

**ASSESSMENT OF KNOWLEDGE, ATTITUDES AND PRACTICES ASSOCIATED
WITH HIV RISK AMONG MEN WHO HAVE SEX WITH MEN IN KISUMU CITY,
KENYA.**

BY

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**A THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR
THE DEGREE OF MASTER OF PUBLIC HEALTH**

SCHOOL OF PUBLIC HEALTH AND COMMUNITY DEVELOPMENT

MASENO UNIVERSITY

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ACKNOWLEDGEMENT

I wish to extend my gratitude to my supervisors Prof. Wilson Odero; first for believing in this study; and to Prof. Bernard Abong'o; for their expert guidance and patience that made it possible for this work to be done. I am also grateful to the staff at the Maseno University School of Public Health & Community Development for supporting me in this work.

The study would not have been possible without the cooperation of Keeping Alive Societies' Hope (KASH); it was invaluable in making the target population accessible for data collection.

I acknowledge the assistance I got from my research colleagues Waweru and Kosi for their statistical expertise in data analysis. I am also grateful to my fellow graduate colleagues with whom we consulted and learnt together.

My deepest appreciation goes to my family; my husband Tom for being my greatest resource, my brothers: Bell, my inspiration; Nixon, for support and encouragement, to Ayub, Major and the late Frankline, for being proud of my efforts and achievements; and to my children Terri and Jeff who give me a purpose and the motivation to work hard.

To the Almighty God, and to you all, I say 'Thank you'.

DEDICATION

This thesis is dedicated to my husband Tom Abol, my source of motivation, to my children Terri-Jenn and Jeff Jacowango, and to my brothers for their love and support.

ABSTRACT

Sub-Saharan Africa (SSA) remains the region most heavily affected by HIV and AIDS. Most countries in SSA report a generalized epidemic with pockets of concentrated epidemics in key populations. Men who have sex with Men (MSM) have been identified as one of the key populations driving the spread of HIV in Kenya. MSM contribute about 7.79% new HIV infections in Nyanza Region; with Kisumu reporting a prevalence of up to 25% among MSM aged over 24 years compared to 15.1% in the general population. Whereas the prevalence of HIV among MSM in Kisumu is documented, their knowledge of HIV risk, attitudes towards HIV prevention and behavior practices associated with HIV risk are not known. This was a cross-sectional study whose objectives were to determine the knowledge of HIV risk, attitudes towards HIV prevention and risk-taking behavior practices of MSM in Kisumu City. A total of 163 respondents aged 15 – 55 years were selected through purposive, simple random and snowball sampling techniques. Semi-structured questionnaires and in-depth interviews were administered to collect both quantitative and qualitative data. Quantitative data were analyzed using descriptive statistics. Chi-square tests were used to analyze for association between MSM's knowledge of HIV risk, attitudes towards HIV prevention and their behavior practices with a p-value ≤ 0.05 being statistically significant. Qualitative data were analyzed manually through thematic exploration. Findings show that MSM in Kisumu (68%) are highly knowledgeable about HIV risk with an HIV prevalence of 24.5%. Nearly all MSM (92%) have a positive attitude towards HIV prevention but this does not translate to behavior change. They are actively engaged in high risk behaviors that are known to be predictors of HIV infection; including engaging in sex with men and women, commercial sex and unprotected anal intercourse. They also indulge in alcohol and drugs; and engage in unprotected sex with partners with unknown or known HIV status. Chi square tests showed that there is a significant positive association ($p=0.000$) between the MSM's knowledge of HIV risk and their behavior practices; but no statistically significant association ($p=0.745$) between their attitudes towards HIV prevention and behavior practices. HIV prevention campaigns should address MSM as a priority high risk group, and provide uniform, targeted messaging to reinforce MSM's knowledge of HIV risk. MSM should be meaningfully involved in HIV prevention campaigns to encourage them to come out and play a key role in prevention. Behavior change communication specific to MSM's sexual practices should be introduced to support the conversion of knowledge and positive attitudes towards prevention into effective risk reduction behavior practices.

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ABBREVIATIONS AND ACRONYMS

AIDS	Acquired immunodeficiency Syndrome
AIS:	AIDS Indicator Survey
ART	Antiretroviral Therapy
ARVs:	Antiretrovirals
CVI:	Content Validity Index
HAART:	Highly Active Antiretroviral Therapy
HIV:	Human Immunodeficiency Virus
IDUs:	Injectable Drug Users
KAIS:	Kenya AIDS Indicator Survey
KDHS:	Kenya Demographic and Health Survey
KNASP	Kenya National AIDS Strategic Plan
KNBS:	Kenya National Bureau of Statistics
KPs:	Key Populations
MAAYGO	Men against AIDS Youth Group
MARPS	Most At Risk Populations
MSM:	Men Who Have Sex with Men
MSW:	Male Sex Workers
NACC	National AIDS Control Council
NASCOP	National AIDS and STIs Control Programme
SPSS:	Statistical Program for Social Scientists
SSA	Sub-Saharan Africa
STD:	Sexually Transmitted Disease
STI:	Sexually Transmitted Infections
UAI:	Unprotected Anal Intercourse
UNAIDS:	Joint United Nations Programme on HIV and AIDS
VCT:	Voluntary Counseling and Testing

OPERATIONAL DEFINITION OF TERMS

Attitudes:	The learned tendency by MSM to evaluate HIV prevention positively, negatively or with indifference.
MSM:	Biological male human beings who routinely engage in the sexual act with other biological males; whether they identify themselves as gay or bisexual.
HIV risk knowledge:	knowledge of HIV status, correct knowledge of transmission and prevention of HIV, treatment of STIs.
Substance use:	Consumption of alcohol, drugs and other stimulants that can potentially lead to impairment of functional control, social impairment or risky use; with mild or severe consequences to the user.
Seroprevalence:	Proportion of the population that test positive to HIV based on blood (serum) tests.
Risky behavior practices:	Routine activities like substance use, non-treatment of STIs and intravenous drug injecting by MSM that increase their chances of getting infected with HIV.
Sexual risk taking behavior:	Carnal activities that MSM engage in like UAI, commercial sex, and multiple sexual partnerships including both anal and vaginal sex partnerships.
Incidence of HIV	Rate of occurrence of new HIV infections in the population
Prevalence of HIV:	The number of HIV cases in the population at a given time.

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CHAPTER ONE: INTRODUCTION

1.1 Background Information

Epidemiological data indicate that globally the spread of HIV appears to have peaked in 1996, when about 3.5 million new HIV infections occurred (UNAIDS, 2009). In 2008, an estimated 2.7 million new HIV infections occurred, and it is estimated that 2 million deaths due to AIDS-related illnesses occurred worldwide (UNAIDS, 2009). At the end of 2015, it was estimated that globally, 36.7 million people were living with HIV, 2.1 million new infections occurred while 1.1 million people died of AIDS-related illnesses in the same year. Since 2010, there have been no declines in new HIV infections among adults (UNAIDS, 2011).

In many regions of the world, HIV first emerged among populations of Men who have sex with men (MSM) (Caceres *et al.*, 2006). The MSM face a significantly higher risk of HIV infection than the general population in every region of the world. Globally, less than 1 out of 20 MSM has access to HIV prevention and care (UNAIDS, 2006). In the absence of affordable treatment or a vaccine, prevention strategies have become paramount in fighting the pandemic. HIV Testing and Counseling (VCT), promotion of condom use, reduction in sexual partners, and treatment for other sexually transmitted infections (STI) are some of the main intervention strategies currently employed by national AIDS control programmes (Obure *et al.*, 2009).

A 2007 analysis of data from 38 low- and middle-income countries found an overall HIV prevalence of 12.8% among MSM. In many countries, institutionalized homophobia and criminalization of homosexual activity facilitate the spread of HIV, severely hindering efforts to provide treatment and prevention for MSM (amfAR, 2008). In some countries, consensual same-sex sexual activity is a criminal offence. In other countries, male-male sex is punishable by prison sentences of 10 years or more; and in others, it is punishable by death. Even in countries

without legal prohibitions against same sex sexual behavior, widespread stigma and discrimination often lead to low testing rates, limited knowledge about HIV prevention, and increased likelihood of transmission (amfAR, 2008). In an increasingly broad range of countries, contexts, and development levels, male-to-male sexual contact remains an important route of HIV transmission (amfAR, 2008).

Sub-Saharan Africa is the region most affected by HIV, accounting for 25 million people living with HIV, 1.6 million estimated new HIV infections, and 1.2million estimated HIV deaths in 2012 (UNAIDS, 2013). Almost three quarters (69%) of the people infected worldwide reside in this region. Most countries in SSA report a generalized epidemic (infection rates of > 1%) with pockets of concentrated epidemics in key populations (KPs) (UNAIDS, 2012). KPs, as identified by UNAIDS, include MSM. Data regarding MSM in Africa are the sparsest in the world, but are beginning to emerge. The best-developed data have been generated in Kenya with the support of the Kenyan National AIDS Council. MSM groups throughout the country have shown HIV prevalence as high as 43% (Geibel *et al.*, 2007; Sanders *et al.*, 2007). A growing body of literature, however, not only documents the presence of this population in Africa (Attipoe, 2004; Niang *et al.*, 2003; Simooya *et al.*, 2001) but also the importance of reaching them with information and services to prevent HIV and other STIs (UNAIDS, 2000).

Men who have sex with men have long been overlooked in HIV research and prevention on the African continent. There are strong local convictions that MSM's behavior is non-compatible with traditional African culture. Studies from Sudan, Senegal and Kenya show otherwise and indicate that male-to-male sex is an integral part of activities of at least some African men. These studies also show that when respectful and considerate approaches are used to ensure their safety, dignity and anonymity, MSM will come forward to work with public

health authorities and others to help improve their sexual health. Additional research is needed to assess the prevalence of male-to-male sex behavior among African men (van Griensven, 2007). Since HIV epidemics in several African countries have shown encouraging signs of decline, the willingness of MSM populations to be engaged in HIV research and prevention provides a unique window of opportunity to research and to stop the HIV epidemic as it diversifies into smaller populations at risk. If this opportunity is not taken, the proportional contribution of MSM to the HIV epidemic in Africa will continue to grow (van Griensven, 2007).

The AIDS Indicator Survey (AIS) was developed to provide countries with a standardized tool for monitoring nationally-representative HIV and AIDS indicators in the general population. The Kenya AIDS Indicator Survey (KAIS, 2007) was the first AIS for Kenya and provides the most up-to-date information on HIV and other sexually transmitted infections. The KAIS (2007) found that an estimated 7.4% of adults aged 15-64 years were HIV positive – equivalent to 1.4 million Kenyans during that time; and profiled MSM as an important sub-population in the spread of HIV. In Kenya, HIV affects a broad expanse of the general population but some groups are more burdened than others (NACC and NASCOP, 2012). The KAIS (2007) identified KPs who include MSM as the drivers of HIV epidemics in Nyanza Region.

According to CDC (2017), complex factors increase HIV risk among MSM including High HIV prevalence, lack of knowledge of HIV status, social discrimination and cultural issues; and substance abuse (CDC 2017). Several other studies also suggest that HIV knowledge and the self-perceived risk for HIV infection may be low among MSM in low and middle income countries; and that general correct knowledge about HIV and other STIs are lower than desirable amongst MSM (Colby, 2003). This indicates that HIV risk reduction cannot be

effective without ensuring that the groups at risk have the correct knowledge of what puts them and their partners at a higher risk for HIV infection. It is therefore incumbent upon researchers to find out what MSM know about HIV risk and if they have the correct knowledge.

Prevention is known to be effective in reducing the spread of HIV. However, there are factors that can undermine preventive actions within the population. The advent of Highly Active Antiretroviral Therapy (HAART), while helping to prolong the lives of those infected, has also had some unanticipated outcomes. HAART regimens may not be effective for all infected persons due to drug resistant strains of HIV, and unmanageable adverse effects. Sexual practices of MSM are also affected by the availability of pre and post exposure therapy and viral load monitoring; and these influence MSM's perceptions of the risk and consequences of HIV infection (Wolitski *et al.*, 2001). Because of HAART, MSM perceive less threat of HIV and AIDS, less need for safer sex and high effectiveness of HAART in curing AIDS (Ostrow *et al.*, 2002; Stolte *et al.*, 2004; Wolitski *et al.*, 2001).

In a study on the association of attitudes and beliefs towards Anti retroviral Therapy (ART) with HIV-seroprevalence in the general population of Kisumu, Cohen *et al.*, (2009) found that ART-related risk compensation was associated with increased HIV-seroprevalence for men; and their results appeared to reflect perceptions that HIV and AIDS is more controllable since the availability of ART. The study also found that there was a belief among the general population of Kisumu that "ART cures HIV and AIDS". According to these authors, this fixed, incorrect belief may have important implications for sexual risk taking behavior among groups like MSM, prevention efforts and HIV-seroprevalence (Cohen *et al.*, 2009).

In Kenya, data on the HIV epidemic shows a stabilizing epidemic among the general population and an elevated epidemic among the KPs. The current Kenya National AIDS Strategic Plan (KNASP) has identified HIV prevention among KPs as a key priority in the fight against HIV/AIDS Kenya (KNASP3, 2009); but prevention from the point of view of policy makers and implementers has rarely taken into account the opinion and role of the MSM in HIV prevention efforts; which makes the MSM remain largely as spectators in their own game.

In the Kenya AIDS Response Progress Report of 2014, it is estimated that 18.2% of Kenyan MSM were living with HIV in 2013 (NACC, 2014). Studies conducted in Nairobi and Mombasa have shown that MSM engage in risky sexual behaviors that put them and their male and female partners at risk of acquiring new HIV infections. According to the Modes of Transmission (MoT) study conducted by UNAIDS in Kenya, MSM contribute close to 7.79% new HIV infections in Nyanza region.

According to Onyango-Ouma *et al.*, (2005), understanding the sexual behaviors of populations who are vulnerable to HIV is an important component in the battle against the AIDS pandemic (Onyango-Ouma *et al.*, 2005). The KAIS (2012) profiled Nyanza region as having the highest prevalence of HIV in the country at 15.1%; with prevalence for both its rural and urban areas at 13.9% and 18.3% respectively. Kisumu City is the largest and main urban centre within Nyanza region; and whereas research has documented MSM as fueling new HIV infections, (KAIS, 2007), none of these have provided a picture of the actual risk taking behaviors of MSM that make them the drivers of new HIV infections in Kisumu City.

1.2 Statement of the Problem

Men who have sex with Men (MSM) contribute over 7.79% of HIV incidence in Nyanza Region (KAIS, 2007). Within the general population, MSM are not an isolated group; they are also involved in stable relationships as husbands and boyfriends. It has been established that MSM face a higher risk of HIV infection than the general population. However, because of the stigma attached to their identity, they are not quick to seek health care and their health needs do not receive much attention at the policy level; which complicates the fight against the HIV and AIDS epidemic. In spite of the evidence that MSM play an important role in fueling the spread of new HIV infections in the Region, and in Kisumu City in particular, it is not known if they have knowledge of HIV risk.

Whereas prevention among MARPs has been identified as a key priority in the fight against HIV and AIDS in Kenya, there has been no evidence that MSM also prioritize prevention of HIV and AIDS. Research only shows why prevention strategies should target MSM, but it is difficult to really achieve prevention among MSM when they are treated as passive targets. It is not known whether the MSM in Kisumu City regard prevention strategies as an urgent priority; without which it will be difficult to stop the spread of HIV. This makes it necessary to find out the MSM's attitudes towards prevention of HIV.

Kisumu is singled out as the epicenter of MSM in Nyanza Region, and research and national surveys have shown that it has the third highest HIV prevalence rate (19.9%) in the Country; together with a growing population of MSM who are categorized as drivers of new HIV infections. In general, MSM engage in risky sexual behavior, but it is not known what the MSM in Kisumu are doing to contribute to the disproportionately high prevalence of HIV in

Nyanza region and there has been no empirical evidence of their sexual risk taking behavior in Kisumu City. This study is an endeavor to bridge these gaps.

1.3 General Study Objective

To assess the knowledge, attitudes and behavior practices associated with HIV risk among MSM in Kisumu City

1.4 Specific Objectives

This study was guided by the following specific objectives:

1. To determine the knowledge of HIV risk by MSM in Kisumu City.
2. To determine the attitudes of MSM in Kisumu City towards HIV prevention.
3. To identify the behavior practices of MSM in Kisumu City which expose them to HIV risk.
4. To assess if there is an association between knowledge of HIV risk and MSM behavior practices; and between attitudes towards HIV prevention and MSM behavior practices.

1.5 Research Questions

This study was guided by the following questions to address the stated objectives:

1. Do MSM in Kisumu City know the risk for HIV infection?
2. What is the attitude of MSM in Kisumu City towards HIV prevention?
3. What behavioral practices among MSM in Kisumu City expose them to HIV risk?

4. Is there an association between knowledge of HIV risk and risky behavior practices; and between attitudes towards HIV prevention and risky behavior practices?

1.6 Justification of the Study

Given that the prevalence of HIV in Nyanza region continues to rise; and that this increase is not only attributable to more people who are living with the virus due to ART, but also to new infections that increase the incidence of HIV, it is crucial that the new sources of HIV infection are investigated through research. MSM have been identified as drivers of new HIV infections; and it has already been established that they not only exist in Kisumu City in considerable numbers; but that their population is also growing. They are not just at a higher risk for HIV infection as MSM, but also put the general population of men, women and children at risk. This is because they are not an isolated community; since they also have sexual relationships with women, most of whom are at risk of pregnancy. This makes it necessary to find out if the MSM have the knowledge of HIV risk, whether they prioritize prevention of HIV; and specific behavior practices they engage in that increase HIV risk. This study presents an opportunity to do more research on MSM in Kisumu City; and if such an opportunity is not taken, MSM may continue to fuel new HIV infections in the City and beyond.

1.7 Significance of the Study

The study will contribute to new HIV epidemiological knowledge. Understanding the sexual behaviors of MSM in Kisumu City will enable the Ministry of Health and HIV and AIDS research and implementation organizations to design and implement effective prevention interventions among the MSM. The interventions and new knowledge arising from this study

may contribute to averting new HIV infections in Kisumu City and elsewhere. It will also suggest further areas of study on MSM.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

Male-to-male sexual contact has been an important mode of HIV-1 transmission since HIV was first identified some 30 years ago (CDC, 2005). Men who have sex with men (MSM) are not a homogenous group, but represent a wide variety of people, lifestyles and health needs. From middle class gay men, homeless runaways, injecting drug users (IDUs), and incarcerated men; MSM have many different identities and associated risks for HIV and other infectious diseases. The abbreviation MSM refers to any man who has sex with a man, whether he identifies as gay, bisexual or heterosexual (CAPS, 2000). Despite success in changing sexual behaviors, MSM continue to be disproportionately affected by HIV and AIDS (CDC, 2005).

2.2 Global Perspective

Among gay, bisexual, and diversely identified MSM, HIV remains a significant or predominant contributor of HIV epidemics in a number of high-income countries including the United States, Australia, and much of Western Europe (CAPS, 2000). In the United States and European contexts, high rates of HIV infection among younger and minority MSM have been seen by many as evidence of resurgent HIV spread (Dougan *et al.*, 2005). In all the races, MSM continue to be the risk group most severely affected by HIV. CDC's data show that between 2006 and 2009, the number of new infections that occurred each year increased among young MSM — driven by an alarming 48 percent increase among young, black MSM 13 to 29 years old (CDC, 2012).

Reports of high HIV prevalence among MSM from Asia, Africa, Latin America, and the states of the former Soviet Union indicate that high levels of HIV infection among MSM are also being identified in several low and middle-income countries (Bautista *et al.*, 2004; EuroHIV, 2006; van Griensven, 2007; Wade *et al.*, 2005). In their meta-analysis study on the risk for HIV among MSM, Baral *et al.*, (2007) found that overall; the odds of having HIV infection are markedly and consistently higher among MSM than among the general population of adults of reproductive age across Asia, Africa, the Americas, and the former Soviet Union (Baral *et al.*, 2007). Reports from Thailand, Cambodia, and Senegal; countries characterized by relatively low and declining HIV prevalence among heterosexual populations, but which have greater than 20% prevalence in MSM in recent samples, suggest an unlinked epidemic pattern between general population HIV rates and those in MSM (Beyrer, 2007; Wade *et al.*, 2005). The reports also indicate that MSM in many developing countries are often difficult to access and to study because of criminalization of their behavior, the social stigma associated with their behaviors and identities, participant safety concerns in some settings, and low levels of self-identification among MSM.

