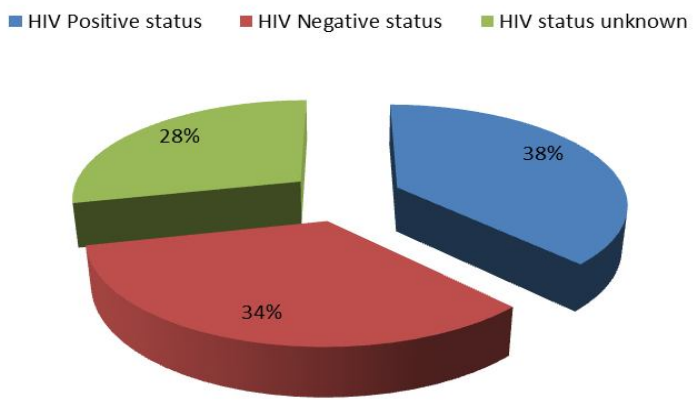


Figure 9: Participants HIV status

4.2 Knowledge on HIV transmission dynamics

Almost all participants were aware that HIV could be contracted through unprotected sex, needle sharing, birth and breast feeding. However as shown by **Table 1**, between 18 and 31% incorrectly thought that HIV could be transmitted by hugging and touching infected persons and mosquito bites. Some participants also quoted other modes of HIV transmission which were blood mixing during accidents, contact with open wounds of infected persons, careless shaving by barbers who may injure the skin and deep kissing.

Table 1: Knowledge on HIV transmission dynamics

	Yes(%)	No(%)	Don't know(%)	Total(%)
Transfusion with infected blood	98	2	0	100
Birth and breastfeeding	98	2	0	100
Needle sharing	99	1	0	100
Sharing utensils and toilets	27	72	1	100
Sitting close to a coughing HIV + person	18	81	1	100
Hugging and touching infected persons	31	68	1	100
Mosquito bites	31	66	3	100

Most participants (98%) correctly identified the ABC of preventing HIV infection which are Abstinence, Being faithful and Condom use. However 15% did not know that seeking medical attention is a way of preventing infection once exposure has occurred through rape or a ruptured condom as shown in **Figure 10** below. Another correct method of avoiding infection as rightly identified by respondents is testing your client for HIV before performing sexual intercourse.

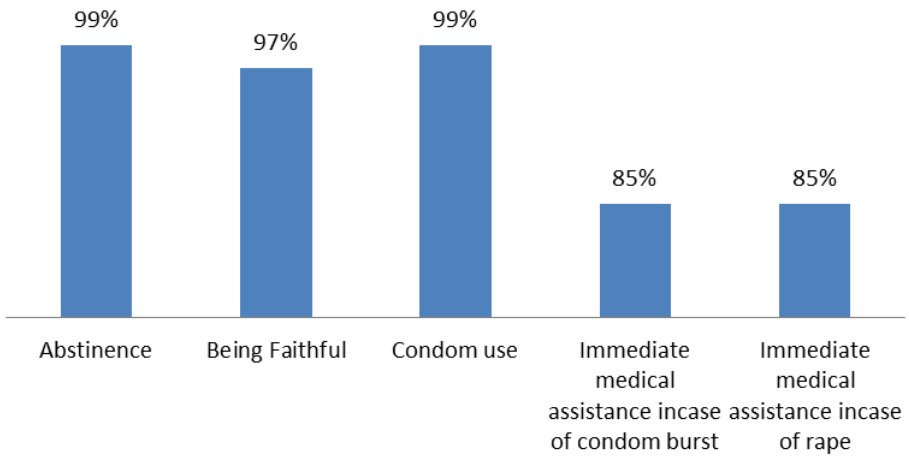


Figure 10: Knowledge on HIV infection prevention

On investigating mother to child transmission (MTCT) of HIV knowledge, majority (91%) of participants knew that a HIV positive pregnant woman can give birth to a HIV negative infant if birth takes place in a hospital under the care of an expert and accompanied by relevant medication. Only 5% of the participants disagreed that this was possible while 4% did not know anything about MTCT.

On the source of information on HIV/AIDS, **Figure 11** shows healthcare workers at 99% were the most common source of HIV/AIDS information for the participants, followed the mass media (television & radio) and lowest were sexual partners at 90%.

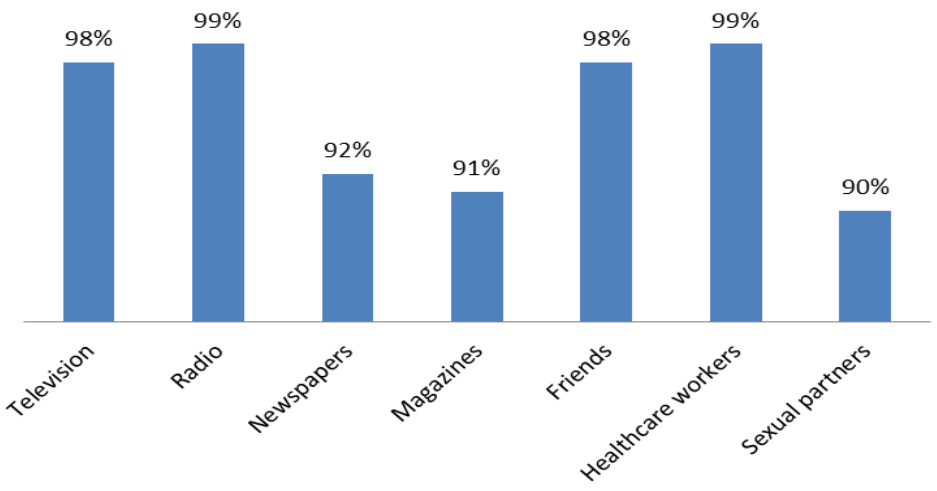


Figure 11: Sources of information on HIV/AIDS

4.3: Attitudes and Practices of participants with regards to HIV/AIDS

The study sought to find out the attitudes of the 297 participants in the study regarding the HIV situation in Kenya. When asked to what extent they thought that the HIV situation in Kenya was a problem or not 78% said that HIV was a problem

of these 47% thought it was a “serious problem”. As shown in **Figure 12**, over 20% either thought it was a small problem or not problem at all.

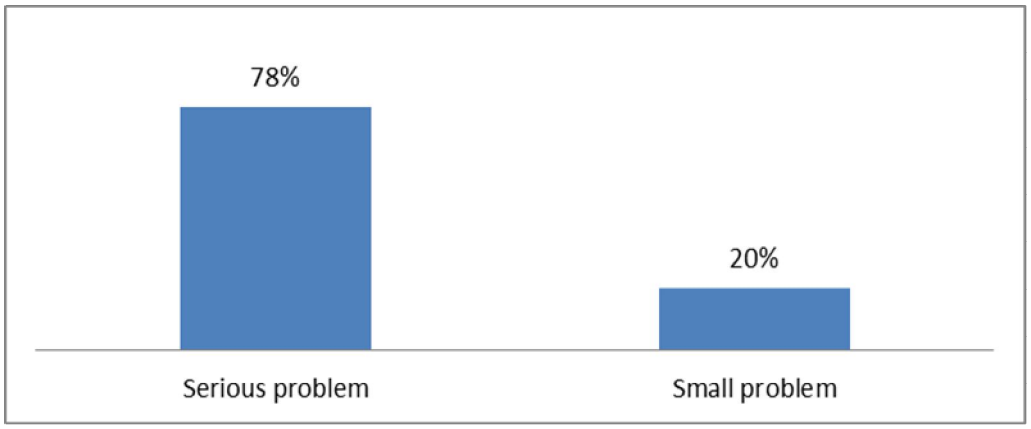


Figure 12: Participants opinion on the extent HIV/AIDS in Kenya as a problem or not

On inquiring on whether or not they thought they were as risk of transmitting HIV to others, 38% said that they didn’t think they were at risk of transmitting HIV to others. These constituted 22.5% of those who were HIV positive as shown in **Figure 13** below.

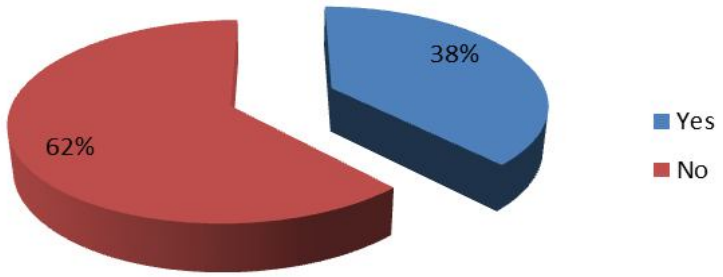


Figure 13: Risk of transmitting HIV to clients

The study sought to know the thoughts of the participants regarding whether one can tell a HIV positive person from appearance. Most of the participants (89%) agreed that one cannot use the physical appearance of an individual to tell their HIV status.

