

**FACTORS INFLUENCING WILLINGNESS TO USE PRE-EXPOSURE
PROPHYLAXIS AMONG MALE HOMOSEXUALS AT THE SEX WORKERS
OUTREACH PROGRAM CLINIC**

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MASTER OF PUBLIC HEALTH OF KENYA METHODIST UNIVERSITY.**

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DECLARATION

“I declare that this thesis is my original work and has not been presented
In any other University”.

Signed Date

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PHT-3-1676-1/2015

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“This thesis has been submitted for examination with our approval as
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Signed..... Date.....

Name Dr.Makobu Kimani

DEDICATION

To my dear parents and wife, thank you for giving me the support to reach my dreams.

ACKNOWLEDGEMENT

Foremost, I would like to express my sincere gratitude to my supervisors Dr. Consolata M' Mayi and Dr. Makobu Kimani for their continuous support of my research, their patience, motivation, enthusiasm, and immense knowledge. Their guidance helped me in all the time of research and writing of this thesis. I could not have imagined having better advisors and mentors. My sincere thanks also goes to Dr. Kimani the clinical director of the sex workers outreach program, for offering me an opportunity to carry out this thesis project.

To all my very diligent professors, instructors and also our dean, I also dedicate this to all of you, for you have shared your knowledge and effective teachings to me.

Thank you very much

ABSTRACT

The use of antiretroviral agents in an HIV negative person before engaging in coitus with a HIV-positive partner is termed as pre-exposure prophylaxis. The objective of this study was to assess the factors influencing acceptance and willingness to use of pre exposure prophylaxis as a prevention strategy in a group of men who have sex with men. This study sought to examine the participant's knowledge on HIV transmission, explore the attitudes and behaviors related to HIV among Male Homosexuals, assess the awareness on the methods of preventing HIV/AIDS in MSM and finally explore the stigma faced by MSM at the SWOP CITY clinic. This was a cross sectional study that focused on the factors influencing acceptance and willingness of using pre exposure prophylaxis as a HIV prevention method among HIV negative individuals in homosexual relations at Sex workers outreach program clinic, a sample size of 196 individuals was used out of the 386 active HIV negative MSM enrolled at the clinic as per end of July 2017, data collection was carried out in August 2017 where Standardized questionnaires were used to collect data from the MSM in SWOP CITY until the sample size for the study was reached. Three focus group discussions were utilized to collect qualitative data on the factors influencing acceptance and willingness to use pre exposure prophylaxis from the selected individuals, collected data was entered, cleaned and exported into SPSS Version 20.0 for analysis, and the data generated was presented in form of tables, pie charts and bar graphs. Only a third were married (opposite sex). Half of the respondents were self-employed. Among those employed, majority [87, 64%] earned from 10,000 to 30000. All of the respondents were aware of HIV AIDs and the majority of the MSM were of the view that transmission was through sexual contact. Less than half indicated that Syphilis was also transmitted through sex compared to a quarter who indicated gonorrhoea as also being transmitted sexually, a third just indicated generally STIs with no specific infection in mind. Most of the respondents agreed that the presence of sexually transmitted diseases increased the likelihood of acquiring HIV/AIDS [p value <0.05]. use of condoms, knowing people's HIV status and serotyping was found to be most effective methods of preventing the HIV infection [p value <0.05]. it was found out that Taking an oral medicine daily to protect oneself from getting infected was to most effective. The qualitative data concurred with the quantitative data as it affirmed that condoms were easily accessible and easy to use, MSM were prone to engage in risky sexual behaviors, stigma was still a major threat in MSM and that they knew about PrEP and the benefits of this intervention. In conclusion PrEP being a newer intervention and recently rolled out, interventions that will address stigma and the risky sexual behaviors that MSM engage in needs to be addressed so that PrEP uptake can be optimized as this will translate to reduction in the HIV/AIDS prevalence in MSM.

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ABBREVIATIONS AND ACRONYMS

AIDS	Acquired Immuno Deficiency Syndrome
ART	Anti Retro Viral Therapy
CDC	Center for Disease Control
CDM	Diagnostic and statistical manual for mental disorders
HTC	HIV Testing and Counseling
HIV	Human Immuno Deficiency Virus
LGBT	Lesbian,Gay,Bisexual And Transgender
MSM	Men Who Have Sex with Men
NGO	Non-Governmental Organization
NACCK	National Aids Control Council of Kenya
NACOSTI	National Commission for Science, Technology and Innovation
PHDA	Partners for Health and Development in Africa
PrEP	Pre Exposure Prophylaxis
RCT's	Randomized control studies
STI	Sexually Transmitted Infections
SWOP	Sex Workers Outreach Programme
UIAI	Unprotected Insertive Anal Intercourse
UNESCO	The United Nations Educational, Scientific and Cultural Organization
URAI	Unprotected Receptive Anal Sex
WHO	World health organization
YMSM	Young Men Having Sex With Men

CHAPTER ONE

INTRODUCTION

1.0 This chapter highlights the background of this study, statement of the problem, the purpose of the study, the objectives of the study, research questions of the study, hypothesis, and justification of the study, limitation of the study, significance of the study and operational definition of terms that the study utilized.

1.1 Back ground to the Study

Despite great progress in tackling the Human immuno deficiency virus epidemic worldwide in the past two decades, the one population in which the epidemic continues to grow in countries of all incomes is in Men who have Sex with Men (MSM), (World Health Organization [WHO], 2016). Determining the number of MSM is difficult worldwide, the World Health Organization estimates that at least 3% and as high as 16% of men have had sex at least once with a man. Their estimate includes victims of sexual abuse in addition to men who regularly or voluntarily have sex with men (WHO, 2016). The United Nations (UN) estimates that 6-20% of men worldwide have had sex with other men at some point during their lifetime (United Nations Program on HIV/AIDS [UNAIDS], 2016).

Studies done both in low and middle income countries shows that the lifetime prevalence of sex between males varies between 3-20% (Caceres, 2019). In Africa, the Middle East and the Caribbean there is no data available on same sex other than studies done which are isolated and which shows a wide variation in the reporting of homosexual behaviors and orientations and hence the numbers which this reports gives are not global indicators of the numbers of young homosexuals.

Therefore several studies have been done and in a study done in greater Cairo and Alexandria involving 857 young street individuals between the ages of Twelve to seventeen years yielded results that 44.2% of the sexually active street boys reported to having intercourse with a fellow male partner in the previous one year with those reporting to be raped by a fellow male individual being 15% (Nada, 2010). In a study that involved male secondary school students based in Canada aged 12, 14, and 16, the students were 11000 and out of this 1.7% reported exclusive Homosexual attraction and only 3% reported heterosexual attraction (Boyce, 2014)

HIV attacks the immunity of an individual and this continuous suppression of an individual's immune system leads to Acquired Immune Deficiency Syndrome (Cecil, 1988); in 2009 the center for disease control gave a report that 61% of all the new HIV infections emanate from MSM, further to this it was noted that MSM who had a history of being intravenous drug users accounted for an additional 3% of the new HIV infections. Of the approximately 784,701 people living with HIV 51% were MSM, segregated according to the race 48% were white, 30% black with 19% being Hispanic or Latino. This shows that majority of MSM were whites but Nonwhites accounted for approximately 54% of new MSM related HIV infections in the year 2008. Center for Disease Control (CDC) 2010 in a recent study done on MSM, it estimated that for every 100,000 MSM, 692 are diagnosed with HIV and hence this makes this cohort 60 times more likely to get infected with HIV than other heterosexual men, and 54 times more likely than heterosexual women (Purcell, 2010.)

Pre-Exposure Prophylaxis (PrEP) is a prevention method for individuals who are sero negative and at an increased risk of acquiring the virus, the pills mainly consists of two anti-retroviral drugs namely Tenofovir and Emtricitabine. These two drugs are combined and given as a single pill and work to keep the virus from establishing a permanent infection when the individual is exposed

through sex, intravenous drug use and rape. Studies have shown that effectiveness of PrEP mitigating the acquisition of HIV in individuals at risk depends on the pills being taken consistently and this has been documented to mitigate the risk of HIV acquisition by up to 92% (Center for Disease Control [CDC], 2017).

Effectiveness of PrEP is greatly reduced if the adherence is poor. When given as a dual combination with condoms and other evidence based prevention methods it has been shown to provide even greater protection than when used alone. Individuals who use PrEP should dedicate themselves into partaking of the drug on a daily basis coupled with visits to their health care providers for follow ups on a quarterly basis (CDC, 2016), however this intervention has not yet been received by the targeted population in the same way that it was imagined, this also included health care workers who through a survey a third of them indicated that they did not think that PrEP was relevant to their practice (Maile & Kallis, 2014). The idea of PrEP efficiency began with randomized control studies, the first generation randomized control trials for PrEP were six in number namely the iPrEx, Partners PrEP, TDF2, VOICE, FEM -PrEP, and the Bangkok Tenofovir Study. The aim of this studies were to ascertain if PrEP really halted the transmission of HIV/AIDS among the high risk groups and the results of this studies were to provide evidence in favor to using PrEP as a HIV prevention method.

The total number of participants who participated in the six RCT's were 18,019, though it is documented that all the RCT's lost participants, the iPrEx study had 2499 MSM and transgender women from brazil, south Africa, Peru, Ecuador, Thailand and the united states this study involved two arms with a 50% chance of a placebo drug, the study used Tenofovir and Emtricitabi (Robert & Grant, 2010). The FEM-PrEP study had 2,120 HIV negative women from Kenya, Tanzania and South Africa this study involved two arms with a 50% chance of a placebo drug , this study

involved the use of Tenofovir and Emtricitabine (LutVanDamme, 2012), the VOICE study had 5,029 HIV negative participants from Uganda, Zimbabwe and South Africa this study had five arms with a 20% chance of an oral PrEP placebo, the VOICE study also used a vaginal 1% gel and a placebo gel this study involved use of Tenofovir alone and Tenofovir and Emtricitabine drugs Jeanne (2015), the TDF2 study used 1200 high risk heterosexual men and women in Botswana this study focused on its participants being between the ages of 18-39 years old, this study also involved two arms with a 50% chance of a placebo drug this study used Tenofovir and Emtricitabine (Michael, 2012), Partners PrEP had 4,758 Sero discordant couples from Uganda and Kenya, this study had three arms with a 33% chance of placebo the drugs used were Tenofovir and Emtricitabine and Tenofovir alone Jared (2012) and finally the Bangkok Tenofovir study involved two arms with a 50% of a placebo drug being used the participants were intravenous drug users who were 2,413 in total from Bangkok and Thailand this study involved the use of the Tenofovir (Choopanya, 2013)

With the introduction of PrEP as an effective and scientifically proven biomedical method of preventing HIV among persons who are at a substantial risk (CDC, 2017), it is important for this method to be made known to the population that its targeted at, on a study done to determine the factors associated with PrEP awareness, the study indicated that the factors varied with HIV status where MSM who were HIV negative PrEP unawareness was associated with young age, not consistently using condoms and preferring receptive to insertive anal sex (Lachowsky, 2016). In another study done at Brazil showed that awareness of PrEP was associated with age, education, site, study period and prior HIV testing, male partners who were not using condoms while engaging in anal sex with their fellow partners, and those that engaged in anal sex with HIV

positive and or unknown partners hence awareness of PrEP should be focused on the young and less educated individuals (Hoagland, 2017)

1.2 Statement of the Problem

The prevalence of HIV/AIDS in MSM is almost triple that of the general population, this is despite the MSM cohort embracing prior preventive measures such as sero sorting and consistent condom use.

PrEP being a newer biomedical intervention and studies done having shown its effectiveness in preventing the acquisition of HIV/AIDS (CDC, 2017) , the factors that will be associated with the acceptance and willingness to embrace this intervention will be of importance so as to ensure the success of this intervention in reducing the prevalence of HIV/AIDS in this cohort

1.3 Purpose of the study

The factors that influence PrEP acceptance although well researched may not be transferable from one cohort in a certain geographical area to another in a totally different geographical area therefore an understanding of these factors will enhance PrEP acceptability among this cohort at risk of HIV/AIDS infection and this will translate to a greater impact in curtailing the spread of HIV/AIDS

1.4 Objectives

1.4.1 General objective

To determine the factors influencing acceptance and willingness to use PrEP as a HIV prevention strategy for MSM at the Sex workers outreach Programme clinic in Nairobi County

1.4.2 Specific objectives

1. To determine the knowledge on HIV transmission methods among MSM at the SWOP CITY clinic
2. To explore behaviors related to HIV transmission among MSM at the SWOP CITY clinic
3. To assess awareness on HIV prevention methods amongst MSM at the SWOP CITY clinic
4. To determine the effect of stigma on health service utilization at the at the SWOP CITY clinic

1.5 Research questions

1. What is the knowledge on HIV transmission methods among MSM at SWOP CITY clinic?
2. What are the behaviors related to HIV transmission among MSM at the SWOP CITY clinic?
3. What is the awareness on HIV prevention methods among MSM at the SWOP CITY clinic?
4. How does stigma faced by MSM affect their needs for health care services at the SWOP CITY clinic?

1.6 Hypothesis

1. There is no knowledge of HIV transmission methods among HIV negative MSM at SWOP city clinic
2. There are no risky sexual behaviors related to HIV among MSM at the SWOP city clinic
3. There is no awareness on the methods of preventing HIV among MSM at the SWOP city clinic
4. There is no association between stigma experienced by MSM and need for healthcare services at the SWOP city clinic

1.7 Justification of the study

MSM have been shown through prior studies to be at a higher risk of contracting the HIV virus as compared to their heterosexuals' population (Purcell, 2010.).

PrEP as a HIV prevention strategy in MSM having been shown to be effective in reducing the risk of HIV infection is of paramount importance to this vulnerable group (CDC, 2014).

Before initiating PrEP the major factors that will enhance its acceptance and willingness to take this intervention needs to be evaluated so as to maximize the impact of this intervention in curtailing the spread of HIV in this most at risk cohort.

1.8 Limitation of the study

Possible information bias (Participants reported what they thought the researcher wanted to hear) and SWOP CITY clinic facility serves lower end MSM and hence findings generated in the study done may not be generalized to higher end non-sex workers MSM, a large sample size, pretesting of the questioners, and use of the correct study design were the approaches used to overcome this challenges posed to the study

1.9 Delimitations

The study involved selection of a large sample size which was done through random sampling and correct study design (descriptive cross-sectional study) enhanced the results of the study, pre testing and appropriate corrections were made to the items in the questionnaire before the study was conducted

1.10 significance of the study

The use of PrEP in Kenya as a HIV prevention strategy was carried out as pilot clinical trial studies in certain research settings and the findings showed that it was effective in preventing HIV/AIDS in the key population cohorts, based on this PrEP has been rolled out and hence it is vital to know

the factors that will enhance the acceptance and willingness of using this profound intervention, the insight that will be generated from this study may be used by the policy makers in ensuring the needs of the MSM are met hence deliver programs that will have a profound impact and ultimate success.

1.11 Operational definition of terms

Pre Exposure Prophylaxis

This is the use of medicaments to prevent specific infections resulting to diseases in individuals who have not yet been exposed to the specific infectious agents being covered against; in this thesis this term will be used to refer to the use of antiretroviral drugs as a strategy for the prevention of HIV/AIDS acquisition (CDC, 2016)

Lesbian, Gay, Bisexual And Transgender

This term mostly abbreviated as LGBT is often used to describe the sexual orientation of individuals, enduring pattern of emotional, romantic and/or sexual attractions of men to women or women to men (heterosexual), of women to women or men to men (homosexual), or by men or women to both sexes (bisexual). It also refers to an individual's sense of personal and social identity based on those attractions, related behaviors and membership in a community of others who share those attractions and behaviors.

Sex Workers Outreach Programme

The Sex Workers Outreach Programme abbreviated as SWOP is a leading nongovernmental organization in Kenya that its core mandated to promote the health, safety & well-being of sex workers in Nairobi where it is located, the organization also affirms the occupational and the

human rights of this vulnerable cohort, SWOP has been in existence since the year 2008. In this thesis this term is often used to depict where the study was conducted.

National Commission for Science, Technology and Innovation

This is a state body that was enacted under the auspices of Science, Technology and Innovation Act, 2013 which was later Revised in 2014. The mandate of this Commission is to Monitor and ensure quality in the science, technology and innovation sector and advise the state on matters related thereto. In this thesis this term is used to describe where ethical clearance was sought and approved before conducting this study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter looks into the literature on HIV epidemiology, prevention and control efforts in combating HIV transmission in MSM, challenges for MSM and how they impact on efforts to prevent and control the pandemic, PrEP in HIV/AIDS, effectiveness and acceptance of PrEP, Anal sex and HIV transmission, mental health in MSM, Sexually transmitted infections in MSM, awareness of PrEP among MSM, behaviour change interventions for MSM and finally the conceptual frame work.