Data on HIV transmission through sex between men, and on the incidence and prevalence of HIV and other STIs among MSM are scarce, especially in the developing world, but perhaps with the exception of Latin America (Caceres *et al.*, 2006). In South and South East Asia, Latin America, and the Caribbean; where relatively more information is available, the contribution to the HIV/AIDS epidemic of male same sex sexual behavior is not fully appreciated; in part due to either a lack of data or lack of analysis of the available data. A limited number of more detailed recent epidemiological studies have shown that both prevalence of same sex behavior and prevalence of HIV among MSM are higher than previously thought (Dougan *et al.*, 2005). In

regions where HIV prevalence among MSM is known to be high since the beginning of the epidemic, for example, in urban centres of Latin America, data show that HIV prevalence still remains very high among MSM, even though the epidemic has expanded to other populations (Caceres *et al.*, (eds) 2003).

Men who have sex with men have a markedly greater risk of being infected with HIV compared with general population samples from low and middle-income countries in the Americas, Asia, and Africa. Odds ratios (ORs) for HIV infection in MSM are elevated across prevalence levels by country and decrease as general population prevalence increases, but remain 9-fold higher in medium–high prevalence settings. MSM from low and middle-income countries are in urgent need of prevention and care, and appear to be both understudied and underserved (Baral *et al.*, 2007). Overall, data on lifetime prevalence of sex with men (among males) yielded figures of 3–5% for East Asia, 6–12% for South and South East Asia, 6–15% for Eastern Europe, and 6–20% for Latin America (Caceres *et al.*, 2006).

2.3 African Perspective

At the end of 2013, Sub Saharan Africa accounted for 70% of PLHIV worldwide and 74% of the world's AIDS related deaths (UNAIDS, 2015). Research on MSM in Africa has been limited, although this population is particularly vulnerable to HIV infection. Research and interventions in Africa have largely focused on the heterosexual spread of HIV. MSM are highly stigmatised and hard to reach. However, it is known that there are male sex workers, including those who sell sex to other men. One of the earliest studies was published in 2005 in Senegal, where 463 MSM from Dakar and four other urban communities demonstrated an HIV prevalence of 21.5% (Geibel *et al.*, 2007). STI prevalence among MSM was 4.8% for active syphilis, 22.3%

for herpes simplex virus 2, 4.1% for Chlamydia, and 5.4% for gonorrhoea. A 2005 study of 713 receptive MSM from Khartoum, Sudan, revealed a predominantly Muslim population with an HIV prevalence of 9.3%.

In Africa, HIV amongst MSM population has gone largely unnoticed. Early research on the primary modes of HIV transmission in Africa suggested that men and women were equally vulnerable to HIV infection, and that the virus was mainly transmitted through heterosexual intercourse. As a result, heterosexual couples, sero-discordant couples, people in multiple concurrent sexual partnerships and female commercial sex workers were considered most at risk for contracting HIV. These groups subsequently received more attention from HIV & AIDS research and intervention campaigns (Sanders *et al.*, 2007).

Early research studies did not find conclusive evidence to link MSM to the growing HIV infection rate in Africa. It is suspected, however, that this could be due to the fact that homosexuality is largely condemned by most African cultures and religious groups, and even punishable by law in certain African countries, such as Nigeria. Homosexuality is therefore a taboo subject amongst many Africans, which makes it very difficult to make contact with MSM, elicit public debate about the issue and conduct thorough research on MSM in Africa (Smith *et al.*, 2009). According to Baral (2008), reports from Ghana, Nigeria, Zambia, Tanzania, Uganda, Kenya, Senegal and Ethiopia describe high rates of unprotected anal intercourse (UAI) and a population in need of basic HIV interventions.

According to a report by (Tapsoba *et al.*, 2004), few countries in Africa acknowledge the existence of MSM or have prevention and treatment programs targeting them. Studies conducted in Senegal, Burkina Faso and Kenya illustrate the challenges and obstacles that prevent African

researchers from examining and addressing issues faced by MSM. In sub-Saharan Africa MSM generally face intense stigma and discrimination. Interviews of professionals involved with the initial MSM study in Senegal reveal that most researchers studying the social and cultural context of MSM and health providers faced suspicion and ridicule from friends and family members, and from political and religious leaders (Tapsoba *et al.*, 2004).

High prevalence of HIV were also found among MSM in Dakar, Senegal, where 21.5% of 442 MSM in a cross-sectional survey were HIV-positive (Wade *et al.*, 2005), and among MSM in Khartoum, Sudan, where the HIV prevalence among 713 MSM enrolled in a study was 9.3% (Elrasheid, 2006). While researchers and service providers face real barriers in studying MSM and addressing their service needs, the everyday threat that MSM face in Africa continues. The Senegal study served as an important catalyst to encourage more work with MSM in other African countries (Tapsoba *et al.*, 2004). Nearly 22% of MSM in Senegal are estimated to be HIV positive, compared to only 0.9% among Senegal's adult population.

This information shows that even in the absence of a high HIV prevalence in the general population, the concurrent HIV prevalence among MSM may be substantial. The size of the MSM population and the percentage of adult men practicing male-to-male sex in African countries are unknown. However, if it is tentatively assumed that male-to-male sex occurs in 3% of adult males, a high HIV prevalence in MSM may contribute between 10 and 20% of all prevalent HIV infections in the general population (van Griensven, 2007).

2.4 MSM in Kenya

Active populations of MSMs have long been known to exist in East Africa. Local terminology for homosexuality exists (such as Shoga) in Ki-Swahili dictionaries from the

nineteenth century and there are detailed anthropological accounts of transgender identification, same sex orientation and homosexual behavior that predate the global emergence of HIV (Sanders *et al.*, 2007).

The need for effective interventions among populations-most-at-risk of HIV is increasingly recognized in Kenya's national HIV response. The first case of HIV in Kenya was detected in 1984, and by the mid – 1990s it was one of the major causes of mortality in the country putting huge demands on the healthcare system as well as the economy. HIV prevalence peaked at 10.5% in 1996, and had fallen to 6% by 2013 mainly due to the rapid scaling up of ART (UNAIDS, 2013). According to the KAIS (2007), HIV prevalence in Kenya was estimated at 7.2% and varied significantly between regions; ranging from 0.81 % in North Eastern, to 8.1% in Coast, 8.8% in Nairobi, and 14.9% in Nyanza. The HIV prevalence in Nyanza doubled the national average. Nyanza Region was the most affected by HIV/AIDS, with an estimated 30% of the national burden. In the KAIS (2012), the national HIV prevalence had reduced and was estimated as 5.6% while in Nyanza, the prevalence more than doubled to 15.1%.

Kenya's HIV epidemic is generalized, affecting all sections of sectors of the population. In recent years, concentrated epidemics among certain groups or key populations (KPs) particularly vulnerable to HIV transmission have been identified (UNAIDS, 2013). Even though Kenya's HIV prevalence in the general population has declined in the recent years, KPs contribute significantly to new infections in the country (NACC and NASCOP, 2012). However, there is paucity of data on the characteristics, sexual behavior, other risk factors and estimates of population sizes of KPs to guide the development and implementation of effective interventions among these populations at the all levels (NACC and NASCOP, 2012).

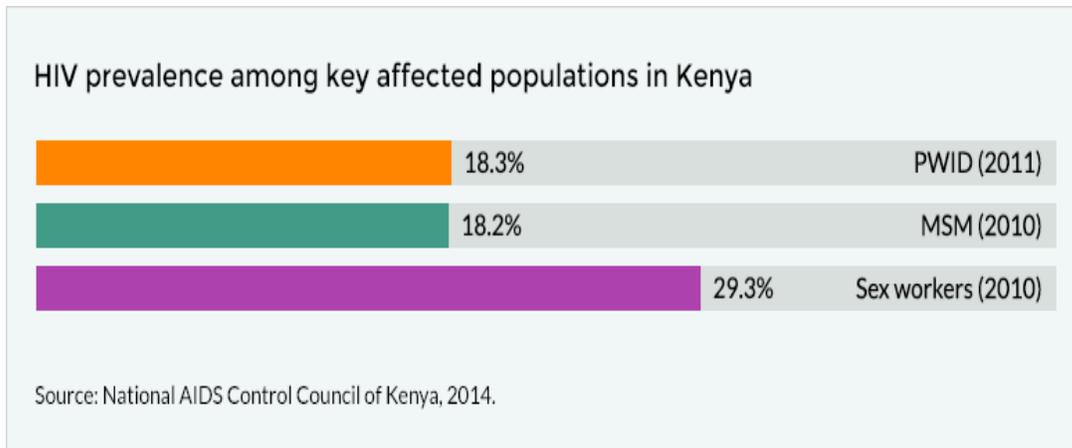


Figure 2.1: HIV prevalence among key affected populations in Kenya

Although there have been insufficient data that point to the exact number of MSM population in Kenya, some pioneer studies in parts of the country have given an indication of the MSM numbers. A project on MSM carried out by Liverpool VCT targeted a total of 30,000 MSM in various regions in the country. According to van Griensven (2007), hundreds of MSM selling sex in Kenya were identified through a capture recapture study in Mombasa. These numbers pointed to a much larger MSM population overall, because most MSM do not sell sex. The study concluded that MSM in Africa represent a sizeable, though highly stigmatised and vulnerable group for whom prevention strategies are urgently needed (Sanders *et al.*, 2007).

Nationally, most new HIV infections occur in couples who are engaged in heterosexual sex within a union/ regular partnership, and among those who practice casual sex. They also occur among sex workers or their clients, among the prison population and MSM. Those who are in a union or regular partnership contributed 44% of the new infections. Men and women who engage in casual sex contributed 20% of new infections, sex workers and their clients contributed 14% and MSM and prison populations contributed 15% (KNASP3, 2009). This pattern is similar in all provinces except for Nyanza, where the contribution to new infections by

those who practice casual sex, and sex workers and their clients, was much higher. MSM and injecting drug users need to be recognized in Kenya as significantly contributing to HIV incidence. The data around these communities remain incomplete, and while the MoT indicated that MSM and IDU combined account for 15% of new infections, the model for Nairobi placed this group's contribution at 26%, and in Mombasa at 31%, almost a third of new infections (KNASP3, 2009).

According to van Griensven (2007), nearly 40% of MSM in Kenya are estimated to be HIV positive. In a study published in the June edition of *AIDS*, researchers estimated that at least 739 MSM are selling sex to men in and around the city of Mombasa, a sizeable population who urgently need to be targeted by HIV prevention strategies. This number also indicates that there must be a fairly large population of male clients willing to pay for the sexual services of these MSM, as well as a larger community of other MSM, since most MSM do not sell sex. Indeed, an earlier snowball-survey conducted in Nairobi in 2004 enrolled 500 MSM in a needs-assessment within 2 months (Onyango-Ouma *et al.*, 2005).

That the HIV prevalence among Kenyan MSM may be high can be derived from data from an ongoing cohort study among MSM in Kilifi, a town located on the northern coastline of Kenya between Mombasa and Malindi; thirty eight percent (23/60) of men were HIV-infected at baseline (Sanders *et al.*, 2006). Additional evidence for an elevated HIV prevalence among MSM in Kenya comes from HIV voluntary counseling and testing data from sites throughout the country, where of the 780 MSM tested between 2002 and 2005, 10.6% were HIV-infected (Angala *et al.*, 2006).

According to NACC and NASCOP (June, 2012) report, nearly 40% of all MSM studied in Nairobi and Kisumu have ever been married to women and 13% of all MSM are still currently married to a woman. Following the completion of the geographical mapping of MARPs for HIV in Kenya by NACC & NASCOP in June 2012, Nyanza Province had the highest number of MSM estimated at 3,802 compared to the national average of 8,807 (NACC and NASCOP, 2012).

Table 2.1: Estimated number of MSWs/MSM in the towns mapped

Province	Town (or administrative units)	Estimated population		
		Minimum	Maximum	Point estimate
Nairobi <i>Sub-total</i>		1,140	2,000	1,570
Central <i>Sub-total</i>		441	653	547
Eastern <i>Sub-total</i>		738	1,665	1,202
Coast <i>Sub-total</i>		1,210	2,162	1,686
Nyanza	Kisumu	1,319	1,941	1,630
	Bondo	256	442	349
	Homa Bay	254	423	339
	Kisii	336	516	426
	Migori	518	827	673
	Nyamira	92	144	118
	Siaya	203	334	269
<i>Sub-total</i>		2,978	4,626	3,802

Source: Geographic Mapping of MARPs for HIV in Kenya (NACC et al., 2012)

2.5 MSM in Kisumu

Although there is a shortage of studies published exclusively on MSM's behavior practices in Kisumu, there have been strong indications of an ever growing presence of this population in the City. There are several NGOs that address the reproductive health needs of MSM in Kisumu: Keeping Alive Societies' Hope ((KASH); Impact Research & Development Organization (IRDO), Men against AIDS Youth Group (MAAYGO) and Kisumu Initiative for

Positive Empowerment (KIPE). All these organizations have registered several MSM as members, and employ various interventions aimed at reducing risky behaviors amongst them that can lead to HIV infection.

According to NACC and NASCOP (June 2012), the MSM population in Kisumu City was estimated at 1,630 (point estimate). Of the 415 MSM surveyed in Kisumu, many (52%) identified their sexual identity as gay. A greater proportion of MSM in Kisumu (83%) had non-regular male sex partners in the past 6 months. An estimated 67% reported having engaged in sexual activity with paying male partners in the past 2 months. Among MSM who had sex with paying male partners in the past 30 days, 60% reported engaging in some unprotected sex with paying male partners in the past 30 days (NACC and NASCOP, 2012). Over 70% of MSM in Kisumu knew correct answers to HIV/AIDS knowledge questions. About 20 - 25% of MSM did not believe that they could get HIV from unprotected anal sex; 20 - 25% did not believe abstinence could protect them from HIV and nearly one-half (44%) did not know there is medical treatment for HIV. Among the MSM in Kisumu over age 24 years, HIV prevalence was 25%. The most common STI in Kisumu was Herpes Simplex Virus-2 (22%); prevalence of any gonorrhea or Chlamydia was found to be 4% (NACC and NASCOP, 2012)

According to a MARPS report, 8 out of 10 MSM in Kisumu tested positive for HIV. Majority of clients of male sex workers were found to be married men; with most clients of male sex workers preferring not using a condom during and would pay extra money for it. Alcohol and drugs were named as some of the factors contributing to unprotected sex (Nzioka, 2013).

2.6 Knowledge of HIV Risk

Amongst the components that constitute knowledge of HIV risk are awareness of HIV status, correct knowledge of HIV transmission, knowledge of HIV prevention, and treatment of STIs (CDC, 2012; Liu *et al.*, 2010; Clark *et al.*, 2008; MacKellar *et al.*, 2005). Complex factors increase the risk of HIV among MSM; and these include (i) high prevalence of HIV in this population (ii) the lack of knowledge of HIV status, (iii) complacency about risk (iv) social discrimination and cultural issues, and (v), substance abuse (CDC, 2012). The existing high prevalence of HIV among gay and bisexual men means MSM face a greater risk of being exposed to infection with each sexual encounter, especially as they get older (CDC, 2012).

The contexts in which the HIV pandemic is occurring are increasingly diverse. Individual level risks for HIV infection are at the core of these epidemics and are powerfully impacted by social, structural, and population level risks and protections. An emerging epidemic of HIV infection among MSM in developing countries is primarily spread through UAI but is also driven by limited HIV infection prevention services, social stigma, and the lack of human rights protection (Beyrer, 2007). After individual level risks, HIV risk in MSM goes to the network level which is characterized by STI prevalence, prevention knowledge, male sex workers, IDUs and transgenders. The risk then moves to the community level involving stigma, access to preventive services, VCT and ARV access. Further up is risk at the public policy level where MSM encounter criminalization, homophobia, human rights issues, condom availability, exclusion from national surveillance, and sexual health education. At the very top is the HIV epidemic stage; whereby the entire population and health systems have an influence on risk (Beyrer, 2007). This author however falls short of elucidating how these levels of risk affect the knowledge of HIV risk by MSM which can determine and contribute to new HIV incidences;

resulting in increased general HIV prevalence which in turn leads to new incidences; and therefore the HIV epidemic

2.6.1 Knowledge of HIV status

According to CDC (2012), individuals who know they are infected take steps to protect their partners, yet many MSM are unaware of their status and may unknowingly be transmitting the virus to others or getting infected by those with the virus. Additionally, some MSM may make false assumptions or have inaccurate information about their partner's HIV status. It is critical to ensure that sexually active MSM get tested for HIV at least annually, or more frequently as needed (CDC, 2012).

Amongst the perceptions that people have towards HIV and AIDS are widespread stigma and discrimination, since these can adversely affect people's willingness to be tested and their adherence to ART. Education and socioeconomic status are generally strongly associated with positive perceptions of HIV and AIDS (KNBS, 2010). Unfortunately, most MSM in Kisumu who sell sex are between the 15 – 19 age bracket. They are unlikely to have completed secondary education, and also are likely to be of a lower socio-economic status.

According to Clark *et al.*, (2008), the indiscriminate practice of unprotected intercourse with all sex partners regardless of their HIV status in a society where men with HIV rarely disclose their HIV status to sex partners is a risk factor for HIV infection. In their study, they found that MSM with known HIV were more likely to engage in both insertive and receptive UAI exclusively with men uninfected with HIV than with men infected with HIV or with unknown serostatus (Clark *et al.*, 2008).

In another study to evaluate the magnitude and distribution of unrecognized HIV infection among young MSM, the prevalence and correlates of unprotected anal intercourse, perceived low risk for infection, and delayed HIV testing, (MacKellar *et al.*, 2005) found that perceived low risk for infection was associated with being younger, previous negative HIV test, never having an STI, having fewer lifetime male partners, and not having unprotected anal intercourse. This perceived low risk for infection resulted in fewer MSM seeking regular tests. They went further to report that persons who are unaware of their infection can neither take advantage of effective therapies, take steps to reduce transmission to others, nor facilitate testing of partners who might also be infected. Their study in the United States suggested that the HIV epidemic among young MSM continues unabated, in part, because many young HIV-infected MSM are unaware of their infection and unknowingly expose many of their partners to HIV. The study concluded that to advance HIV prevention in the third decade of HIV and AIDS, national, state, and local prevention efforts must take advantage of opportunities to increase the demand for and availability of testing to reduce the burden of unrecognized HIV infection among young MSM (MacKellar *et al.*, 2005).

The two studies above (Clark *et al.*, 2008); and (MacKellar *et al.*, 2005) present findings that are in diametric contrast. In the first study, HIV positive MSM who are aware of their infection are more likely to engage in UAI exclusively with HIV negative MSM; which implies that the knowledge of being HIV positive by MSM is not a deterrent to, but is instead a facilitator of exposing others to HIV. This finding is highly inconclusive, because there is no explanation as to why MSM who know they are HIV positive would willingly choose to expose HIV negative MSM to risk; unless they do not know the risk factors for HIV infection. On the other hand, MacKellar *et al.* (2005) determined that HIV positive MSM unknowingly expose

their partners to HIV; making a case for the importance of HIV testing. Whereas both studies agree on the fact that both practices increase the prevalence of HIV, it can be deduced that these practices are the result of either a lack of, or incorrect knowledge of HIV risk among MSM. This may well be the case among the MSM in Kisumu City.

2.6.2 Knowledge of HIV transmission and prevention

The primary risk of HIV infection lies in exposure, ease and efficiency of transmission. Avoiding this risk therefore requires that all possible routes of transmission are known and blocked to prevent transmission and consequent infection by HIV. In a cross-sectional study on the knowledge and risk behaviors related to HIV and AIDS among MSM in China, Liu *et al.*, (2010) found that regarding basic knowledge of HIV and AIDS, more than 75 percent of 1353 MSM studied maintained accurate knowledge on some aspect of HIV transmission, but still held some false beliefs that it could be transmitted by mosquito bites or dining together. The study also found that MSM in higher education and those in middle income population had a better mean knowledge score than their counterparts. The internet also provided MSM with a source of HIV and AIDS knowledge which they came across while searching for sexual partners via the net (Liu *et al.*, 2010).