The study sought to find out what participants thought of herbal medicine and charms in relation to curing HIV infections. Only 6% of those sampled thought that herbal medicine and charms can cure HIV.

Other misconceptions regarding HIV/AIDS transmission dynamics from the participants were also investigated in this study. Thirty two percent of the participants believe that coital withdrawal during unprotected sex could prevent them from contracting HIV and 18% believe that douching or vaginal cleaning after unprotected sex could also prevent one from acquiring HIV infection. Furthermore, 17% of them said that having a bath immediately after unprotected sex could also prevent one from acquiring HIV. Anal and oral sex were also practices not thought of

as risky in terms of transmitting the HIV virus with 20% and 26% of respondents respectively as shown in **Figure 14**.

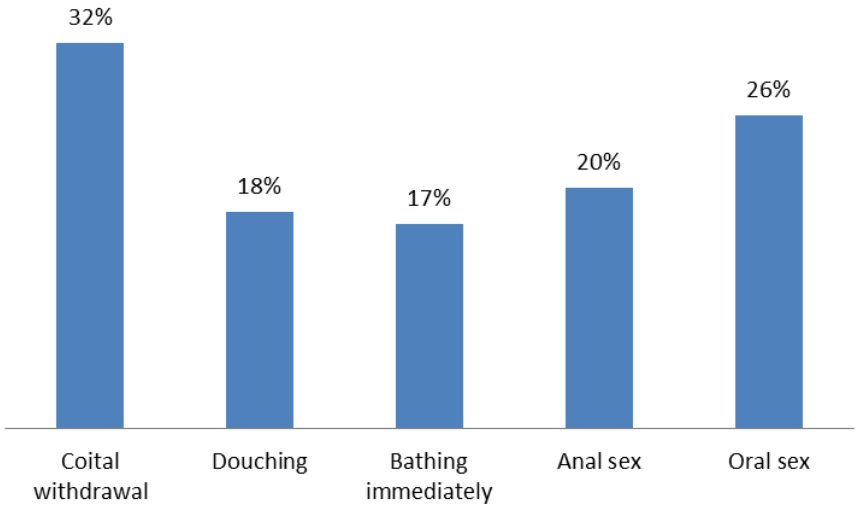


Figure 14 Misconceptions of sexual practices not considered risky in HIV transmission dynamics

Regarding condom use, a majority (98%) of respondents claimed they used condoms at work. Of these participants only 62% reported using condoms always, 25% sometimes and the rest either never using a condom, using it half of the times or more than half of the times as shown in **Figure 15**.

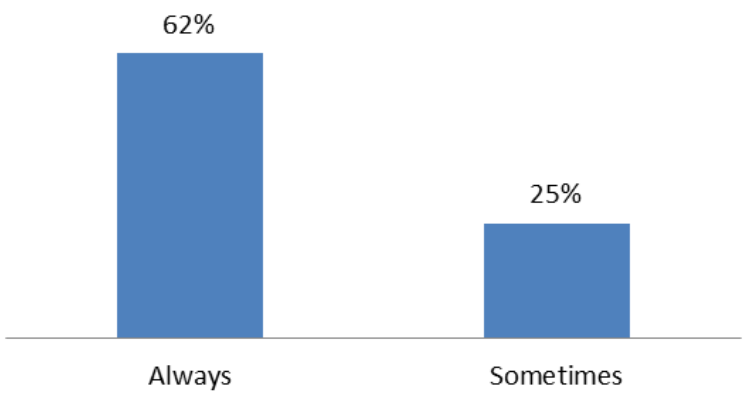


Figure 15: Frequency of condom use

In respect to the number of regular sexual partners, more than two thirds (71%) said they have a regular partner besides their sex work clients. Of these, 84% had a single regular partner while 16% had two partners. None of them claimed to have more than three regular sexual partners beyond their clients.

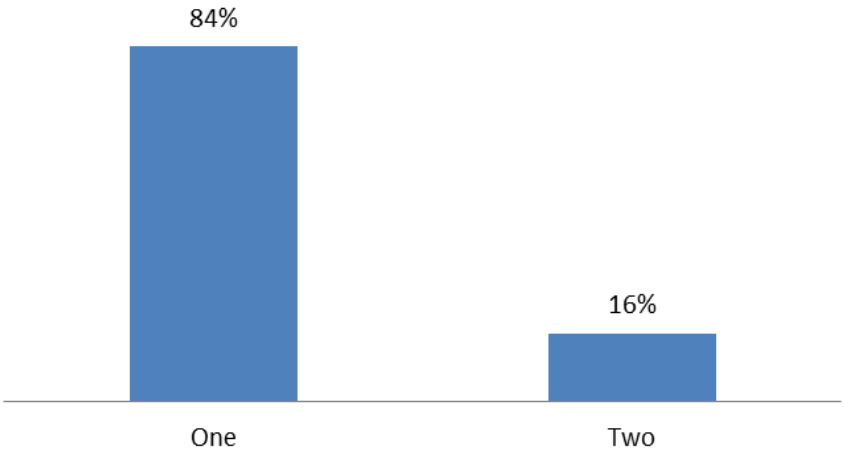


Figure 16: Number of regular sexual partners

In respect to condom use with regular partners, 43% never use condoms with them while those who reported to always use a condom were only 21%.

Regarding the type of sex participants practiced, oral sex was practiced by 47%, anal sex by 35% and 32% has sex during menstruation. In addition, 45% of respondents practiced vaginal douching/cleaning as seen in **Figure 17** below.

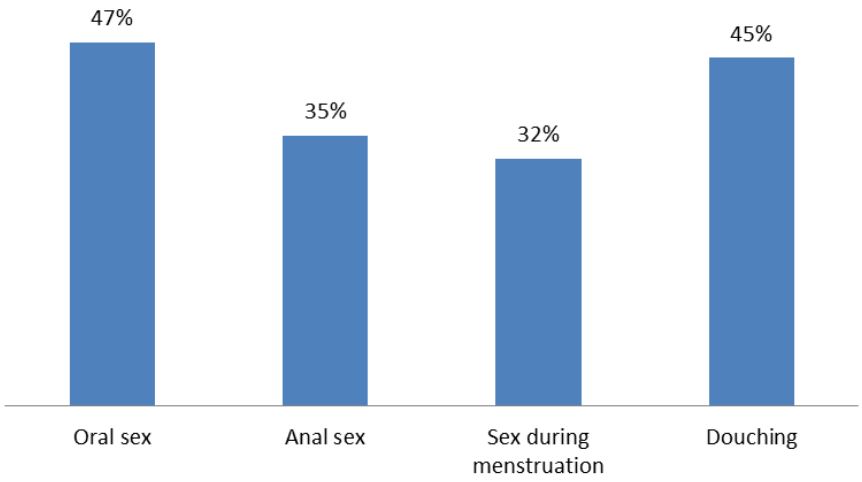


Figure 17: Sexual practices among respondents

4.4: Lifestyle Risks

Alcohol was the most commonly substance used by respondents during their work with 77% of participants reporting its use. Those who smoked bhang were only 7% of the total sample. As shown in **Figure 18**, 13% reported that they did not use any alcohol or abuse drugs and various substances in the course of their work.

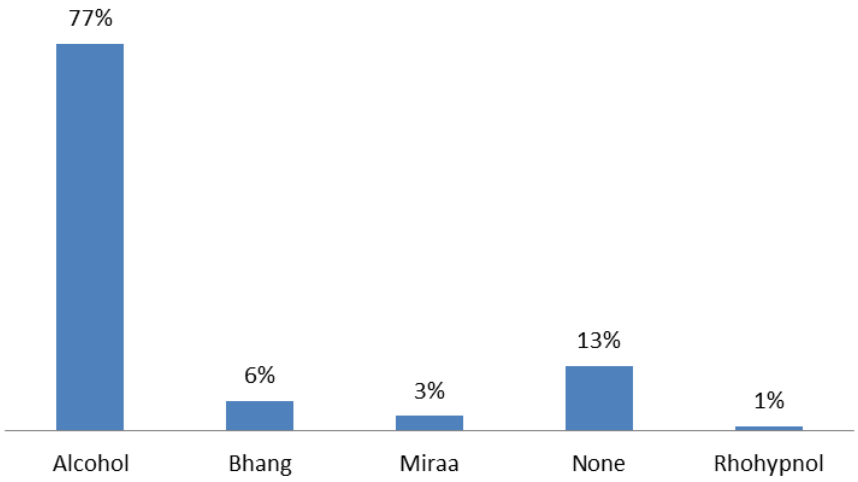


Figure 18: Substance use while at work

Of participants who engaged in substance use, 47% reported using drugs to the point of unconsciousness at least once. As shown in **Figure 19**, of these, 46% had experienced black outs 1-2 times, 26% between 3-5 times and 28% more than 5 times in the course of their work.