2.2 HIV Epidemiology among the General Population

Globally the HIV pandemic has changed when analyzed retrospectively as from the last 30 years, with the initial reported cases being diagnosed in the early 1980s with a surge of the new infections of 3.7 million being recorded in the year 1997, to a reduction of new HIV infections and AIDS related deaths in the year of 2000s (UNAIDS, 2014), the year 2012 approximately 9.7 million in both low and middle income countries were put on the lifesaving anti-retroviral therapy (UNAIDS, 2013), Globally since the beginning of the epidemic more than 70 million individuals have been documented to have been infected with the HIV virus with about 35million individuals having died from the HIV infection, although the burden of the epidemic continues to vary considerably between different countries and regions, the African region remains as the most severely affected with statistics indicating that 1 in every 25 adults representing 4.1% of individuals are infected with the Virus and this figure represents nearly two thirds of the people living with the virus causing HIV/AIDS worldwide (WHO, 2019)

Kenya rates as number four, in bearing the pandemic burden being fronted by Mozambique and Uganda with statistics in 2017 indicating that approximately 1.5 million Kenyans had the virus with the prevalence of the virus among individuals aged 15-49 years being 4.8%, and a yield of 53000 new HIV infectivity and 28000 AIDS related mortalities, of the people infected with the virus 75% of the adults and 82% of children were on the lifesaving antiretroviral therapy (Avert, 2017)

2.3 HIV Epidemiology among the MSM

In young MSM, this HIV incidence and prevalence is not well elaborated, this is so because there is lack of data around the world on the actual number of young male homosexuals, their risk levels that they are exposed to and their mitigating behaviors towards the acquisition of HIV/AIDS, this is as a result in part to lack of the necessary disease surveillance coupled with research in this field coupled with the difficulty that is associated with reaching this young cohort of male homosexuals due to their impending fear of disclosing their homosexuality behavior (WHO, 2015). The prevalence of sex between male homosexuals in their lifetime in some low and middle-countries is estimated to be 3-20%. Caceres (2016) studies that were done in isolation by the world health organization in 2015 showed a wide scope of reports of homosexuality and sexual orientation among young individuals and the data that these studies yielded pertaining to the numbers of young male homosexuals was not globally representative. (WHO, 2015), towards the end of the year 2011, out of 196 countries only 93 countries were red flagged to have not reported on the prevalence of the HIV pandemic in male homosexuals in the previous 5 years, this contributed significantly to the existing data gaps leading to difficulties in conducting HIV research, surveillance and the epidemiological characterization in male homosexuals is largely based on the

hidden and highly stigmatized nature of male homosexuals numbers in the world coupled with the criminalization of homosexuality and other forms of homosexuality behaviors (Beyrer, 2011).

Grulich, (2010) acknowledges that there is an up surge in HIV notifications among male homosexuals in all developed countries from the 1990s to 2006. There is need to continue monitoring the incidence of HIV in MSM at the population level in order to create room for analyzing the drivers of such trends. Following a research conducted on the epidemiology of HIV among the male homosexuals in developed countries the Surveillance data indicated that in 2005, 35 % of new HIV diagnoses occurred in Western Europe and 10% in mid-Europe all came from MSM (PubMed, 2007). An increase in HIV cases among men who have sex with other men was recorded in countries such as Denmark, Finland, Germany, Belgium & UK. Grulich, (2010) reported that there was a great upsurge in HIV incidence between MSM who often attended STD clinics in European sites.

In Montreal, the new cases of HIV in MSM were about 0.56 per 100 per year from 1996 to 2001. Vancouver also demonstrated an incidence of 1.4 per 100 per year in the year 1995 to 2000. In the USA, there was an astonishing increase of about 17% in the year 1999 to 2002 which further increased by 15 % in 2001-2005. In 2001-2005, it was reported that 48% of all HIV diagnoses came from MSM (Grulich, 2010)

Beyrer, (2010) acknowledges that majority of the HIV epidemics among the MSM is taking place in hidden contexts of stigma, criminalization and minimal HIV surveillance. In the study high risk for HIV infection is evident among the MSM living in Malawi, Namibia and Botswana, the study also points out five levels of risks; namely individual, network, community, public policy and stage of epidemic. In the individual level, transmission is due to unprotected receptive anal sex and lack of circumcision. In the network level, there is STI prevalence and lack of condom knowledge. At

the community level, poor access to preventive services, stigma and lack of VCT and ARV access may accelerate transmission. At the public policy level, criminalization, homophobia and exclusion from national surveillance are the leading factors. The final level is marked by the HIV the Epidemic Stage which is marked by transmission of the virus at an alarming rate from individuals who are infected to those who are not infected by the virus.

2.4 Prevention and Control Efforts in Combating HIV Transmission in MSM

These efforts include:-

2.4.1 Pre exposure Prophylaxis in HIV/AIDS

PrEP is a mitigating method for individuals who are HIV negative and at a substantive and ongoing risk of getting the virus, the pills mainly consists of two anti-retroviral drugs namely Tenofovir and Emtricitabine. This two drugs are combined and given as a single pill (Fixed dose combination) and their mode of action is geared towards creating a barrier that is meant to wade off the virus from integrating with the hosts RNA and DNA hence averting infection with the virus when the individual is exposed through sex, intravenous drug use and rape. Studies have shown that the effectiveness of PrEP in reducing the risk of acquiring HIV in people who are at a substantive and ongoing risk depends on the pills being taken consistently and this has been proved scientifically through evidence based methods to decrease the risk of HIV infectivity to 92% (CDC, 2017)

PrEP effectiveness is greatly hampered if the adherence is poor. When used with other evidence based prevention methods such as condoms and sero sorting, this has shown PrEP to be more efficient in mitigating against HIV infection as compared to when it is used on its own however this efficiency is pegged on good adherence by individuals taking the drugs coupled with keeping the appointments that are scheduled at the health institutions offering the drugs for follow up on a

quarterly basis as stipulated in the PrEP guidelines. (CDC, 2016), however this intervention has not yet been received by the targeted population in the same way that it was imagined, this also included health care workers who through a survey a third of them indicated that they did not think that PrEP was relevant to their practice (Maile & Karris, 2014).

The idea of PrEP efficiency began with randomized control studies, the first generation randomized control trials for PrEP were six in number namely the iPrEx, Partners PrEP, TDF2, VOICE, FEM -PrEP, and the Bangkok Tenofovir Study. The aim of this studies were to ascertain if PrEP really halted the acquisition of HIV/AIDS in the individuals who are at a substantive ongoing risk and the outcomes of this studies were to provide information in terms of data that is in favor to using this intervention as a HIV mitigating method.

The overall number of individuals who participated in the six RCT's were 18,019, though it is documented that all the RCT's lost participants, the iPrEx research had 2499 male homosexuals and transgender women from Brazil, South Africa, Peru, Ecuador, Thailand and the United States this study involved two separations with equal chance of a placebo drug, the study used Tenofovir and Emtricitabine (Robert & Grant, 2010). The FEM-PrEP study had 2,120 HIV negative women from Kenya, Tanzania and South Africa this study involved two arms with a 50% chance of a placebo drug, this study involved the use of Tenofovir and Emtricitabine (LutVanDamme, 2012), the VOICE study had 5,029 sero negative individuals from Uganda, Zimbabwe and South Africa this study had five separations with a 20% chance of an oral PrEP placebo, the VOICE study also used a vaginal 1% gel and a placebo gel this study involved use of Tenofovir alone and Tenofovir and Emtricitabine drugs Jeanne (2015), the TDF2 study used 1200 high risk heterosexual men and women in Botswana this study focused on its participants being between the ages of 18-39 years old, this study also involved two arms with a 50% chance of a placebo drug

this study used Tenofovir and Emtricitabine (Michael, 2012), Partners PrEP had 4,758 Sero discordant couples from Uganda and Kenya, this study had three arms with a 33% chance of placebo the drugs used were Tenofovir and Emtricitabine and Tenofovir alone Jared (2015) and finally the Bangkok Tenofovir study involved two separations with an equal chance of a placebo drug being used the participants were intravenous drug users who were 2,413 in total from Bangkok and Thailand this study involved the use of the Tenofovir (Choopanya, 2013)

2.4.2 Consistent condom use

Transmission of HIV through sexual intercourse has been mitigated effectively through the use of condoms in a consistent way and this method of HIV prevention dates back in the early days of the epidemic (Gostin, 1989) it is in the mid-80s that evidence based results showed that the use of condoms did contribute to HIV prevention among the male homosexuals as showed in the united states and western Europe, this was fueled by community mobilization that recommended the use of condoms, the effectiveness of consistent condom use in its role of preventing HIV transmission as per observational evidence has increased (Holmes, Levine & Weaver, 2004). In a study that was conducted by the world health organization that focused on the evidence of the efficiency of using of condoms consistently in preventing HIV among male homosexuals and trans gender individuals concluded that the use of condoms in a consistent manner during anal intercourse is highly recommended for the male homosexuals and the transgender individuals to over not using condoms, the lubricants that are recommended for the correct functioning of the condoms during anal intercourse should be water and silicone based (WHO, 2011)

2.4.3 Serosorting

Serosorting is defined as the practice of using HIV status as a decision-making point in choosing a sexual behavior. As a strategy of not getting infected with HIV, some MSM engage in adaptive

behaviours of choosing sexual partners that they know to be of the same HIV status as theirs so as to regularly engage in unprotected sex with them, in so doing they perceive this as protecting themselves and as a form of reducing the risk of acquiring or transmitting HIV (CDC, 2013). Studies done to evaluate whether this approach should be encouraged, discouraged and or ignored were based on the outcome of the effectiveness of this approach in preventing HIV. The results described both sides of the coin, one study done indicated that serosorting provided reduced HIV incidence hence it provided protection in reducing HIV transmission. Philip, Yu, Donnell, Vittinghoff and Buchbinder (2010) however other studies done showed HIV positive cases among men previously undiagnosed with HIV and who used serosorting depicted that the serosorting had a limited or no protective value (Golden, Dombrowski, Kerani & Stekler 2010). This translates to the conclusion that it's important to understand the intention levels of an individual that wants to do serosorting as this would provide information on future designs of HIV prevention programs (Aaron, Patrick, Christine & Eli, 2013)

In a study done on sero-sorting Aaron et al. (2013) the author acknowledges that sero-sorting has continued to be accessed in studies of MSM, and results yielded from this study found out that there were high levels of stated intention occurring in a sero concordant relationship in HIV sero concordant partnerships with percentages of up to 80%. Kennedy et al. (2013) also conducted a study to determine the relationship occurring between sero-sorting, HIV infection and quality of life among MSM including the transgender individuals. In the study they found out that for HIV-negative MSM, use of condoms was quite protective when protecting one against HIV and STIs as opposed to sero-sorting. In order to minimize the risk involved, sero-sorting may be the better alternative as opposed to the use of condoms. The results obtained from this study are aligned to a minute number of studies that assessed the sero-sorting behavior (Kennedy et al., 2013). In their

analysis Kennedy et al. mentions two major recommendations by World Health Organization. To begin with, the use of condoms is highly recommended as opposed to sero-sorting when it comes to transgender individuals and HIV-negative MSM. WHO also suggests that sero-sorting is better than not using condoms in HIV-negative MSM and transgender individuals but under particular circumstances as way of reducing harm.

2.4.4 Male circumcision

In the past thirty years, it has been shown through observational researches that circumcision of male individuals by trained medical professionals does reduce the risk of female to male HIV transmission by 50% (Bailey et al., 2007). The results of this studies however have a limiting factor as they were conducted among male individuals who were presumed to be exposed through vaginal intercourse and was done only in the sub-Saharan African countries and hence the findings cannot be directly applied to male homosexuals and transgender individuals whose exposure is via insertive and receptive anal intercourse.

According to (Beyrer, 2010)circumcision has proven to be an effective way of minimizing the risk of HIV infection among MSM as it is for heterosexuals, however male circumcision hasn't shown any direct impact on risk of acquisition amongst receptive partners. Beyrer also acknowledges that the observational information gathered on circumcision in populations of MSM is ambiguous and has not yet given similar consistency in epidemiologic findings, a review by the World Health Organization showed that MSM's who engage in insertive sex benefit greatly from being circumcised. According to Beck, Glenn-Milo and George (2013) circumcised MSM had 73% lowered odds as opposed to those that were uncircumcised. This finding is similar to that of Beyrer, in that MSM who are engage in insertive sexual practices benefit from similar biological factors that render protective effects for heterosexual men.

2.4.5 HIV testing and counseling

The availability of HIV screening test, HIV Testing and Counseling (HTC), is considered as a major breakthrough in terms of HIV prevention. However very few studies have indeed researched on the efficacy of HTC and it's through the commitment of the universal access for the HIV prevention and care that the broader perspective of HTC has evolved to include provider initiated testing and counselling and the client initiated testing and counseling (Nash et al., 2009).

HIV Testing and Counselling has been integrated with the aim of promoting testing and counseling coupled with proper linkage to HIV care and treatment for the clients who seroconvert. Stigma and it's ripper effects that an individual undergoes based on the knowledge of presumption of being HIV positive should be considered and this fortifies the principal that all HTC activities should remain voluntary and very confidential, individual who continue to engage in high risk behaviors and upon testing they sero convert and or engage in unprotected sexual intercourse in a time frame of three months prior to a HIV test and in so experience acute infection which is not detected by the HIV antibody test termed as a false negative result, the current WHO guidelines recommends that this individuals should retest after three months so as to pick those who initially yielded a false negative result (WHO, 2010)

Literature review done on HTC role in decreasing the disease and deaths related to HIV was compared with accessibility of basic information on the prevention and care of HIV and results were conclusive that programs offered to communities for HTC that are strongly linked to treatment and care to MSM and transgender people is highly recommended over not offering such programs.

2.4.6 Harm reduction for injecting drug use

Key population especially the MSM and the transgender individuals who are intra venous drug users are at a very high risk of being infected with HIV through the sharing of injectable which are contaminated, research that has been done on this intravenous drug users shows a very strong association of reduced HIV infectivity as a result of increased availability and uptake of sterile injecting equipment's by intravenous drug users. The provision of this sterile injecting equipment's at the pharmacy level is linked to specific benefits on top of those derived from the needle and syringe program (NSPs) coupled with other interventions such as the Opioid substitution therapy (OST) with methadone or buprenorphine which have been shown through scientific based evidence as to be strongly efficient in decreasing the transmission of HIV as this sterile injecting equipment's are free from contaminants, on the other hand the OST through various studies conducted has been shown to increase both the access and adherence of highly active anti-retroviral drugs and in turn has this has led to the reduction in deaths (WHO, 2011), individuals who are in the key population cohort namely the MSM and the transgender who are intravenous drug users should be linked into a needle and syringe programs and opioid substitution therapy program, this should be done in tandem with the existing WHO guidelines (WHO, 2009).

2.5 Challenges for MSM and How They Impact On Efforts to Prevent and Control the Pandemic

2.5.1 Stigma and HIV prevention and control

The major obstacles that are geared towards the key population mainly the MSM are issues pertained to negative attitudes that are capped with stigma and social seclusion toward Individuals engaging in same sex behaviors, this is made worse when the laws of the land criminalize this cohorts and this empowers the society to institute violence towards this cohort. As it is evidenced

in schools most of the learning institutions do not incorporate in their curriculum under sex education topics the issues of sexual orientation (World Bank, 2011)

Individuals who engage in societal forbidden sexual encounters are a minority cluster of individuals and this specific cluster is associated with sexual engagements which are high risk particularly the young MSM (Preston, D'Augelli, Kassab & Starksthis, 2014) eventually makes these young tucks to have a forbear due to discouragement from seeking HIV testing services and counselling coupled with other essential prevention, care and treatment services.

Individuals who seroconvert, they are exposed to self-stigma of being HIV positive, this creates an additional burden to the one they bear of homosexuality, in a study that was done by Radcliffe involving young homosexuals forty in number that were positive for HIV yielded results that individuals who were faced with great levels of stigma from being HIV positive were at a higher predisposition to engage in unprotected coitus while intoxicated from a drug they are abusing and or alcohol (Radcliffe et al., 2010).

Individuals who engage in same sex behavior particularly the young MSM are aware of the harsh judgement coupled with the societal hostility they face in their undertakings, due to this fact many of them choose to hide their sexual orientation from the society and as a result this action reduces considerably their chances to their rights of accessing guidance and information pertaining to HIV coupled with the various risks posed when they engage in unprotected sexual intercourse especially when they don't disclose their sexual orientation from the health care providers making them to engage in risk taking behaviors which are not mitigated against (CDC, 2003)

It is known through studies which have been done in a number of countries that individuals in their youthful state are more at risk to experience bullying linked to their sexual orientation at school as

opposed in the communities and homes that they reside in, this trend can have serious mental issues in these young individuals hence hampering the learning opportunities this leads to a trail of low grades in performance and hence missing on employment opportunities (The United Nations Educational, Scientific and Cultural Organization [UNESCO], 2012)

Young male homosexuals sense of worthiness is greatly affected by anxiety, fear of rejection and loneliness and this leads to anger, low self-esteem, depression and to some extent leading to self-harming acts due to social exclusion by self (Youth Voices Count, 2012), services that are geared to address the psychosocial issues of male homosexuals are limited in many countries, in a survey done in Pakistan several male homosexuals indicated that their fellow friends who were MSM had committed suicide secondary to the social seclusion from their families and communities especially after their sexual orientation was disclosed by the health care workers. Studies done yield results that the male homosexuals who accept their sexual orientation are mentally healthy and have a high self-worthiness and more likely disclose their HIV status with new sexual partners and less likely to engage in unprotected sexual intercourse (Waldo, 1998).