This finding may however not apply in all regions, especially in some parts of SSA with radical conservative cultures; because, it is only recently that compulsory primary education was enacted in various countries including Kenya; and even more recent still was the requirement to integrate HIV education into the mainstream curriculum. As opposed to the findings by Liu *et al.*, (2010) above, Colby (2003) in his cross-sectional study on HIV knowledge and risk factors among MSM in Vietnam found that the belief by MSM that their sexual behavior does not put them at a greater risk of HIV (as opposed to heterosexual sex) may be reinforced by public HIV

prevention messages that focus mainly on heterosexual relationships and drug use, official and mass media reports that ignore MSM as a population at risk, and the lack of any HIV prevention education targeted specifically at MSM; and that without the perception of increased risk, MSM have little motivation to change their behavior. This study found that the perceived risk of HIV infection by the MSM studied and MSM in general was very low; and that a low perception of HIV risk and inadequate knowledge about HIV transmission lead to the fact that MSM in Vietnam have neither the motivation nor the appropriate information and skills necessary to protect themselves from HIV. The study concluded that knowledge about HIV transmission and prevention should be improved, and that education and interventions specifically aimed at MSM are needed, because education targeted at the general population may not reach MSM or influence their behavior.

In addition to knowing about effective ways to avoid contracting HIV, it is also useful to be able to identify incorrect beliefs about AIDS to eliminate misconceptions. Common among these include the notion that all HIV infected people always appear ill, and also the belief that it is possible to transmit the virus through insect bites, by sharing food with infected people, witchcraft, or by other supernatural means (like “chira” among the luos) (KNBS, 2010).

Among men in Nyanza Province, 62.9% are reported to have a comprehensive knowledge about AIDS. Comprehensive knowledge means knowing that consistent use of condoms during sexual intercourse and having just one uninfected faithful partner can reduce the chance of getting HIV, knowing that a healthy looking person can have the virus, and rejecting the two most common misconceptions about HIV transmission or prevention (mosquito bites and sharing food) (KNBS, 2010).

2.6.3 STIs and HIV risk

HIV transmission in MSM is associated with genitourinary disease and other sexually transmitted infections (STIs) (amfAR, 2008). An increasing body of evidence suggests that herpes simplex virus–2 infection is a critical factor for infection (Corey *et al.*, 2004). High HSV –2 infection prevalence and a low frequency of male circumcision were identified in the 4-city study of HIV infection in Africa as key factors that indicated high disease prevalence (Auvert *et al.*, 2001).

Male circumcision has emerged as a relative protective factor against HIV acquisition. Ecologic data regarding male circumcision have been supported by a prospective randomized trial (Auvert *et al.*, 2005). It is important to mention male circumcision here because typically, Kisumu City is predominantly a non-circumcising community. This, coupled with the difficulties reported by MSM in accessing and stigma associated with seeking health care which act as barriers; or just not knowing when to seek for treatment of STIs, increase HIV risk.

In a study by Mimiaga *et al.*, (2007) to gain understanding of the barriers and facilitators related to sexually transmitted diseases (STDs) and HIV screening among MSM, it was found that although most of the MSM knew the signs and symptoms of HIV, they were less familiar with STDs. MSM were most likely to be screened if they had symptoms or were told by a partner of a recent exposure. However, many barriers to STD/HIV screening among MSM still existed, including lack of awareness of symptoms, misperceptions about the ways STDs are transmitted and perceived impediments from the healthcare system, including misgivings about provider sensitivity. This study concluded that the current increases in HIV/STDs among MSM could be decreased by implementing new strategies that included community and provider education (Mimiaga *et al.*, 2007).

These studies have made a case for increased susceptibility to HIV infection as a result of non-treatment of STIs and STDs, but treatment of STIs and STDs in and by itself does not prevent HIV infection. According to CDC (2015), studies that have lowered the risk of STDs in communities have not necessarily lowered the risk of HIV. Accordingly, screening for STDs can help assess the risk for getting HIV; treatment of STDs is important to prevent the complications of those infections, and to prevent transmission to partners, but it should not be expected to prevent the spread of HIV.

2.7 Attitudes of MSM towards HIV Prevention

Prevention among key populations (KPs) was identified as a key priority in the fight against HIV and AIDS (KNASP3, 2009). However, what has not come out clearly is the question of whether these populations at risk and specifically MSM hold the same point of view. In one study from Africa, 55% of MSM believed that prevention messages concerning vaginal sex did not apply to anal sex (Elrasheid, 2006); and in another study 73% of MSM thought that anal sex was safer than vaginal sex (Zulu, 2006). These beliefs were evidenced in a third study where participants reported higher condom use for vaginal than for anal sex and frequently blamed their female partners for giving them an STI (Attipoe, 2004). In South Asia, a study among transgender people found that only 14.2% perceived any risk of HIV infection despite practicing receptive anal sex and 64% of the sample were sex workers (Kumta *et al.*, 2006). In South-East Asia one study showed that 33% of MSM thought that vaginal sex was safer than anal sex (Colby *et al.*, 2004).

Halkitis *et al.* (2004), in another study to better understand the factors to which MSM attributed their HIV serostatus and to relate these attributions to sexual risk taking, found that three beliefs were related to sexual risk taking with HIV-negative/status unknown casual

partners: (a) medication treatment advances, (b) the low probability related to HIV transmission, and (c) a healthy immune system, capable of resisting infection. A multivariate regression model suggested that use of recreational drugs, in combination with the belief that treatment advances reduce the risk of HIV seroconversion, in part, may explain the frequency with which individuals engage in unprotected anal receptive intercourse. Their findings suggested that MSM who intentionally engaged in unprotected anal sex were influenced by perceptions that medical advances had mitigated the threat of HIV and thus corroborated previous studies depicting an intimate relationship between illicit drug use and sexual risk taking (Halkitis *et al.*, 2004)

2.7.1 Belief in Highly Active Antiretroviral Therapy (HAART)

In addition to the demographic, psychosocial, and situational factors that have repeatedly been associated with HIV risk, beliefs about HAART have been found to be associated with increased sexual risk-taking (Wolitski *et al.*, 2001). However, HAART regimens may not be effective for all infected persons due to drug resistant strains of HIV and unmanageable adverse effects; accordingly, pharmaceutical advertisements that minimize the negative aspects of HIV infection and HAART with unrealistically upbeat portrayals of HIV seropositive persons may also lead to increased risk behavior. Sexual practices of MSM are also affected by medical advances like the availability of pre and post exposure therapy and viral load monitoring; and these influence MSM's perceptions of the risk and consequences of HIV infection (Wolitski *et al.*, 2001).

Results from several studies have consistently shown that the likelihood of unprotected sexual behavior is significantly higher in people who believe that HAART reduces HIV transmission or who are less concerned about engaging in unsafe sex given the availability of HAART. Because of HAART, MSM perceive less threat of HIV/AIDS, less need for safe sex

and high effectiveness of HAART in curing AIDS (Ostrow *et al.*, 2002; Stolte *et al.*, 2004; Wolitski *et al.*, 2001). This perception is likely to make prevention an afterthought instead of a priority.

In a study on the association of attitudes and beliefs towards ART with HIV-seroprevalence in the general population of Kisumu, Cohen *et al.*, (2009) found that ART-related risk compensation was associated with increased HIV-seroprevalence for men; and their results appeared to reflect perceptions that HIV and AIDS is more controllable since the availability of ART. The study also found that there was a belief among the general population of Kisumu that “ART cures HIV and AIDS”.

According to these authors, this fixed, incorrect belief may have important implications for sexual risk taking behavior and HIV-seroprevalence (Cohen *et al.*, 2009). All these studies have identified and focused on risk compensation due to of availability of treatment regimens; but they overlooked the main problem; there is no discussion on whether the MSM regard prevention as a fundamental prerequisite for their own well-being.

Past epidemiological and behavioral data show a rise in unprotected sex among a small but significant proportion of MSM in developed countries coinciding with widespread access to accessible antiretroviral (ARV) treatment regimens (Hogg *et al.*, 2001). Findings in many industrialized countries that show lower condom use among young MSM, combined with growing complacency among those on ARV treatment, demonstrate the need to revitalize and sustain primary prevention messages aimed at promoting protected sex for MSM in high-income countries (UNAIDS, 2004).

2.7.2 HIV and Condom Use

Condoms play an important role in HIV prevention. Male condom use is powerfully protective against HIV acquisition and transmission and other STIs (Holmes *et al.*, 2004). The question is not whether condom promotion is a successful public health strategy for HIV prevention but how to effectively position the use of condoms within a comprehensive HIV prevention strategy. Condom use is an integral component in a range of prevention strategies which include informed, responsible and safer sexual behavior exemplified by delayed age of onset of sexual activity, abstinence, condom use and reduction in the number of sexual partners (UNAIDS, 2004).

There have been increases in condom use among MSM in many places in industrialized countries. However, this has not necessarily been true in developing countries. Where condom use among MSM remains low, this has more often been due to lack of effort than to failure of condom promotion campaigns (UNAIDS, 2004). Analysis of the scientific literature on condoms and HIV prevention and study of the experiences of various prevention programs show that, to achieve the full prevention potential that condoms offer, four critical elements must be addressed: i) realizing that there are interactions between condom promotion, including condom social marketing and peer-based condom education, and other prevention strategies; ii) understanding and correctly communicating information on the effectiveness of condoms; iii) convincing people to use condoms when they are needed and to do so consistently and correctly; and iv) ensuring a sufficient and regular supply of condoms for those who require them (UNAIDS, 2004).

In the KDHS 2008-09, it was found that of the men who had sex in the 12 months preceding the survey, only 37% of them used a condom during their last intercourse. This left a

staggering 63% exposed to the HIV risk, and, as the survey further found, men in Kenya have an average of 6 sexual partners in their lifetime (KNBS, 2010). This means the number of both males and females in Kenya exposed to HIV risk as a result of not using condoms is much higher. Condom use among MSM is higher and has been rising. In 2013, an estimated 69% of MSM reported using a condom the last time they had anal sex, up from 55% in 2011, but even where condoms are widely available; this does not guarantee their use. The 2014 Kenya Demographic and Health Survey revealed that only 40% of women and 43% of men who had two or more partners in the last 12 months, reported using a condom the last time they had sex (NACC, 2014).

Attitudes and beliefs about condom use and social norms appear to significantly influence whether substance-using MSM use condoms (Nakamura *et al.*, 2009). Among these attitudes and beliefs are that stopping to put on a condom ruins the moment, using condoms decreases sexual desirability, using condoms during sex ruins the mood, using a condom will feel unnatural, and partner(s) will not be sexually satisfied if a condom is used (Nakamura *et al.*, 2009).

A cross-sectional study by (Yi *et al.*, 2015) on factors associated with inconsistent condom use among MSM in Cambodia found that condom use rates across all types of relationships remained considerably low among MSM. The factors found in this study to be associated with inconsistent condom use among high-risk MSM included older age, self-rated quality of life as good or very good, self-perception of higher HIV risk compared to the general population, illicit drug use, and consistent use of lubricant when selling anal sex to men (Yi *et al.*, 2015).

In a different study to examine attitudes about condoms as a moderator of the relationship between substance use (substance) and sexual risk behavior in a sample of HIV-positive substance using MSM, analyses indicated that when individuals had more negative attitudes toward condoms, the relation between substance frequency and unprotected sex was significant, while among participants with less negative attitudes toward condoms, no significant association was found. Addressing substance-using MSM's attitudes about condoms can serve as a form of harm reduction for those who are not yet ready or willing to discontinue substance use (Nakamura *et al.*, 2009). Further, as Benotsch *et al.*, (2002), suggest, positive attitudes towards condoms can actually protect against risky sexual behavior.

The studies by Yi *et al.*, (2015), Nakamura *et al.*, (2009); and by Benotsch *et al.*, (2002) make a case for HIV risk perception and minimization based on positive attitudes by MSM towards condom use. However, these authors have not dwelt on whether or not the MSM feel the need to prevent HIV; and if not, why.

2.8 Risky Behavior Practices among MSM

Epidemiological data indicate that sexual risk behavior may have increased in recent years among HIV positive MSM (Crepaz *et al.*, 2009), IDUs (Tun *et al.*, 2004), and heterosexual persons (Vernazza *et al.*, 2006). The perception of sexual risk for HIV varies among MSM and may change from one sexual situation to another. Some MSM use alcohol and illegal drugs, contributing to increased risk for HIV infection and other STDs. Substance use can increase the risk for HIV transmission through risky sexual behaviors while under the influence and through sharing needles or other injection equipment (CDC, 2012).

Throughout the HIV epidemic, MSM have engaged in sophisticated decision-making about what they consider to be risky (Williams, 2000). Some men decide for themselves it is alright not to use a condom if they are the top (insertive partner), if they are having oral sex or if their or their partner's viral load is undetectable. MSM may make these decisions because the scientific evidence of HIV risk is cloudy, or simply because they are comfortable with some level of risk (CAPS, 2000). Other reports indicate that risky sexual behavior in MSM is reflected by numbers of sex partners, UAI, among other measures (Brewer *et al.*, 2006).

In the study by Nakamura *et al.*, (2009), sexual risk behavior was defined as unprotected anal sex with an opposite- or same-sex partner. Three categories of partner type were assessed: steady (e.g., spouse, boyfriend); casual (e.g., one-night stand); and anonymous (e.g., someone in the park). For each partner type, participants were asked how many times during the past two months they had engaged in receptive anal sex and insertive anal sex. For each type of sex act, participants were asked how many of those times they had used a condom.

In various regions of the developing world, many or most MSM also have sex with women, and the prevalence of condom use for sex with both their male and female partners is often very low (Colby, 2003; Choi *et al.*, 2004; UNAIDS, 2004). Given the prevalence of HIV and STI among MSM, the much higher transmission efficiency of anal sex (Kalichman *et al.*, 2011), and that the context of behaviors, including stigma and violence pose a greater risk for transmission, the contribution to the HIV epidemic from MSM to their female partners may therefore be greatly underestimated (Caceres *et al.*, 2006).

MSM have engaged in a hierarchy of strategies for maintaining safer sex that are fluid and context-dependent. Most MSM are able to manage sexual risk with effective strategies such

as monogamy with concordant partners, consistent condom use with repeated testing, condom use outside of relationship or abstinence. A small minority of MSM choose to engage in known risk activities such as unprotected anal intercourse without knowledge of partner serostatus (CAPS, 2000).

2.8.1 Unprotected Anal Intercourse

Unprotected anal intercourse between a seropositive and a seronegative man remains the greatest risk for HIV transmission among MSM. This has proven to be the biggest challenge for HIV prevention. The intimacy of skin-to-skin contact during intercourse is a powerful and important draw. Many MSM feel their sexual identity, as well as the hard-won goals of gay sexual liberation, are based on having sex-including anal intercourse in a free and unconstricted manner (CAPS, 2000).

Seropositive MSM in seroconcordant couples are at a potential risk for enduring adverse HIV related health complications due to their engagement in UAI with their primary partner. In particular, the practice of UAI among them may result in increases in viral load, decreases in CD4 count, reinfection with drug resistant strains of HIV, acquiring other STDs, and acquiring other viruses that may lead to opportunistic infections (Angel, 2000).

According to Rucinski *et al.*, (2012), HIV transmission among MSM is largely driven by UAI, which spreads HIV more efficiently than any other forms of sexual activity. Therefore, correct and consistent condom use during anal intercourse is a highly effective method of preventing the spread of HIV among MSM. HIV is not the only sexual health concern for MSM. Other STIs such as herpes and genital warts can also be transmitted through skin-skin contact

during anal intercourse with infected persons; and can negatively affect health and sexuality (Assi, 2014).

In a study conducted in Cape Town, South Africa, by (Kalichman *et al.*, 2011), engaging in anal intercourse is associated with being unmarried, and having primary, casual and multiple recent sexual partners. They also found that practicing anal intercourse was related to drinking before sex and having a partner who drank before sex; and men who engaged in anal intercourse were also more likely to have been diagnosed with an STI. This study investigated the predictors for anal sex; but failed to find out the real motivators; as opposed to enablers, of anal sex.

2.8.2 Substance use

The tracking of emerging substance use trends within any particular population subgroup facilitates the targeting of community based prevention efforts and can also serve as a means of evaluating ongoing program activities. Within the context of MSM, research on substance use behavior has particular importance because of purported associations with risky sexual behavior and practices which potentially increase the spread of HIV (Stall *et al.*, 2000).

The associations between substance use and sexual risk-taking for HIV are complex, however, the inclusion of interventions to disentangle substance use and high-risk sexual practices may increase the efficacy of HIV/AIDS prevention efforts among MSM (Stall *et al.*, 2000). The rise of HIV among MSM may correspond with the rise in substance use in this population (CDC, 2007). Substance use has been identified in a number of studies as a predictor of risky sexual behavior among MSM (Colfax *et al.*, 2005). Substance users often report decreased sexual inhibition, increased self-esteem, euphoria, and hypersexuality when under the influence (Halkitis *et al.*, 2001). Substance use has also been associated with a number of sexual

risk factors, including enhanced sexual drive, behavioral disinhibition, increased desire for high risk activities, low rates of condom use, high rates of sexually transmitted disease, and multiple partners (Colfax *et al.*, 2005). Substance use not only increases HIV-negative users' risk, but it also has serious health consequences for HIV-positive users by increasing neuropsychological deficits and decreasing medication adherence (Colfax *et al.*, 2005).

Global evidence relating to the use of substances among MSM is limited due to the lack of disaggregation of data by sexual orientation. While complicated by methodological diversity, most research indicates a higher prevalence of illicit drug use among MSM compared with their heterosexual counterparts, although the same is not necessarily true of alcohol. A sense of belonging, coping with everyday problems and the enhancement of pleasure, all feature in motivations for alcohol and drug use. Global association studies document a link between substance use and sexual risk behaviors, and event-level analyses suggest an especially strong association with respect to alcohol (Bourne & Weatherburn, 2017).

While alcohol use patterns are not substantially different between different classifications of MSM (gay, heterosexual, transvestites), gay men do use more kinds of other drugs. There is considerable evidence to support the view that substance use patterns have declined among gay men since the mid-1980s, nonetheless substance use should still be regarded as a health risk in this population (Stall *et al.*, 2000). Substance use puts MSM at risk for HIV for several reasons: i) MSM-IDUs are at risk if they share infected injection equipment; ii) substance use is associated with high risk sexual behavior; iii) background HIV prevalence rates are higher for MSM-IDUs and MSM who abuse drugs but do not inject, increasing the likelihood of transmission. The most prominent risk factor associated with substance use among over half of

the different substance categories, including multiple drug use, drug abuse, and the stimulant drug class, is engaging in HIV transmission risk behavior (Skeer *et al.*, 2012).

Substance use can serve as a trigger or an excuse for unprotected sex. Some MSM have trouble having sex without getting high first; others prefer having sex while high; believing recreational drugs increase their libido. For some MSM, drug use provides a sense of community and bonding at MSM clubs and circuit parties. A survey of MSM who attend circuit parties found that serodiscordant unprotected anal sex was more likely to occur among men who used amphetamines (speed), Viagra and amyl nitrites (poppers) (Colfax *et al.*, 2000).

Differences in substance use have been found to be more evident among older men; suggesting that while men in the general population tend to desist from drug use as they mature, MSM may be more likely to continue substance use into their middle years (Mackesy-Amiti *et al.*, 2008). Recent research suggests that one factor influencing the desistence of drug involvement in young adulthood is the acquisition of stable social roles in multiple domains such as work and romantic attachments (Schulenberg *et al.*, 2004). Given societal pressures and prejudices, this stabilizing force may be less prevalent among MSM, making it less likely that their substance involvement will diminish.

2.8.3 Multiple Sexual Partners

Same-sex behavior is identified in all societies, irrespective of whether same-sex sexuality is openly acknowledged, not talked about, or actively denied (WHO, 2010). Many MSM have multiple sexual partners of all types – regular, casual, commercial (paid) and paying. According to WHO report (2010), many MSM also have female sexual partners. According to Mah and Halperin, (2008), the high prevalence of STIs, especially HIV and AIDS observed in

SSA are driven by high levels of multiple sexual partnerships. The likelihood of acquiring STIs, including HIV, increases with an increasing number of sexual partners (National AIDS Trust, 2010). Accordingly, multiple partnerships increase transmission of STIs amongst MSM, and these increasingly prevalent STIs also increase transmission of HIV.