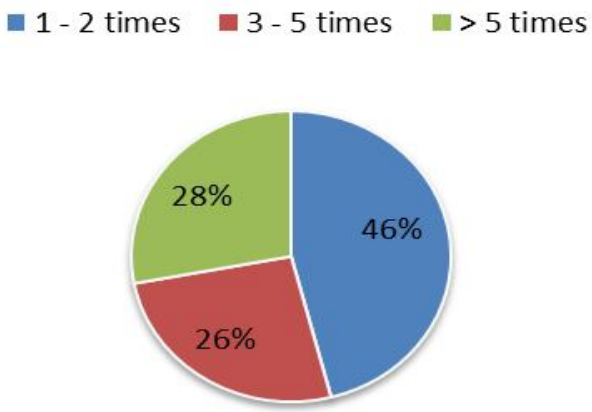


Figure 19: Frequency of substance use to unconsciousness

The participants were well versed with and willing to disclose different risks that they thought commercial sex work attracts listing them as perceived risks of this line of work as shown in **Figure 20** below. Of these perceived risks, 72% of the respondents have experienced police arrests, 86% discrimination and 67% sexual harassment from clients, 41% have been raped while at work and 45% have reportedly acquired an STI or HIV in the course of their work as shown in **Figure 21** below

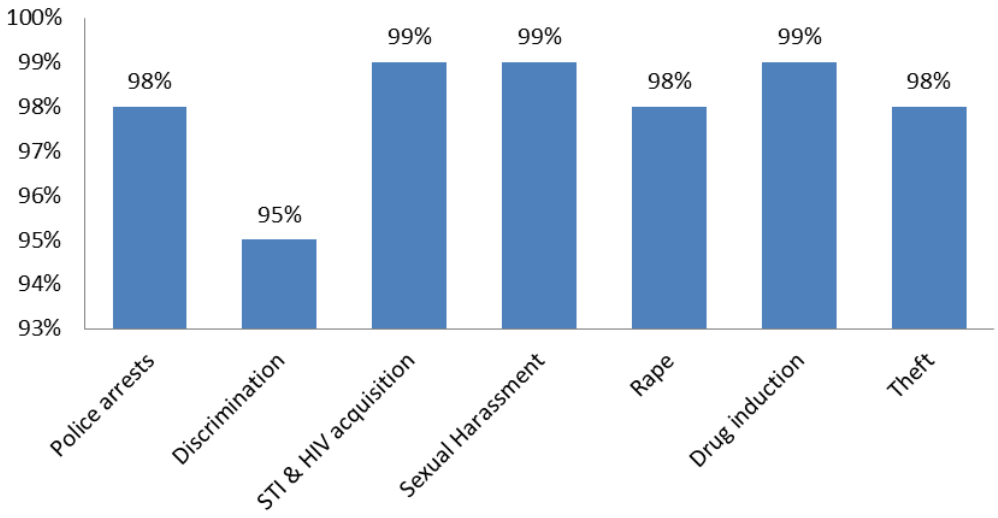


Figure 20: Perceived risks of commercial sex work

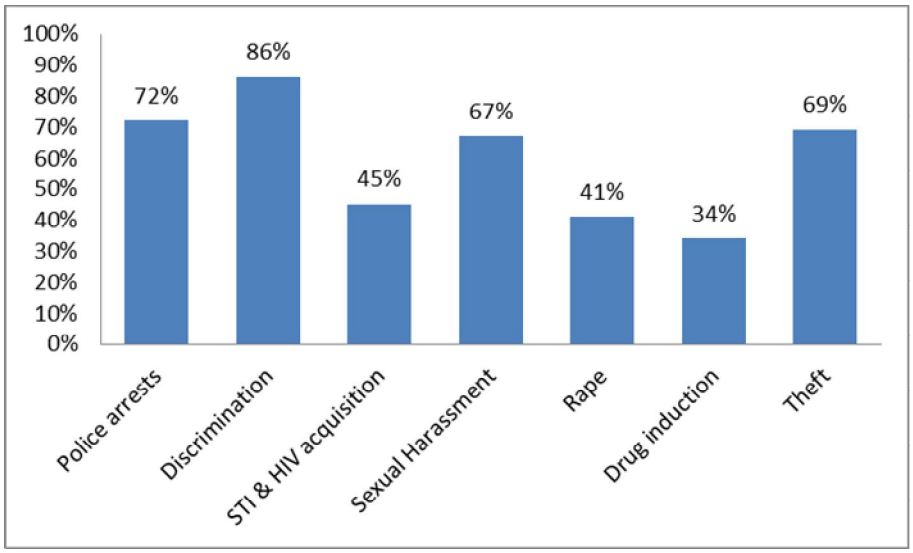


Figure 21: Experienced risks in commercial sex work

The study sort to investigate the opinion of participants on ways society would assist commercial sex workers to make better choices. At least 46% of the participants felt that provision of business loans and jobs (25%) would be a way in which society can assist them in making better life choices. Another 13% felt that legalizing sex work would help them. Other suggestions from respondents included, provision of free food, guaranteeing rights of sex workers, maintenance of free and sufficient condom supply in locations of sex workers, and protection from police harassment.

4.5: Bivariate analysis

A bivariate analysis comparing the socio-demographic, knowledge, attitudes, and practices variables against the declared HIV status of respondents was carried out and the significant findings are listed below.

To allow for a bivariate analysis to be carried out, the HIV status variable was collapsed into a two way response variable with group 1 comprising of those who reported having a HIV positive status and group 2 composed of both those who reported to be HIV negative plus those who didn't know their HIV status.

4.5.1: Socio-demographic variables bivariate analysis

The risk of HIV infection increased with an increase in the years of prostitution when compared to less than one year as the reference group. Women who had practiced prostitution for a period of 1-5 years had an increased risk of 1.4 times (CI 0.8 – 2.4) while those who practiced 6-10 years had an increased risk of 2.2 times (CI 0.9 -5.2) and women who had practiced for more than 10 years had a significantly increased risk of 4.3 times (CI 1.0 – 17.9; p value 0.04)

When compared to women who were single, women who were widowed had a significantly increased risk of HIV by 4.2 times (CI 2.1 – 8.7; p value <0.001) while divorced women were 1.5 (CI 0.8 – 2.7) times likely to be HIV positive and women who were in a come-we- stay-relationship or were married had a decreased risk 0.7 (CI 0.3 – 1.5) of HIV infection.

When compared to those who had a monthly earning over 4500, women who earned less than 500 and those who earned 3001-4500 were 6.5 (CI 0.7 – 60.2) and 1.2 (CI 0.7 – 2.1) times more likely to be HIV positive respectively while those who earned 501 – 1500 and 1501 – 3000 had a decreased risk of 0.4 and 0.7 times of HIV infection.

Women who worked in the streets were less likely (OR 0.8; CI 0.4 -1.5) to be HIV positive while those who worked in lodgings or brothels and at home were more likely by 1.2 (CI 0.7 -2.1) and 1.5 (CI 0.5 -4.5) times respectively to be HIV positive when compared to those who worked in night clubs as the reference group **(Table 2)**. This suggests that there is an association between having been a female sexual worker for over ten years and being widowed.

Table 2: Bivariate analysis of socio-demographic data associated with stated HIV status

Variable	**Category**	**HIV Positive status Number (%)**	**HIV Negative & Unknown status Number (%)**	**Odds Ratio (OR)**	**95% Confidence Interval (Lower)**	**95% Confidence Interval (Upper)**	**P Value**
Length of time in commercial sex work	< 1 year	56(53)	121(65)	1			
	1 -5 years	33(31)	51(27)	1.4	0.81	2.4	0.224
	6 – 10 years	11(10)	11(6)	2.16	0.88	5.28	0.091
	>10 years	6(6)	3(2)	4.32	1.04	17.91	**0.044**
Marital status	Never married	37(35)	86(46)	1			
	Divorced	29(27)	46(25)	1.47	0.8	2.68	0.215
	Widow	29(27)	16(9)	4.21	2.05	8.67	**<0.001**
	Cohabiting	11(10)	38(20)	0.67	0.31	1.46	0.316
Work locations	Nightclubs	45(42)	81(44)	1			
	Streets	21(20)	47(25)	0.8	0.43	1.51	0.498
	Lodgings	34(32)	51(27)	1.2	0.68	2.11	0.52
	Home	6(6)	7(4)	1.54	0.49	4.87	**0.46**

4.5.2: Knowledge on HIV/AIDS associated with HIV status

Women who reported their status as being positive were more likely by 1.3 (CI 0.4 – 3.9) times to report 'yes but don't know how' a HIV positive mother can give birth to a HIV negative infant and less likely 0.7 (CI 0.2- 2.6) to report 'no' when compared to those who reported 'yes but in hospital' as the reference group. When compared to women who believed that alternative medicine can cure HIV, women who reported their status as positive were 2.6 (CI 0.7 – 9.4) times likely not to believe in alternative medicine. This suggests that there is an association between an HIV positive status and possessing the right knowledge on the lack of effectiveness of alternative medicines to treat HIV.