Individuals whose sexual orientation is homosexual, the journey of self-disclosure is a hard and difficult one and in the process of disclosure a mixture of feedback both negative and positive ones can crop up and stretches from support and acceptance to sever social and legal censure. Homosexuals are prone to face disapproval from the family coupled with harassment, social seclusion, bullying and violence including sexual violence (Nash et al., 2009)

In a study done by Smit et al., (2011) shows that HIV-related stigma in gay communities can occur in several ways. The first scenario is through discrimination and rejection by HIV-negative MSM. In this scenario, HIV-negative MSM tend to feel threatened by HIV-positive MSM in gay communities. Following a survey of male homosexuals of the Latino origin, more than a half of

the population believed that HIV-positive MSM were responsible for their status due to promiscuity. In the same study, it was found out that more than 60% of HIV-positive MSM stated that their HIV status was a barrier when it came to trusting people and they were worried that they would be rejected.

Discrimination can also occur due to age, and this is referred to as the age-related stigma, in this study done by Smit shows that the HIV-positive men that were above 50 years of age felt of being of a low value hence they got less empathy and compassion from their younger counterparts. In the same way, it was found out that younger men suffering from HIV/AIDS also received the same treatment from older men irrespective of their HIV status (Smit et al., 2011). Smit also points out that there exists a sort of hierarchy in the gay society where older men suffering from HIV are perceived as being in the lowest rank following the timing of the diagnosis. The discrimination exists since they are seen as being a burden to the state in that they enjoy benefits that are not accessible to younger men living with HIV, older gay men suffering from HIV that do not get intervention of care and treatment using the highly active anti-retroviral drugs are at a higher risk of succumbing to clinical symptoms of disease manifestation such as lipo-dystrophy which yields more stigma. Lipodystrophy often tends to alter an individual's physical attributes hence accelerating the stigma (Smit et al., 2011).

Stigma may also arise due to ethnic differences (Smit et al., 2011). Despite of their sexual orientation, both ethnic and racial differences have accounted for stigma and discrimination in majority of populations. Smit reveals that black gay men face a higher risk of being HIV-positive which further deters other races from having black men as their sexual partners. Non-black gay men were also reported to demonstrate poor attitudes towards black gay men in social platforms

within the gay community thus further accelerating discrimination of black gay men from their peers.

Social seclusion can also occur as self-stigma. This means that the discrimination is not sourced from external elements but rather from within the individual himself. According to Smit, studies indicate that MSM who self-stigmatize gay-ism have lower chances of undertaking a HIV test where black MSM recorded double odds when compared to their white counterparts when it came to internalized homophobia.

2.5.2 Impact of Stigma on HIV-positive MSM

Discrimination directed towards an individual's HIV sero- status hugely impacts on the wellbeing in terms of health of individuals infected with the HIV virus there is hence a need to come up with multifaceted interventions so as to lower the impact of HIV related stigma (Rueda, 2016).

The knowledge of HIV and AIDS in Kenya is at its all high and countrywide there has been deliberate campaigns that are geared towards discouraging stigma, but despite this a large and significant proportion of individuals infected with HIV still face increased levels of social seclusion as a result of discrimination this discourages individuals infected with HIV especially individuals who are vulnerable from accessing and utilizing HIV services (National Aids Control Council of Kenya [NACCK], 2014).

Most at risk populations such as the homosexuals, female sex workers, truck drivers and intravenous drug users still face discrimination, violence and stigma adding up to their vulnerability, in 2014 a study research was conducted on the most at risk population and yielded results that 44%,24% and 57% of female sex workers, male homosexuals and people who inject intravenous drugs were incarcerated or physically tortured by the police and municipal council officers in a period of six months (NACCK, 2014).

2.5.3 Mental and emotional well-being

Mentally and emotionally social seclusion has an impact which is significant and this is exhibited in individual's tendencies of being anxious and depressed, having suicidal thoughts and social exclusion, studies done shows that HIV-positive homosexuals are more affected by mental health issues as opposed to the rest of the population living with HIV/AIDS (Smit et al., 2011). In a study done in Australia on Major Depressive Disorder (MDD) among MSM, it was found out that the incidence of MDD in sero-positive male homosexuals was increased than that of sero-negative male homosexuals. It was further found out that MDD was directly linked to denial and isolation as adaptive mechanisms together with inadequate positive involvement from the community (Lim, 2011).

2.5.4 Social Segregation among MSM

Sero-sorting has been seen as an accelerating factor when it comes to social segregation, this is typically because MSM tend to relate with individuals who share in the same HIV status as them, this is seen to stretch across individual relationships and communities in that MSM will tend to first screen their social and sexual partners for HIV prior to having any form of association (Smit et al., 2011).

2.5.5 Social Withdrawal and Lipodystrophy

Interviews conducted in Australia among HIV-positive MSM indicated that lipodystrophy played a role in accelerating social withdrawal, those interviewed reported to have a loss of intimacy and also shunned away from certain social spaces and activities. Physical malformations in HIV-positive MSM also demonstrated greater chances of engaging in risky tendencies that can be aligned to poor self-esteem (Persson, 2005).

2.5.11 Diagnostic and Statistical Manual for Mental Disorders & Its Impact on Criminalization

Homosexuality was mentioned as a sociopathic personality disturbance after the creation of DSM in the year 1952. This classification formed a basis for laws and regulations to deny gays job opportunities and licensing in majority of occupations. After the passing of this legislation, majority of people lost their jobs. Furthermore, sexual psychopath laws were passed in order to prevent sex crimes such as pedophile, rape and homosexuality. Some psychologists further advocated for the confinement of homosexuals until they were declared cured (Graham et al., 2011). The DSM legislation resulted to extensive stigmatization of MSM during World War II. During this period if an individual was to disclose his sexual orientation, he was likely to incur not only personal rejection but also arrest, unemployment and ostracism. This hence resulted to many individuals keeping their lives a secret. Marginalization and secrecy continue to exist even in the current societies especially within African countries, lack of disclosure results to majority of MSM, being left in the dark in relation to HIV knowledge and treatment. Criminalization hence stands out as a major barrier when it comes to treating and testing MSM living within the societies (Kendra, 2013).

2.5.6 Stigma and HIV-testing

Studies have shown that there exists a relationship between HIV-related stigma and the quality of counselling done to an individual; this can be associated with an individual's reluctance to reveal his or her HIV status (Smit et al., 2011). Some men may be reluctant to undertake the HIV tests and subsequent decline being treated due to the fear of social exclusion and discrimination that comes together with being HIV-positive (Fengqiong, 2015). In a study done on the Scottish MSM showed that the HIV testing policies and the effects that come alongside its treatment may in a huge way lead to sexual exclusion that is experienced by HIV-positive MSM (Smit et al., 2011).

2.5.7 Stigma and Disclosure of HIV status

In a study conducted in the United States of America, it was found out that non-disclosure of HIV status resulted to social exclusion within an MSM setting, in the same way it was found out that social isolation was also in effect when individuals chose to disclose their HIV status (Nicole, 2012). Counter evidence however shows that disclosure in particular settings may act as a way of managing stigma. This is only applicable where individuals believe that disclosure may encourage social support (Smit, 2012). Three key themes have been mentioned in relation to HIV disclosure. The first theme is through Selective disclosure which is associated with stigma management. The second theme is through partial disclosure which allows one to manage information spread. The third theme is aligned to stigma resistance and falls under total voluntary disclosure (Poindexter, 2010)

2.5.8 Stigma & Risky Behavior

According to (Smit, 2012), HIV-positive men are more susceptible to involve themselves in risky engagements including drug abuse and condom less anal intercourse as an adaptive mechanism. MSM suffering from HIV that engages in such risky behaviors are believed to have more stigma and gay-related stress (Smit et al., 2011). HIV-positive MSM tend to feel socially withdrawn from HIV-negative MSM thus they engage in unprotected anal intercourse. Stress and social withdrawal are not the only factors responsible for these risky tendencies, there is also the stigma that comes alongside the fear of physical changes due to treatment, this fear may result to individuals delaying to take medication (Abaynew, 2011).

2.5.9 Criminalization of same sex behavior

Criminal penalties for homosexuals have been enacted by several countries and as per the report by UNAIDS seventy eight countries as per the year 2014 had enforced these penalties irrespective

if the acts were done by two consenting adults (UNAIDS, 2014). Of the seventy eight countries, seven of these countries executed individuals caught by law enforcers practicing homosexuality

Young homosexuals as a result of the criminalization of their acts are forced to remain salient and this creates a barrier as they are unable to freely gain access to HIV prevention services such as provision of condoms, lubricants and counselling from the service providers. Countries which continue to foster such laws such as the Caribbean, research findings shows that their prevalence for HIV among the male homosexuals is higher (Pan American Health Organization, [PAHO], 2011). Further studies done yields a conclusion that male homosexuals with a history of having engaged with the authorities wrongly leads to their arrest and are likely to engage in risky sexual behaviors (Lim, 2011).

Some countries have laws which don't criminalize assault of men and transgender individuals categorized in this cohort when faced with sexual violence in the republic of Tanzania through surveys done on communities yielded results that the law enforcement officers neglects complains of violence and abuse affecting the male homosexuals. In other countries wherein indulgence of homosexuality is not illegal the consenting age for an individual to involve in such acts is raised as compared to the heterosexual sex (UNESCO , 2013) this translates to vulnerability of homosexuals to arrests secondary to sexual indulgence than their peers who engage in heterosexual intercourse.

Among the main barriers constricting provision and use of HIV services by MSM include stigma, discrimination and criminalization (Amfar, 2010). In countries like Zambia and Malawi, male-to-male sex is punishable with individuals facing up to 14 years imprisonment. According to Amfar, more than half of the nations with PEPFAR programs have laws that restrict homosexual activity. In some cases, penalties are so severe. In countries like Mauritania, Sudan and Yemen, a death

penalty is imposed on the perpetrators. Some countries however do not impose penalties but tend to deny full and equal privileges for MSM. This is evident in countries such as Ukraine, China and Guatemala. Such kind of double standards may cause MSM to go underground far from HIV services and information.

2.5.10 Politicization and Criminalization of Male to Male Sex

Politicization is associated with criminalization of same-sex sexualities; same sexual behavior is criminalized in majority of the African countries which inherited laws that criminalized such kind of behavior. One of the bills proposed for homosexuality is the “Kill the Gays Bill” (Amar, 2016). There is also the Anti-Homosexuality Bill in Uganda which accelerates penalties including death penalty as seen in Zambia and also life imprisonment. Historically anti-sodomy laws have focused more on MSM, giving a blind eye to female to female sex, in addition to punitive and homosexuality legislation, campaigns have been rallied by African leaders in fighting marriages between same sexes (Amar, 2016).

2.5.12 Police harassment and violence

Countries which criminalize same sex encounters ultimately deny homosexuals access to their right to judicial services if they encounter sexual violence, this makes the young homosexuals more vulnerable as they are easy targets of the law enforcers where they may be arrested, extorted and can be easily sexually abused all of this in the operation of enforcing the law against public obscenity (UNECSO, 2013). In countries which are liberal and homosexuality is not an illegal practice the threat that is posed by the law enforcers on disclosure of their sexual orientation gives this law enforcers an edge over the young male homosexuals in whom studies have shown that they don't know their legal rights. Studies done in Asia showed that the community members that

are involved in the prevention field where they conduct outreach work of distribution of lubricants and condoms are also potential victims of arrest and harassment (“First, Do No Harm”, 2014)

Following a study conducted by Logie et al., (2017) police harassment among MSM was recorded to be at 22% whereas that on transgender women was at a high of 43 %. The findings by Logie were that in regions where consensual same sex relations were criminalized, there was a high likelihood of police brutality. In the study, they found out that there existed linkages between police harassment & HIV vulnerabilities. It was also found out that there was a greater likelihood of HIV-positive MSM to report harassment as opposed to their negative counterparts. In India, harassment by the police towards MSM was estimated to be at a high of 85% under the notion that the targeting was as a result of association with HIV or HIV-related activities Logie et al., (2017). Logie concludes the study by saying that for there to be a reduction in police harassment among HIV-positive MSM, strategies for the collaborative engagement of the police should be encouraged in order to counter stigma, discrimination and HIV risk. Trainings should be included in these programs which address why there should be engagement of the police in HIV prevention (Logie et al., 2017).

2.5.13 Legal obstacles to outreach to young MSM

Organizations that are mandated to provide care and treatment and to offer sexual health education with the aim of curtailing the spread of the HIV virus, their work is made extremely difficult through enactment of laws that legalize homosexuality as these laws directly hinder effective outreach activities that are focused on this young male homosexuals, this is through conflict of the organization mandates with the laws of the land that declare homosexuality illegal, these laws also make these organizations to be extremely cautious when offering such services to individuals that are under the legal age of consenting and who have mutually engaged in homosexual activities

with other individuals of a similar age bracket. This is so because the law dictates that the health professionals engaging with such patients have a statutory duty to report these relevant cases that are suspected to involve abuse. The UN has in a statement detailing the human rights indicated that that this rights applies to all individuals irrespective of their sexual orientation (UN, 2011). An individual's sexual orientation and identity in terms of gender and international human rights are not a protected status in its entirety, it is known that some countries accents to criminalization of same sex behaviors under the guise of the Committee on the Rights of the Child (CRC) where in Articles 6 and 34 states that children should be protected from sexual abuse and exploitation hence laws geared towards derailing and curtailing homosexuality are used to halt the public health campaigns that target homosexuals for inclusivity and goes to an extent of preventing the health care workers from provision of the necessary health information to the young homosexuals who are new to the field (UNESCO, 2012).

2.5.14 Employment discrimination against MSM

Most of the countries have not factored in their policies legal shields against seclusion tendencies in the hiring and dismissal from work based on one's sexual orientation and or sero- status, this can have significant ramifications in the vulnerability of this cohorts of young homosexuals as they are exposed to dependence since they lack income, this can be a forecast of new HIV infections (Beck et al., 2012).

In a ruling that was done by the international labor organization, it stressed that discrimination and stigmatization of workers including individuals seeking placements for a living and those applying for jobs should not be secluded based on their sexual orientation, perceived sero- status, or on grounds of belonging to regions of the world that are viewed to be at a high risk of HIV infection (ILO, 2010)

2.6 Iprex (Pre-exposure Prophylaxis Initiative) Trial

The Iprex study was randomized and was carried out in Ecuador, Brazil, Thailand, South Africa and the USA (CDC, 2014), the participants for the study were supposed to get a daily oral dose of TDF combined with FTC or a placebo. The participants for this study had to undergo an interview after every 4 weeks and also counselling on the issues of reducing their risk for HIV acquisition coupled with good uptake of their PrEP oral administered, together with the number of condoms and pills dispensed. In the data analysis, it was found that out 36 out of 1,224 participants within the TDF/FTC group and 64 out of 1217 of the placebo group had all gotten HIV infection. It was also found out that the participants who were enrolled in the Tenofovir and Emtricitabine group, there was approximately 40 % reduction in the probability of getting HIV. For individuals that were assigned to the Tenofovir and Emtricitabine category their plasma together with their intracellular drug-level testing were done for all the individuals that got the HIV infection and in the course of the trial and also for a matched subset that failed to get infected and it was concluded that individuals who showed good adherence of the PrEP had up to 92% reduction probability of acquiring HIV.

In the course of the study, it was shown that there was proper tolerance of TDF/FTC, however, nausea in the first months was more profound among individuals taking medication as opposed to those taking placebo with a percentage of nine versus five respectively. There was however no variation of severe or life-threatening events that were seen within the active and placebo category and also no drug-resistant virus was evident within the 100 participants that remained infected after they had been enrolled into care and treatment. Results indicated that FTC-resistant was detected for every two out of two men within the active group and one out of eight men in the placebo category. Analysis of these results further indicated that both TDF/FTC and placebo

groups had less total number of sex partners with whom the participants had receptive anal sex and higher percentages of sex partners that used condoms.

This study concludes by acknowledging that Daily oral PrEP with TDF/FTC is recommended as among the HIV prevention alternative for MSM that are sexually active and who have a greater risk of getting HIV since the iPrEx trial demonstrates proof of its safety and effectiveness within the given population particularly if there is high adherence to the medication (CDC, 2014).

2.7 Effectiveness and acceptance of pre-exposure prophylaxis

For PrEP to have a positive impact in mitigating against HIV infection in the uninfected individuals, widespread acceptability and access of PrEP among these individuals is of great importance, The WHO initially had only recommended in 2012 the use of PrEP in sero discordant heterosexual couples (WHO, 2012), this was later expounded in 2015 where it recommended the use of PrEP as part of a comprehensive HIV prevention package to the key population including MSM (WHO, 2015), several studies have been done with a recent meta-analysis study showing acceptability of PrEP among MSM being at 58.7% globally (Peng, 2017). In an online survey done in Malaysia examining the willingness of using PrEP for HIV prevention among MSM yielded results that less than a half of individuals surveyed knew about PrEP (44%) and that 39% of individuals surveyed were willing to take PrEP, this survey depicted a generally low level of willingness to start PrEP, though in individuals who were aware of PrEP their willingness was much higher, the survey recommended that there was need to provide PrEP at an affordable cost, increase the demand and awareness of PrEP and to provide access to this prevention method through diverse, and tailored sexual health services (Lim, 2011).