In a study on the Pattern of HIV testing and multiple sexual partnerships among MSM in China, Chow *et al.*, (2013) found that low testing levels and multiple partnerships among MSM are two major contributing factors to HIV transmission. Research and surveillance on male same sex relationships and HIV face many methodological and social challenges. While the use of the category ‘‘MSM’’ underscores the common aspects of biological males having sex with other biological males, it overshadows their diversity and hampers adequate planning for prevention and care (Young *et al.*, 2005). In much of the world, most MSM also have sex with women, and the low prevalence of condom use among them in sex with both their male and female partners may lead to an underestimation of transmission from men to their female partners (UNAIDS, 2007). Chow *et al.*, (2013) also found that bisexual behaviors among MSM represent a very significant channel of HIV transmission to the female population.

Some MSM who are involved in multiple sexual partnerships are aware of the risks of that behavior. A study by Garcia *et al.*, (2014) on multiple and concurrent sexual partnerships among MSM in Viet Nam found that self-identification as being at medium or higher risk of HIV infection was associated with multiple sexual partnerships. The study also found a significant association between HIV prevention knowledge and lower risk behavior. According to NACC and NASCOP (2012) report, nearly 40% of all MSM studied in Nairobi and Kisumu have ever been married to women and 13% of all MSM are still currently married to a woman.

2.9 Summary

From the foregoing review of literature, various variables are associated with HIV risk among MSM. Knowledge of HIV risk, attitudes towards HIV prevention and behavior practices determine the MSM's exposure to HIV risk that ultimately increases the risk for HIV infection.

Among young MSM in particular, complacency about HIV may play a key role in HIV risk, since these men did not personally experience the severity of the early AIDS epidemic. Failure to test for HIV to determine sero-status, incorrect or insufficient knowledge about transmission and prevention, as well as non-recognition and non-treatment of STIs put MSM at risk of HIV infection. Additional challenges for many MSM include maintaining consistently safe behaviors over time; for example the correct and consistent use of condoms; underestimating personal risk, and the false belief that because of treatment advances, HIV is no longer a serious health threat. For some MSM, social and economic factors, including homophobia, stigma, poverty, peer pressure especially in relation to substance use; and lack of access to health care may increase risk behaviors or be a barrier to receiving HIV prevention services.

The literature is summarized in a conceptual framework (Figure 2.2) which shows the interrelationships between the main study variables. The knowledge of HIV risk that MSM have, their attitudes towards HIV prevention, and their behavior practices are the variables that can act singularly or in combination to result in sexual risk-taking behaviors by MSM. This latter is the intermediate variable that ultimately exposes the MSM to HIV risk.

2.10 Conceptual Framework

Independent Variables

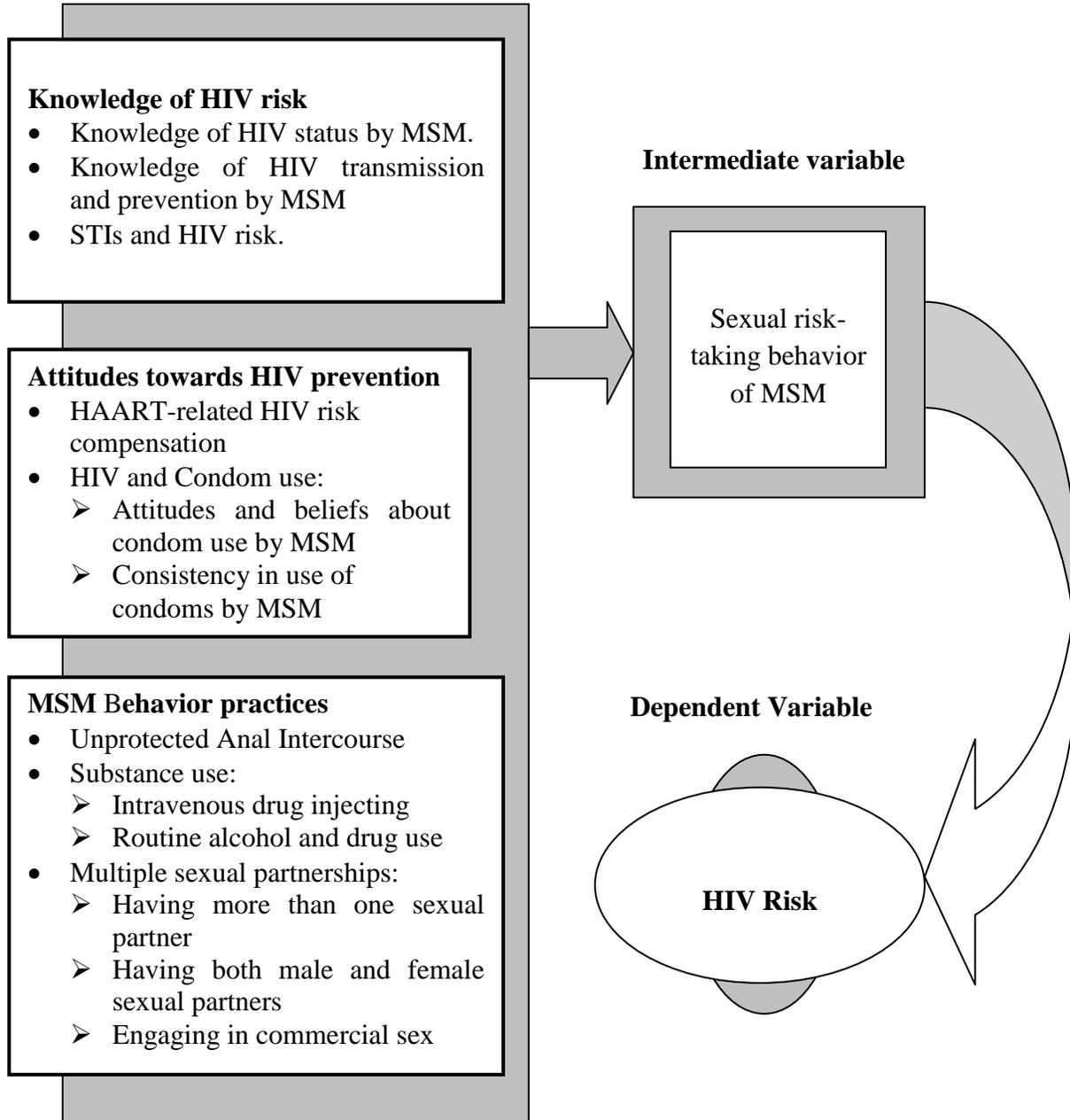


Figure 2.2: The Conceptual Framework

Adapted from (Baral et al., 2007); (Caceres et al., 2008); (NAT, 2010); (CDC, 2012); (Rucinski et al., 2012).

Based on the literature reviewed, the existing high prevalence of HIV among gay and bisexual men means MSM face a greater risk of being exposed to infection with each sexual encounter, especially as they get older. When HIV status is not known because of failure to test for HIV, the lack of or insufficient knowledge about HIV transmission and prevention, and non-treatment of STIs due to perceived stigma elevate the HIV risk for MSM (CDC, 2012).

The attitudes of MSM towards HIV prevention is also a factor that predisposes them to HIV risk. These include HAART-related risk compensation; the belief that it is unnecessary to prevent HIV infection because of treatment availability; and secondly, the deliberate decision not to use condoms, inconsistent and incorrect use of condoms.

The practice of UAI, the use alcohol and illicit drugs, and multiple sexual partnerships by MSM are behaviors associated with HIV risk. Substance use can serve as a trigger for behavioral disinhibition and unsafe sex which increase the risk for HIV transmission while under the influence; and through sharing needles or other injection equipment with partners who are infected. MSM have also been found to engage in multiple sexual partnerships including having female sexual partners; and engaging in commercial sex.

CHAPTER THREE: METHODOLOGY

3.1 Introduction

This chapter describes the research procedure and techniques that were used in the study. It provides a description of the study area, research design, study population, sample size and sampling techniques that were employed. It also outlines the basis for planning, selecting and developing the instruments that were used in the study; as well as the procedures for the application of the instruments and the data analysis techniques which were used.

3.2 Study Area

Kisumu City covers an area of approximately 417 Km². Its geographical coordinates are 0° 60' 0" South, 34° 45' 0" East. The City falls within Winam Division, and encompasses Town, Kondele, Kolwa Central and Kolwa West locations. Thus, the land area under the City is about 297 Km² (Appendix I).

The City's population density is 828 per square Km; with growth rate estimated at 2.8 %t per annum. The population of Kisumu following the 2009 population census was 244,298; with 122,874 females and 121,424 males. Out of the 121, 424 males, approximately 63,140 were aged 15 – 49 years (KNBS, 2010). The prevalence of HIV and AIDS in this group is estimated at 15.4% (KAIS, 2007). Currently, the population of Kisumu City is estimated at 410,000. There are various organizations working with MSM in Kisumu that offer a variety of services including VCT, referrals, advocacy and training. They include KASH, KIPE, LVCT and IMPACT RDO.

3.3 Study Design

This was a cross-sectional survey using both quantitative and qualitative methods. The use of this design enabled the researcher to collect information from the respondents at one point in time. A total of 163 respondents were sampled from the study area and interviewed using self-administered questionnaires. Further, 10 peer leaders from the 163 respondents were separately interviewed orally using an in-depth interview guide. This study asked respondents sensitive questions about their sexual orientation, behaviors, and the underlying motives.

3.4 The Study Population

The study population comprised of all MSM in Kisumu City; estimated as being 1,630. It included men in the MSM network; composed of men who have come together to advocate for their rights and also to collectively address problems common to them, as well as others who were not registered in the MSM network. Members were initially mobilized by the 3 NGOs that were implementing programs on MARPs and Key Populations (KP) and later the recruits introduced other MSM to the network.

3.4.1 Inclusion Criteria

- i. Men were recruited in the study if they had had sex with another man in the past 3 years. In addition, they had to have been living in Kisumu, or were members of the MSM network.
- ii. They had to be aged between 15 and 55 years. This group was considered suitable because they comprised a sexually active group; and therefore at risk of HIV, they were

likely to be educated, and they were also likely to have access to money, condoms, alcohol and drugs.

- iii. The men were recruited only if they gave written informed consent to participate in the study by appending their signatures and date on the written informed consent form.

3.4.2 Exclusion Criteria

MSM in prison were not part of the survey for this study.

3.5 Sample Size Determination

The sample size was determined based on Gupta (2007) proposition on sample sizes for homogenous populations. He pointed out that selecting a sample size of 10% of the population is representative for a study in which the respondents share the same characteristic of research interest. In this study, the respondents had the same characteristic of practicing homosexuality and it was for this reason that this study selected a sample size of 10% as proposed by Gupta (2007). According to NACC and NASCOP (2012), the MSM population in Kisumu City was estimated at 1,630 (point estimate). A sample size of 10% of the population was selected for this study resulting in a sample size of 163.

3.5.1 Sampling Procedure

The study used a three-stage mixed sampling approach. Purposive, simple random and snowballing sampling techniques were used in this study to sample the MSM to be recruited as study participants. In the first stage, all 126 men aged 15 – 55 years who were in the MSM network were purposively approached with the aim of recruiting 100% of those already registered at KASH. In the second stage, the 126 MSM were used as the sampling frame from which 37 were selected by simple random sampling technique which was done on Microsoft

excel. In the third stage, the 37 from the second stage were asked to introduce, through snowballing, one unregistered MSM each; fitting the requisite inclusion criteria, to be included in the study. The additional 37 respondents recruited through snowballing brought the total number of respondents to the required sample size of 163 respondents.

For qualitative data, 10 peer leaders from the original 126 members of the MSM network were purposively sampled to take part in the in-depth interviews. The peer leaders were the group leaders of the ten MSM peer groups that were in the MSM network. These group leaders represent their respective group members in all welfare matters pertaining to MSM and were therefore believed to be very knowledgeable in matters concerning MSM.

3.6 Data Collection methods and tools

Data was collected using semi-structured questionnaires (Appendix III) and an in-depth interview guide (Appendix IV). An anonymous self-administered semi structured questionnaire covering different aspects of information on the study objectives was used to collect quantitative data from the study participants. The questionnaires had structured questions and the respondents only had to select from the given responses; but also had some unstructured questions that did not have pre-determined responses to choose from and respondents were required to respond based on their opinions, individual knowledge and experiences. The questions were on: i) respondents' demographics and contextual characteristics, ii) HIV and AIDs general knowledge, HIV testing, self-reported HIV status, Knowledge of HIV transmission and prevention; and STI awareness and prevalence, and self-rating on Knowledge of HIV risk; iii) respondents' perceptions, attitudes and beliefs concerning HAART, condom use and self-efficacy; and self-rating on attitudes towards HIV prevention; iv) respondents' behavior practices related to HIV

risk; and self-rating on their behavior practices. All study respondents were issued with a questionnaire each which they were requested to complete by themselves and return to the Research Assistant without identifying who they were through their names.

An in-depth interview guide on areas that required detailed information that could not be covered by the questionnaires was used to collect recorded qualitative data. It was constructed to cover topical areas on access to healthcare, difficulties faced due to homosexual orientation, main areas of concern, substance use, male circumcision, HIV risk and prevention. Probing was used during the in-depth interviews to obtain as much qualitative data as possible and also to enhance clarity of the responses. The interviewing and recording were conducted by one trained research assistant who worked for the MSM network; and were conducted for one respondent at a time with two electronic recorders for each interview to ensure the information captured had backup in case of malfunction in one recorder.

3.7 Quality Control Processes

To control for quality, two managers considered experts on key populations from an NGO with a satellite office in neighboring Homabay County were given the questionnaires and requested to rate each response on a scale of 1 – 4 to determine the relevance of each question. The relevance was then determined using content validity index (CVI) which resulted in a value of 0.836. The questionnaires were pilot-tested twice on 15 MSM in Rongo. Data from the two sets of questionnaires were compared and used to refine the questionnaires, specifically with the addition of questions on self-rating by MSM on the three independent variables of the study. Reliability was then determined using Cronbach's α which gave a value of 0.87.

3.8 Data Management and Processing

Filled questionnaires from the respondents were received by the research assistants, sealed in A4 envelopes in the presence of the respondents, then handed over to the researcher for safe custody as soon as they were brought back. The data was then given to a data entry assistant for processing. Quantitative data was captured in numeric variables from the questionnaires. The data was coded and entered in SPSS. Duplicating cases were checked and cleaned. Missing values were also checked and reentered. Consistency in the data was checked again to ensure the data was ready for analysis. Data from the electronic recorders was transferred to a password protected computer for transcription by the researcher, then erased from the recorders. The data was then grouped into themes and sub themes on Microsoft excel by the researcher.

3.9 Data Analysis and Presentation

Quantitative data was analyzed statistically using Statistical Packages for Social Sciences (IBM SPSS Statistics, version 20). Both descriptive and inferential statistics were used. Univariate analysis was done for single variables which included knowledge of HIV risk by MSM and attitudes of MSM towards HIV prevention; and involved frequency distributions and measures of central tendency. Bivariate analysis was done to determine associations between variables. It involved contingency table analysis and chi square tests to show associations between the main study variables.

Chi square tests of significance ($p \leq 0.05$) were used to assess whether there was statistically significant association between the MSM's knowledge of HIV risk and their risky behavior practices; and between MSM attitudes towards HIV prevention and their risky behavior practices.

The SPSS program was used to run descriptive statistics on quantitative data, and the results presented using frequency tables, bar charts, statistical pies and representative characteristics or values, such as averages and percentages. Qualitative data obtained from the in-depth interviews were analyzed manually using content analysis by exploration and categorization of themes.

3.10 Ethical Considerations

This study involved the participation of human respondents on very sensitive and personal information; therefore ethical considerations were necessary to safeguard the privacy and well-being of those respondents. Approval to conduct the study was obtained from the Maseno University Ethics Review Committee (MUERC – Appendix V). The researcher presented the permit to the Director of KASH and Coordinator of the MSM network for permission to recruit their members into the study (KASH approval – Appendix VI).

A consent form (Appendix II) was issued to each participant which they signed voluntarily. They were told the intent of the study and assured of non-disclosure of their names or other forms of identity to ensure their anonymity and the confidentiality of the information they would provide. Respondents were also advised on their voluntary participation in and possibility of withdrawing from the study at any point should they wish to.

CHAPTER FOUR: RESULTS

4.1 Introduction

This chapter presents results of the study. The purpose of the study was to explore the knowledge, attitudes and practices of MSM in Kisumu City with regard to HIV risk. The study therefore had four objectives namely: to find out the knowledge of HIV risk by MSM in Kisumu City, to determine the attitudes of MSM in Kisumu City towards HIV prevention, to determine the risky sexual behavior practices of MSM in Kisumu City; and determine if there are significant associations between the three independent variables.

4.2 Socio-demographic characteristics of respondents

This section presents the socio-demographic characteristics of the 163 respondents who were involved in the study. The researcher chose to explore these socio-demographic characteristics because of their importance in explaining the knowledge, attitudes and practices of the MSMs with regards to HIV risk. Table 4.1 shows the age of the respondents, their marital status, religion, nationality, number of years stayed in Kisumu, previous region of residence, their occupation, current living situation, and sexual orientation.

Table 4.1: Socio-demographic characteristics of respondents

Characteristic	Description	Frequency n	Percentage %
Age of respondents	15-19 yrs	19	11.7.0
	20-24 yrs	82	50.30
	25-29 yrs	40	24.50
	30-34 yrs	16	9.80
	35+ yrs	5	3.10
Marital status of respondents	Single	125	76.70
	Married	36	22.10
	Divorced	1	0.60
Religion of respondents	Catholic	75	46.00
	Hindu	1	0.60
	Muslim	26	16.00
	Protestant	49	30.10
	None	4	2.50
	Others	4	2.50
Nationality of respondents	Kenyan	158	96.90
	Foreigner	2	1.20
No. of years in Kisumu	< 10 years	68	41.70
	11-20 years	41	25.20
	21-30 years	39	23.90
	>30 years	4	2.50
Previous region of residence	Always Nyanza	68	41.70
	Central	5	3.10
	Coast	27	16.60
	Nairobi	32	19.60
	Rift Valley	11	6.70
	Western	13	8.00

Table 4.1: Socio-demographic characteristics

Occupation of respondents	Casual laborer	20	12.30
	Commercial sex worker	22	13.50
	Salaried	27	16.60
	Self employed	28	17.20
	Unemployed	59	36.20
	Others	6	3.70
<hr/>			
Current living situation	Currently married, living with a same sex partner	12	7.40
	Currently married, living with a spouse	18	11.00
	Currently married, not living with a spouse or same sex partner	12	7.40
	Not married, living with a female sex partner	5	3.10
	Not married, living with a same sex partner	22	13.50
	Not married, not living with any partner	86	52.80
	<hr/>		
Sexual orientation	Bisexual	58	35.60
	Gay	84	51.53
	Heterosexual	12	7.40
	Transgender	7	4.30
	Transvestite	2	1.20

From Table 4.1, it was established that majority of the respondents 122 (74.8%) were aged between 20 and 29 years; which would suggest a largely youthful population at risk. On marital status, the majority 125(76.7%) were single; a finding which agrees with the predominantly youthful population above; while a total of 36 (22.1%) respondents were married with wives. This latter demographic is important because of the role it plays in explaining HIV risk. The results indicate that many respondents professed the Catholic faith, and in general most were Christians. On nationality of the respondents, of the majority of respondents (96.9%) were Kenyan. The study examined the period the respondents had stayed in Kisumu and found that 68 (41.7%) had stayed in Kisumu for 10 years or less, 41 (25.2%) had stayed in Kisumu for a period ranging between 11 and 20 years and only 43(26.4%) had stayed for over 20 years in Kisumu. The study further explored the region that they had come from and found that 68 (41.7%) had always been in Nyanza, 32 (19.6%) respondents were initially from Nairobi, 5(3.1%) came from Central, 27(16.6%) respondents were from the Coast, 13(8.0%) were from Western and 11(6.75%) were from Rift valley. These findings could point towards a transient but growing sub-population. On the occupation of the respondents, 59 (36.2%) were unemployed and only 27 (16.6%) were salaried employees.

The study also sought to find out the extent to which the MSM were involved in same sex relationships in their current living arrangements. The majority, 86 (52.8%) were single and living alone. Importantly though, 42 (25.8%) respondents reported that they were married at the time of the survey; and 5 (3.1%) were not married but were living with female sexual partners. A further 22 (13.5%) who were single reported that they were living with same sex partners. Lastly, the study sought to find out how the MSM identified themselves with regard to their sexual

orientation and found that the majority - 84 (51.5%) identified themselves as Gay or Homosexual, and 58 (35.6%) identified themselves as bisexual.