4.5.3: Attitude and Practice associated with HIV status

When compared to respondent's opinion of HIV as a 'very big problem' there was a decrease in risk with an increase in consideration of the magnitude of HIV prevalence as a problem. Those whose opinion was 'it's not a problem' had the highest risk of 1.7 times (CI 0.3 – 8.6) of being HIV positive, while those who thought it was small problem having a risk of 1.2 (CI 0.6 – 2.3) and 0.8 (CI 0.5 – 1.4) to those whose opinion was that it's a big problem. This suggests that there is an association between reporting HIV status as positive and believing the HIV/AIDS epidemic in the country is not a problem

With women who strongly agree that bathing immediately after unprotected sex can prevent HIV as the reference group women who were HIV positive were 2.7 (CI 0.7 – 11.1) times likely to agree with this practice. This suggests that there is an

association between reported HIV positive status and being agreeable on the HIV infection protective role of bathing immediately after unprotected sex.

There was a statistically increased risk of 3.5 (CI 2.1 – 5.6; p value <0.001) times of women who reported being HIV and had no regular partner compared to those women who said that they had a regular partner. With women with two regular partners as the reference group, women who had more than three regular partners were more likely 1.4 (CI 0.6 – 3.1) to have who reported their HIV status as positive. This suggests that there is an association between reported HIV positive status and lacking a regular partner and in having more than three regular partners.

With always using protection with a regular partner as the reference group, women who reported their HIV status as positive had the likelihood of using protection being 1.2 (0.2 – 7.7) times in more than 50% of the times, 0.4 (CI 0.1 – 2.0) times in up to 50% of the times, 0.9 (CI 0.4 – 2.1) times sometimes, and 0.5 (0.2 – 1.0) times as never. This suggests that there is an association between reported HIV positive status and likelihood of using protection more often than not.

With alcohol use as the reference group women who reported being HIV positive were more likely 1.3 (CI 0.5 – 3.3) to use bhang at work.

Women who reported their HIV status as positive were less likely 0.8 (0.5 – 1.4) to have ever used drugs to unconsciousness when compared to those who used drugs to unconsciousness as the reference group

There was an increase in risk of a woman reporting their HIV status as positive with an increase in the number of times they ever used drugs to unconsciousness **(Table**

3). When compared to 1-2 times as the reference group, women who ever used drugs to unconsciousness 3-5 times were 1.4 (CI 0.6 – 3.4) times likely to be HIV positive while those who used drugs to unconsciousness >5 times had a statistically significant increased risk of 2.6 (CI 1.1 – 6.2; p value =0.04) times

Table 3: Bivariate analysis of attitudes and practices associated with HIV status

Variable	**Category**	**HIV Positive status Number (%)**	**HIV Negative & Unknown status Number (%)**	**Odds Ratio (OR)**	**95% Confidence Interval (Lower)**	**95% Confidence Interval (Upper)**	**P Value**
Having a regular partner	Yes	57(54)	149(80)	1			
	No	49(46)	37(20)	3.46	2.05	5.85	**<0.001**
Frequency of lost consciousness	1 – 2 times	17(16)	39(21)	1			
	3 – 5 times	12(11)	20(11)	1.38	0.55	3.44	0.494
	>5 times	18(17)	16(9)	2.58	1.07	6.23	**0.035**

4.6 Multivariate analysis

A multivariate regression model to determine the independent predictors of HIV positivity was built. The Hosmer-Lemshow criterion for statistical significance (P<0.2) was used to identify exposure variables from the bivariate analysis to add into the model starting with those with a strong association, in addition to age which had been identified as an *apriori* independent risk factors for HIV positivity. A likelihood ratio test (LRT) of <0.05 was used as the cut-off for determining factors to be retained in the model that predicted HIV positivity. After successful iterations

- knowledge of whether a patient was at risk of infection
- having a regular sexual partner and
- Participants years in sex work; > 10 years

These were identified as the significant predictive/associative factors for HIV in female sexual workers with a LRT of 0.008 **(Table 4)**.

Table 4: Multivariate model for factors that predict HIV positivity

Variables/Categories	**Odds Ratio (OR)**	**Lower Confidence Interval**	**Upper Confidence Interval**	**P value**
Participants age	1.66	1.10	2.50	**0.016**
At risk of infection				
Yes	1			
No	1.85	0.96	3.57	0.066
Have a regular partner				
Yes	1			
No	4.00	1.99	8.06	**<0.001**

CHAPTER FIVE

5.0 DISCUSSION

The HIV/AIDS pandemic is still a problem whose infection is spreading very fast and its control can be influenced fundamentally by countries acknowledging the existence of sex work and respond to their specific needs of HIV prevention, treatment and care (UNAIDS, 2001).

There is no cure for HIV and an effective vaccine is still a long way coming. For that reason, prevention and treatment still form the mainstay in management of the HIV pandemic more than 25years since the virus was first identified.

In Kenya and most parts of the world the HIV prevalence rates of FSWs though having dropped in line with the countries general population they are still significantly higher.

It is already clear that FSW are made vulnerable to acquiring HIV infection by virtue of having multiple sexual partners, but this in itself does not predispose them to HIV infection wholly. This finding was further proven in a study conducted among a cohort of FSWs in Pumwani Nairobi. It illustrates the first evidence of protection against HIV-1 infection in humans. This study began in 1985 and continues through the present. Women in the cohort have intense exposure to HIV-1 through their occupation and, although condom use is frequent, their risk of acquiring HIV-1 infection is enormous. The study found that each weighted year of exposure through prostitution resulted in a 1.2-fold reduction in HIV-1 sero-conversion risk (hazard ratio 0.83 [95% CI 0.79-0.88], $p < 0.0001$). Analyses of epidemiological and

laboratory data, show that persistent sero-negativity is not explained by sero-negative HIV-1 infection or by differences in risk factors for HIV-1 infection such as safer sexual behaviors or the incidence of other sexually transmitted infections. They concluded that a small proportion of highly exposed individuals may have natural protective immunity to HIV-1 and are resistant to HIV-1 infection (Fowke *et al.,* 1996*).*

This study sought to identify and analyze the other factors besides multiple sexual exposure/ partners that predispose FSWs to HIV infection among a highly vulnerable low socio-economic group of sex workers living and working in Korogocho slum (Nairobi) that lead to significantly high HIV prevalence rates among them.

The study determined the socio-demographic characteristics, knowledge on HIV/AIDS, attitudes, behaviors and practices that influence the high prevalence rates among a group of 297 FSW from Korogocho slum. The results of this cross-sectional study show that HIV infection is an important public health problem in the study area with 37% of the respondents reporting a HIV positive status.

5.1 Socio-demographic characteristics of participants

Most participants (61%) commenced sex work early between the ages of 15-20 years which increases their risk for HIV infection since the earlier they start commercial sex worker, the longer they will have been in it hence an extensive HIV exposure risk period. A study that explored associations between features of the risk environment, sex work, and underage sex work entry among 624 female sex workers in Tijuana and Ciudad Juarez, Mexico found that 41% of women

began sex work as minors, among whom HIV and any STI/HIV prevalence were 5.2 and 60.7% respectively (Goldenberg *et al*., 2011).

For the Korogocho slum FSWs in this study, duration in commercial sex work was high with up to 20% having been in the trade for >10years. Risk of being HIV positive increased with duration in commercial sex work with 1.4 times for 1 -5 years, 2.2 times for 6-10 years and 4.3 times for >10 years (CI 1.0 – 17.9; p value 0.04). These findings were similar to those from a cross-sectional study conducted in a cohort of 930 self-identified FSW in 4 cities in Benin (Cotonou, Abomey-Bohicon, Parakou, and Porto-Novo) to determine the socio-demographic and behavioral characteristics of FSW, and to assess changes in the behavior of registered FSW. They found that older age was positively correlated with HIV infection (Ahoyo *et al*., 2009a).

Eighty three percent of the interviewed Korogocho slums FSWs were single (Never married, divorced and widowed). Of these single FSW category widowed women and divorced women had a significantly high OR of being HIV positive by 4.2 (CI 2.1 -8.7; p value <0.001) times and 1.5 (CI 0.8 -2.7) times respectively. The same study conducted in Benin mentioned above collaborated these findings where HIV prevalence increased significantly for FSW who were currently unmarried or separated (POR = 2.63, 95% CI: 1.73-4.02), and who had never been married (POR = 2.07, 95% CI: 1.43-3.00) (Ahoyo *et al*., 2009b).