In another study done with the aim of correlating awareness of and willingness to use PrEP in gay, bisexual and other MSM who use geosocial-networking smartphone applications in new York

showed that; majority of participants 85.5% had heard about PrEP but few of them (9.2%) reported being on PrEP, unwillingness to start PrEP was associated with side effects, however more than half (57.6%) of participants were willing to use PrEP (Goedel, 2016)

Acceptance and the willingness to adopt PrEP studies done in Switzerland on using PrEP as a personal HIV prevention strategy varied considerably and broadly, these variations included; high levels of acceptance, where the individuals in this group were of the notion that PrEP was very core and vital to them as it was expected to be an alternative to the use of condoms, however others declined to the use of PrEP reasons highlighted by these individuals were that these individuals did not foresee any benefits to them as far as PrEP was concerned, and finally the homosexuals who leaned on both sides indicated that they were aware of both the benefits and the challenges posed by the use of PrEP, however these crop of MSM believed advantages of using PrEP to be limited and had the notion that PrEP ought to be useful in specific scenarios only and had the preconception that future prescriptions would make PrEP to be of use. (Francis, 2016)

In a study done by Galea et al (2011) highlighted that there were crucial and potential barriers to PrEP that were found in not only the focus groups but also the data obtained after analysis. To begin with, there was a high out-of-pocket cost, limited efficacy and the phobia of side effects. There was also stigma and discrimination that was associated with PrEP use. Furthermore, it was difficult to trust health-care experts and a notion that there would be a reduction in the use of condoms if at all PrEP was to be adopted among MSM and transgender groups. Galea also points out that these barriers need proper attention when planning for PrEP dissemination; in his study he estimates figures of eighty two percent when it comes to potential for extensive use in the target populations. Average acceptability on the other hand is at 53.4 in the zero to one hundred scales within the eight hypothetical PrEP scenarios and demonstrated a more realistic figure.

2.8 Anal Sex and HIV Transmission

Unprotected anal sex in male homosexuals provides a pathway where the virus causing the HIV transverses between individuals. The anal anatomy is composed of the rectum and this part known as the rectum is located adjacent to the anal opening and its usually very thin hence increasing the chance of the individual engaging in receptive anal sex to get infected, on the other hand individuals engaging in inserting anal sex get infected through the passage of the virus through the urethra or through the abrasions or sores as the virus thrives in the bodily fluids namely the blood and seminal fluids

The prevalence of the HIV virus is at its all-time high among the male homosexuals, the roles played during intercourse in the male homosexuals are categorized into receptive “tops”, insertion “bottoms” and either top or bottom “versatile” in a study that was done that assessed the sexual roles as linked to the risky sexual behaviors and prevalence of HIV among the male homosexuals seeking HIV testing in china yielded results that cumulative HIV prevalence of this group was 13.3%, when segregated the bottoms had a prevalence of 16.3% which was almost similar to that one of versatile 15.9% and the top prevalence was 6.% (Yunxiao, 2018)

In studies done on anal sex and HIV transmission that were categorized into per-act and per-partner, HIV transmission probabilities for Unprotected Receptive Anal Intercourse (URAI) and Unprotected Insertive Anal Intercourse (UIAI). Baggaley (2010), compared to the heterosexual risk per act probability of HIV infection from vaginal sex analysis studies (Baggaley, 2010). This two studies provides a perspective on the difference between MSM and those in a heterosexual relationship.

While the authors of these studies in their analysis observed quite a substantial variance, the data yielded still showed high chances of being infected with the HIV virus secondary to engagement

in condom less anal sexual activities. When cross tabulated it may be implied that per act chance of HIV infection from condom less anal sex is approximately eighteen times higher than condom less vaginal intercourse (Grulich AE, 2010). Hence males who engage in unprotected receptive anal intercourse are perceived to have twice the chance of being infected with the virus compared to male homosexuals who only practice unprotected insertion anal intercourse

2.9 Mental Health in MSM

Several studies have been carried out to ascertain the mental health issues that MSM face as a result of their sexual orientation, in an evidence based study done by evidence for HIV Prevention in Southern Africa showed that there were high levels of mental health issues among this cohort such as alcoholism, substance abuse and depression. This findings are further strengthened by another study that assessed depressive symptoms and problematic alcohol and other substance abuse done in three research sites in Kenya, in this study one thousand four hundred and seventy six gay, bisexual and other MSM's were interviewed and an analysis made indicated that out of the one thousand four hundred and seventy six individuals interviewed 31% of them representing four hundred and fifty two individuals had moderate to severe depressive symptoms, with 44% of the individuals resulting into hazardous alcohol use and 51% having substance abuse problem (Makobu, 2018)

Following a study conducted by Liu (2018) on the psychological health of Chinese men, four main variations of mental distress were identified. These include depression, obsessive-compulsive tendencies, anxiety and interpersonal sensitivity. The study was accessed using a Symptoms Checklist (SCL-90). Analysis conducted indicated that marriage, UAI, number of male partners, lack of knowledge from family friends and no proof of psychological counseling were all related to the SCL-90 score (Liu, 2018).

There is a form of disproportionality when it comes to accessing how MSM are affected by mental health issues. Literature from the west suggests that both MSM and bisexual men all stand a chance of getting into depression, drug abuse, suicidal thoughts and anxiety when compared to the general population. Liu also mention that following a study conducted in Mumbai, 29% of 150 MSM had gotten into severe depression whereas 24 % reported scenarios of anxiety within a particular point in their lifetime (Liu, 2018).

2.10 Relationship between Social Support & Mental Health.

Social support has been mentioned to be associated with both mental and physical health within the general populations across the globe for HIV-positive individuals. If there is proper social support, then there is likely to be a reduction in substance abuse and promotion of other positive health behaviors which in turn enhances mental well-being among MSM. Liu (2018) points out that the study participants who had obtained mental based counseling demonstrated low SCL-90 scores and had a stable mental wellbeing. However counseling as a way of reducing stress among MSM has been effective in countering HIV-related risky tendencies. Furthermore, psychological counseling can reduce the low uptake of a HIV test due to anxiety of the outcomes and thus result to more HIV uptake in terms of testing among the male homosexuals (Liu, 2018).

2.11 Relationship between Depression and UAI (Unprotected Anal Intercourse)

In a study done by Houston, Theo, Curtis & Alex (2012) showed that is a substantial similarity between depressive tendencies and unprotected sex in MSM. This study was done on 120 MSM who engaged in intentional UAI. For participants that were found to be HIV-negative, depressive symptoms were aligned with the number of times they had unprotected sex and if at all the relationship was based on knowledge of one's HIV status. However for the HIV-positive MSM, it was found out that depression was not associated with UAI (Houston et al., 2012). Similarly in a

study done by Shiu showed that depressive symptoms had a unique relationship with UAI. According to Shiu, MSM that had some levels of mental ailments may have a higher risk of getting into condom less intercourse as opposed to individuals who show significant higher or lower scores in depression (Shiu et al., 2014).

Following research that was carried out in India, there were substantially a huge number of mental ailments that were linked with individuals engaging in unprotected anal intercourse in a large number of male homosexuals' partners. Furthermore, there was up to a four percent rise in the number of mental symptoms. In a study done by Liu (2018), it was found out that those MSM that took part in UAI had a ratio of 1:16 time's higher risk of having mental problems as opposed to those that were not culprits of UAI.

Liu concluded this study by pointing out that anxiety and depression tend to limit the willingness of people to embrace HIV mitigating measures including use of barrier methods such as condoms. However Rogers et al., (2003) in his study showed that MSM that were sexually active were less likely to report having engaged in UAI. Generally, poor psychological health problems were associated with HIV risky behavior among MSM.

2.12 Sexually transmitted infections in MSM

Male homosexuals that are involved in unprotected anal sex with new sexual acquaintances have a greater risk of being infected with STIs, studies done focusing on the pattern and distribution of diseases in this cohort are rare (Werner, 2018), and research conducted show that the key population are a cohort which is multifaceted in the community, it has been shown however that homosexuals are often affected by syphilis, Human immune deficiency virus and other STDs. (CDC, Centre for Disease control and prevention, 2019), studies done have shown that new

occurrences of the various sexually transmitted infections with a special interest in both the primary and secondary syphilis and the drug resistance gonorrhoea in the key population cohort especially the male homosexuals is higher in females and heterosexuals, despite the ill effects that are experienced secondary to STDs which are untreated, continued rise in the number of STDs is an eye brow riser as this trend may indicate greater risks of HIV infection. The reported cases that are done on a yearly basis on sexually transmitted diseases and acquisition of the HIV virus through un protected sexual intercourse significantly makes the probability of being infected with the HIV to be high. (CDC, 2017)

2.13 Awareness on pre exposure prophylaxis among MSM

With the introduction of PrEP as an effective and scientifically proven biomedical method of preventing HIV among persons who are at a substantial risk (CDC, 2017), it is important for this method to be made known to the population that its targeted at, on a study done to determine the factors associated with PrEP awareness, the study indicated that the factors varied with HIV status where MSM who were HIV negative PrEP unawareness was linked with being young, not consistently using barrier methods such as use of condoms and opting to engage in receptive to insertive anal sex (Lachowsky, 2016) , in another study done at Brazil showed that awareness of PrEP was linked to the age, the level of one's education, site, duration of the study and exposure HIV testing before, male partners who were not using condoms while engaging in anal intercourse with their fellow MSM, and those that had anal sex with HIV positive and or unknown partners hence awareness of PrEP should be focused on the young and less educated individuals (Hoagland, 2017)

2.14 HIV Intervention for MSM

Broad strategies for analyzing data should be implemented in order to have effective prevention for marginalized populations including MSM. (Wirtz, 2011)

2.14.1 Barrier Protection & water & silicone-based lubricants

Evidence suggests that barrier devices are indeed efficient in giving protection against HIV infection in both heterosexuals and MSM. Following a study done in the USA on MSM, the highest risk of HIV acquisition emerged from unprotected receptive anal intercourse with zero-point eight two percent for every sexual activity when the sex acquaintance was known to be HIV reactive and at zero-point two seven percent when the HIV status of the partners is unknown. According to UAI with sero-positive and HIV sero status which is unknown MSM was aligned to per sexual intercourse transmission which is nearly six times on the higher scale when compared to HIV transmission per coital act for heterosexuals (Wirtz, 2011)

In his study Wirtz elaborates that despite having condoms as a major way of preventing HIV among MSM, there are significant issues aligned to their use such as breakage, spillage and poor condom negotiation by receptive partners (Wirtz, 2011). Important outputs on the use of lubricants can be drawn from studies done on heterosexuals. Cases of spillage are minimal when water is used as a lubricant during anal sex as opposed to vaginal sex. Using oil lubricants has been long known for accelerating the danger of latex condom breakage by lowering the tensile strength and raising permeability which are not seen while using water-based lubricants (Voeller, Coulson, Bernstein & Nakamura, 1989). In his study (Ramanathan, 2013) acknowledges that the use of water based lubricants together with latex condoms was likely to reduce the risk of HIV since there was no friction nor condom damage, this study was carried out in India and focused on usage of water based lubricants among the male homosexuals and was able to come up with several key findings.

The first finding was that one-third of those using lubricants were reported to use both water-based and oil-based lubricants. This hence suggested that majority of MSM were unaware that oil based lubricants shouldn't be used together with condoms. The operational guidelines by the National AIDS Control Organization recommend the use of water-based lubricants together with condoms during anal sex (National AIDS Control programme [NACO], 2011). However majority of MSM may have limited access to water based lubricants which are often expensive and the free subsidized lubricants given in HIV interventions may not be sufficient to meet the needs of all MSM (Ramanathan, 2013).

2.14.2 User Determinants associated with condom failure among MSM

There are other several user determinants that are associated with condom inefficiency among the male homosexuals; these include long penis in terms of the length, large penis in terms of the circumference, using petroleum-based lubricants and lack of more lubricants during intercourse in the anal region (Wirtz, 2011).

2.15 Factors Associated with Inconsistent Condom Use among MSM

These factors include

2.15.1 Social Demographic Characteristics

In a study conducted the Yi, Tuot, Chhoun, Pal, Tith, and Brody (2015) male homosexuals who indicated of having unprotected sexual intercourse were mature to give consent and highly likely to have obtained HIV health education via mass media, the results indicated that when it comes to perceptions of health and quality of life, MSM who reported of not using condoms were likely to rate their general health and quality of life slightly as compared to the overall population. Social demographic characteristics analyzed include gender, marital status and occupation; the mean monthly income, mean years of living in the current town and sources of HIV education. Yi

reported that MSM who were over 25 years of age were likely to report use of condoms inconsistently when compared to younger MSM who were below twenty-four years (Yi et al., 2015). Still on the lines of age, studies done in Asia have reported that younger MSM are more likely to take part in UAI (Aranka, 2016).

2.15.2 Illicit & Alcohol Use

In the same study by Yi et al., (2015) it was found out that male homosexuals who engaged in unprotected anal intercourse were likely to be alcohol consumers ranging from 92% versus 80 % recording more days of being drunk. When it came to illicit drug use, it was reported that MSM who failed to use condoms were likely to report using some sort of illicit drugs within the last 3 months. According to Yi; illicit drug users had a more likelihood to report occasional condom use when contrasted to non-users. More reports indicated that MSM drug users tend to use non-injectable drugs during anal sex and also after the sexual activity. They also acknowledge that dangerous behaviors such as multiple sexual partners were linked to consumption of illicit drugs such as cocaine.

2.15.3 HIV Knowledge

In a study done by Yi, the Knowledge on HIV among MSM was quite good with a huge number giving accurate answers to questions posed (Yi et al., 2015). The results indicated that there was no huge difference when comparing the number of the correct feedback to all the indicators of HIV knowledge among the male homosexuals, majority indicated that they always used condoms and those that reported occasional condom use when probed further a conclusion that their level of knowledge on HIV was not directly associated with the rate of condom use. They however did not dismiss having the HIV knowledge as prevention measure but rather focused on having HIV education that has materials uniquely designed for MSM.

In another study done by Tarja in Finland which sought to find out the awareness of transmission of HIV among the male homosexuals gave findings that individuals engaging in male homosexuality are aware of HIV transmission and how this infection manifests itself, when it comes to other STDs they are not well conversant with them, in this research Tarja notes that the sources on HIV transmission information is mostly in the mass media “television”, partners in whom they engage in sexual relations with, information bulletin and the world wide web (Tarja, Teppo, Marja, Anne-Mari & Jari, 2017).

2.16 Behavior Change Intervention

There are several theories that support individual level interventions for MSM, these theories include: the health belief model theory and the social cognitive theory. Interventions may also be aligned towards social or network factors such as diffusion of innovation, social network theory, social inclusion theory and the empowerment model. Theories designed for structural interventions include: the social ecological model, the social capital theory and theories of gender and power (Wirtz, 2011).

2.16.1 Health Belief Model Theory

This model has several major components. The first component is perceived susceptibility this component simply means the subjective perception of the risk an individual is at from a given state or condition. Perceived severity is also a component and is aligned towards the critical analysis of the seriousness of the after effects repercussions that are linked with the state or condition. The foreseen threat on the other hand shows the drive a person has to avoid a certain result. Foreseen benefits on the other hand are the benefits one gets from using a health initiative to avoid a perceived threat. Perceived barriers on the other hand are the negative aspects of overcoming anticipated hindrances. Self-efficacy is also a component and can be said to be one’s ability to

execute a particular behavior. Other components include cues to action and demographic and social economic variables (Taylor, 2006). With all these components put into consideration, the health belief model can be incorporated as a behavior change intervention strategy.

Study's shows that increasing the PrEP uptake among MSM is a key strategy in bringing HIV to an end, social and behavioral interventions tend to lower the risk of HIV acquisition this is through observing the behavioral outputs such as consistent use of the barrier methods, skills by partners engaging in risky sexual behaviors on convincing the other partner to use condoms and the total number of sexual partners that one engages with, This model is said to be used by practitioners in coming up with accurate interventions that are geared towards health behavior through education concerning risks (Hoffmann, 2016). The constructs in the Health belief model have been used within the context of HIV-protective behavior and HIV testing and counseling. If these constructs worked for shaping behavior and being more receptive to counseling, then it is likely to be effective in enhancing PrEP uptake among MSM (Taylor, 2006).

2.16.2 Social Cognitive Theory

Social cognitive models have been used in explaining sexual transmission risk behavior (TRB) in people living with HIV. This model has been used quite broadly, in this model each person undertakes a thought process of accessing the advantages and disadvantages of engaging in protected intercourse. This may include awareness on HIV, what to expect after using condoms and also social beliefs that have an impact on an individual's self-efficacy. Self-efficacy thus becomes a major factor in weighing if at all an individual will engage in safer sex (Safren et al., 2010). Wulfert, Safren, Brown and Wan (1999) in their study acknowledges that there has been success in the use of these models in not only heterosexuals but also MSM. According to Safren, the social cognitive theory has created a pathway for explaining HIV sexual transmission risk

behavior in HIV-positive MSM that had not been screened for depression. Some of the depressive symptoms identified include continuous sadness, loss of interest, worthless feelings, energy loss and poor concentration having been mentioned to interfere with the process of making social cognitive judgments' (Safren et al., 2010).