4.3 MSM Knowledge on HIV Risk

The first objective of the study was to determine the knowledge of HIV risk by MSM in Kisumu City. Respondents were asked general HIV and AIDS questions the ways through which HIV could be transmitted and how transmission could be prevented. From the in-depth interviews conducted, male circumcision was reported as a confirmed way of preventing transmission of HIV among MSM. This is what a respondent said:

“It is a fact; circumcision reduces the chances of someone contracting HIV by up to 60% according to studies. One way through which the MSM can reduce their risk of getting HIV is through circumcision. Coupled with proper use of condoms, circumcision can prevent someone from getting HIV”

The findings from the quantitative data show that almost all respondents 159 (97.5%) had heard about HIV and AIDS with their main source of HIV & AIDS knowledge being family and friends. Similarly, almost all 156 (95.7%) respondents knew how HIV could be contracted. The respondents were asked to mention the ways through which HIV could be transmitted and how transmission could be prevented. From the findings, it is immediately apparent that they mostly had correct knowledge about HIV transmission and prevention. These results are presented in Table 4.2.

Table 4.2: Knowledge on HIV and AIDS

Characteristic	Description	Frequency n	Percentage %
Heard of HIV and AIDS	Yes	159	97.5
	No	4	2.5
Source of HIV and AIDS information	Newspapers	55	33.7
	Electronic media	44	27
	Internet websites	32	19.6
	Doctor	47	28.8
	Government agencies	42	25.8
	Consumer/interest groups	34	20.9
	Family/friends	88	54
Know how HIV can be contracted	Yes	156	95.7
	No	7	4.3
Ways through which HIV is transmitted	Blood transfusion	101	62
	Sex with infected partner	129	79.1
	Sharing surgical instruments	89	54.6
	Mother-to-child transmission	96	58.9
	Unprotected anal sex	99	60.7
Ways of preventing transmission	Abstaining from sex	61	37.4
	Avoiding fluid contact	8	4.9
	Avoid sharing sharp objects	41	25.2
	Ensuring safe sex	139	85.3
	Undergoing circumcision	2	1.2
	Knowledge of HIV status	18	11
	PMTCT programs	12	7.4
	Screening of blood before transfusion	31	19
	Sterilizing surgical instruments	18	11
	Use of ARVs	1	0.6
	Reducing number of sexual partners	5	3.1
	Being faithful to partner(s)	48	29.4
	Sensitization on HIV/AIDS	2	1.2

Knowledge of HIV status is important in profiling HIV risk. The study sought to find out if the respondents had been tested for HIV in the 12 months prior to the study and presented the findings in Figure 4.1. The findings show that almost all respondents (93.9%) had been tested for HIV in the 12 months period prior to the study.

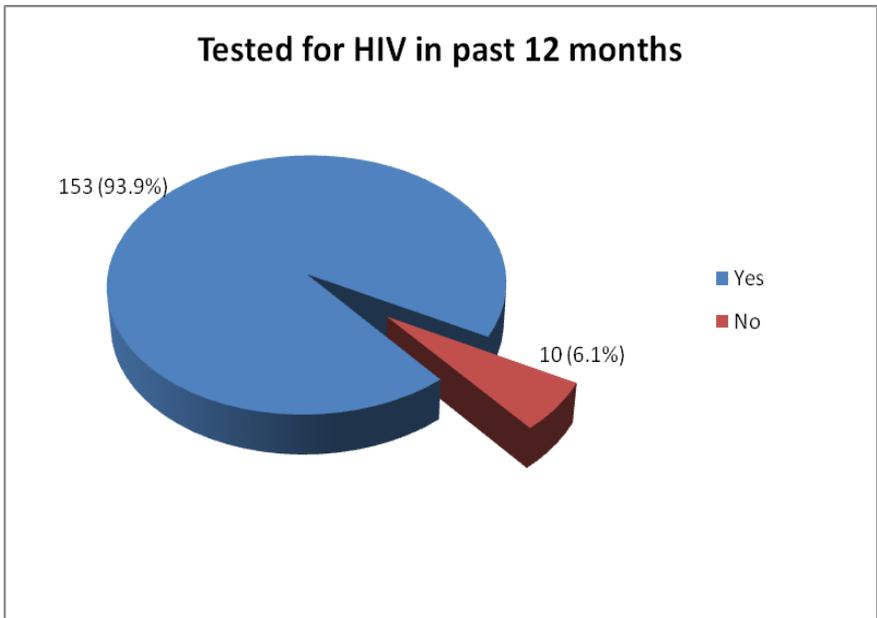


Figure 4.1: HIV testing in the 12 months prior to the study

The respondents were asked if they received their HIV test results and the findings presented in Figure 4.2.

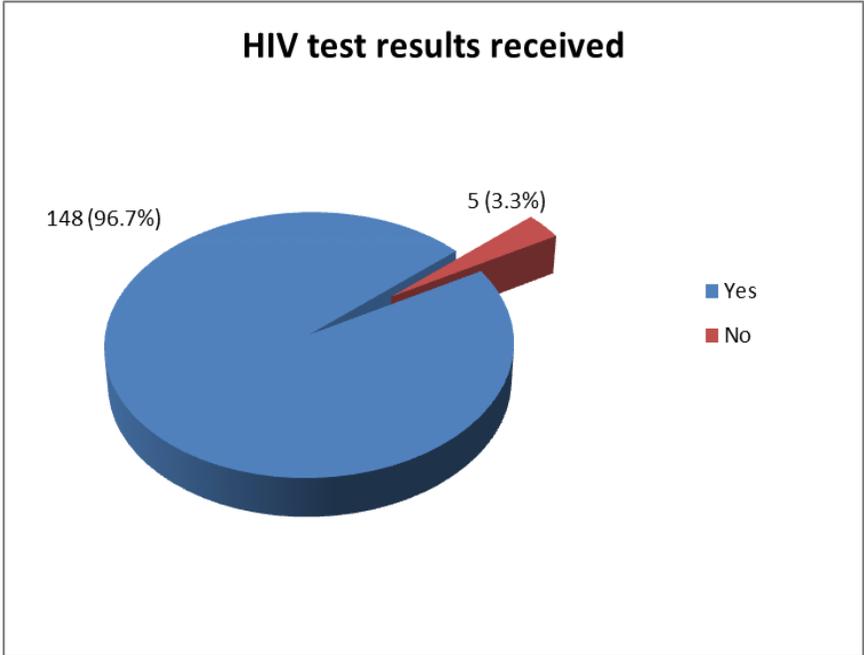


Figure 4.2: HIV test results received

The findings show that out of the 153 respondents who took the HIV test in the 12 months before the study, 148 (96.7%) got their HIV test results while. To put these results into perspective, respondents were asked to state their HIV status and these are presented in Figure 4.3. From the findings, it is immediately apparent that there is a high prevalence of HIV in this sub-group with 40 (24.5%) respondents reporting that they were HIV positive. This finding is singled out from the above results because sero-positivity is the attribute of public health significance in the assessment of HIV risk.

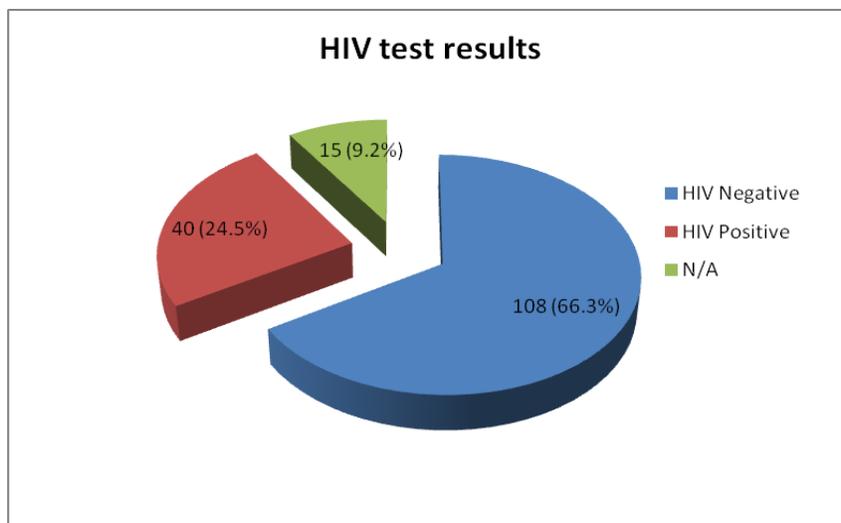


Figure 4.3: HIV status of respondents

The respondents also confirmed in the IDIs that they were at a higher risk of contracting HIV compared to other segments of the population.

“I agree we are at a higher risk of contracting HIV compared to other segments of the population because of the manner in which we have sex. The anus is very vulnerable to injury during sex because it is very soft. This increases the chances of us contracting HIV more so if you don’t use condoms. Most MSM are poor and don’t have money to buy lubricants and condoms increasing their risk to contracting HIV and AIDs”.

The study explored whether the respondents sought to know if MSM ever enquired from their partners if the partners had been tested for HIV and presented the findings in Figure 4.4 below. From the findings, the majority of respondents (71.8%) sought to know the whether their partners had been tested for HIV. This finding is important because there is a substantial proportion of MSM also called MSWs (Male sex workers) who engage in commercial sex and are seldom able to ascertain their partners' status or negotiate for condom use.

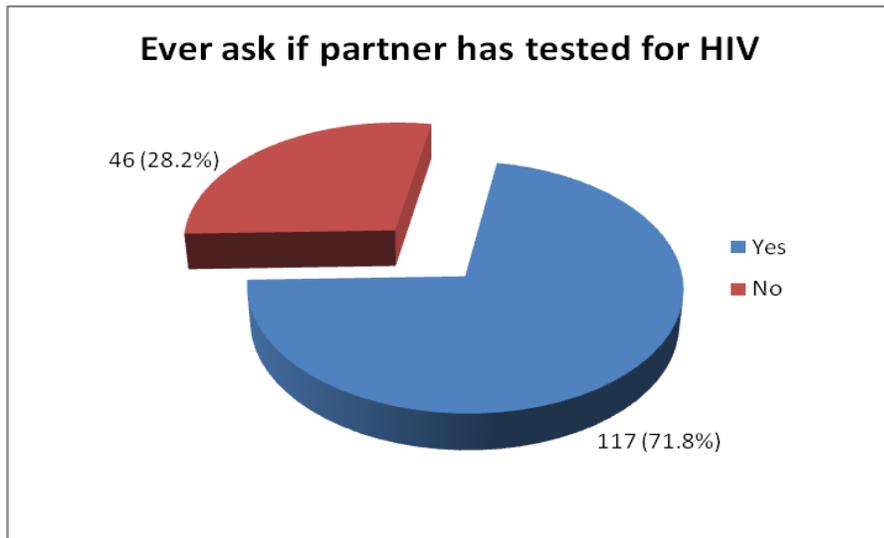


Figure 4.4: Whether MSM ask if their partners have been tested for HIV

The next question sought to find out if the respondents had had sexual intercourse with a partner of unknown or opposite HIV status and presented the findings in figure 4.5. From the figure, it is evident that the majority of respondents (60.74%) had engaged in sex with a sexual partner of an unknown or opposite HIV status.

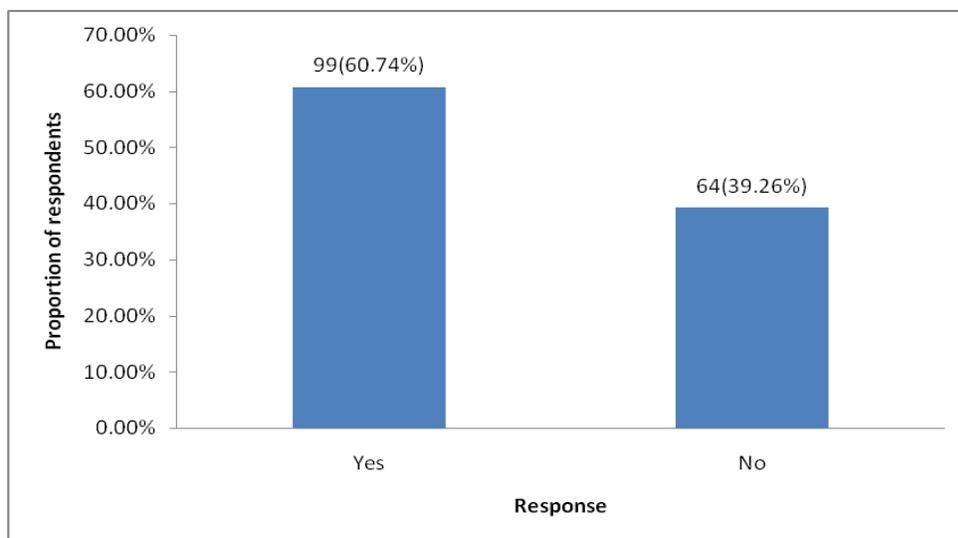


Figure 4.5: Sexual intercourse with partners of unknown or opposite HIV status

Respondents were asked their opinions to gauge their knowledge of common HIV misconceptions and the findings were presented in Table 4.3 below. The findings show that the majority of respondents can correctly categorize HIV with 87.7% correctly selecting HIV testing as the way to identify HIV infection; but a few of them still hold false beliefs and misperceptions which can have implications for HIV risk.

Table 4.3: Opinions about HIV misconceptions

Characteristic	Description	Frequency n	Percentage %
What is HIV	Curse	2	1.2
	Disease	58	35.6
	Virus	86	52.8
	Other	17	10.4
How to identify someone with HIV	Appearance	19	11.7
	HIV test	143	87.7
	Sickness	13	8
	Other	3	1.8
Beliefs on HIV transmission modes	Mosquito bites	4	2.5
	Sharing food and utensils	17	10.4
	Witchcraft	1	0.6
	Kissing	128	78.5

The respondents' opinions were also sought on whether HIV&AIDS could be cured and the findings were presented in figure 4.6 below. The findings show that most respondents (85.9%) have the correct knowledge that HIVand AIDS could not be cured while a small proportion (14.1%) were of the opinion that HIVand AIDS could be cured.

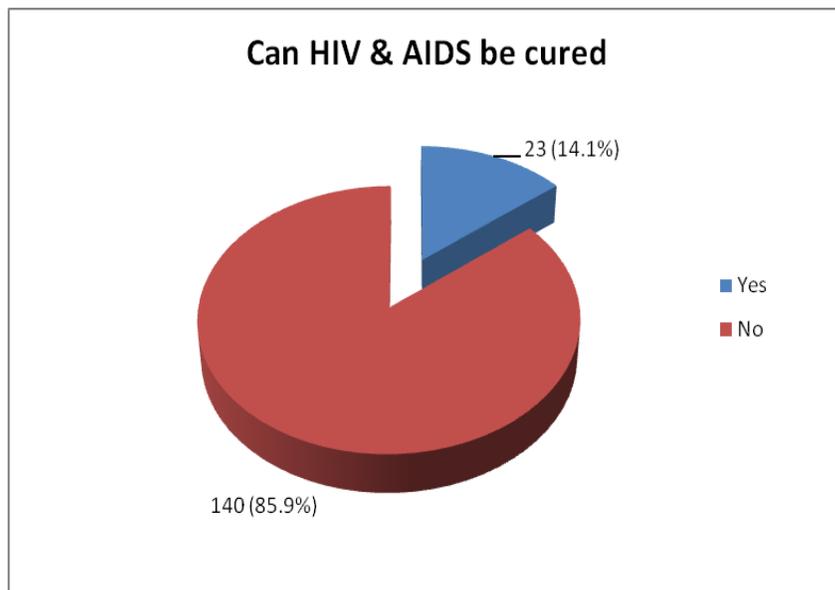


Figure 4.6: Possibility of curing HIVand AIDS

The study explored the MSM knowledge of HIV risk by asking questions related to STI awareness and presented the findings in Table 4.4. The findings on STI awareness indicate a sub-population that is not heavily burdened by STI morbidity; with only 37.4% having ever had an STI. This result also ties in with an almost exact proportion of respondents (36.2%) who have ever sought treatment for an STI. Many of the respondents (44.2%) believe they are not likely to contract an STI in the next 12 months; which might mean they are taking actions to protect themselves from contracting STIs.

Table 4.4: STI awareness

Characteristic	Description	Frequency n	Percentage %
Previous infection with an STI	Yes	61	37.40
	No	102	62.60
Had an ulcer or sore in the anus in the last 12 months	Yes	43	26.38
	No	120	73.62
Likelihood of contracting the listed STIs in the next 12 months: Chlamydia, Gonorrhoea, Syphilis, or Herpes	Very unlikely	28	17.20
	Unlikely	44	27.00
	Likely	26	16.00
	Very likely	9	5.50
	Don't know	53	32.50
Ever sought treatment for an STI	Yes	59	36.20
	No	104	63.80
Always seek treatment with partners whenever infected with an STI	Yes	88	54.00
	No	75	46.00

Lastly the objective was capped by exploring extent to which the respondents rated their knowledge of HIV risk and presented the findings in Table 4.5 which shows that 162 (99.1%) respondents cumulatively rated their knowledge of HIV risk as average to very high, indicating that overall, they were all knowledgeable about HIV risk.

Table 4.5: MSM self-rating on knowledge of HIV risk

Knowledge of HIV risk factors	Frequency n	Percentage %
Very high	45	27.60
High	66	40.50
Average	51	31.30
Low	1	0.60

4.4 MSM Attitudes towards HIV prevention

The second objective of the study examined the attitude of MSM in Kisumu City towards HIV prevention. Given the known high HIV risk within the MSM population, it was necessary to determine whether the MSM were concerned about taking action to prevent the spread of HIV. This was done by examining their beliefs around the availability of treatment regimens (HAART) because of the risk compensation associated with it; beliefs around condoms for HIV prevention, and MSM's consistency in using condoms. The study started by exploring the respondents' awareness about ARVs, and their opinions concerning ARVs their Effectiveness for HIV treatment.

The findings show that majority of the respondents (91.4%) had heard about ARVs. They were also asked to rate the effectiveness of ARVs for HIV treatment according to their opinion. The findings show that majority of the respondents (62%) believed in the effectiveness of ARVs for HIV treatment. This finding is important because it helps to categorize MSM's risk perception and consequently their initiative to prevent HIV transmission. These results are presented in Table 4.6 below.

Table 4.6: Opinion about effectiveness of ARVs for HIV treatment

Opinion on ARVs	Frequency N	Percentage %
Effective	64	39.30
Completely effective	37	22.70
Somehow effective	49	30.10
Not effective	9	5.50

The MSM's opinions were further sought on various beliefs on ARVs. From the mean responses of the findings presented in Table 4.7 below, respondents generally disagreed that ARVs could cure HIV (mean response of 1). They were almost split on whether everyone on ARVs recovered from HIV (mean response of 2) because of the small difference between those who agreed (40.5%) and those who disagreed (47.9%). They gave a mean response of 4 for the last two statements; which means they generally agreed that a healthy looking person should use condoms while on ARVs, and that someone on ARVs can infect another person with HIV. These mean responses show that overall, the MSM have the correct knowledge of the role played by antiretroviral therapy (ART) in the management of HIV and AIDS.

Table 4.7: MSM beliefs about ARVs

Beliefs		Agree	Undecided	Disagree	Mean Response
ARVs can cure HIV infection	Freq	39	14	107	1
	%	23.9	8.6	65.6	
Everyone on ARVs recovers from HIV	Freq	66	16	78	2
	%	40.5	9.8	47.9	
A healthy looking person should use condoms while on ARVs	Freq	130	9	21	4
	%	79.7	5.5	12.9	
Someone on ARVs can infect another with HIV	Freq	123	7	29	4
	%	75.4	4.3	17.8	

The study sought to find out MSM's attitudes towards HIV prevention by exploring their outlook on condom use for HIV prevention. To begin with, the respondents were asked whether they believed in using condoms with every sexual intercourse.

The study found that the MSM largely believed in using condoms for HIV prevention. From Figure 4.7, 120 (73.62%) respondents said that they believed in using condoms and 43 (26.38%) respondents said that they didn't believe in using condoms with every sexual intercourse.