Only 19% of respondents had completed high school level education that would allow them to acquire semiskilled formal employment that would guarantee a

relatively good and stable income. A Systematic review of the socio-demographics of female sex workers (FSW) in Sub Sahara Africa, their occupational contexts and key behavioral risk factors for HIV reviewed a total of 128 relevant articles and found that FSW commonly have limited economic options, many dependents, marital disruption, and low education. These, in turn, predict behaviors such as low condom use, anal sex and co-infection with other sexually transmitted infections (Scorgie *et al.*, 2011)

Only 4% of respondents operated from their homes, 44% operated from nightclubs a locality that provides easy access to alcohol and other substances of abuse. Twenty three percent operated from the streets which make them easy targets for police harassment and arrest. Maher reported in his abstract titled 'Selling sex in unsafe places' that brothels have been shown to be safer than street-based sex work, with higher rates of consistent condom use and lower HIV prevalence. While entertainment venues are also assumed to be safer than street-based sex work, few studies have examined environmental influences on vulnerability to HIV in this context (Maher *et al.*, 2011)

5.2 Knowledge on HIV transmission dynamics by participants

Knowledge on HIV transmission dynamics was significantly high at 100%, 98% and 99% correctly identifying the 3 major modes of transmission which are **1.** Sexual transmission **2.** Birth and breastfeeding and **3.** Transfusion with infected blood and sharing needles respectively. These high levels of knowledge are interspersed with misconceptions and didn't translate into safer sex practices for a significant

proportion. Of the participants, 32%, 17% and 18%, believe that coital withdrawal during, having a bath immediately after and vaginal douching or cleaning after unprotected sex respectively can prevent them from contracting HIV infection. Women who were HIV positive were 2.7 (CI 0.7 -11.1) times likely to agree that bathing immediately after unprotected sex prevents HIV infection. Also, 11% of respondents felt that you could tell a HIV positive person from physical appearance.

On comparison with actual practice it was found that though a majority of the participants (98%) claimed to use condoms at work only 62% of them used them always. Seventy percent of respondents have a regular partner besides their sex work clients. Of these, 43% never use condoms with their regular partners and those that do use them, only 21% use them always. Those with more than 3 regular partners were 1.4 (CI 0.6 -3.1) times likely to have reported their HIV status as positive.

Information and knowledge on HIV/AIDS possessed by the participants is mostly acquired from the Healthcare provider (99%) followed by the mass media (98.5%) then the print media (98%). Consequently, the best avenue to get the correct information regarding HIV infection and prevention to the FSWs would be by delivering adequately packaged IEC messages in healthcare programs being implemented within the clinics

On post exposure prevention awareness, 15% of participants didn't know that seeking medical attention once exposure to HIV infection has occurred is a way of preventing infection.

5.3 Attitudes and practices of participants in regard to HIV/AIDS

Thirty eight percent of the participants said they didn't think they were at risk of transmitting HIV to their clients. They constituted 22.5% of those who were HIV positive. These results are comparable to those of data analyzed from a cross-sectional, behavioral survey of 297 FSWs in Mombasa, Kenya. The risk of HIV acquisition was perceived as medium to high by 41% of respondents, 75% of whom attributed this risk to multiple partners (Tegang *et al.*, 2010)

On misconceptions regarding HIV/AIDS, 32%, 17% and 18%, believed that coital withdrawal during, having a bath immediately after and vaginal douching or cleaning after unprotected sex respectively can prevent them from contracting HIV infection. Women who were HIV positive were 2.7 (CI 0.7 -11.1) times likely to agree that bathing immediately after unprotected sex prevents HIV infection. Eleven percent of participants felt that you could tell a HIV positive person from physical appearance.

Though a majority of the respondents (98%) claimed to use condoms at work only 62% of them used them always. Seventy one percent of participants had a regular partner besides their sex work clients. Of these, 43% never use condoms with their regular partners and those that do use them, only 21% use them always. Those with more than 3 regular partners were 1.4 (CI 0.6 -3.1) times likely to have reported their HIV status as positive.

These results were consistent with those from a study of FSWs in Papua New Guinea where despite some common misperceptions on HIV, overall, most FSWs were basically aware of the risks of HIV and informed about transmission and prevention

modalities but used condoms inconsistently. Most reported using condoms 'sometimes', almost one-sixth 'never' used condoms, only a fraction used condoms 'always' with clients, and none used condoms 'always' with regular sexual partners. Among these FSWs, being knowledgeable about the risks, transmission, and prevention of HIV did not translate into safe sex (Bruce *et al*., 2011).

Oral and anal sex are practices that were largely viewed as safe and not risky for transmitting HIV infection with 47% and 35% of participants in this study practicing them. In a survey conducted among 147 FSWs in Meru, Kenya, who were randomly sampled from an existing cohort of self-identified FSWs 40.8% of participants reported ever practicing anal intercourse. Although the majority of women surveyed believed anal intercourse to be high risk practices for HIV infection compared with vaginal sex, about one third of women reported never or rarely using condoms during anal intercourse (Schwandt *et al.,* 2006).

Other practices considered safe are vaginal douching and having sex during ones menses with 45% and 35% of participants practicing them respectively. A cross-sectional survey among 454 female sex workers (FSWs) in a Chinese county reported that 64.7% of the women practiced vaginal douching (Wang *et al.,* 2005).

The risk of acquiring HIV infection is higher in the presence of STI and other reproductive tract infections such as *Bacterial vaginosis* (BV). Vaginal douching has been linked to increased prevalence of BV infection in the females practising it. In a study conducted in Nairobi among 543 FSWs 72% of who perform regular douching generally after each sexual intercourse concluded there was a significant trend for

increased frequency of douching and higher prevalence of BV. Also HIV infection was associated with BV, trichomoniasis, gonorrhoea, and the presence of a genital ulcer. (Fonck *et al*., 2001)

The sex trade milieu is flooded with drugs both legal and illegal. Alcohol was the most commonly used and abused substance with 77% reporting having used it while at work and 47% of them have used to the point of unconsciousness and a further 28% had lost consciousness more than 5 times. The risk of reporting their HIV status as positive increased with the number of times they had used alcohol to unconsciousness. Women who ever used drugs to unconsciousness 3-5 times were 1.4 (CI 0.6 – 3.4) times likely to be HIV positive while those who used drugs to unconsciousness >5 times had a statistically significant increased risk of 2.6 (CI 1.1 – 6.2; p value =0.04) times.

Those who used alcohol were 1.3 (CI 0.5-3.3) times to use a second drug, bhang while at work. To better understand this association, Tegang *et al* analyzed data from of FSWs operating in Mombasa and found that, lifetime use of different substances was reported by 91% for alcohol, 71% for khat, 34% for marijuana, and 6% for heroin, cocaine, glue or petrol. The majority (79%) used more than one substance, and multiple-substance use was reported by all respondents who ever used marijuana, heroin, cocaine, glue and petrol. (Tegang *et al*., 2010a)

The participants in this study were aware of the various threats they attract and significantly high numbers have experienced those same risks. Police arrests, STI & HIV infection, sexual harassment, rape have been encountered by 72%, 45%, 67%

and 41% of respondents respectively. The comparative study mentioned previously by Tegang *et al* gives comparative results with Sexual violence being reported by 48% of respondents, and 30% indicated that this happened several times. Despite HIV prevention programmes targeting FSWs in Mombasa, most of them continue to engage in risky sexual behaviours. This suggests that harm reduction strategies for substance use should be coupled with efforts to promote consistent condom use and partner reduction (Tegang *et al.,* 2010b)

Although this was a cross – sectional study, the results would help to focus intervention measures in healthcare programs targeting FSWs, most of which can be delivered as a cost effective mechanism using targeted Information Education and Communication (IEC) messages to address knowledge gaps, misconceptions and risky practices identified

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

Female sex workers in Korogocho slum, Nairobi were likely to commence sex work early between the ages of 15 -20 years, be single, have an education level below high school completion and practice sex in venues outside their homes like night clubs and on the streets. Majority of them were also likely to be relatively young to the sex trade having been in it for 1-5years however, more than a third were HIV positive.

They had high levels of correct knowledge on HIV transmission and prevention dynamics acquired mostly from their healthcare workers and the mass media of television and radio, but was interspersed with multiple misconceptions which include HIV acquisition can be prevented by coital withdrawal during intercourse, bathing immediately after and vaginal douching after unprotected sex.

Majority of the Korogocho FSWs recognized HIV/AIDS as a problem and agreed that you can't tell HIV status of a positive person from their appearance also, herbal medications and charms cannot cure HIV. Despite these, less than half of them thought they were at risk of transmitting HIV to others.