2.16.3 Diffusion of Innovation

Rogers points out that diffusion is the process in which an innovation is passed across members of a social system via various channels across time (Rogers et al., 2003). They state that there exist four main elements of diffusion, these being an innovation, communication, time and members of the social system. An innovation is said to be an idea that is seen as being new by a person or other unit of adoption. Communication channel is the process of sharing information amongst participants so as to come to a mutual understanding.

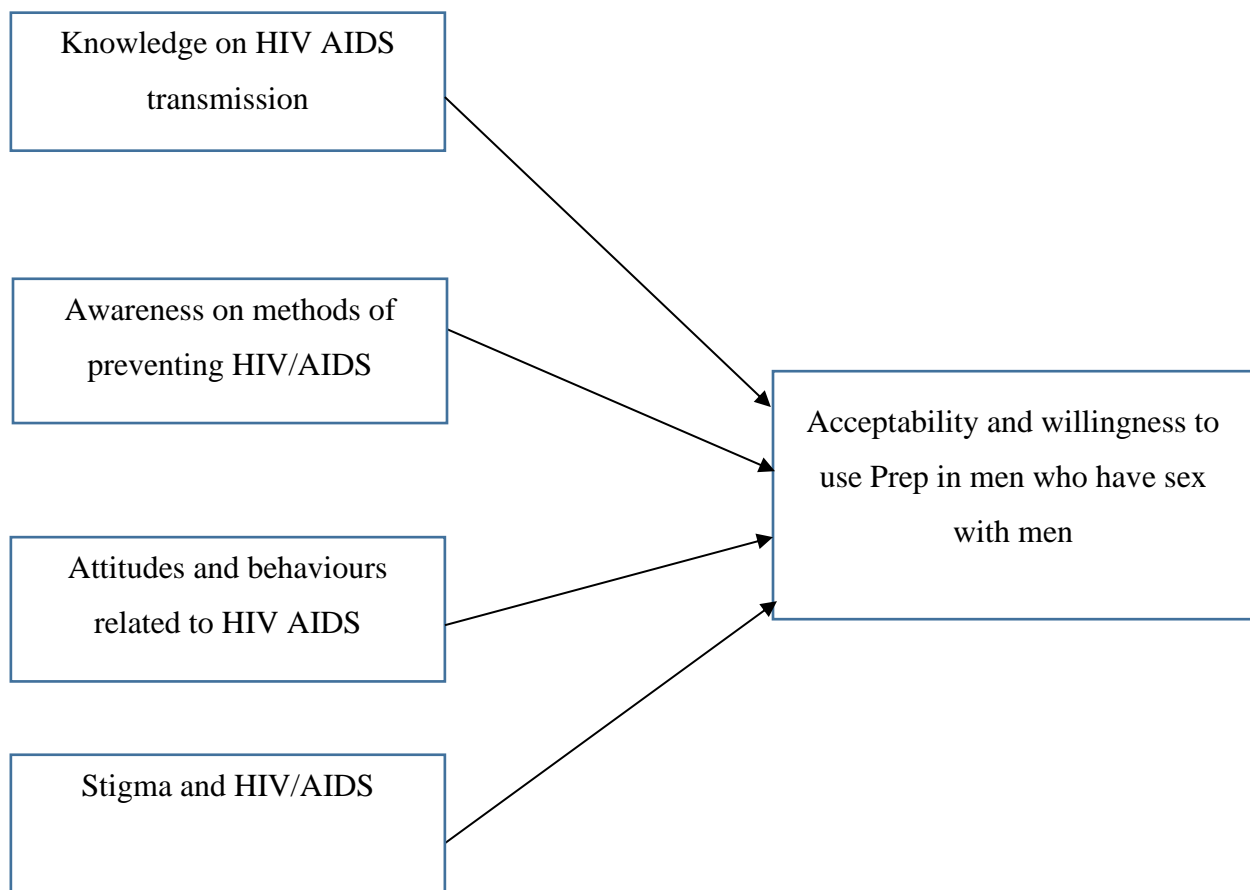
UNAIDS (1999) conducted a randomized control trial focusing on HIV interventions in the United States using a small group approach with 3 booster sessions with one hundred and four men that were to either get HIV risk-reduction intervention or a waiting list control group, in the intervention four main areas were addressed including behavior skills training, sexual assertiveness and lifestyle adjustment for relapse prevention. According to UNAIDS there was a progressive reduction in the rates of UAI and also an increase in the rates of condom use after the intervention. This demonstrates the effectiveness of diffusion of innovation when enhancing behavior change among MSM. Some of the characteristics identified by UNAIDS in behavior change include the campaigning of safe sex material, negotiating in safer sex, training on stress reduction and extensive group counseling.

2.16.4 The Empowerment Model

This model was analyzed in relation to how PrEP was empowering MSM. According to Hoffmann, PrEP empowers MSM in various ways. Empowerment is seen since MSM take PrEP in order to get the feeling that they are not only taking care of themselves but also their partners. Hoffman sees PrEP as a chance for MSM to advocate for their own health to their providers and also cancels out the fear that MSM tend to feel since the beginning of the HIV/AIDS pandemic (Hoffmann, 2016).

2.17 Conceptual framework

The conceptual framework describes the factors that would influence the acceptance and willingness of using pre exposure prophylaxis among the HIV negative Men who have Sex with men



CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the Research design, Target population, sampling procedure and sample size determination, data collection procedures, methods of data collection, Validity, Reliability, pretesting, data analysis and presentation, qualitative data and finally the ethical consideration.

3.2 Research design

The study was a descriptive cross-sectional study that utilized both quantitative and qualitative methods of acquiring data. The design of the study was considered as the right one as the study required the collection of data at a defined time period.

3.3 Target population

The target population were HIV negative MSM receiving HIV prevention services at SWOP CITY clinic, the individuals from this cohort had a dynamic occupational background from professional working individuals to men selling sex to men. In terms of age most were young men between the ages of 18 years to 30 years as well as adult in the age bracket of 40 to 50 years men both of which are well educated conversing in English, Kiswahili and “Sheng”

From May 2009 to end of October 2016, the clinic had enrolled 741 active MSM clients of whom 355 were HIV positive and 386 were HIV negative, the clinic offers services to the key population that is MSM and female sex workers in Kenya. The catchment of the clinic is not only confined to the vicinities but extends to the other sub-counties in Nairobi namely the Starehe sub county and Westlands sub county.

3.4 Study Site

The study was done in Nairobi County, Nairobi is located at a latitude of -1.28333 and longitude 36.8166695, in the southern hemisphere, the clinic in which the study was done is located in Starehe sub-county, along keekorok road, adjacent to the “Khoja bus stage” in a building known as AJS fourth floor, the clinic is strategically positioned and adjacent to various Hotspots where the clients of the of the clinic visit and this makes it easily accessible to them and with a staffing of eighteen staffs of different cadres to ensure services are offered in an integrated manner.

3.5 Sampling Procedure

The simple random sampling procedure was used using the random number table. Where each member of the population who were active (had visited the clinic for a service in the last three months and having enrolled for over six months at the clinic) up to the end of July 2017 were enumerated as 386 individuals forming the population size, the sample size was then actualized by the Yamane formula as 196 individuals, a starting point at the random number table was established by closure of the eyes and pointing randomly into the random number table page, then choosing the direction in which to read, the sample that were identified were the ones that their last three digit numbers were between 0 and 196, if the last 3 digit number was above 196 this number would be skipped and moved to another one, this was done until the sample size was obtained, individual selected by this method were contacted for participation in the study.

3.6 Inclusion and Exclusion criteria

The inclusion criteria included HIV negative MSM enrolled at the SWOP CITY clinic and MSM Enrolled for over six months at the clinic those excluded included, those challenged mentally and not able to make an informed decision on their own, those who declined to consent and those who were too sick to participate.

There were 386 active HIV negative MSM accessing the SWOP CITY clinic by the end of July 2017, data collection was done on August 2017. Participants were randomly selected using the simple random sampling procedure via the random number table until the desired sample size was achieved, all individuals who qualified for the study as per the study criteria and whose numbers were selected were called to take part in the research. Individuals who confirmed their availability to partake in the study were scheduled and given interview dates. Short text messages were sent out to these individuals as reminders to make themselves in person available for the scheduled interviews. On the date of the interview, each individual got a questionnaire to fill; and a total of three focus group discussions were conducted to provide data on the qualitative arm of the study

3.7 Sample size calculation

Yamane formula was used to determine sample size.

$$n_Y = N / (1 + Ne^2)$$

Where

N = population size (**386**)

e = alpha level, i.e. e = 0.05

If the confidence interval is 95%

$$0.05 * 0.05 = 0.0025$$

$$0.0025 * 386 = 0.965$$

$$1 + 0.965 = 1.965$$

$386/1.965= 196.44$

ny= 196

3.8 Validity and Reliability

Large sample size which was done through simple random sampling using the random number table and correct study design enhanced the results of the study, the Reliability of the study tool was ascertained through pre testing so as to pin point problematic areas, reduce the measurement errors, reduce the respondents burden, determine if the study participants are interpreting the questions correctly and ensure that the order of the questions is not influencing the way the respondent is answering, appropriate corrections were made to the items in the questionnaire

3.9 Pre-testing

Ten questionnaires were pretested among the MSM HIV negative individuals. These individuals were not included in the main study, and the pretesting was carried out at SWOP Langata clinic which is a sister clinic to SWOP city that also offers health services to MSM. Appropriate amendments were then made on the questioners

3.10 Method of Data collection

Approval of the thesis was done by the ethical clearance of the graduate school of Kenya Methodist university review Committee. Written informed consent was obtained from all participants. No one was coerced nor induced with the intentions to lure him to give inputs on the study. The study collection tools were numbered systematically and the study participants were not to indicate their names or any other identification numbers that can link them to the study tool. The data yielded from the study was handled with the principles of confidentiality and anonymity and this concept was assured through issuance of a unique number for each of the study participant. The study participants were continually reminded that the data generated will only be used for the intended

reasons which is evaluating the acceptance and willingness of using PREP in the negative individuals who engage in same sex practice in Kenya

The purpose of the study was communicated in an elaborate manner to each participant and preceded initiation of interviews and focus group discussions, this also included aspects of how the study would be conducted and that the involvement of one in the study was purely voluntary and it was made clear that study participants were free to leave the interview any time if they so wished due to their personal reasons and that they won't be reprimanded if they so did, confidentiality was ensured by non-use of personal identifiers such as the names of individuals and their ID numbers, the data that was generated was kept under lock and key in cabinets and were only accessible by the principal investigator only, the translation and subsequent interpretation was carried out subject to the participants level of knowing English or Swahili.

Simple random sampling procedure was used using the random number table. Where each member of the population who were active (had visited the clinic for a service in the last three months and had enrolled for over six months at the clinic) up to the end of July 2017 were enumerated as 386 individuals forming the population size, the sample size was then ascertained by the Yamane formula as 196 individuals, Semi structured questionnaires were administered one on one and filled by the individuals selected. Focused group discussions were audio-recorded and were three in number consisting of eight individuals, the group was led by a facilitator who laid out the purpose of the focus group and the aim of recording the conversation recorded then answering any queries the participants might have before the discussion began after which the participants consented to agreeing to be involved in the focus group discussion, the discussion took approximately forty five minutes and the audio recorded discussions were transcribed,

transcriptions were manually analyzed. After finishing compiling of the raw data, cleaned of the raw data was carried out before the data was exported to SPSS version 20.0 for analysis.

3.11 Methods of data analysis

The Quantitative data was obtained from the study participants after consenting using a structured questionnaire. The study subjects personal unique identifiers e.g. names, patients' contacts were not recorded in the questionnaires for the sake of confidentiality.

All questionnaires were looked into routinely each day so as to ensure that they are completed appropriately. Data collected was entered into the SPSS software in a password protected machine. The copies saved were transferee in an external computer friendly hard drive and compact disc which was in sole custody of principal investigator.

The filled study collection tool were kept safely through proper filling by the principal investigator in a lockable cabinet.

The study objectives were achieved through statistical means in three ways that is through the univariate, bivariate and multivariate analysis,

The Univariate analysis involved the use of variables which were categorical and statistics which are descriptive that is means, medians and the standard deviations for the variables which are continuous. Variables which are categorical such as the sex and the level of education were presented by use of frequency distribution tables. Univariate analysis was used to establish time from first HIV testing to enrollment for individuals attending SWOP CITY clinic. It also gave an understanding of the characteristics of the study participants.

The testing of association between the outcome variable and the predictor variable hypothesized was done through the bivariate analysis. The parametric tests were utilized as the primary analysis.

Comparison of the categorical variables was done through the use of a chi-square test this test was only excluded when the expected numbers in the 2x2 table were less than 5.

The variables that were found to portray a substantial relation with the main objective of the study which was acceptance and willingness of using PrEP during the bivariate analysis, this variables were analyzed using the multivariate analysis and were used to form the multiple linear regression model, this model was used to better understand the factors that were associated with acceptance and willingness of using PrEP

A 2-sided p- values statistical concept was assumed for all the tests done, the tests that were shown to have significance statistically were the p-value ≤ 0.05 with an alpha level of significance. Reporting was done to three decimal places for all the p-values and the confidence intervals, those p -values with less than 0.001 were reported as $p < 0.001$. The package that was used for this statistical evaluation was Statistical Package for Social Sciences Program (SPSS) version 20.0

3.12 Qualitative data

The interviews done were recorded through audio means and then transcribed the transcriptions made were then manually analyzed and the descriptive analyses of the sample were done. The data generated was then manually looked into for thematic patterns and this was done through the modified grounded theory approach, this approach involved the development of concepts through an interactive process with the view of what was happening in the data as it was being compounded. This process led to development of themes and sub-themes and this was based on how the questions were responded to. The transcriptions were then looked into through a keen eye line by line and this was with the view of generating a coding pattern for working with, this pattern was used independently in the coding of a second set of transcripts and then revise the pattern

until no new themes were generated, the transcriptions were then double coded and this was for purposes of verifying for inter-rater reliability.

The views generated coupled with the experiences of the study participants were illustrated through Charting and mapping of the data, the presentation of the data generated was through insertion of verbatim quotations which were used in the aiding and contrasting of the quantitative data

3.13 Regression Model

The study used the following regression model to assess the relationship between the factors influencing acceptance and willingness of using pre exposure prophylaxis among the HIV negative Men who had Sex with men at SWOP CITY clinic.

$$Y = \beta_0 + \beta_{knHIV} X_{knHIV} + \beta_{AwHIVprev} X_{AwHIVprev} + \beta_{att} X_{att} + \beta_{stg} X_{stg} + \ell i$$

From the equation:

Y is the dependent variable, β_0 is a constant,

β_{knHIV} , $\beta_{AwHIVprev}$, β_{att} , β_{stg} are the regression coefficients while X_{knHIV} , $X_{AwHIVprev}$, X_{att} and X_{stg} represents the independent variables

Y = acceptability and willingness to use Prep

X_{knHIV} , = Knowledge on HIV AIDS transmission

$X_{AwHIVprev}$, = Awareness on methods of preventing HIV/AIDS

X_{att} = Attitudes and behaviours related to HIV AIDS

X_{stg} = Stigma and HIV/AIDS ℓi is the error term

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter presents statistical summary and results from empirical analysis and the interpretations of the statistical inferences derived from the compiled data as the researcher strived to accomplish the objectives of the study

4.2 Socio Demographic Characteristics of the Respondents

Table 4.1: Socio Demographic Characteristics of the Respondents

Those with either Characteristic	Indicator	Frequency (n=199)	Percent
age bracket	Between 18 to 30 years	138	69.3
	Between 31 to 40 years	44	22.1
	Between 41 - 50 years	16	8.0
	Between 51 - 60 years	1	.5
Which gender do you identify with	Male	191	96.0
	Female	8	4.0
preferred, sexual partner	Male	163	81.9
	Female	36	18.1
preferred role as a sexual partner	Male	20	10.1
	Female	17	8.5
	Either	162	81.4
Level of education	Primary	12	6.0
	Secondary	35	17.6
	Certificate	65	32.7
	Diploma	61	30.7
	Degree	25	12.6

	Post graduate		1	.5
Marital status	Married (opposite sex)	31	15.6	
	Single		141	70.9
	Unmarried but committed (same sex)		27	13.6
Employment status of the respondent	Employed	33	16.6	
	Self -Employed	100	50.3	
	Not employed	65	32.7	
average monthly income for the employed/self-employed	< 10000	15	11.0	
	Between 10,000 to 30000		87	64.0
	Between 30001 to 50000		27	19.9
	Between 50001 to 70000		5	3.7
	Between 70001 to 100,000		1	.7
	> 100001		1	.7

The Table 4.1 presents the socio demographic characteristics of the study participants.