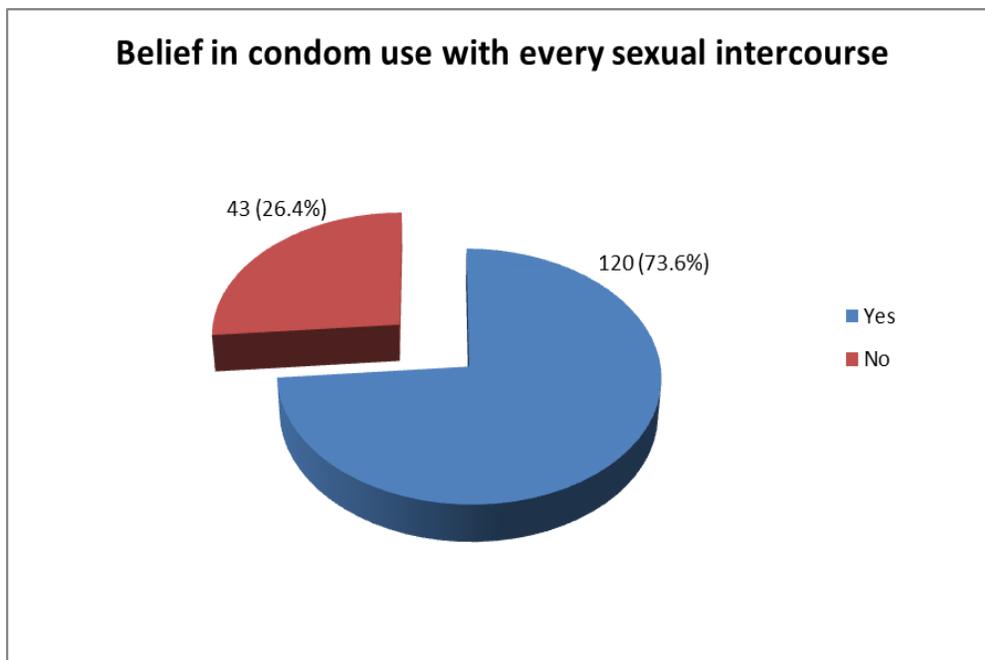


Figure 4.7: Belief in Consistency in condom use

The research went on to find out the frequency of condom use among the respondents and presented the findings in Figure 4.8. From the findings, it is evident that the use of condoms by MSM is sporadic; as only 41.1% of the respondents always use condoms; in spite of the fact that 73.6% of them reported that they believed in the consistent use of condoms.

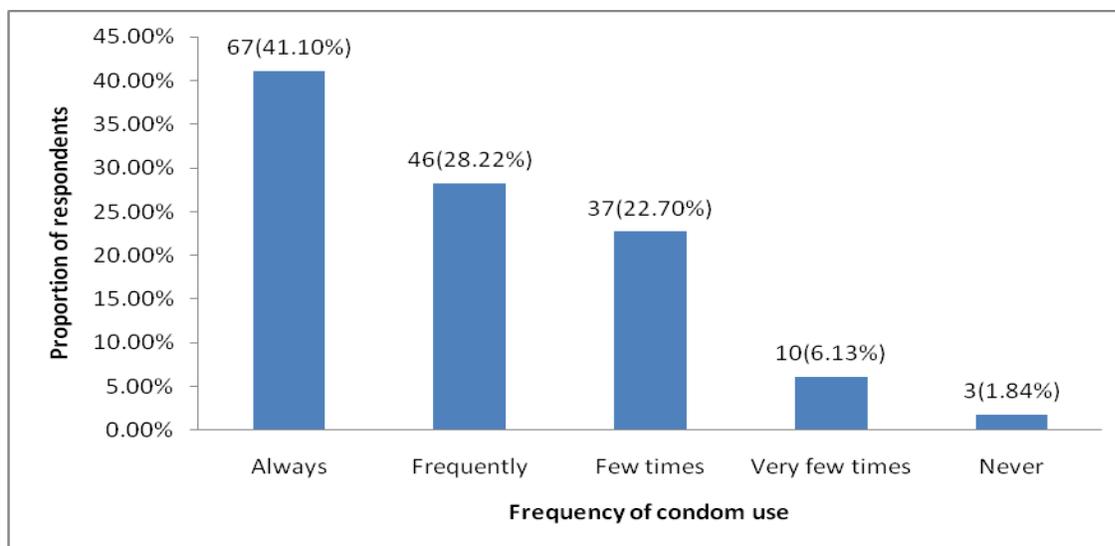


Figure 4.8: Frequency of condom use

The study explored the opinion of the respondents’ possible reasons for inconsistent use of condoms and presented the results in Table 4.8 below. From the findings, it emerged that most MSM didn’t feel restricted when using condoms. their partners did not complain when they used condoms; and the use of condoms did not hinder their pleasure or satisfaction. These findings mean that there might be other salient reasons for the predominantly inconsistent use of condoms among the MSM.

Table 4.8: Possible reasons for sporadic use of condoms

Possible reasons for not always using Condoms		Frequency n	Percentage %
Feel restricted when using condoms	Yes	47	28.83
	No	116	71.17
Partners complain when you use a condom	Yes	57	35.00
	No	106	65.00
Condoms hinder pleasure or satisfaction	Yes	71	43.60
	No	92	56.40

The study further sought to find out from the respondents the advantages of using condoms consistently and presented the findings in Table 4.9. It is evident from these findings that the majority of respondents (73.6%) reported correctly that the consistent use of condoms prevented STIs and HIV.

Table 4.9: Advantages of using condoms consistently

Advantages of using condoms consistently	Frequency n	Percentage %
Prevents STIs and HIV	128	73.60
Family planning method	27	15.50
None	12	6.90
Enjoyable	7	4.00

Further, the study sought to find out from the respondents some of the barriers that would prevent them from using condoms consistently. Those reasons are presented the findings in Table 4.10. The findings from that question were peculiar; because, most respondents reported that there was nothing that would prevent them from using condoms consistently and yet majority of them did not always use condoms with every sexual intercourse. From the varied reasons which were given by the respondents for the inconsistent use of condoms; none stood out as a major barrier.

Table 4.10: Barriers to consistent use of condoms by MSM

What would prevent the consistent use of condoms	Frequency n	Percentage %
Nothing	45	27.61
The need to get extra pleasure	31	19.02
Influence of alcohol	21	12.88
Abuse of drugs and substances	19	11.66
Awareness of partners HIV status	15	9.20
Cost of condoms	13	7.98
Hastiness in sex	11	6.75
Religious and mythical beliefs	9	5.52
Ignorance	5	3.07
Disagreement with client	4	2.45
Abstinence	3	1.84

From the qualitative data collected the following emerged when peer leaders were questioned on how MSM could prevent HIV infection.

Use of condoms and lubricants:

“We can protect ourselves from getting HIV through the proper use of condoms”

“MSM can prevent HIV infection by using good lubricants and condoms which prevent friction”

Male circumcision:

“Male circumcision is the best; it reduces our chances of getting infected with HIV and other STIs”.

“Male circumcision is a best practice because it helps maintain good reproductive health”.

“Male circumcision helps to prevent HIV and improve hygiene but it is not 100% effective”.

Being faithful to one partner:

“I believe the best way is to stick to one partner”.

“We can prevent HIV by being faithful to one partner”.

“HIV can be prevented by avoiding anal penetration with strangers whose status are not known”.

The study explored how the respondents rated their attitudes towards HIV prevention on a scale ranging from very positive to very negative. It is evident from the findings that the respondents (91.4%) have a cumulative positive attitude towards HIV prevention. Table 4.11 below shows the results of the rating of their attitudes towards HIV prevention.

Table 4.11: MSM Self-rating of Attitude towards HIV prevention

Attitude towards HIV prevention efforts	Frequency n	Percentage %
Very positive	92	56.40
Positive	57	35.00
Average	11	6.70
Negative	2	1.20
Very Negative	1	0.60

4.5 Behavior practices among MSM in Kisumu

The third objective explored the behavior practices among MSMs in Kisumu that expose them to HIV risk. The study sought to answer this question by first enquiring about the respondents' sexual demographics with regard to age and gender. The findings show that most respondents (61.3%) had their first sexual intercourse (vaginal or anal); as well as their first sexual intercourse with a male (74.2%) between the ages of 11-20 years. The findings also show that about half of the respondents (51.5%) had a female as their first sexual partner. These demographics are useful in exposing the sexual behaviors of MSM that put them at a high risk of HIV. These findings are presented in Table 4.12 below.

Table 4.12: MSM sexual demographics

		Frequency n	Percentage %
Age at first sexual intercourse	<10 years	13	8.00
	11 - 20 years	100	61.30
	21 - 30 years	4	2.50
	Don't know	46	28.20
Gender of first sexual partner	Male	76	46.63
	Female	84	51.50
Age at first sexual intercourse with a male	< 10 years	12	7.40
	11 - 20 years	121	74.20
	21 - 30 years	17	10.40
	>30 years	13	8.00

Respondents were asked whether they had ever had unprotected anal sex and the finding presented in Figure 4.9 which shows that 97(59.5%) of them had had unprotected anal sex.

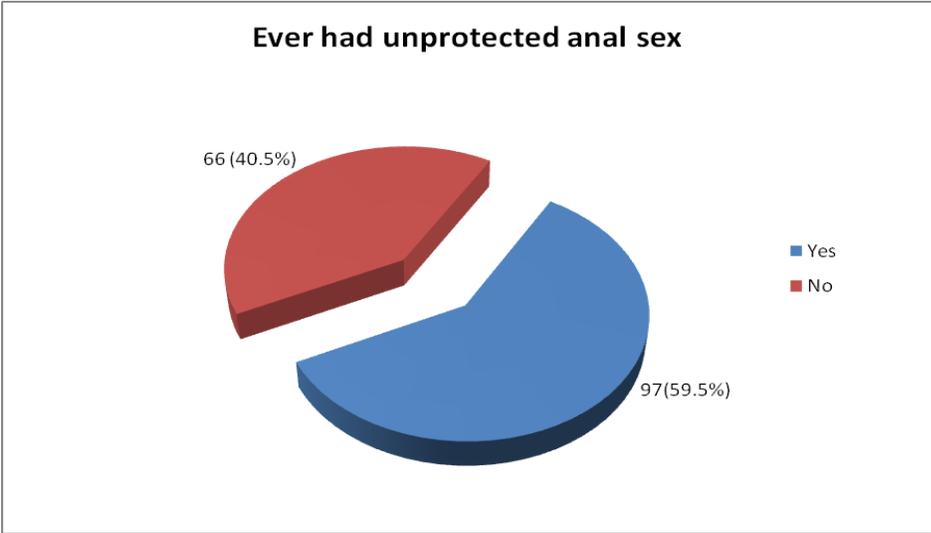


Figure 4.9: Proportion of MSM who have had UAI

The study explored whether the respondents had engaged in unprotected anal sex in the 6 months before the study and found that 80(49.1%) had engaged in unprotected anal sex in the 6 months prior to the study while a slight majority of 83(50.9%) had not as shown in Figure 4.10.

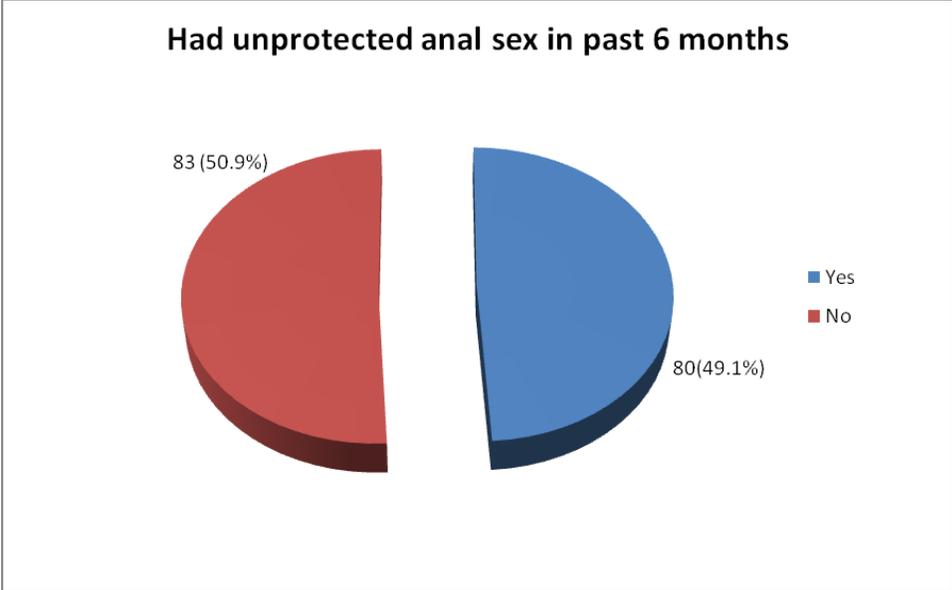


Figure 4.10: Unprotected anal sex in the past 6 months

The study examined cases of substance use among the respondents to establish whether it was a routine practice among them, the proportion that depended on getting ‘high’ or intoxicated on alcohol and other substances in order to engage in anal sex; as well as the kind of substances that they were using. Figure 4.11 below shows that only 55 (33.7%) respondents reported that they needed to get ‘high’ to engage in anal sex

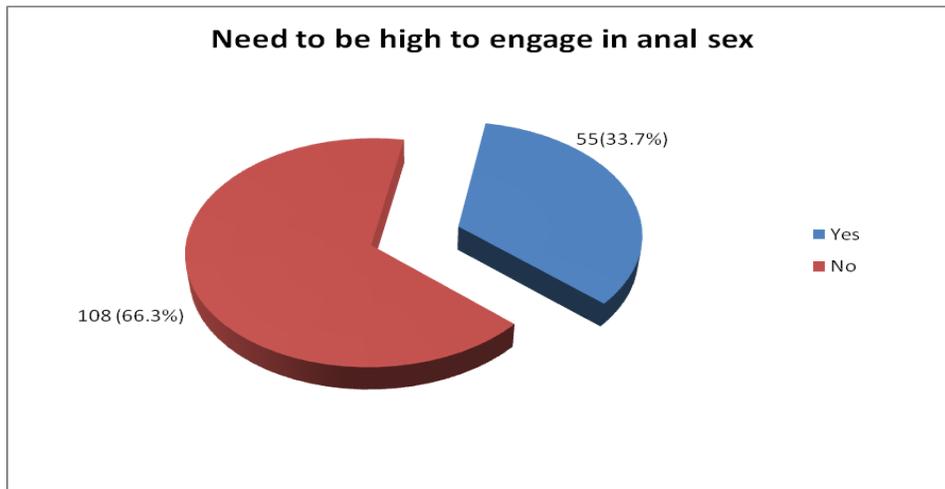


Figure 4.11 Need to be ‘high’ to engage in anal sex

The study examined the MSM’s dependence on alcohol and drugs by asking the respondents the frequency and quantity of alcohol intake as well as their use of drugs. The findings show that more respondents (40.1%) consumed alcohol more than four times over the past four weeks and more than four bottles of alcohol were taken by 44.2% of respondents at their last sexual encounter; a finding indicative of binge drinking amongst the MSM. A higher proportion of respondents (34.4%) had taken mood enhancing drugs in the three months before the study; and marijuana was the the drug mostly taken by respondents in the six months before the study. The respondents had also taken other substances like Khat and “Kuber” in the past 6 months. These results are presented in Table 4.13 below.

Table 4.13: Characteristics of alcohol and drug dependence by MSM

Characteristic	Description	Frequency n	Percentage %
Frequency of alcohol consumption over the past 4 weeks	Two times	40	24.5
	Three times	23	14.1
	Four times	23	14.1
	> four times	45	27.6
	None	32	19.6
Number of bottles of alcohol taken at last sexual encounter	Two	37	22.7
	Three	23	14.1
	Four	16	9.8
	> four	52	31.9
	None	35	21.5
Have you taken mood enhancing drugs in the last 3 months	Yes	56	34.4
	No	107	65.6
Type of drugs used in the past 6 months	Viagra	13	8
	Marijuana	48	29.4
	Cocaine	11	6.7
	Ecstasy	2	1.2
	Other drugs	44	27

In the IDIs, respondents also pointed out that there was a high rate of usage of illicit substances among MSM, this is what was said:

“Some Men who become MSM due to other reasons other than natural orientation use drugs to motivate them to engage in sex with men because it is not natural for them. Such cases are common for men who are bisexual or may have engaged in anal sex because of poverty or other reasons”

“Drug and substance abuse must be addressed, because it is a big problem in the MSM community”.

“Use of alcohol and drugs is the main contributor to risk because using them helps us to reduce stress and conquer stigma and discrimination”.

The study explored whether the respondents had stable or regular sexual partners and presented the findings in Figure 4.12. The findings show that most respondents (60.1%) had regular or stable sexual partners.

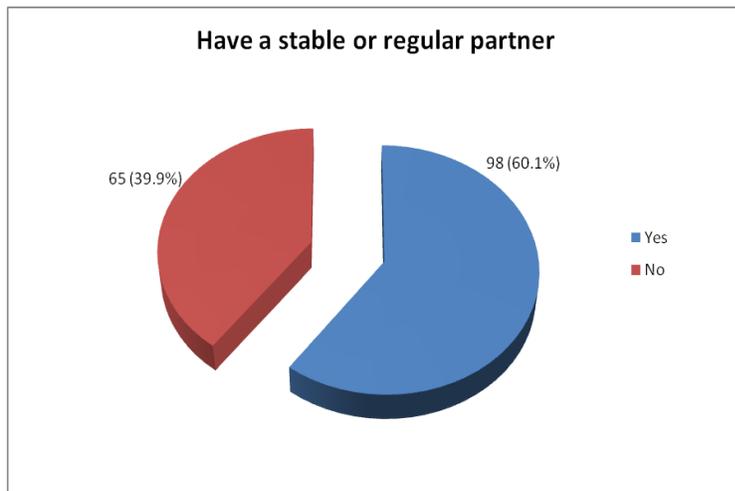


Figure 4.12: Proportion of MSM with stable or regular sexual partners

The study explored the number of sexual partners the MSM had had in the six months before the study. The findings show that the majority of respondents had had more than one sexual partner in that period; ranging from two to more than seven partners as is shown in Table 4.14 below.

Table 4.14: Number of sexual partners over the past 6 months

Number of sexual partners over the last 6 months	Frequency N	Percentage %
1	46	28.22
2	39	23.93
3	21	12.88
4	18	11.04
5	7	4.29
6	14	8.59
7	3	1.84
>7	15	9.20

The study sought to find out if the respondents had ever engaged in unprotected vaginal sex. The findings in Figure 4.13. below shows that almost half of the respondents (47.9%) had engaged in unprotected vaginal sex.



Figure 4.13: Ever had unprotected Vaginal sex

In relation to the previous question, the respondents were asked if they had female sexual partners and the findings presented in Figure 4.14. below which reveals an almost identical result as that of the previous question; with about half of the respondents (45.4%) reporting that they had female sexual partners.

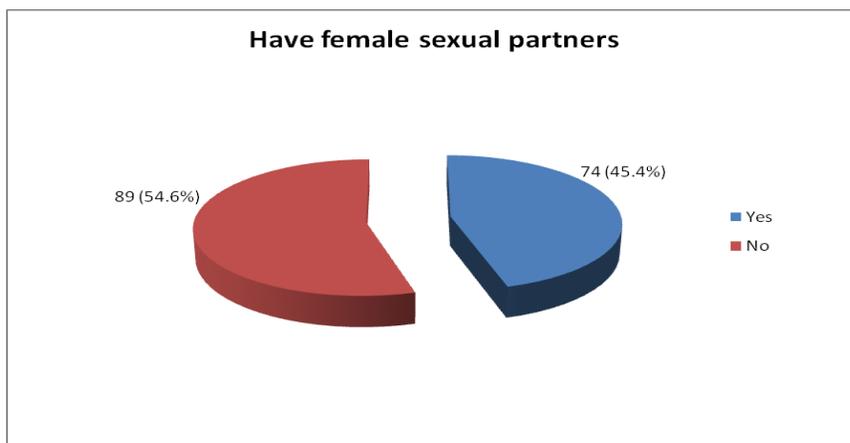


Figure 4.14: Proportion of MSM who have female sexual partners

In order to establish if the practice of commercial sex was prevalent among MSM in Kisumu City, the respondents were asked whether they had ever paid or been paid for sex. From the findings, it is apparent that most respondents (58.3%) had engaged in some form of commercial sex as presented in Figure 4.15.