Korogocho FSWs were likely use condoms while at work though not consistently, to have had at least one regular sexual partner besides their sex work clients and majority of them did not use condoms with their regular partners.

More than a third of them practiced oral sex, anal sex and sex during menses and a majority practiced vaginal douching/cleaning.

Majority of the Korogocho FSWs used alcohol while at work and close to half have abused it by having used it to the point of unconsciousness. Police arrests, sexual harassment, discrimination and theft are risks that had experienced by majority of the Korogocho FSWs.

HIV positive status for FSWs from Korogocho slum can be predicted by lifestyle risks experienced of, stigma & discrimination, STI/HIV infection and rape.

6.2 Recommendations

For any HIV response to be successful and cost effective, it must be tailored to the epidemiological and social reality of HIV transmission patterns. Addressing knowledge gaps, changing attitudes and practices is a long term process that requires continuous and consistent delivery of the same message to facilitate behavior change communication. This involves a multi-disciplinary approach including the FSWs themselves, human rights leaders, health professionals, Ministry of public Health and sanitation, non-governmental institutions and policy makers. Innovative intervention strategies proposed include:

I. Ministry of Health developed and endorsed targeted information, education and communication materials specific in addressing HIV related misconceptions that influence their attitudes and risky practices in the FSW population of Korogocho slum to be delivered at the sex workers healthcare and work outlets.

II. Implementation of programs whose objectives are to improve standards of living for FSWs by identifying other income generating projects; which will limit their dependence wholly on proceeds of prostitution and probably limit time spent in earning a living from commercial sex work.

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APPENDIX 1: Informed Consent Letter (English version)

Title of the study: Factors Associated with HIV Acquisition among Female Sex Workers in Korogocho Slum, Nairobi, Kenya.

PART A

Introduction

The abbreviation HIV stands for Human Immunodeficiency Virus whose infection leads to AIDS (Acquired Immunodeficiency Syndrome). Some groups such as Female Sex Workers, are considered to be at high risk of acquiring HIV infection due to their multiple partner status.

You are therefore invited to participate in this study whose main objective is to determine the sexual attitudes, behavioral practices and knowledge base that is associated with the risk of contracting HIV among Female Sex Workers in Korogocho Slum, Nairobi. We request you to read this form and ask any questions you may have before agreeing to participate in the study.

This study is being conducted by Joan Nyamu from the Institute of Tropical Medicine and Infectious Diseases, Jomo Kenyatta University of Agriculture and Technology.

Purpose of the study

The main objective of the study is to determine the sexual attitudes, behavioral practices and knowledge base that is associated with the risk of contracting HIV

among Female Sex Workers in Korogocho Slum. The information gathered from this study will be used to advise policy and to modify intervention programs.

Study procedures

If you agree to participate in this study, you will be interviewed on various issues such as HIV knowledge, sexual attitudes and practices and on your perceived and experienced risks of commercial sex work. You'll also be asked to disclose your current HIV status. At least 200 FSWs are going to be recruited for this study.

Risks and benefits of study participation

The questions are of a highly personal nature and may cause mild psychological stress, however, your most honest and truthful answers will give the best possible information required to design effective interventions. Also, if you're found to be sick, treatment will be provided to you on the site by the clinic doctor.

Study costs

If you accept to take part in this study, there will be no payment expected from you or to you.

Confidentiality

All your responses to the questions are confidential. Your name or any other personal identifiers will not appear on the questionnaire, so that no specific responses can be attributed to you. A copy of this consent document will be given to you to take home if you so wish.

Participant Information

Your participation is entirely voluntary and you are free to withdraw from the study at any moment without any ill consequences befalling you.

Contacts and Questions

The researcher conducting this study is Joan Nyamu. You may ask any questions you have now or if you have any questions later, you are encouraged to contact her through mobile number: 0722 296145, or email drjnyamu@gmail.com.

If you have any questions or concerns regarding the study and would like to talk to someone other than the researcher(s), you are encouraged to contact the following:

The Director,

Institute of Tropical Medicine and Infectious Diseases (ITROMID)

Jomo Kenyatta University of Agriculture and Technology (JKUAT)

P.O. BOX 62000-00200, Nairobi.

Tel no: 067-52711

Email: itromid@nairobi.mimcom.net

OR

The Chairman,

KEMRI National Ethical Review Committee,

P.O. BOX 54840-00200, Nairobi.

Tel no: 2722541, 2713349, 0722 205901

Email: info@kemri.org

PART B

Participant consent form

I have understood the above information which has been fully explained to me by the investigator and I voluntarily consent to participate.

Signature……..

Or participants thumb print.

Date……

Witness signature……..

APPENDIX 2: Barua ya Kibali (Kiswahili version)

Anwani ya utafiti: Factors associated with HIV acquisition among Female Sex Workers in Korogocho Slum, Nairobi, Kenya.

SEHEMU A

Ufupisho HIV unasimamia Human Immunodeficiency Virus kwa jumla, ugonjwa wenye huleta AIDS au Acquired Immune Deficiency Syndrome. Iko vikundi vya watu ambao wamo hatarini kuambukizwa hii ugonjwa kama vile wanawake wanao fanya ukahaba. Hii ni kwa sababu wako na wapenzi wa ngono wengi.

Umealikwa kushiriki kwenye utafiti huu ambao kiini chake ni kutambua ufahamu wa HIV, maono na matendo yanayo shawishi kuambukizwa kwa virusi vya Ukimwi kati ya FSWs katika Korogocho Slum, Nairobi. Twakusihi usome fomu hii na uulize maswali yoyote ambayo huenda ukawa nayo kabla ya kukubali kushiriki katika utafiti huu.

Utafiti huu unatekelezwa na Joan Nyamu, kutoka idara ya Utafiti wa Magonjwa ya Kuambukizwa katika Chuo Kikuu cha Kilimo na Teknolojia cha Jomo Kenyatta.

Lengo la Utafiti

Lengo la utafiti huu ni kutambua ufahamu wa HIV, na maono na matendo yanayo shawishi kuambukizwa kwa virusi vya Ukimwi kati ya FSWs katika Korogacho Slum, Nairobi.

Namna ya utafiti

Habari zote zitakazo kusanywa kwenye utafiti huu, zitatumiwa kushauri maongozi ya serikali na kuimarisha miradi itakayochangia miradi itakayo pelekea kuimarika kwa hali ya afya ya wanawake wanao fanya kazi ya ukahaba. Tunatamani kuwafikia wanawake 200 katika utafiti huu.

Hatua na manufaa ya kushiriki kwa utafiti

Maswali ni ya kibinafsi na yaweza kusababisha kusumbuliwa kisaikolojia, hata hivyo, uaminifu wako utatupa ujuzi bora unaohitajika kutia mikakati inayofaa. Ukipatikana kuwa mgonjwa pia utapata matibabu ya bure katika hii kliniki.

Gharama ya utafiti

Ukikubali kushiriki kwenye utafiti huu, hautapokea malipo yoyote au kuitishwa malipo yoyote.

Kubanwa kwa utafiti

Majibu yako ni ya siri, jina lako au vitambulisho vingine havitaandikwa katika fomu hii ya maswali ili majibu yoyote yasielekezwe kwako.

Taarifa ya kushiriki

Uhusika wako sio wa kulazimishwa na uko huru kujiondoa wakati wowote bila matokoe mabaya kwako

Mawasiliano na maswali

Mtafiti anayetekeleza utfiti huu ni Joan Nyamu. Unaweza kuuliza maswali yoyote uliyonayo sasa ama ikiwa utakuwa nayo baadaye, unahimizwa kuwasiliana naye kupitia nambari ya simu ya mkono: 0722 296145, au barua pepe drjnyamu@gmail.com.

Ikiwa una maswali yoyote kuhusu utafiti huu na ungependa kuongea na mtu mwingine asipokuwa mtafiti, unahimizwa uwasiliane na wafuatao

Mkurugenzi,

Idara ya Utafiti ya Madawa na Magonjwa ya Kuambukiza

Chuo Kikuu cha Teknolojia cha Jomo Kenyatta

S.L.P 62000-00200, Nairobi.

Nambari ya simu: 067-52711

Barua pepe: itromid@nairobi.mimcom.net

AU

Mwenyekiti

KEMRI National Ethical Review Committee,

P.O.BOX 54840-00200, Nairobi.

Nambari ya simu: 2722541, 2713349, 0722 205901

SEHEMU B

Fomu ya mshiriki ya idhini

Mimi mshirika nimeelewa yale nimeelezwa hapo juu, na kwa hiari yangu, ninakubali kushiriki kwa uchunguzi huu.

Sahihi…….

Au alama ya kidole gumba

Tarehe……...

Mchunguzi……...

APPENDIX 3: QUESTIONNAIRE (English version)

Factors associated with HIV acquisition among commercial female sex workers in Korogocho slum, Nairobi, Kenya.