Most of the respondents [n=138,69.3%] were between 18-30 years followed by 22.1% who were between 31-40 years and thus most of the MSM were less than 40 years. This finding supports what Nada found in his study of young street boys who were 857 in number and were aged between the ages of 12-17 years in Greater Cairo, Alexandria and Egypt. In his study 44.2% of the street boys were sexually active and had an episode of engaging in sexual intercourse with fellow male partners in the time period of one year, of these street boys, those who gave information of being raped by a fellow male partner represented 15%, Nada further explains that there is lack of

important information in Africa, the Caribbean and the middle east, however the studies which were done separately yielded a wider gap in the same sex engagements and orientations in the young MSM as exhibited in this study where individuals aged 18-30years were the majority of the respondents, and hence as Nada states the numbers that these studies provide of young MSM are not globally representative hence need for more studies. On the issue of gender the respondents identified with, majority indicated male [191, 96%] and majority preferred sexual partner was male/men [163, 81.9%]. On their preferred role as a sexual partner, most of the respondents indicated either role i.e. male or female [162, 81.4%] compared to 8.5% who indicated they preferred the female role and finally 10.1% who indicated they wanted to be play the male role. This finding contradict slightly with the finding of Yunxiao that was done in china which studied the sexual roles, risky sexual behaviors, and HIV new and existing infections among MSM seeking HIV services as far as testing is concerned, the study showed results that the overall HIV new and existing infections were 13.3%, and that of the bottoms (16.3%), indicating individuals who preferred to play the female role was similar to the versatile (15.9%) , indicating individuals who preferred to play the either role, and the tops (6.1%) indicating individuals who preferred to play the male role.

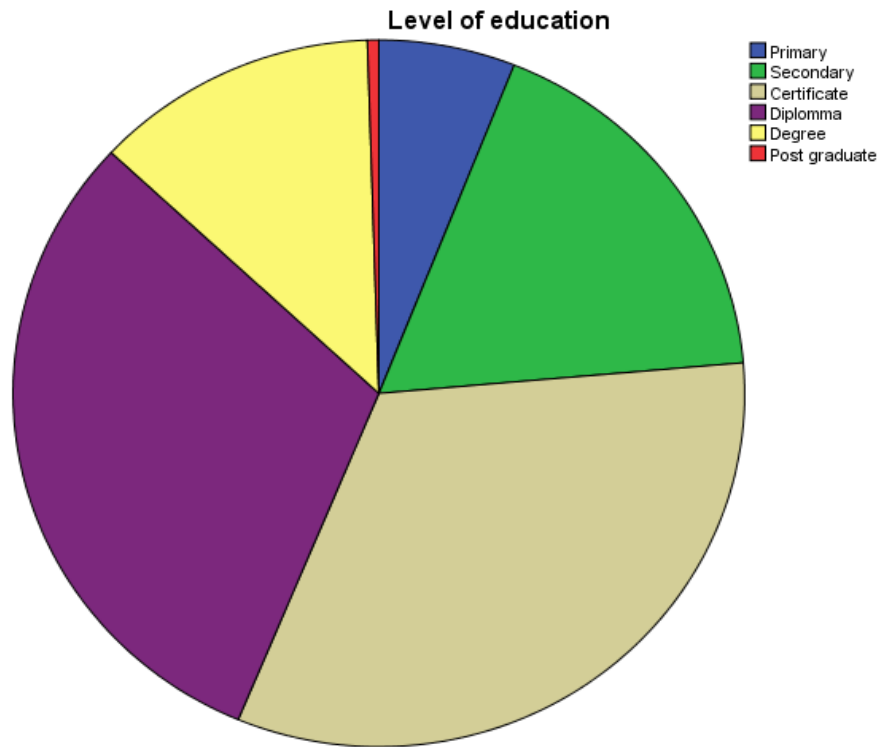


Figure 4.1: Level of education

Assessing their level of education, it was noted that those with more than certificate level education comprised the majority i.e. certificate, diploma, degree as they comprised 76.4% and thus education played a role in enlightening them on the MSM world.

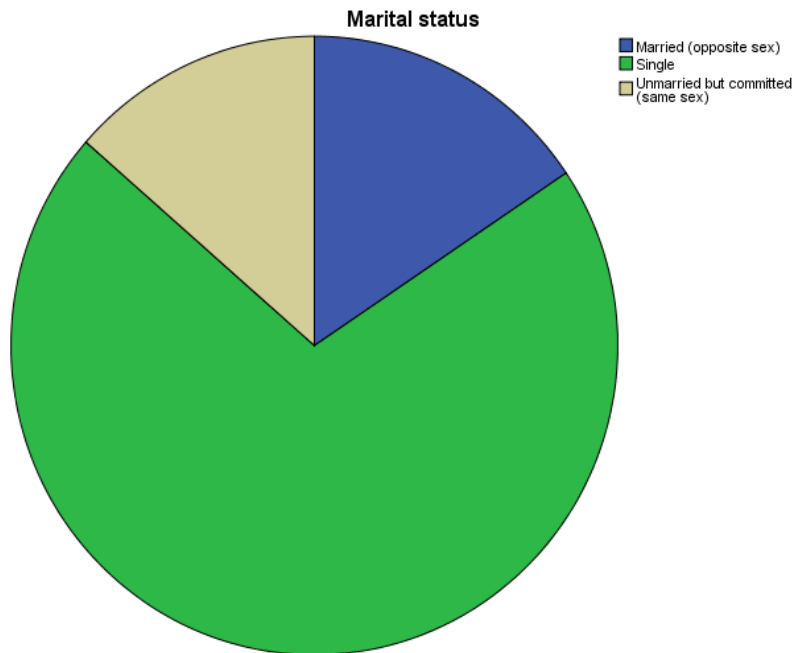


Figure 4.2: Marital Status

The study noted that most of the MSM respondents were single [141, 70.9%] compared to those Married (opposite sex) [31, 15.6%] and those Unmarried but committed (same sex) were 13.6%. Half of the respondents were self-employed followed by a third who were not employed [65, 32.7%]. Among those employed the majority [87, 64%] earned Between 10,000 to 30000, followed by 19.9% who indicated that they earned Between 30001 to 50000.

4.3 Knowledge on HIV/AIDS transmission

The Table 4.2 presents the study participants knowledge on the HIV/AIDSs transmission.

Table 4.2: Knowledge on HIV/AIDS transmission

Characteristic	Indicator	Frequency (n=199)	Percent	X²	P value
ever heard of HIV/AIDS in which ways is HIV/AIDS is transmitted	Yes	199	100.0	195.064 ^a	.000
	Sexual contact	136	68.3		
	sharing injection needles	32	16.1		
	Mother to child transmission	22	11.1		
HIV/AIDS Transmission is higher in MSM than in heterosexual relationships	Yes	197	99.0	180.085 ^b	.000
	Not sure	2	1.0		
diseases you know that are also transmitted through sex	STIs	58	29.9	117.798 ^c	.000
	Syphilis	80	41.2		
	Gonorrhea	48	24.7		
	Chlamydia	5	2.6		
	Do not know	3	1.5		
presence of sexually transmitted diseases increases the risk of HIV/AIDS	Yes	196	98.5	358.223 ^d	.000
	No	2	1.0		
sources of information about HIV/AIDS	Hospital	91	45.7	150.340 ^a	.000
	Media	97	48.7		
	Community leaders	6	3.0		
	Friends	4	2.0		

The study started probing on the respondent's awareness of HIV AIDs and all of them were aware 199(100%) this finding concurs with the finding of Yi which in his study he found out that Knowledge on HIV among MSM was quite good with a huge number giving accurate answers to questions posed and assessing the ways in which it was transmitted, 136[68.3%] asserted it was through sexual contact, followed by 32[16.1%] who indicated through sharing needles and few cited it was through mother to child transmission.

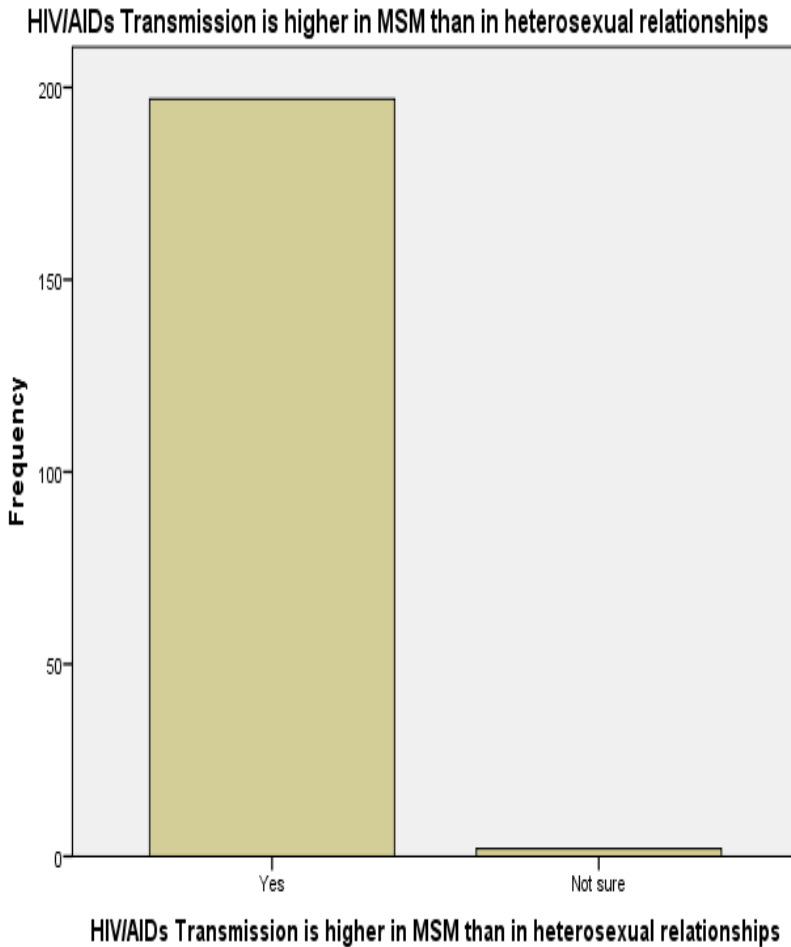


Figure 4.3: HIV/AIDS transmission higher in MSM than in heterosexual relationships

Almost all [197, 99%] of the respondents agreed that HIV/AIDS Transmission is higher in MSM than in heterosexual relationships [p value <0.05].

On their STI knowledge, 80[41.2%] indicated that they knew Syphilis was also transmitted through sex compared to 48[24.7%] who cited gonorrhea while a third [58, 29.9%] just indicated generally STIs with no specific infection in mind. Most of the respondents agreed that [196, 98.5%] the presence of STDs increases the probability of being infected with HIV/AIDS [p value <0.05]. this finding contradicts with the findings that was done by Tarja on his study which was used to assess the awareness of HIV transmission, infection and other STDs, in this study that was done in

Finland yielded results that MSMs are well aware of the HIV infections and how the disease manifests itself, however when it comes to awareness on sexually transmitted infections they are not well conversant, when the study participants were Probed on their sources of information on HIV/AIDs, and STIs, 91[45.7%] indicated their sources as being hospitals compared to 97[48.7%] who indicated through the media [p value <0.05]. This finding concurs with that done by Tarja as his study had a conclusion that television, the internet, bulletins and the sexual partners were the main sources of information pertaining the HIV infection.

4.4 Knowledge on prevention methods against HIV/AIDS infection

Table 4.3: Knowledge on prevention methods against HIV/AIDS infection

Method	Yes		No		Not sure		Chi-Square	Asymp. Sig.
	Fr	%	Fr	%	Fr	%		
Condom use	199	100.0						
Knowing people's HIV status and only having sex with those who are negative	141	72.3	33	16.9	21	10.8	136.638 ^d	.000
Having only one partner whose status you know	187	94.9	8	4.1	2	1.0	329.660 ^d	.000
Getting tested and treated for any STDs immediately	195	99.0	2	1.0			180.085 ^b	.000
Getting your partner (s) to seek treatment should they have an STD.	198	100.0						

Further, the study assessed the MSM on their awareness on the available methods of averting HIV/AIDS transmission and all of them agreed that the use of condoms prevented HIV/AIDs infection this finding concurs with the finding done by Gostin which showed that the use and knowledge of the barrier methods that is the condoms in terms of mitigating against the transmission of HIV through the sexual route is considered important and effective as from the early days of the epidemic, Majority agreed [141, 72.3%, p value <0.05] that sero –sorting was a

prevention strategy, and to most [187, 94.9%, p value <0.05] agreed that having only one partner whose status you know was a prevention strategy. This finding concurs with that one done by Philip et al. (2010) which showed that serosorting provided reduced HIV incidence hence it provided protection in reducing HIV transmission however Golden in his study contradicts this finding as his study showed that men who were not diagnosed previously with HIV and are positive for HIV and practiced sero sorting had a small or no protective value

The respondents agreed that Getting tested and treated for any STDs immediately was another measure for prevention of HIV/AIDs infection [195,99%, p value<0.05hat] while all the respondents agreed that they encouraged their partner (s) to seek treatment should they have an STD [198, 100%]. This finding concurs with the conclusion that Kennedy et al. makes in his study on sero-sorting as he stresses on the importance of consistently screening for HIV and STIs for individuals that are using sero-sorting as a harm reduction strategy

4.5 Knowledge on Prevention method

The following Table 4.4 presents the study findings on the respondent’s knowledge on HIV AIDs prevention methods and it was ranked on the Likert on a scale of 1 to 5 with 1 being LEAST EFFECTIVE to 5 being MOST EFFECTIVE.

Table 4.4: HIV and STI prevention method

Method	1		2		3		4		5		Chi-Square	Asymp. Sig.
	Fr	%	Fr	%	Fr	%	Fr	%	Fr	%		
Condom use	1	.5			1	.5					567.24	.000
Knowing people’s HIV status and only having sex with those who are negative	18	9.0	14	7.0	15	7.5	12	6.0	139	69.8	308.91	.000

Having only one partner whose status you know	1	.5	4	2.0	4	2.0	8	4.0	182	91.5	636.78	.000
Taking an oral medicine daily to protect yourself from getting infected	1	.5	1	.5	2	1.0	1	.5	194	97.5	738.81	.000
Getting treated for any STDs immediately			1	.5	1	.5	2	1.0	195	98.0	376.21	.000
Getting your partner (S) to seek treatment should they have an STD.					1	.5			197	99.0	193.02	.000

From the responses, condom use was most effective [196, 98.5%, $p < 0.05$] this finding concurs with that one that was done by WHO which showed that consistence use of condoms in homosexuals and transgender individuals engaging in sexual intercourse was highly recommended to over not using the condoms, the condoms should be used with water and silicone based lubricants this is for proper and efficient functioning of condoms during anal sex as it prevents condom bursts, also practicing sero-sorting was also found to be most effective [196, 98.5%, p value < 0.05]. This finding concurs with that one done by philip et al. (2010) which showed that serosorting provided reduced HIV incidence hence it provided protection in reducing HIV transmission most respondents ranked Having only one partner whose status you know as most effective in the prevention of HIV AIDs [182, 91.5%, $p < 0.05$] this finding concurs with that described by CDC where it is known that some MSM engage in adaptive behaviours of choosing sexual partners that they know to be of the same HIV status as theirs so as to regularly engage in

unprotected sex with them, in so doing they perceive this as protecting themselves and as a form of decreasing the likelihood of acquiring or transmitting virus, it was found out that Taking PrEP on a daily basis to protect yourself from getting infected was also most effective [194,97.5%, $p < 0.05$].

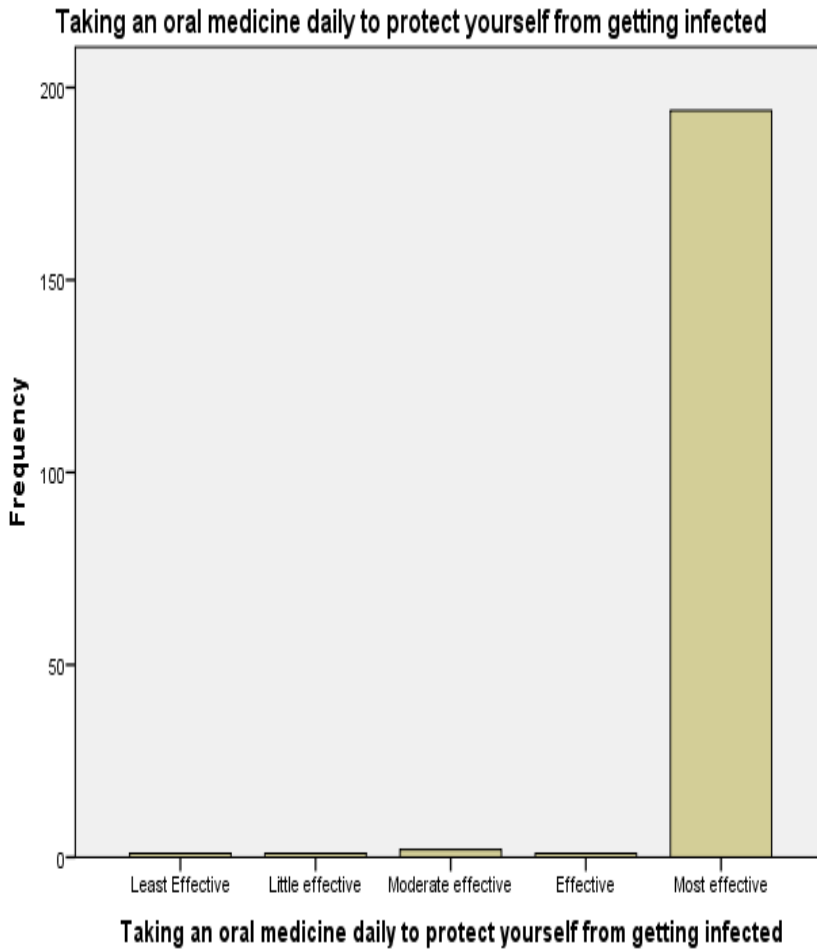


Figure 4.4: Taking an oral medication to protect yourself from getting infected

This finding concurs with the findings of CDC in 2014 which showed that the male homosexuals who reported of taking their daily doses of PrEP had a low probability of being infected with the HIV virus by 73% or more and up to 92% for some based on their level of adherence.