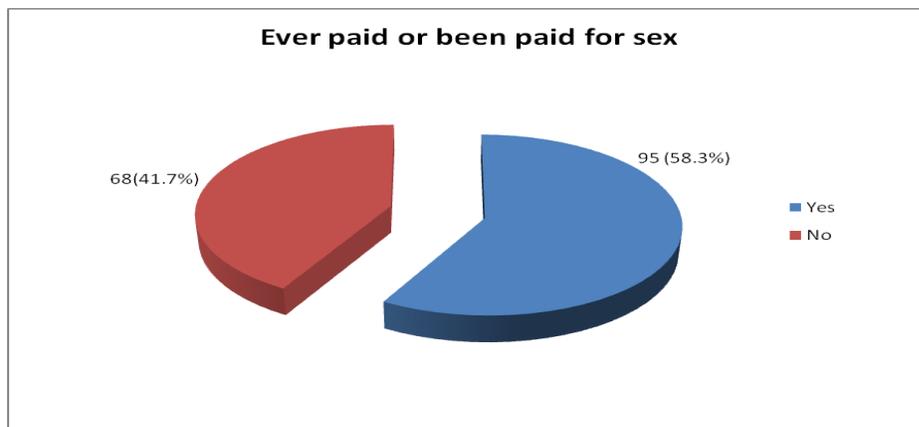


Figure 4.15: Ever paid or been paid for sex

This finding was confirmed during IDIs when respondents were asked the reason why men decide to have sex with men.

“In my view, I would say that the main reason why men decide to have sex with men is because of the need to make money. This is as a result of poverty which is highly common in this area. Though in some cases some men engage in sex with fellow men due to natural orientation”

“It is tough for us young men to get jobs and yet we need money; but through this practice you find it easier to meet clients who are ready to pay well to have sex with them”

“Many young men these days become MSM in order to meet their financial needs since jobs are not there”. It is either that or riding bikes which they can’t even afford to buy in the first place”.

The study explored the places where the MSM found sexual partners and found that night clubs (54.6%), followed by referred contacts (47.2%), were the the most popular sources of sexual contacts. The latter source reveals a sub-population that is clearly involved in a network of multiple sexual partnerships. The findings are presented below in Table 4.15.

Table 4.15: Places to find sexual partners

Places to find sexual partners	Frequency n	Percentage %
Night clubs	89	54.60
Bars	46	28.20
Referred contacts	77	47.20
Social media	20	12.30
Class mates	1	0.60

To cap this objective, the respondents were asked to rate their sexual behavior practices on a scale of very poor to very good. From the findings, most respondents (49.1%) rated their behavior practices as average; 33.8% rated their behavior as good, while only 17.2% rated their sexual behavior practices as poor. These results are presented in Table 4.16 below.

Table 4.16: MSM self-rating of behavior practices

Rating	Frequency n	Percentage (%)
Very good	13	8.00
Good	42	25.80
Average	80	49.10
Poor	26	16.00
Very poor	2	1.20

4.6 Associations between knowledge of HIV risk and behavior practices; and between attitudes towards HIV prevention and behavior practices.

The study sought to find out whether there were associations between the first two variables and the third variable. To do this, the association between knowledge of HIV risk and risky behavioral practices was determined. Table 4.17 presents the cross tabulation of MSM knowledge of HIV risk and behavior practices.

Table 4.17: Cross tabulation of MSM knowledge of HIV risk and behavior practices

Rate knowledge of HIV risk	Rate behavior practices					Total
	Very Good	Good	Average	Poor	Very Poor	
Very High	9 20.0%	12 26.7%	19 42.2%	4 8.9%	1 2.2%	45 100.0%
High	3 4.5%	23 34.8%	34 51.5%	6 9.1%	0 0.0%	66 100.0%
Average	1 2.0%	7 13.7%	27 52.9%	16 31.4%	0 0.0%	51 100.0%
Low	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1 100.0%	1 100.0%

The findings above show that out of the 45 respondents who rated their knowledge of HIV risk as very high (Table 4.5), a cumulative 21(46.7%) rated their behavior practices as good. Of the 66 respondents who considered their knowledge of HIV risk as high (Table 4.5), a cumulative 26 (39.3%) rated their behavior practices as good; and in the category of the 51 respondents who considered their knowledge of HIV risk as average (Table 4.5), 52.9% also rated their behavior practices as average. Overall, of the 162 respondents who rated their knowledge of HIV risk as average and above, 135 (82.9%) also rated their behavior practices as average and above.

The study sought to confirm whether indeed the association between knowledge of HIV risk and behavior practices was statistically significant or not using a chi square test of significance. It was established that there is a significant statistical association ($p=0.000$) between MSM's knowledge of HIV risk and their behavior practices.

The study further explored the association between MSM's attitudes towards HIV prevention and their behavior practices and presented the findings of the cross tabulation in Table 4.18. Out of a cumulative 149 respondents who rated their attitudes towards HIV prevention as positive, only 55 (33.8%) rated their behavior practices as good.

Table 4.18: Cross tabulation of MSM Attitudes towards HIV prevention and behavior practices

Rate Attitude towards HIV prevention	Rate behavior practices					Total
	Very Poor	Poor	Average	Good	Very Good	
Very negative	0 0.0%	0 0.0%	1 100.0%	0 0.0%	0 0.0%	1 100.0%
Negative	0 0.0%	1 50.0%	0 0.0%	1 50.0%	0 0.0%	2 100.0%
Average	0 0.0%	3 27.3%	7 63.6%	1 9.1%	0 0.0%	11 100.0%
Positive	0 0.0%	7 12.3%	25 43.9%	19 33.3%	6 10.5%	57 100.0%
Very positive	2 2.2%	15 16.3%	47 51.1%	21 22.8%	7 7.6%	92 100.0%

The study went on to confirm if there was an association between MSM's attitudes towards HIV prevention and their behavior practices using a chi square test and found that there was no statistically significant association ($p=0.745$) between MSM's attitudes towards HIV prevention and their behavior practices.

CHAPTER FIVE: DISCUSSION

5.1 Introduction

This chapter presents a discussion of the study findings from the previous chapter in relation to the literature reviewed in chapter two; and is organized into 4 main sections according to each of the four study objectives. The chapter interprets and discusses the knowledge, attitudes and practices of MSM and their association with HIV risk.

5.2 The Knowledge of HIV Risk by MSM in Kisumu City

This study sought to find out the extent to which MSM in Kisumu City know of the risk of HIV infection. The results show that almost all MSM have heard about HIV with the main source of information being family and friends, newspapers, doctors, electronic media and government agencies. A survey by KNBS (2010) similarly found that 100% of men aged 15 – 49 had heard of AIDS; lending credence to the high level of awareness among the respondents in this study. The study found out that most of the MSM are able to correctly categorize HIV as a virus, although others reported that it was a disease.

Testing for HIV by MSM was found to be high; which means that most MSM in Kisumu City know their HIV status. Knowledge of HIV status is one of the main indicators of HIV risk knowledge; as, according to CDC (2012), the lack of knowledge of HIV status is one of the complex factors that increase the risk of HIV among MSM. In the current study, it was found that only 10 out of 163 MSM had not been tested for HIV in the 12 months before the study; and that 40 MSM, representing 25% of the total respondents, were HIV positive. This finding concurs with that of NACC and NASCOP (2012) which reported an HIV prevalence of up to 25% among the MSM in Kisumu over the age of 24. It should be noted also that in this study,

87% of the respondents were aged between 19 and 29 years. Similarly, this result can be compared to that of a vaccine trial conducted near Mombasa in 2006 through a convenience sample of 285 MSM that reported a 25% HIV prevalence. On the contrary, in 2010, HIV prevalence among MSM in Kenya was estimated at 18.2% (IOM, 2010).

The current study sought to contextualize knowledge of HIV risk by finding out not just if the MSM know their status but also the status of their partners. According to CDC (2012), individuals who know they are infected take steps to protect their partners, yet many MSM are unaware of their status and may unknowingly transmit or get infected by those with the virus. It was found in this study that majority of the MSM seek to know whether their partners have been tested for HIV. However, this study also found that a staggering 60% of the respondents have engaged in sexual intercourse with partners of unknown or opposite HIV status; which exposes them to HIV risk. The above observations show that there are high cases of MSM in Kisumu engaging in very risky practices that are likely to propagate transmission of HIV. A similar study by Clark *et al.* (2008) found that the indiscriminate practice of unprotected intercourse with all sex partners regardless of their HIV status in a society where men with HIV rarely disclose their status to sexual partners was a risk factor for HIV infection.

This study found that MSM are aware about how one can get HIV and AIDS. In addition, most of the MSM (87.7%) correctly reported the ways through which HIV could be transmitted and prevented. This finding concurs with that of NACC and NASCOP (2012) which found that over 70% of MSM in Kisumu knew the correct answers to HIV and AIDS knowledge questions.

A cross-sectional study by Liu *et al.*, (2010) on the knowledge and risk behaviors among MSM in China found that more than 75% of 1353 MSM studied had accurate knowledge on

some aspect of HIV transmission but still held false beliefs like transmission through mosquito bites. This concurs with the findings in this study which show that some respondents believe mosquito bites, sharing food and utensils, and kissing can transmit HIV. Another widely held false belief among MSM in Kisumu City is that vaginal sex is risky while anal sex is safe with regard to HIV infection. MSM in Kisumu believe that it is easier to contract HIV through unprotected vaginal sex with women than it is through anal sex with men. Whereas this is not true, it is a general perception amongst the MSM community; especially held by younger MSM who have not had in-depth training on HIV transmission. This finding concurs with several other findings from studies conducted in the past. In one study from Africa by Elrasheid (2006), many MSM believed that prevention messages concerning vaginal sex did not apply to anal sex; and in another study 73% of MSM thought that anal sex was safer than vaginal sex (Zulu, 2006). These beliefs were evidenced in a third study where participants reported higher condom use for vaginal than for anal sex and frequently blamed their female partners for giving them an STI (Attipoe, 2004). These findings attest to a dangerous precedent, in which MSM believe they are safer practicing UAI; which in fact is the riskiest form of sex in HIV transmission.

Non treatment of STIs has been found to be a risk factor for HIV infection. This study found a relatively high incidence of STIs among the MSM (37.4%); a possible pointer to unsafe sexual practices. A number of them reported having had a sore or an ulcer in the anus in the 12 months before the study. Less than half of the MSM have ever sought treatment for an STI; and many (46%) do not seek treatment with their partners whenever they are infected with an STI. This finding can be attributed to the barriers to health seeking behavior reported by MSM. A study by Mimiaga *et al.* (2007) similarly found that many barriers to STD/HIV screening among MSM still existed including perceived impediments from the healthcare system and misgivings

about provider sensitivity. In the current study, the majority of MSM reported that they do not know whether they are likely to contract STIs. This is telling to the extent that it implies a perception of ‘chance’ that the MSM may or may not be at risk of contracting an STI; which further means that a proportion of them either do not believe in safe sex, or do not always practice it.

The study found that overall, the MSM in Kisumu City rate their knowledge of HIV risk as high. These findings are in contradiction to the finding by Colby (2003) that several studies suggested that HIV knowledge and self-perceived risk for HIV infection may be low among MSM in low and middle income countries. The difference depicted here can be attributed to several reasons; among them the declaration of HIV and AIDS pandemic as a national disaster in Kenya; which led to the concerted and sustained efforts to create awareness of HIV and AIDS, prevention and behavior change campaigns, as well as the introduction of ART in the country.

5.3 The Attitudes of MSM in Kisumu City towards HIV Prevention

This study sought to find out the attitude of MSM towards HIV prevention efforts. It established that in general, the MSM have a positive attitude towards HIV prevention. The MSM’s attitudes towards HIV prevention were determined by establishing whether there was HAART-related risk compensation among them; which would lead them to perceive low or no risk of HIV given the availability of treatment. It was also determined by finding out the prevalence of condom use among MSM. In this study, the opinions expressed by MSM regarding HAART indicate that whereas they are fairly knowledgeable about ART, a small proportion (49%) still think that ARVs can cure HIV. However, the majority of respondents (77.9%) are aware that a person on ART can infect another one with HIV. This means that most MSM in Kisumu City recognize that the availability of treatment does not eliminate the risk for HIV

infection. This finding can be attributed to the differences in the levels of HIV risk knowledge among the respondents. A study conducted in Kisumu by Cohen *et al.* (2009) found an association between ART-related risk compensation and HIV prevalence in men. The study also established that there was a high belief in the general population of Kisumu that ART cured HIV and AIDS. Similarly, Stolte *et al.*, (2004) found that because of HAART, MSM perceive less threat of HIV and AIDS, less need for safe sex, and high effectiveness of HAART in curing AIDS. The differences depicted between those studies and the current study can be ascribed to the fact that there has been a lot of HIV awareness campaigns and provision of Patient Support in the years since those studies were conducted, which may have changed the perceptions on ART in the population of Kisumu.

This study has been able to establish that most MSM in Kisumu City believe in the use of condoms for HIV prevention; however, the results also show that consistency in condom use is still a challenge within that population. This finding concurs with that of NACC (2014) in which it was reported in the Kenya AIDS Response Progress report of 2014 that condom use among MSM remained low even though there had been an increase from 54.49% in 2011 to 68.8% in 2013. On the frequency of condom use, only 67% of MSM in Kisumu City always use condoms. Again, this finding concurs with the 2014 finding by NACC in which an estimated 68.8% of MSM reported using a condom the last time they had anal sex. The finding on the inconsistency in condom use by MSM in Kisumu City can be compared with that of a study by Yi *et al.*, (2015) which found that the rate of condom use varied with types of sexual partners; and in the current study too, respondents reported have different types of sexual partners, although this study did not investigate the relationship between inconsistent condom use with partner types. The

possible reason for this varied rate of use with different partners may be due to different levels of risk that MSM perceive with different types of partners.

This inconsistency in condom use; when coupled with lack of treatment for STIs and more than one sexual partner can be a catalyst for spread of HIV infection. In addition, the current study has established that the decision to use or not to use a condom is influenced by a multiplicity of factors; including perceived hindrance of pleasure and satisfaction by partners, availability and cost of the condoms, influence of alcohol and other substances, hastiness in sex, religious and mythical beliefs, ignorance, lack of awareness of partner's HIV status, and disagreements with clients. This means that the knowledge that the use of condoms can prevent HIV infection in and by itself is not enough; but actual consistent use is determined by other factors; a finding consistent with that of (NACC, 2014), that even where condoms are widely available, that availability does not guarantee their use.

Another finding that emerged from the current study was that MSM in Kisumu City reported their main issue of concern to be their rights as a group; and not risk of HIV infection. When asked about how MSM can protect themselves from contracting HIV, it was found that they main issue of concern for the MSM was their right of association which could only granted at the policy level. From this, it can be deduced that at least to some MSM, HIV prevention is not as urgent a priority as their right of association.

5.3. Behavior Practices Associated with HIV risk among MSM in Kisumu City

The current study sought to find out the behavior practices by MSM that that put them at risk of HIV. The study has established that MSM in Kisumu City are actively engaged in risky

sexual behavior practices that expose them and their partners to new HIV infections; this, despite their relatively high knowledge of HIV risk and positive attitude towards HIV prevention.

The practice of UAI was found to be rampant among MSM in Kisumu City. It is one of the riskiest sexual behaviors reported to be responsible for the spread of HIV. A study by Rucinski *et al.*, (2012) confirmed that HIV transmission among MSM is largely driven by UAI, which spreads HIV more efficiently than other forms of sexual activity. The present study has found that a considerable percentage of the MSM have recently engaged in UAI despite reporting that they largely believed in the use of condoms for HIV prevention. This finding does not support the finding that most MSM in the study are aware of HIV risk.

The use of substances was found to be a routine behavior practice among MSM in Kisumu City. Alcohol, illicit drug use, and intravenous drug injecting by MSM are behavior practices associated with HIV risk. Substance use and abuse have been reported as influencing decision making leading to behavioral disinhibition and increased sexual risk behavior. It was found in this study that binge drinking and drug dependence are relied upon by MSM to reduce stress and to conquer the discrimination and stigmatization associated with their sexual orientation. This finding concurs with that of Bourne and Weatherburn, (2017) who found that a sense of belonging, coping with everyday problems and the enhancement of pleasure, all feature in motivations for alcohol and drug use by MSM. Similarly, Colfax and Shoptaw (2005) found that some MSM have trouble having sex without getting 'high' first, and for some, drug use provides a sense of community and bonding. In the current study, it was established that MSM consumed large amounts of alcohol at their last sexual encounter. This finding is comparable to study conducted in Cape Town, South Africa, by Kalichman *et al.*, (2011), which established that

practicing anal intercourse was related to drinking before sex and having a partner who drank before sex.

In retrospect however, less than half of the MSM reported that they needed to be high from alcohol and other drugs so as to engage in anal sex. While this finding is encouraging, those among them who rely on these substances pose a high enough risk for HIV transmission to their partners and the rest of the population because, as Colfax *et al.* (2000) affirm, substance use can serve as a trigger or an excuse for unprotected sex. Another reason for this finding may be attributed to the claim by many MSM that those who rely on alcohol and other drugs became MSM due to reasons other than natural orientation; the main one being financial motivation.

Multiple and indiscriminate sexual partners is another risk -taking behavior practiced by MSM in Kisumu City. This study has established that most of the MSM do not have stable sexual partners. The finding concurs with the WHO Report (2010) which showed that many MSM have multiple sexual partners of all types – regular, casual, and commercial. Whereas the findings of this study show that more than half of the MSM have regular sexual partners, the study did not ask whether ‘regular’ was synonymous with ‘one’ partner. It is important to note that while some of the MSM in the study are married men, many others who are clients to the commercial MSM are also in heterosexual relationships and do not wish to be identified as MSM. This depicts a group that either does not know the risk of engaging in such behavior, or knows but does not attach much importance to the risk inherent in that behavior.

Having both male and female sexual partners by MSM is a behavior practice that exposes them to HIV risk. It has been found in the current study that the majority of MSM in Kisumu City are bisexual, or transformed from being heterosexual to homosexual, had their first

homosexual encounters between the ages of 11 – 20; and that most had females as their first sexual partners. A study by UNAIDS (2007) similarly reported that most MSM also have sex with women; and the current study confirmed this to be the case among the MSM in Kisumu City. It has been established in this study that MSM in Kisumu City are also actively involved in sexual relationships with women; most of who are at risk of pregnancy. The study has found that the number of MSM in Kisumu City who have ever engaged in unprotected vaginal sex almost exactly mirrors the number of those who also have female sexual partners at about 45%. This finding is in agreement with that of the NACC and NASCOP (2012) report which found that nearly 40% of all MSM studied in Nairobi and Kisumu have ever been married to women or had sexual relationships with women.

These findings have far reaching public health implications. They demonstrate that MSM are not sexually detached from the rest of the population; and attest to the sexual behavior practices by MSM that increase the risk of HIV in the general population of Kisumu City because, the transmission is by both homosexual and heterosexual routes and further, can be propagated through Mother-To-Child Transmission (MTCT). In their study on MSM as presented in VCT data in Kenya, Angala et al., (2006) also found that most MSM in Kenya also have female sexual partners; indicating a potential spill-over of the epidemic to the female partners of MSM and their children.

Apart from bisexual behavior among MSM, engaging in commercial sex work either as clients or sellers exposes those involved to HIV risk. The current study has established that a number of MSM in Kisumu City are actively engaged in the practice of commercial sex work; and engage in sex with fellow men for financial gain either in favor of themselves or their partners. This is in agreement with the Horizons MSM Studies conducted in developing

countries including Kenya (Nairobi and Mombasa), which demonstrated that the prevalence of men selling sex to other men is high; as was established by Geibel *et al.*, (2010). It is important to profile commercial sex among MSM because of the HIV risk implicit in engaging in that behavior. Commercial sex exposes MSM to HIV because it involves intercourse with different people, mostly of unknown HIV status; it exposes them to different STIs, and also because the element of paying puts the seller at a disadvantage in terms of negotiating for condom use. This is because most clients of male sex workers prefer not to use condoms and are willing to pay extra for the concession.

The current study established that the HIV prevalence among MSM in Kisumu City is approximately 24.5%. This was established from 40 (24.5%) MSM who reported that they are HIV positive.