Participants Code:……..

Date of interview…….

SECTION A

SOCIO-DEMOGRAPHIC DATA

1. How old were you when you first got into commercial sex work?

   ☐ 15 – 20

   ☐ 21 – 28

   ☐ 29 – 35

   ☐ 35 - 45

2. For how many years now have you practiced commercial sex work?

   ☐ Less than 1 year

   ☐ 1 – 5

   ☐ 6 – 10

- ☐ More than 10 years.

3. What is your current marital status?

   - ☐ Single (never married)
   - ☐ Divorced/separated
   - ☐ widowed
   - ☐ Cohabiting
   - ☐ Married

4. How many years of formal education have you received?

   - ☐ Some primary education
   - ☐ Complete primary education
   - ☐ Some secondary education
   - ☐ Complete secondary education
   - ☐ Tertiary level

5. What is your average monthly income from sex work?

   - ☐ Less than Ksh.500
   - ☐ 501 – 1500
   - ☐ 1501 – 3000

☐ 3001 – 4500

☐ Greater than Ksh.4500

6. Which is your place of work?

☐ Brothels

☐ Bar/pubs

☐ Streets

☐ Lodging

☐ At home

7. Kindly disclose to me your HIV status?

☐ Positive

☐ Negative

☐ I don't know

SECTION B

KNOWLEDGE

8. How is HIV transmitted?

- Having unprotected ☐ YES ☐ NO ☐ DON'T

sex with someone who is infected with HIV.			KNOW
• Receiving blood transfusion from unscreened blood.	☐ YES	☐ NO	☐ DON'T KNOW
• From mother to child during pregnancy, child-birth and breastfeeding.	☐ YES	☐ NO	☐ DON'T KNOW
• Sharing needles with others	☐ YES	☐ NO	☐ DON'T KNOW
• Sharing utensils, clothes or toilet with someone who is infected.	☐ YES	☐ NO	☐ DON'T KNOW

- Seating near a HIV person who is sneezing or coughing ☐ YES ☐ NO ☐ DON'T KNOW

- Kissing or touching someone who is HIV positive. ☐ YES ☐ NO ☐ DON'T KNOW

- From a mosquito bite. ☐ YES ☐ NO ☐ DON'T KNOW

Other (specify)

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……..

9. How can HIV be prevented?

- From abstaining ☐ YES ☐ N ☐ DON'T

		O	KNOW
• Being faithful to one HIV negative partner	☐ YES	☐ NO	☐ DON'T KNOW
• Using condoms	☐ YES	☐ NO	☐ DON'T KNOW
• Seeking prompt treatment in cases of a burst condom	☐ YES	☐ NO	☐ DON'T KNOW
• Seeking prompt treatment in cases of rape	☐ YES	☐ NO	☐ DON'T KNOW

Other (Specify)

……

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……

10. Can a HIV positive mother, give birth to a HIV negative child?

☐ Yes

☐ No

☐ I don't know

If yes, explain how

……

……

……

……

……

11. What are your sources of information on HIV/AIDS?

• Television	☐ YES	☐ NO
• Radio	☐ YES	☐ NO
• Newspapers	☐ YES	☐ NO
• Magazines	☐ YES	☐ NO
• Peers	☐ YES	☐ NO
• Health providers	☐ YES	☐ NO
• Sex partners.	☐ YES	☐ NO

SECTION C

ATTITUDES AND PRACTISES

12. What do you think of the current HIV/AIDS situation in Kenya?

☐ It’s not a problem

☐ A small problem

☐ Serious problem

☐ Very serious problem

☐ Not sure

13. Do you consider yourself at risk of acquiring/transmitting HIV to others?

☐ Yes

☐ No

☐ Don’t know

14. Can you tell by looking at a client whether they are HIV positive or not?

☐ Yes

☐ No

☐ Don’t know

15. Lucky charms, magic portions, herbs etc can be used to cure or prevent HIV?

☐ Yes

☐ No

☐ Don’t know

16. If you take a shower immediately after unprotected sex, you will not catch HIV?

☐ Strongly agree

☐ Agree

☐ Not sure

☐ Disagree

☐ Strongly disagree

17. If the client doesn’t ejaculate inside me, I can’t get infected with HIV?

☐ Strongly agree

☐ Agree

☐ Not sure

☐ Disagree

☐ Strongly disagree

18. Douching protects oneself from acquiring HIV?

☐ Strongly agree

☐ Agree

☐ Not sure

☐ Disagree

☐ Strongly disagree

19. Someone can't acquire HIV from practicing oral sex?

☐ Yes

☐ No

☐ Don't know

20. Someone can't acquire HIV from practicing anal sex?

☐ Yes

☐ No

☐ Don't know

21. Do you use condoms while at work?

☐ Yes

☐ No

b. If Yes, how often?

☐ All the time

☐ Most of the time

☐ Sometimes

☐ Never

c. Kindly tell me your reason(s) for not using condoms all the time

……

……

……

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22. Do you have a regular client or boyfriend?

☐ Yes

☐ No

b. If yes, how many?

☐ 1

☐ 2

☐ 3

☐ More than 3

c. Do you use condoms with them?

☐ All the time

☐ Most of the time

☐ Sometimes

☐ Never

23. Do you practice oral sex?

☐ Yes

☐ No

24. Do you practice anal sex?

☐ Yes

☐ No

25. Do you have sex while on your menses?

☐ Yes

☐ No

26. Do you practice douching?

☐ Yes

☐ No

SECTION D

LIFESTYLE RISKS

27. Which of the following substances do you use while at work?

- Alcohol
- Bhang
- Miraa
- Cocaine/heroine
- Rhohypnol (date rape drug)
- None

28. Have you ever had a blackout from using any of the above drugs and couldn't remember what happened to you after?

☐ Yes

☐ No

b.If yes, how many times?

☐ 1 – 2 times

☐ 3 -5 times

☐ More than 5 times

29. Which of the following do you consider as risks in this profession?

☐ Police arrests	☐ YES	☐ NO	☐ DON'T KNOW
☐ Stigma and discrimination	☐ YES	☐ NO	☐ DON'T KNOW
☐ Acquiring HIV and STIs	☐ YES	☐ NO	☐ DON'T KNOW
☐ Physical abuse from client	☐ YES	☐ NO	☐ DON'T KNOW
☐ Sexual abuse from client	☐ YES	☐ NO	☐ DON'T KNOW
☐ Being drugged	☐ YES	☐ NO	☐ DON'T KNOW
☐ Theft / mugging	☐ YES	☐ NO	☐ DON'T KNOW

Other (specify)

……

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……

30. Which of the above risks have you experienced while in this profession?

☐ Police arrests	☐ YES	☐ NO	☐ DON'T KNOW
☐ Stigma and discrimination	☐ YES	☐ NO	☐ DON'T KNOW
☐ Acquiring HIV and STIs	☐ YES	☐ NO	☐ DON'T KNOW
☐ Physical abuse from client	☐ YES	☐ NO	☐ DON'T KNOW
☐ Sexual abuse from client	☐ YES	☐ NO	☐ DON'T KNOW
☐ Being drugged	☐ YES	☐ NO	☐ DON'T KNOW
☐ Theft / mugging	☐ YES	☐ NO	☐ DON'T KNOW

Other (Specify)

……

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30.In your own words please explain what you think should be done by society(Government, Healthcare provider, Law enforcers) to enable you and your colleagues make better health choices.

……

……

……

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……

APPENDIX 4: QUESTIONNAIRE (Kiswahili Version)

Factors associated with HIV acquisition among commercial female sex workers in Korogocho slum, Nairobi, Kenya.

Participants Code:……..

Date of interview…….