Almost all of the respondent agreed that having ones sexual partners treated promptly should they be infected with a sexually transmitted disease was still one of the most effective methods in the prevention of HIV/AID infection [197,99%, p<0.05]. The finding of this study is further amplified by another study done by CDC in 2019 which showed that the negative effects of untreated STDs leads to an elevated STD burden and this is associated with a high probability of HIV infection. A high number of sexually transmitted diseases that are reported in a life span of one year implies strongly a surge in risky sexual behaviors that predisposes individuals engaging in such to sexually transmitted diseases and the HIV such as unprotected anal sexual intercourse, subsequently infection with a sexually transmitted disease is associated with a high probability of acquiring and transmission of the HIV virus.

4.6 Attitudes and behaviors related to HIV/AIDS

This section presents the research findings on the respondents’ attitudes and behaviors towards HIV/AIDs. The key variables include the condom use, partners, STIs and use of alcohol among the MSMs. The responses were ranked on the Likert scale using the following scale.

True -5, True to Some Extent -4 Neutral – 3 False to Some Extent -2 False -1

4.6.1 Condoms and their use

Table 4.5: Condoms and their use

Condom attitudes and behavior	5		4		3		2		1	
	Fr	%	Fr	%	Fr	%	Fr	%	Fr	%
Condoms are easily accessible	198	99.5							1	.5

I can easily afford condoms/ the price is right	197	99.0	1	.5						1	.5
Condoms are easy to use	196	98.5	1	.5						2	1.0
Sex is better without condoms	5	2.5	2	1.0	2	1.0	13	6.5	177	88.9	
My partner (s) always request for a condom	133	66.8	31	15.6	17	8.5	11	5.5	5	2.5	
I always ask my partner(s) to use a condom	171	85.9	14	7.0	7	3.5	3	1.5	3	1.5	

It was established that most of the respondents agreed that condoms were easily accessible to MSM [198, 99.5%] and the respondents could easily afford condoms/ the price is right [197, 99%]. Most of the respondents agreed that condoms were easy to use [196, 98.5%] and they disagreed to the statement that Sex was better without condoms [177, 88.9%].

The respondents agreed that [133, 66.8%] their partner (s) always request for a condom while the respondents concurred that they always ask my partner(s) to use a condom [171, 85.9%].

One of the respondent noted that

We know that condoms are in all the facilities in the government health centers and organizations for us to use which we do “.....”

Correct and consistent use of condoms known to reduce the transmissions rate for HIV

On the usage of condoms, one of the respondent noted that

“.....” They were using condoms because already James who is peters partner is negative and peter is positive meaning at least they had to use of condom during sex.

The Table 4.6 presents the respondents attitudes towards their partners. The same Likert Scale was used.

Table 4.6: Attitudes towards Partners

Partners: attitudes and behavior	5		4		3		2		1	
	Fr	%	Fr	%	Fr	%	Fr	%	Fr	%
I usually end one relationship before I start another	27	27.8	16	16.5	12	12.4	9	9.3	33	34.0
I am a one partner person	23	23.5	13	13.3	20	20.4	14	14.3	28	28.6
My situation forces me to have more than one partner	74	75.5	10	10.2	4	4.1	6	6.1	4	4.1
My partner(s) to the best of my knowledge also have other partners	75	75.8	13	13.1	6	6.1	1	1.0	4	4.0
I have been in a one partner relationship for more than 6 months	24	24.2	16	16.2	18	18.2	19	19.2	22	22.2
It is difficult to keep a steady partner(s) for more than a year	74	74.7	10	10.1	3	3.0	3	3.0	9	9.1
I feel that we can engage in sex without a condom as long as I have known my partner for a period of about 6 months.	10	10.1	5	5.1	4	4.0	7	7.1	73	73.7
I usually have sex at least three times a week	90	90.9	3	3.0	2	2.0	1	1.0	3	3.0
I always ask my partner(s) to use a condom	70	70.7	10	10.1	12	12.1	4	4.0	3	3.0
I sometimes engage in sex with more than one partner simultaneously.	85	86.7	6	6.1	1	1.0	1	1.0	5	5.1

On the statement that they usually end one relationship before they started another, the respondents' responses were diverse as 34% disagreed compared to 27.8% who agreed and a mere 16.5% agreed to some level and the same trend was observed on the query that if they are a one partner person and thus this behavior may precipitate to increased new and existing numbers of the HIV virus and STIs among the male homosexuals

Most of the respondents were single and few were committed to either same or opposite gender and among them, all of them [26,100%] used condoms. This finding concurs with the one done by Holmes et al. where in his study he points out that the practice of the use of condoms in a consistent manner with the view of averting the transmission of the HIV virus has in the past years been embraced well as uptake of condoms is high

Most of the respondents agreed [74, 75.5%] that their situation forces them to have more than one partner and they further agreed [75, 75.8%] that partner(s) to the best of their knowledge also had other partners and thus high promiscuity among MSMs. The responses on the statement they've been in a one partner relationship for more than 6 months and this was testified by their agreement on the statement that it was difficult to keep a steady partner(s) for more than a year [74, 74.7%]

The respondents disagreed with the statement that they felt that they can engage in sex without a condom as long as they have known the partner for a period of about 6 months [73, 73.7%]. They agreed [90,90.9%] that they had sex at least three times a week and they always ask their partner(s) to use a condom [70,70.7%] and of note is they agree [85,86.7%] to sometimes engage in sex with more than one partner simultaneously.

One of FGD member affirmed that

“.....” there are those who see once and they erect, you see someone passing you erect and each time I see a new person I feel sex “.....”

Another said that

“.....” Before you know the status you have no fear factor inside you sex is more likely to be regular but once you know your status the fear factor is there and the sex frequency go down

Table 4.7: Sexually transmitted Infections management

STI management: attitudes and behavior	5		4		3		2		1		Chi-Square	Asymp. Sig.
	Fr	%	Fr	%	Fr	%	Fr	%	Fr	%		
STIs are common amongst us	197	99.0							1	.5	193.0	.000
I never get STIs	23	11.6	59	29.6	46	23.1	28	14.1	43	21.6	22.01	.000
In a year, I would say that I get an STI at least 3 times	85	42.7	63	31.7	26	13.1	12	6.0	13	6.5	110.3	.000
I get my STI treated at the clinic	187	94.0	5	2.5			1	.5	4	2.0	513.8	.000
I usually go to a pharmacy to get medication for my STI	3	1.5			3	1.5	9	4.5	184	92.5	477.5	.000
Treatment for STIs is affordable	194	97.5	4	2.0	1	.5					181.3	.000
I encourage partner(s) to get treated for STIs	197	99.0	1	.5					1	.5	382.1	.000
My partner (s) will usually inform me to get treated should they be treated for an STI	125	62.8	24	12.1	13	6.5	16	8.0	21	10.6		

It was established that most of the respondents agreed [197,99%, p<0.05] STIs are common amongst them, and if they never got STIs, the responses were diverse as a third indicated it was

somehow true compared to 23.1% who were neutral on the statement. 42.7% of the respondents agreed that in a year, they would say that they get an STI at least 3 times compared to 31.7% who said that was somehow true. This finding concurs with that one done by CDC in 2019 which indicated an increase in the number of the new cases of sexually transmitted infections in the key populations particularly the male homosexuals and these STDs included both types of syphilitic infections coupled with gonorrhoea which is resistant to drugs when contrasted with the number of the new infections of the same diseases in individuals practicing heterosexual intercourse whose numbers were lower

It was affirmed that most of the respondents agreed that [187, 94%] they get their STI treated at the clinic. They disagreed [184, 92.5%, $p < 0.05$] that they usually go to a pharmacy to get medication for their STI. On the STI treatment the respondents agreed [194, 97.5%, $p < 0.05$] that Treatment for STIs is affordable and that they [197, 99%] encourage their partner(s) to get treated for STIs.

4.6.2 Alcohol and its relationship with risky sexual behavior

Table 4.8: Alcohol and its relationship with risky sexual behavior

STI management: attitudes and behavior	5		4		3		2		1	
	Fr	%	Fr	%	Fr	%	Fr	%	Fr	%
Most of us drink some alcohol	199	100.0								
I enjoy some alcohol when out with friends	197	99.0			1	.5			1	.5
Often, I go on a drinking spree.	195	98.0	1	.5	1	.5	1	.5	1	.5

Alcohol makes me feel more relaxed with my partner(s).	190	95.5	5	2.5	3	1.5			1	.5
When we have drunk a bit too much, we tend to forget to use a condom	6	3.0	4	2.0	3	1.5	21	10.6	165	82.9

The responses on the Table 4.8 pertain to their attitudes towards alcohol and its relationship with risky sexual behavior.

One of the FGD members cited that

“.....”They are very ignorant when it comes to condom use sometimes they can go for a drinking spree and they forget to use a condom and that for sure.

“.....”And in any sense the thing is it's not that they don't have the information they have it but they are very ignorant in using condoms, that why you see infection being very high “.....”

4.7 Stigma and Health Care Needs in Men who have Sex with Men

Table 4.9: Stigma in Male homosexuals

	Indicator	Frequency	Percent	Chi-Square	Asymp. Sig.
disclosed your sexual orientation to your family and friends	Yes	12	6.0	176.022 ^a	.000
	No	187	94.0		
Reasons for lack of disclosure on sexual orientation	Fear of being judged	141	75.0	146.53	.000
	Making my family unhappy	32	17.0		
	I am embarrassed by what I do / who I am	15	8.0		
seek health care services outside of this clinic	Yes	8	4.0	168.20	.000
	No	190	95.5		
reasons for not seeking healthcare elsewhere	Fear of being judged	103	51.8	248.47	.000
	Rude healthcare workers	30	15.1		
	Being ridiculed by the healthcare worker	28	14.1		

Being denied services	12	6.0
No one understands us/ accepts us	11	5.5
Fear of someone in the family knowing my orientation	4	2.0
Service takes too long/ I feel ignored because I am different	2	1.0

The study established that majority [187, 94%, $p < 0.05$] had not revealed their sexual inclinations towards same sex to their family and friends and 141[75%] cited that Fear of being judged compared to 32[17%] who argued that they would make their family unhappy [$p < 0.05$]. Most of the MSM respondents did not seek health care services outside SWOP clinic [190, 95.5%, $p < 0.05$] and this was largely due to Fear of being judged [103, 51.8%], Rude healthcare workers [30, 15.1%] and Being ridiculed by the healthcare worker [28, 14.1%] [$p < 0.05$]. This finding concurs with the finding on a study done by Kendra in 2013 where in his study he elaborates that if an MSM was to disclose his sexual orientation, he was likely to incur not only personal rejection but also arrest, unemployment and ostracism. This hence resulted in many individuals keeping their lives a secret.

One of the member from the FGD cited that

“.....” they might be facing that kind of stigma but they ought to raise up above the stigma and go get the treatment or go to the necessary counseling that is required.

Another noted that

“.....” For the one who is positive he needs psychosocial support because this discordance normally brings discrimination and stigma “.....”

Further the same comments were noted from the different members who cited that

“.....” minimize or to stop infecting each other in the community and to have the issue that can bring them to understanding and let's say end the discrimination in their society.

4.8 Willingness of Using Prep among MSM

The Table 4.10 presents the findings on the use and utilization of Pre-exposure prophylaxis [PEP]

Table 4.10: Pre-exposure prophylaxis

	Indicator			Chi-Square	Asymp. Sig.
		Frequency	Percent		
aware of PrEP	Yes	196	98.5	187.18	0.000
	No	3	1.5		
got an opportunity to use it	Yes	157	78.9	66.45	0.000
	No	42	21.1		

It was established that most of the respondents were aware of PrEP [196, 98.5%, $p < 0.05$] and most indicated that they had opportunity to use it [157, 78.9%, $p < 0.05$] compared to those who had not used PrEP. This finding concurs with the study done by Goedel in 2016 which showed that the majority of the individuals involved in the study 85.5% knew about PrEP but contrasts sharply with this study as few of them (9.2%) reported being on PrEP, unwillingness to start PrEP in his study was associated with side effects, however greater than a half (57.6%) of individuals in the study were willing to consume PrEP as a HIV prevention method.

The Table 4.19 presents the Prep acceptance and the following Likert scale was used.

5 (severely- meaning I won't),

4 (to quite an extent – the challenge would make my ability to cooperate poor

3 (it doesn't matter – I might skip or take depending)

2 (A bit- I see the challenge but it is small compared to the gains)

1 (not at all – meaning I will take)

Table 4.11: Prep acceptance

Prep acceptance	5		4		3		2		1		Chi-Square	Asymp. Sig.
	Fr	%	Fr	%	Fr	%	Fr	%	Fr	%		
Taking it once a day	31	15.6	3	1.5	4	2.0	4	2.0	157	78.9	445.5	0.000
You will have to take at a specific time every day to ensure its effectiveness	27	13.6	2	1.0	8	4.0	3	1.5	159	79.9	456.5	0.000
It is not 100% protective-you still have a risk	27	13.6	7	3.5	2	1.0	10	5.0	153	76.9	411.3	0.000
You will still need to continue using other prevention methods	24	12.1	2	1.0	2	1.0	4	2.0	167	83.9	516.8	0.000
There may be some side effects such as: ...elaborate the rates and types.	32	16.1	8	4.0	6	3.0	11	5.5	142	71.4	338.9	0.000
Being seen taking the medicine the by those to whom you have not disclosed your orientation	35	17.6	6	3.0	7	3.5	13	6.5	138	69.3	316.6	0.000
Being seen taking the medicine by your partner(s)/ friends who know your orientation	35	17.6	5	2.5	4	2.0	10	5.0	145	72.9	363.5	0.000

It was established that most of the respondents indicated that they would take PrEP once a day [157, 78.9%, p<0.05] those ready to take it at a specific time every day to ensure its effectiveness were [159, 79.9%, p<0.05].

They agreed that PrEP is not 100% protective and they still had a risk and they still would take [153, 76.9%]. The respondents agreed that they would still take despite the need to continue using

other prevention methods [167, 83.9%, $p < 0.05$]. Despite some side effects they would still take PrEP [142, 71.4%, $p < 0.05$]. The respondents would continue to take PrEP despite being seen taking the medicine by their partner(s)/ friends who know their orientation [145, 72.9%, $p < 0.05$]. This finding concurs with the finding of Lim in his survey that was done in 2017 which showed that individuals who were aware of PrEP their willingness was much higher, the survey recommended that provision of this intervention needed to be fortified by having it easily accessible at an affordable price, demand creation and awareness of this intervention was vital in increasing its uptake and finally access of this intervention strategy needed to be looked into through diversified and tailored sexual health services.

One of the FGD member indicated

“.....” I think they should take Prep because of the benefit to their health.

The one who is infected should start using drugs and the other one should start using prep “.....”

Benefit from pre exposure prophylaxis

One of respondent

“.....” The good thing about the prep it protect you from getting HIV.

Another respondent indicated that

They should start using the prep as per the doctor's prescription but it also should be noted very clearly that other STIs diseases are not covered by “

Table 4.12: Correlations among variables

		Accept	Knowledge on HIV transmission	Awareness of HIV	Attitude, Stigma	
Accept	Pearson Correlation	1				
	Sig. (2-tailed)					
Knowledge on HIV transmission	Pearson Correlation	-.081	1			
	Sig. (2-tailed)	.254				
Awareness of HIV	Pearson Correlation	.139	-.025	1		
	Sig. (2-tailed)	.051	.730			
Attitude	Pearson Correlation	-.032	.100	-.090	1	
	Sig. (2-tailed)	.049	.161	.206		
Stigma	Pearson Correlation	.130	-.152*	-.083	-.084	1
	Sig. (2-tailed)	.067	.032	.245	.238	

*. Correlation is significant at the 0.05 level (2-tailed).

From the figure above, stigma correlates negatively with all other variables except accept while attitude correlates negatively to all other variables except for the variable knowledge on HIV transmission. Awareness of HIV on the other hand correlates positively to accept and negatively to knowledge ion HIV transmission.

4.9 Regression Model

The multiple linear regression model is geared towards analyzing the correlation between two and more than two variables which are explanatory through a response variable and this is made possible through the use of a linear formulae in terms of an equation as per the data values and objectives. Independent values are denoted as x and each of them has an association with a dependent variable value denoted as Y

$$Y = \beta_0 + \beta_{knHIV} X_{knHIV} + \beta_{AwHIVprev} X_{AwHIVprev} + \beta_{att} X_{att} + \beta_{stg} X_{stg} + \epsilon_i$$

Whereby

Y = acceptability and willingness to use Prep

X_{knHIV} = Knowledge on HIV AIDS transmission

$X_{AwHIVprev}$ = Awareness on methods of preventing HIV/AIDS

X_{att} = Attitudes and behaviours related to HIV AIDS

X_{stg} = Stigma and HIV/AIDS

ℓ_i is the error term

Thus, the MLR regression equation becomes

$$Y = 0.275 - 0.008X_{knHIV} + 0.017X_{AwHIVprev} - 0.00027X_{att} + 0.003X_{stg} + 0.356\ell_i$$

From the equation, holding other factors constant, acceptance and willingness of using pre-exposure prophylaxis among MSM is 0.275. A unit change in Knowledge on HIV AIDS transmission leads to a decrease in acceptance and willingness of using PrEP by 0.008 times compared to 0.017 times increase for a unit change in awareness on methods of preventing HIV/AIDS. A unit change in Attitudes and behaviors associated to HIV AIDS led to a decrease in acceptance and willingness of using pre-exposure prophylaxis by 0.000027times while a unit change in stigma led to an increase of 0.003 times acceptance and willingness of using pre-exposure prophylaxis among MSM

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the key findings as detailed in chapter four, conclusions drawn based on such results and recommendations there-to. This chapter is, thus structured into summary, conclusions, recommendations and areas for further research.