5.4. Association between Knowledge of HIV Risk and Behavior Practices of MSM in Kisumu City and between Attitudes towards HIV Prevention and Behavior Practices of MSM in Kisumu City

The current study had three independent variables (IVs): Knowledge of HIV risk by MSM in Kisumu City, the attitudes of MSM in Kisumu City towards HIV prevention, and the behavior practices of MSM in Kisumu City. These translated into four specific objectives; the fourth derived from the first three. The objective was to find out how these variables could be leading to sexual risk - taking behaviors that invariably lead to increased HIV risk.

Based on the results of the MSM self-rating of each of the IVs; and considering that sexual behavior practices are critical in the spread of HIV, the first two IVs were each cross

tabulated with the third IV to find out if there was any association between them using chi-square tests of independence at 0.05 level of significance.

The chi-square tests carried out in this study to show the associations that exist one; between knowledge of HIV risk and behavior practices and two; between attitudes towards HIV prevention and behavior practices, have produced mixed results.

For the first objective of this study, the chi-square test produced a value of 0.000 (table 4.22); which is a value less than 0.05; indicating the existence of a statistically significant association between MSM's knowledge of HIV risk and their behavior practices. This finding is comparable to the one by Garcia *et al.*, (2014) on multiple and concurrent sexual partnerships among MSM in Viet Nam which also found a significant association between HIV prevention knowledge and lower risk behavior.

For the second objective however, the chi square test produced a value of 0.745 (table 4.24); which is a value greater than 0.05. From this result, the study has established that there is no significant association between MSM attitudes towards HIV prevention and their behavior practices.

The inference that can be made from these tests is that having knowledge of HIV risk is likely to result in MSM engaging in less risky behavior; whereas a good attitude towards HIV prevention does not necessarily lead to the same outcome of less risky behavior by MSM.

CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

The data above indicate the existence of a gap in HIV prevention programs. Knowledge of HIV risk among MSM in Kisumu City is high; and they have a positive attitude towards HIV prevention. However, they still indulge a great deal in risky sexual behavior practices that are inclined to propagate new incidences and therefore high prevalence of HIV in the general population.

The study concluded that MSM in Kisumu City are highly knowledgeable about HIV risk; and that there is a significant association between the level of knowledge that MSM have on the potential risk of contracting HIV and their risky behavior practices.

MSM in Kisumu City have a positive attitude towards HIV prevention; however, inasmuch as the MSM generally have a positive attitude towards HIV prevention; and indeed are familiar with different methods of preventing HIV infection; the positive attitude does not entirely translate to health-seeking behavior in terms of their sexual behavior practices.

MSM in Kisumu City are actively engaged in high risk behavior practices that can increase their odds of acquiring HIV and transmitting it to the rest of the population. Most MSM in Kisumu City are young; start their sexual practices at a very early age; engage in unprotected sex with both men and women, practice commercial sex and UAI; which is known to be the most efficient route of sexual transmission of HIV. The practice of habitual substance use exists but has not been found to be alarming amongst the MSM in Kisumu City. They routinely indulge in alcohol and illicit substances and engage in unprotected sex with partners of unknown or opposite HIV status, all of which increase HIV risk. It has also been established that many MSM

in Kisumu believe that it is more risky not to use a condom with a woman than it is with a man; which also complicates prevention efforts.

6.2. Recommendations

From the foregoing discussion, the study recommends a programmatic shift in approaching prevention among MSM; specifically, it recommends:

1. A policy level shift in HIV prevention campaigns to address MSM as a priority group and provide uniform and targeted messaging that will provide correct information, heighten and reinforce MSM's knowledge of HIV risk; as opposed to the general population campaigns that do not acknowledge MSM as a sub-population at risk.
2. That National institutions like NACC and NASCOP take the lead in demystifying MSM, specifically, in the identification and recruitment of MSM into HIV training programs and then meaningfully involving them in spearheading prevention campaigns so as to encourage the MSM to come out, embrace and play the key role in HIV prevention.
3. Intense sensitization of healthcare providers in all facilities to treat all patients the same regardless of their sexual orientation. MSM have reported that healthcare providers routinely marginalize them and as a result the MSM avoid going for care in such facilities.
4. Sensitization of law enforcement groups to refrain from arbitrary arrests, torture and abuse of MSM. This only succeeds in making the MSM recede deeper within the population – out of reach of HIV prevention interventions.

5. An approach that is centered on specific behavior change techniques that are tailor made to aid in the conversion of positive attitudes towards prevention into effective risk-reduction behavior practices that will actually ameliorate prevention of HIV transmission. Of importance here are condom self-efficacy and negotiation skills which have proven successful among other groups at risk.

6.4. Suggestion for further study

1. Barriers to health-seeking behavior by MSM and associated attitudes of health care providers.
2. Substance use among MSM in Kisumu City.

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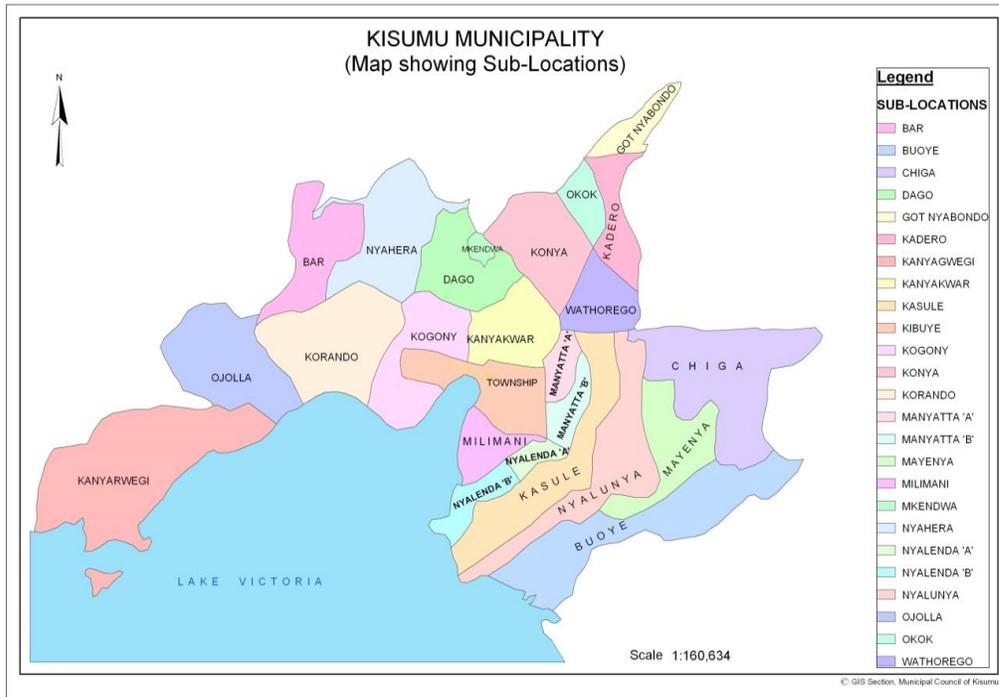
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APPENDICES

Appendix I: Maps of the Study Area



Map of Kisumu showing City boundaries



Appendix II: Consent Form

Hello, my name is Jacquelyne J. Odak, from Maseno University. As you may know, developing innovative and effective programs targeting MSM populations is on the front lines of the global effort to end the AIDS pandemic. We are conducting a research to better understand the behavioral practices that may put MSM at a high risk of contracting HIV. The questions will be about your knowledge level, attitude and behavioral practices with regards to most at risk populations.

Taking part in this survey will present no risk to you. What we learn from you is intended to add to programs geared towards the delivery of effective public and community-led responses to HIV& AIDS by providing a range of integrated services that combine HIV prevention education that target MSM with sensitization initiatives aimed at healthcare providers and law enforcement agencies in a way that they are acceptable to MSM.

We will keep your answers to all questions secret, lock up the survey forms and recordings and then destroy them after use. We will not put your name or the name of your family members or any other form of identification on any report of this study. Your participation is absolutely voluntary. You can stop at any time after giving your consent if you feel that there are questions you do not like. There are no penalties for not participating and it will also not affect your care at the local health facility.

If you have questions about the study you may contact the researcher, J.J. Odak, of Maseno University, on 0722-390608. If you have questions about your rights as a person in the study or if you think you have been injured by participating in the study you may contact your local Chief.

Informed consent obtained? Yes No

Respondent's Sign _____ OR thumb Print: _____

Appendix III: The Questionnaire

I am a Master of Public Health (MPH) student from Maseno University. As part of fulfillment of the course, I am conducting a research on “Assessment of sexual risk taking behaviors among MSM in Kisumu City”. This research is meant purely for educational purposes and will not be used for any other purpose whatsoever.

I am therefore requesting you to kindly spare some time to fill out this questionnaire to enable me collect the necessary data. Please tick and provide brief responses in the spaces provided. Do not write your name or any other form of identification on the questionnaire. The information you provide will be held in utmost confidentiality and cannot be traced back to you. **It is entirely voluntary and your contribution will be highly appreciated.**

QUESTIONNAIRE ON THE KNOWLEDGE, ATTITUDES AND PRACTICES OF MSM IN KISUMU CITY

Questionnaire No. _____

Date _____

Name of Research Assistant (One name only) _____

SOCIO-DEMOGRAPHIC CHARACTERISTICS

(Please write in space provided, or tick only one of the numbers of the choices provided for each question.)

1	How old are you?		_____	
2	What is your marital status?	1	Married	
		2	Single	
		3	Widowed	
		4	Divorced	
3	What is your religion?	1	Protestant	
		2	Catholic	
		3	Muslim	
		4	Hindu	
		5	Other (specify)	
		6	None	
4	What is your nationality?	1	Kenyan	
		2	Foreigner	
5	How long have you lived in Kisumu City?		_____ years	
6	Which province did you live in before coming to Kisumu?	1	Nairobi	
		2	Central	
		3	Coast	
		4	Western	
		5	Rift valley	
		6	Always been in Nyanza	

		7	Other _____	
7	What is your employment status?	1	Salaried	
		2	Self employed	
		3	Unemployed	
		4	Casual laborer	
		5	Commercial sex worker	
		6	Other (specify)_____	
8	From the following statements, tick the one that is most suitable to your current situation	1	Currently married, living with a spouse	
		2	Currently married, living with a same sex partner	
		3	Currently married, not living with a spouse or same sex partner	
		4	Not married, living with a same sex partner	
		5	Not married, living with a female sex partner	
		6	Not married, not living with any sexual partner	
		7	Other(specify)_____	
9	With regards to your sexual behavior, how would you identify your orientation?	1	Gay/ Homosexual	
		2	Heterosexual	
		3	Transgender	
		4	Transvestite	
		5	Bisexual	

KNOWLEDGE OF HIV/AIDS & THE RISK FACTORS

10	Have you ever heard of HIV & AIDS?	1	Yes	
		2	No	
11	From which source did you hear about it?	1	Newspapers	
		2	Electronic media	
		3	Internet websites	
		4	A doctor	
		5	Governmental agencies	
		6	Consumer or patient interest groups	
		7	Family and /friends	
12	Do you know how one can contract the HIV?	1	Yes	
		2	No	
13	If yes, what are some of the transmission ways?	1	Blood transfusion	
		2	Sexual intercourse with an infected partner	
		3	Sharing surgical instruments	
		4	Mother to child transmission	
		5	Unprotected anal intercourse	
		6	Other (specify)	
14	List the ways by which HIV transmission can be prevented	1		
		2		
		3		
		4		
15	Have you been tested for HIV in the last 12 months (self reported, no diagnostic test)	1	Yes	
		2	No	

16	If yes, the last time you had the test, where was it done?	1	Private clinic	
		2	Public hospital	
		3	Anonymous testing centre	
		4	Moonlight VCT	
		5	Private laboratory	
		6	Other (specify)	
17	Did you get your HIV test results?	1	Yes	
		2	No	
18	What was the test result?	1	HIV -	
		2	HIV +	
19	Do you ever ask your partners if they have been tested for HIV?	1	Yes	
		2	No	
20	Have you had sexual intercourse with a partner of unknown or opposite HIV status?	1	Yes	
		2	No	
21	In your opinion, what is HIV	1	A virus	
		2	A disease	
		3	A curse	
		4	Other_____	
22	How can you know if one has HIV	1	From appearance	
		2	By having an HIV test done	
		3	If one falls sick	
		4	Other_____	
23	Do you believe HIV can be transmitted in the following ways? (Tick in the appropriate box)	1	Mosquito bites	
		2	Sharing food and utensils with infected people	
		3	Witchcraft	

		4	Kissing	
24	In your opinion, can HIV & AIDS be cured?	1	Yes	
		2	No	
25	Have you ever had a sexually transmitted infection?	1	Yes	
		2	No	
26	Have you had an ulcer or sore in your anus in the last 12 months?	1	Yes	
		2	No	
27	How likely do you think you will develop or contract any of these diseases in the next year: Chlamydia Gonorrhea Syphilis Urinary tract infection Herpes simplex virus	1	Very unlikely	
		2	Unlikely	
		3	Likely	
		4	Very likely	
		5	Don't know	
28	Have you ever sought treatment for a sexually transmitted infection?	1	Yes	
		2	No	
29	Do you and your partners always seek treatment every time you are infected with a sexually transmitted infection?	1	Yes	
		2	No	
30	How would you rate your level of knowledge of HIV risk?	1	Very High	
		2	High	
		3	Average	
		4	Low	
		5	Very Low	

ATTITUDES OF MSM TOWARDS HIV PREVENTION

31	Have you ever heard of ARVs?	1	Yes	
		2	No	
32	What do you think of ARVs for HIV treatment?	1	Effective	
		2	Completely effective	
		3	Somehow effective	
		4	Not effective	
33	ARVs can cure HIV infection	1	Strongly agree	
		2	Agree	
		3	Undecided	
		4	Disagree	
		5	Strongly disagree	
34	Everyone on ARVs recovers from HIV/AIDS	1	Strongly agree	
		2	Agree	
		3	Undecided	
		4	Disagree	
		5	Strongly disagree	
35	A healthy looking person should use condoms when on ARVs?	1	Strongly agree	
		2	Agree	
		3	Undecided	
		4	Disagree	
		5	Strongly disagree	
36	Someone on ARVs can infect another with HIV?	1	Strongly agree	
		2	Agree	
		3	Undecided	
		4	Disagree	

		5	Strongly disagree	
37	What are your main motivations to engage in male to male sexual relationships?	1	Economic	
		2	Desire	
		3	Sexual satisfaction	
		4	Natural orientation	
		5	Other_____	
38	Do you believe in condom use with every sexual intercourse?	1	Yes	
		2	No	
39	How often do you use condoms?	1	Always	
		2	Frequently	
		3	Few times	
		4	Very few times	
		5	Never	
40	Do you feel restricted when using condoms	1	Yes	
		2	No	
41	Do your partners complain if you use a condom?	1	Yes	
		2	No	
42	Do condoms hinder your pleasure or satisfaction?	1	Yes	
		2	No	
43	How would you rate your attitude towards HIV prevention efforts?	1	Very positive	
		2	Positive	
		3	Average	
		4	Negative	
		5	Very Negative	

44. What are the advantages of using a condom consistently?

45. What would prevent you from using a condom consistently?

RISKY BEHAVIORAL PRACTICES OF MSM

46	At what age did you first have sexual intercourse? (anal and or vaginal)		_____	
47	Was your first sexual partner male or female?	1	Male	
		2	Female	
48	At what age did you first have sexual intercourse with a male		_____	
49	Have you ever had unprotected anal sex?	1	Yes	
		2	No	
50	Have you had unprotected anal intercourse in the last 6 months?	1	Yes	
		2	No	
51	Do you need to be “high” in order to engage in anal sex?	1	Yes	
		2	No	
52	During the last 4 weeks, how many times have you had alcoholic drinks?		Two times	
			Three times	
			Four times	
			More than four times	

53	The last time you had sex, roughly how many bottles of alcohol had you taken?		Two	
			Three	
			Four	
			More than four	
54	Have you taken mood enhancing drugs in the last 3 months?	1	Yes	
		2	No	
55	Which of the following have you had in the last 6 months	1	Viagra	
		2	Marijuana	
		3	Cocaine	
		4	Ecstasy	
		5	Other	
56	Do you have a stable or regular sexual partner?	1	Yes	
		2	No	
57	How many sexual partners have you had in the last 6 months?		_____	
58	Have you ever had unprotected vaginal sex	1	Yes	
		2	No	
59	Do you have female sexual partners?	1	Yes	
		2	No	
60	Have you had vaginal sex (with a woman) in the last 6 months	1	Yes	
		2	No	
61	Have you had sex in a group (more than one partner) in the last 12 months?	1	Yes	
		2	No	
62	Have you ever paid or been paid for sex?	1	Yes	
		2	No	
63	Where do you get your sexual	1	Night clubs	

	partners?	2	Bars	
		3	Referred contacts	
		4	Other	
64	How would you rate your general sexual behavior and practices?	1	Very good	
		2	Good	
		3	Average	
		4	Poor	
		5	Very Poor	

Appendix IV: In-depth Interview Guide

1. What would you say is the main reason why some men decide to become MSM?
2. In your opinion, are there experiences that would make you qualify this orientation as being a difficult or easy or normal one
3. Please explain any kinds of stigma, social exclusion or discrimination you face because of your orientation.
4. How easy is it for this population to access healthcare?
5. What are some of the legal issues that you face as a group?
6. What are your feelings concerning HIV& AIDS risk?
7. To what extent would you qualify your reproductive health as good?
8. How would you rate the prevalence of illicit substance use, more lifetime partners and more commercial sex partners within this population?
9. What are your feelings concerning male circumcision as a way of HIV prevention?
10. Please mention some of the main issues that concern you as a group and which you wish could be addressed
11. How can MSM protect themselves from contracting HIV?

Appendix V: Research Approval - MUERC



MASENO UNIVERSITY ETHICS REVIEW COMMITTEE

Tel: +254 057 351 522 Ext: 3050
Fax: +254 057 351 221

Private Bag – 40105, Maseno, Kenya
Email: muerc-secretariate@maseno.ac.ke

FROM: SECRETARY - MUERC

DATE: 10th July, 2014

TO: Jacquelyne Jascinter Odak,
PG/MPH/030/2009,
School of Public Health and Community Development,
Maseno University, Maseno, Kenya.

REF: MSU/DRPC/MUERC/000076/14

RE: Assessment of Knowledge, Attitudes and Practices of Men who have Sex with Men in Kisumu City, Nyanza Province. PROPOSAL REFERENCE NO: MSU/DRPC/MUERC/000076/14

This is to inform you that the Maseno University Ethics Review Committee (MUERC) determined that the ethics issues raised at the initial review were adequately addressed in the revised proposal. Consequently, the study is granted approval for implementation effective this 10th day of July, 2014 for a period of one (1) year.

Please note that authorization to conduct this study will automatically expire on 9th July, 2015. If you plan to continue with the study beyond this date, please submit an application for continuation approval to MUERC Secretariat by 8th June, 2015.

Approval for continuation of the study will be subject to successful submission of an annual progress report that is to reach MUERC Secretariat by 8th June, 2015.

Please note that any unanticipated problems resulting from the conduct of this study must be reported to MUERC. You are required to submit any proposed changes to this study to MUERC for review and approval prior to initiation. Please advise MUERC when the study is completed or discontinued.

Thank you.

Yours faithfully,

Dr. Bonuke Anyona,
Secretary,
Maseno University Ethics Review Committee.



Cc: Chairman,
Maseno University Ethics Review Committee.

MASENO UNIVERSITY IS ISO 9001:2008 CERTIFIED



Appendix VI: Research Permit - KASH



KEEPING ALIVE SOCIETIES' HOPE (KASH)

P.O. Box 3505 - 40100, Kisumu Tel:+254-717026537/+254-721445452
Website: www.kash.or.ke Email: info@kash.or.ke & kash_group@yahoo.com

November 17th, 2014

To : Jacquelyne Odak
Department of Public Health
Maseno University

RE: RESEARCH APPROVAL FOR J.J. ODAK TO RECRUIT STUDY PARTICIPANTS FROM KASH

Following your request to collect data from a key population affiliated with KASH for purposes of an academic based research, KASH has, after taking note of the ethical approval granted by Maseno University Ethics Review Committee (MUERC) on July 11th, 2014, granted you the permission to approach and work with the key population of interest; purely for the stated academic purposes.

In doing this, KASH expects you to observe the highest standard of respect for privacy and confidentiality of the members and the information you collect from them.

Best regards,

Thomas Odhiambo
Executive Director
KASH



Cc: KP Coordinator
KASH