SECTION A

SOCIO-DEMOGRAPHIC DATA

1. Je, ulikua na umri gani ulipoanza kazi hii ya ukahaba?

   ☐ 15 – 20

   ☐ 21 – 28

   ☐ 29 – 35

   ☐ 35 - 45

2. Je, ni miaka mingapi sasa umefanya kazi hii ya ukahaba?

   ☐ Chini ya mwaka moja

   ☐ Mwaka 1 – 5

☐ Miaka 6 – 10

☐ Zaidi ya miaka 10

3. Hivi sasa umeolewa au la?

   ☐ Sijawahi olewa

   ☐ Talaka/Kuachana

   ☐ Ujane

   ☐ Uhusiano wa karibu bila ndoa

   ☐ Nimeolewa

4. Je, umesoma hadi kiwango kipi?

   ☐ Kidogo shule ya umoja

   ☐ Kumaliza shule ya upili

   ☐ Kidogo shule ya upili

   ☐ Kumaliza shule ya upili

   ☐ Shule ya juu

5. Je, mapato yako kwa mwezi kwa kazi ya ukahaba ni ngapi?

   ☐ Chini ya Ksh.500

   ☐ 501 – 1500

   ☐ 1501 – 3000

☐ 3001 – 4500

☐ Zaidi ya Ksh.4500

6. Je, unafanyia kazi wapi?

☐ Brothels

☐ Kilabuni

☐ Njiani (Streets)

☐ Lodging

☐ Nyumbani

7. Tafadhali nielezee hali yako ya HIV/AIDS

☐ Ninayo

☐ Sina

☐ Bado sijui

SECTION B

KNOWLEDGE

8. Je, virusi vya UKIMWI huambukizwa vipi?

• Kufanya mapenzi na mtu aliye na virusi vya HIV bila kujikinga.	☐ NDIO	☐ LA	☐ SIJUI

• Kuongezewa damu isiyo kaguliwa	☐ NDIO	☐ LA	☐ SIJUI
• Wakati wa uja uzito, mama anaeneza peana virusi kwa mwanawe,pia katika wakati wa kuzaa au kunyonyesha.	☐ NDIO	☐ LA	☐ SIJUI
• Kutumia sindano na wengine	☐ NDIO	☐ LA	☐ SIJUI
• Kutumia vyombo, nguo au choo na mtu aliye na virusi vya UKIMWI	☐ NDIO	☐ LA	☐ SIJUI
• Kuketi karibu ya mtu anaye virusi vya HIV wakati anapokohoa	☐ NDIO	☐ LA	☐ SIJUI
• Kumbusu au kumguza mtu anaye virusi vya HIV	☐ NDIO	☐ LA	☐ SIJUI
• Kutoka kuumwa na mbu	☐ NDI	☐ LA	☐ SIJUI

O

Njia zingine

……

……

……

9. Je, jinsi za kuepuka Ukimwi ni zipi?

• Kutofanya mapenzi	☐ NDIO	☐ LA	☐ SIJUI
• Kuwa mwaminifu kwa mwenzio asiyekuwa na virusi vya UKIMWI	☐ NDIO	☐ LA	☐ SIJUI
• Kutumia mpira	☐ NDIO	☐ LA	☐ SIJUI
• Kupata tibabu haraka iwapo mpira imepasuka	☐ NDIO	☐ LA	☐ SIJUI
• Kupata tibabu haraka iwapo mtu anatendewa unyanyasi wa kinjisia	☐ NDIO	☐ LA	☐ SIJUI

Njia zingine

……

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10. Je, mwanamke mjamzito aliye na virusi vya Ukimwi anaweza mza mtoto asiye na virusi hivyo?

    ☐ Ndio-ikiwa wataenda hospitalini na kupewa madawa yafaayo

    ☐ Ndio- Sina fahamu namna gani

    ☐ La

    ☐ Sijui

11. Je, unapata wapi elimu juu ya HIV/AIDS?

• Televisheni	☐ NDIO	☐ LA
• Radio	☐ NDIO	☐ LA
• Gazeti	☐ NDIO	☐ LA
• Majarida	☐ NDIO	☐ LA
• Marafiki	☐ NDIO	☐ LA
• Wafanyikazi wa afya	☐ NDIO	☐ LA
• Mpenzi mwenzio	☐ NDIO	☐ LA

SECTION C

ATTITUDES AND PRACTISES

12. Maoni yako kuhusu hali ya HIV/AIDS hapa nchini Kenya kwa wakati huu ni yapi?

    - ☐ Si shida
    - ☐ Ni shida ndogo
    - ☐ Shida kubwa
    - ☐ Shida kubwa sana
    - ☐ Sina uhakika

13. Je, unadhania uko katika hatari ya kuambukiza au kuambukizwa virusi vya Ukimwi?

    - ☐ Ndio
    - ☐ La
    - ☐ Sijui

14. Je, waeza sema kwa kutazama tu kama mteja ana virusi vya UKIMWI au la?

    - ☐ Ndio

☐ La

☐ Sijui

15. Je, uganga au miti shamba yaweza kutibu au kuzuia ugonjwa wa UKIMWI?

☐ Ndio

☐ La

☐ Sijui

16. Je, ukioga mara tu unapomaliza kuwa na ngono bila kinga, hutapata virusi vya Ukimwi?

☐ Nakubali kabisa

☐ Nakubali

☐ Sina uhakika

☐ Sikubali

☐ Sikubali kabisa

17. Mwanaume asipomwaga ndani, siwezi pata virusi?

☐ Nakubali kabisa

☐ Nakubali

☐ Sina uhakika

☐ Sikubali

☐ Sikubali kabisa

18. Kuosha uke inazuia kuambukizwa virusi?

☐ Nakubali kabisa

☐ Nakubali

☐ Sina uhakika

☐ Sikubali

☐ Sikubali kabisa

19. Mtu hawezi kuambukizwa virusi kutokana na kufanya ngono ya mdomo ?

☐ Ndio

☐ La

☐ Sijui

20. Mtu hawezi kuambukizwa virusi kutokana na kufanya ngono ya mkundu?

☐ Ndio

☐ La

☐ Sijui

21. Wewe hutumia mipira ya kondomu ukiwa kazini?

☐ Ndio

☐ La

b. Kama ndio, mara ngapi?

☐ Kila mara

☐ Zaidi ya asilimia hamsini

☐ Asilimia hamsini

☐ Wakati mwingine

22. Je, una mteja wa kawaida ama mpenzi wa kiume?

☐ Ndio

☐ La

b. Kama ndio, wangapi?

☐ 1

☐ 2

☐ 3

☐ Zaidi ya 3

c. Unatumia mipira ya kondomu na wao?

☐ Kila mara

- ☐ Zaidi ya asilimia hamsini
- ☐ Asilimia hamsini
- ☐ Wakati mwingine
- ☐ Sijawahi

23. Je, wewe hufanya ngono ya mdomo?

- ☐ Ndio
- ☐ La

24. Je, wewe hufanya ngono ya mkundu?

- ☐ Ndio
- ☐ La

25. Je wewe huwa na ngono ukiwa na hedhi?

- ☐ Ndio
- ☐ La

26. Je, wewe huosha uke wako?

- ☐ Ndio
- ☐ La

SECTION D

LIFESTYLE RISKS

27. Kati ya vifuatavyo, wewe hutumia vipi ukiwa kazini?

- ☐ Pombe
- ☐ Bhang
- ☐ Miraa
- ☐ Cocaine/heroine
- ☐ Rhohypnol
- ☐ Hakuna

28. Je, umewahi kupoteza fahamu kwa kutumia haya madawa na haungeweza kumbuka kilichotendeka baadaye?

- ☐ Ndio
- ☐ La

b.Kama ndio, mara ngapi?

- ☐ Mara 1 – 2
- ☐ Mara 3 -5
- ☐ Zaidi ya mara 5

29. Je, ni yapi kati ya yafuatayo unaona kama ni hatari kwa kazi yako?

☐ Kushikwa na polisi	☐ NDIO	☐ LA	☐ SIJUI
☐ Unyanyapaa na Ubaguzi	☐ NDIO	☐ LA	☐ SIJUI
☐ Kuambulizwa virusi na magonjwa ya zinaa	☐ NDIO	☐ LA	☐ SIJUI
☐ Unyanyasaji wa kimwili kutoka kwa mteja	☐ NDIO	☐ LA	☐ SIJUI
☐ Unyanyasaji wa kimapenzi kutoka kwa mteja	☐ NDIO	☐ LA	☐ SIJUI
☐ Kupewa madawa ya kulevya	☐ NDIO	☐ LA	☐ SIJUI
☐ Kuibiwa	☐ NDIO	☐ LA	☐ SIJUI

Nieleze zingine

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30. Je, kati ya haya, ni yapi yamekukumba ukiwa kazini?

☐ Kushikwa na polisi	☐ NDIO	☐ LA	☐ SIJUI
☐ Unyanyapaa na Ubaguzi	☐ NDIO	☐ LA	☐ SIJUI
☐ Kuambulizwa virusi na magonjwa ya zinaa	☐ NDIO	☐ LA	☐ SIJUI
☐ Unyanyasaji wa kimwili kutoka kwa mteja	☐ NDIO	☐ LA	☐ SIJUI
☐ Unyanyasaji wa kimapenzi kutoka kwa mteja	☐ NDIO	☐ LA	☐ SIJUI
☐ Kupewa madawa ya	☐ NDIO	☐ LA	☐ SIJUI

kulevya ☐ NDIO ☐ LA ☐ SIJUI

☐ Kuibiwa

Nieleze zingine

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31. Kwa maneno yako mwenyewe, tafadhali eleza unachodhani kinapaswa kufanywa na jamii (serikali, wauguzi, wanasheria) ili kuwezesha wewe na wenzako kufanya maamuzi mema ya kiafya?.

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