5.2 Summary and Discussion

The results analyzed from the social demographic characteristics of the respondents impressed that most of the MSM's attending the clinic were between the ages of 18-30 years followed closely by those in the age bracket of between 31-40 years, of these individuals majority identified themselves as male preferring a fellow male partner to engage in sex with, however majority of the respondents did indicate that there preferred role during sex as either meaning that they are comfortable playing the female role or the male role, this can be explained by the fact that SWOP city clinic serves low end sex workers who engage in sex trade.

Most of the respondents are literate with the majority having attained at least a certificate in the course of their education, however a substantial number of them are not economically empowered as they are un-employed with the majority of the individuals who are employed earning between Ksh10, 000-30,000, majority of them were single with only a substantial of them being married. All of the respondents were aware of HIV/AIDS (100%), with the majority indicating transmission of the virus as being through sexual contact (68.3%) they were also aware that HIV/AIDS transmission is higher in MSM than in hetero sexual relationships (99%) and majority of them indicated there source for this information as being the media (48.7%), the findings of this study concurs with that one done by Holt in Australia which indicated that the Australian gay and bisexual men based on an online survey showed that 77% of the participants being aware of HIV

and PrEP ,their source of information was gay community media, this study finding also concurs with the one done by Grulich as MSM in this study are aware that HIV AIDS is higher in MSM as compared to their hetero sexual counterparts, Grulich in his study indicates that MSM are approximately 18% times higher of contracting the virus as when compared to their fellow heterosexual individuals

On the prevention methods aimed at curbing HIV/AIDS infection, all the respondents (100%) preferred the use of condoms when engaging in sexual intercourse, with (72.3%) of the respondents preferring to engage into sexual intercourse with partners in whom they knew their status, (94.9%) of the respondents preferred having only one partner in whose their status they knew to engage in sex with and (99%) preferred to be tested and treated for STDs and finally all the respondents (100%) preferred their partners to be treated appropriately if they are infected with a sexually transmitted disease. The findings of this study shows clearly that MSM clearly are well aware of HIV/AIDS and how to prevent the acquisition of this virus, top on the most effective methods of preventing this virus is the use of condoms and having sex with only one partner in whom they are well aware of their status, this findings do concur with the findings of a study done by CDC which elaborated that as a strategy of not getting infected with HIV, some MSM engaged in adaptive behaviors of choosing sexual partners that they knew to be of the same HIV status as theirs so as to regularly engage in un protected sex with them and in so doing they perceived this as protecting themselves and as a form of reducing their probability of acquiring or transmitting the HIV infection.

Analysis on the subject of the male homosexual's attitudes and sexual behaviors that are related to HIV/AIDS depicted that condoms were easily accessible, affordable and easy to use, however the MSM disagreed that sex was better without condoms, this shows that condoms are well accepted

by MSM and used by this population. This finding is concurrent with the finding which Holmes et al. made that consistent use of condoms contributes significantly to the aversion of the HIV infection among the male homosexual's communities. Increased uptake of this intervention can be attributed to massive community mobilization that was geared towards the promotion of use of condoms, however the study shows how MSM's engage in risky sexual behaviors with their partners where 85% of the respondents had sexual intercourse with multiple partners simultaneously, 74% agreeing with the fact that it's difficult to keep a steady partner(s) for more than a year, 74% stated that their situation forced them to having more than one partner and 75% of the respondents agreeing that they knew that their partners to the best of their knowledge also had other partners

Analysis done on sexually transmitted infections management showed that almost all of the respondents 99% agreed that STIs are common among them with 85% of them attesting that in a year they would get an STI at least three times and 94% would seek treatment for the STI at the clinic, of those who get STIs 99% of them do encourage their partner(s) to get treated for STIs, however only 62% of the respondents acknowledged that their partners usually inform them to get treated should they be treated for an STI, this findings clearly shows that STIs are a common problem among the MSMs and with the roll out of PrEP among this population studies such as the one done by Volk have shown that there would be high levels of sexually transmitted infections as no new HIV infections will be demonstrated in individuals using Prep hence the suggestion suggested by Corneli that the roll out of PrEP should equip the end users with the appropriate knowledge that is focused on risk reduction of infection with the HIV virus coupled with health education that is tailored specifically on their sexual health needs as this will aid this individuals to make informed choices.

All of the respondents agreed to have consumed alcohol with 99% of the individuals admitting to have enjoyed alcohol when out with friends, 98 % agreed to going on drinking spree often and 95.5% reported that alcohol made them to feel more relaxed with their partner(s) however 82.9% of MSMs denied that when drunk a bit too much they tend to forget to use a condom, this finding is consistent and tends to show that MSMs are more aware of the role of condoms in averting HIV/AIDS and STIs despite them engaging in risky sexual behaviors

On the analysis done on the stigma faced by the male homosexuals showed that only 6% of the respondents had disclosed their sexual orientation to their families and friends this was primarily based on fear of being judged 75%, with 17% of the respondents citing their reasons as they were concerned about making their families unhappy, and 8% of them indicating they were embarrassed by what they do. 95.5 % of the respondents indicated that they would not seek health care services outside of the SWOP city clinic, with the majority citing their reasons as fear of being judged 51.8%, followed by 15.1% indicating rude health care workers and 14.1% of the respondents citing being ridiculed by the health care worker this finding concurs with the findings of the study done by CDC which depicted that Male homosexuals who are new and young in the field of same sex engagements most of them are aware that the society that they live in judges them harshly and are prone to violence, discrimination and being stigmatized, it is for this reason that majority of them keep their sexual engagements hidden from the society, this has in turn a negative attrition as it reduces the availability of sexual information and free access to guidance on matters pertaining to HIV and the risks associated with condom less intercourse especially if the health care worker serves this cohort with stigma and discrimination as this exposes them to engage in risky sexual behaviors

Analysis done on PrEP showed that 98.5% of the respondents were aware of PrEP with 78.9% of the respondents having an opportunity to use the drug, majority of MSMs 78.9% indicated that they would accept PrEP if it is taken daily, 79.9% did not mind taking the drug at a specific time every day so as to ensure its effectiveness, 76.9% would still accept it even if it's not 100% protective, 83.9% would still accept PrEP even if the respondents will still need to continue to use other preventive methods, 71.4% would still accept PrEP despite its side effects with 69.3% indicating that they would still take the drug despite being seen taking the medicine by those in whom they have not disclosed their orientation and finally 72.9% of the respondents indicated that they would still accept Prep despite being seen taking the drug by their partners or friends who know their orientation.

This finding contradicts with a study done by Francis in 2016 on the acceptance and willingness to adopt PrEP in Switzerland among the MSM as Francis segregated the outcome as high levels of acceptance, some MSM refused the intervention, and lastly ambivalent MSM who believed the benefits to the MSM to be limited or conditional, this as compared to the findings of this study which showed an acceptance and willingness of taking PrEP as being highly significant, however the findings of this study concurs with findings of the study done by Marcus JL which yielded results that receipt of HIV pre exposure prophylaxis was not associated with an increase in sexual risky behaviors drawing a conclusion that safer sexual engagements are motivated by the practices of HIV testing and counseling, Frequent clinic visits and the use of daily PrEP. Holding other factors constant, acceptance and willingness of using pre-exposure prophylaxis among MSM is 0.275. A unit change in Knowledge on HIV AIDS transmission led to a decrease in acceptance and willingness of using PrEP by 0.008 times compared to 0.017 times increase for a unit change in awareness on methods of preventing HIV/AIDS. A unit change in Attitudes and behaviors

related to HIV AIDS led to a decrease in acceptance and willingness of using pre-exposure prophylaxis by 0.000027times while unit change in stigma led to an increase of 0.003 times acceptance and willingness of using pre-exposure prophylaxis among MSM.

5.4 Recommendations

1. Based on the results of this study, MSM are more comfortable seeking health care services in health facilities that offer friendly services to this cohort, therefore the ministry of health through its partners should set up clinics targeting the key population all over the country that will offer friendly services and this will help curtail the spread of STIs and aid in the reduction in prevalence of HIV both in the general and the key population.
2. Since the study yields results that knowledge of HIV, how the disease is transmitted, and the awareness of the risky sexual behaviors that the MSM engage in directly informs this cohort to embrace preventive measures to curb acquisition of STIs and HIV infections such as consistent use of condoms, Sero sorting and the use of PrEP, the ministry of health through its partners should continue to embrace sensitization of HIV/STIs prevention messages especially to young members of this cohort so as they make informed choices

5.3 Conclusions

The MSM cohort is well aware of the HIV/AIDS pandemic and the various ways this disease is transmitted, they are also cognizant with the fact that HIV prevalence is higher among their cohort as compared to the heterosexual cohort, and though they have multiple sexual partners they are keen to use preventive measures so as to protect themselves from STIs and HIV, however stigma is still a threat in this cohort as majority of the MSM have not yet disclosed their sexual orientations citing fear of being judged and preferred to seek health care attention in MSM friendly clinics. Therefore the knowledge of HIV and how it's transmitted, coupled with the risky sexual behaviors

that the MSM admit to indulge in contributes significantly to the increased acceptance and willingness of using PrEP as the study depicts that 78.9% of the respondents actually were on PrEP, the study also elicits that though the majority of the respondents are stigmatized as highlighted interestingly when it comes to taking the PrEP in the presence of individuals they have not yet disclosed their sexual orientations to, they would still take the medicine, drawing the conclusion that stigma would not affect the acceptance and willingness of using PrEP in this cohort.

5.5 Areas of further research

The prevalence of HIV in MSM is almost triple that of the general population despite the MSM cohort embracing the prior preventive methods such as sero sorting and use of condoms consistently, PrEP being a newer intervention recently rolled out to the key population and scientifically shown to prevent acquisition of HIV, further research needs to be done to depict if PrEP will reduce the prevalence of HIV in this cohort.

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Appendix 1

Consent form

I (Name of the participant) have had the research explained to me. I have understood all that has been read and my questions have been answered satisfactorily.

I agree to take part in this research for the collection of clinical data.

I understand that enrolment is completely voluntary and I can withdraw at any time .I understand that withdrawal will not affect the quality of care given to me in any way.

Name

Date

Signature/thumb print

For research staff

I have explained the nature and purpose of this study to and that I have followed all the study specific procedures and standard operating procedures for obtaining obtained consent.

Name of staff

Signature

Date

QUESTIONNAIRE

Study number.....

A: Demographics

1. What is your age?

18 to 30 31 to 40 41 - 50 51 - 60

2. What gender do you identify with?

Male Female Bi-gender

3. Who is your preferred, sexual partner?

Male Female, either

4. What is your preferred role as a sexual partner?

Male Female, either

5. Level of education

Primary Secondary Certificate

Diploma Degree Post-Graduate

6. Marital status

Married (opposite sex) Single Unmarried but committed (same sex)

7. Employment status of the respondent

Employed Self Employed Not Employed

8. If employed/self-employed how much is your average monthly income:

- | | | | |
|---------------------|--------------------------|--------------------|--------------------------|
| a) < 10000 | <input type="checkbox"/> | b) 10,000 to 30000 | <input type="checkbox"/> |
| c) 30001 to 50000 | <input type="checkbox"/> | d) 50001 to 70000 | <input type="checkbox"/> |
| e) 70001 to 100,000 | <input type="checkbox"/> | f) > 100001 | <input type="checkbox"/> |

B. Knowledge on HIV/AIDS transmission

1. Have you ever heard of HIV/AIDS?

Yes No

If No to question 1 above, skip to section C.

2. How is HIV/AIDS transmitted? (According to interviewee, in which ways HIV/AIDS is transmitted)

.....
.....
.....

If none of these was in his answer, then prompt to see whether he has recall.

Sexual contact sharing injection needles Mother to child transmission

Sharing utensils Blood transfusion

3. What would be your response to the following statement (i.e. yes or no or not sure) HIV/AIDS

Transmission is higher in MSM than in heterosexual relationships.

Yes No not sure

4. Which other diseases do you know that are also transmitted through sex?

.....
.....
.....

5. The presence of sexually transmitted diseases increases the risk of HIV/AIDS

Yes No not sure

6. What are/ have been your sources of information about HIV/AIDS?

.....
.....

If none of these was in his answer, then prompt to see whether he has recall.

a) Hospital b) Media

c) Community leaders d) Friends

C. Knowledge on prevention methods against HIV/AIDS infection

1. Which are some of the methods that you know that you could use to protect yourself from getting HIV/AIDS:

.....

If he does not list any of the ones below, then prompt by asking them to respond with a yes, no or not sure.

Method	Yes	No	Not sure
Condom use			
Knowing people’s HIV status and only having sex with those who are negative			
Having only one partner whose status you know			
Getting tested and treated for any STDs immediately			
Getting your partner (s) to seek treatment should they have an STD.			

2. If Yes to the above question, rank the prevention method on a scale of 1 to 5 with 1 being LEAST EFFECTIVE to 5 being MOST EFFECTIVE. (The extra rows are for any methods added that is not in the list above.)

Method	1	2	3	4	5
Condom use					
Knowing people’s HIV status and only having sex with those who are negative					

Having only one partner whose status you know					
Taking an oral medicine daily to protect yourself from getting infected					
Getting treated for any STDs immediately					
Getting your partner (S) to seek treatment should they have an STD.					

D. Attitudes and behaviors related to HIV/AIDS

1. Condoms and their use:

What would your answer be to the following statements?

TRUE -5, TRUE TO SOME EXTENT -4 NEUTRAL – 3 FALSE TO SOME EXTENT -2
FALSE -1

Condom attitudes and behavior	5 (true)	4 (true to some extent)	3 (neutral)	2 (false to some extent)	1 (false)
Condoms are easily accessible					
I can easily afford condoms/ the price is right					
Condoms are easy to use					
Sex is better without condoms					
My partner (s) always request for a condom					

I always ask my partner(s) to use a condom					
Anything else they would like to add onto condom use					

2. Partners

Partners: attitudes and behavior	5 (true)	4 (true to some extent)	3 (neutral)	2 (false to some extent)	1 (false)
I usually end one relationship before I start another					
I am a one partner person					
My situation forces me to have more than one partner					
My partner(s) to the best of my knowledge also have other partners					
I have been in a one partner relationship for more than 6 months					
It is difficult to keep a steady partner(s) for more than a year					
I feel that we can engage in sex without a condom as long as I have known my partner for a period of about 6 months.					

I usually have sex at least three times a week					
I always ask my partner(s) to use a condom					
I sometimes engage in sex with more than one partner simultaneously.					
Anything else they would like to add onto partners use					

3. Sexually transmitted Infections management:

STI management: attitudes and behavior	5 (true)	4 (true to some extent)	3 (neutral)	2 (false to some extent)	1 (false)
STIs are common amongst us					
I never get STIs					
In a year, I would say that I get an STI at least 3 times					
I get my STI treated at the clinic					
I usually go to a pharmacy to get medication for my STI					
Treatment for STIs is affordable					
I encourage partner(s) to get treated for STIs					
My partner (s) will usually inform me to get treated					

should they be treated for an STI					
Anything else they would like to add onto STI management					

4. Alcohol and its relationship with risky sexual behavior:

Alcohol use: attitudes and behavior	5 (true)	4 (true to some extent)	3 (neutral)	2 (false to some extent)	1 (false)
Most of us drink some alcohol					
I enjoy some alcohol when out with friends					
Often, I go on a drinking spree.					
Alcohol makes me feel more relaxed with my partner(s).					
When we have drunk a bit too much, we tend to forget to use a condom					
Anything else they would like to add onto alcohol					

5. for those who are married:

What personal methods do you use to reduce the risk of HIV transmission to your wife/ partner?

.....
.....

If the respondent is not married skip to section E

E Stigma in Men who have Sex with Men

1. Have you disclosed your sexual orientation to your family and friends?

Yes No

If NO / Yes to question 1 what are your reasons?

.....
.....

Put a tick (if No Tick the answers)	
Fear of being judged	
Making my family unhappy	
I am embarrassed by what I do / who I am	

Would you seek health care services outside of this clinic?

Yes No

If No/ Yes could you give some reasons why?

Put a tick (for the ones who answered NO)	
Fear of being judged	
Rude healthcare workers	

Being ridiculed by the healthcare worker	
Being denied services	
No one understands us/ accepts us	
Fear of someone in the family knowing my orientation	
Service takes too long/ I feel ignored because I am different	

Taking it once a day					
You will have to take at a specific time every day to ensure its effectiveness					
It is not 100% protective-you still have a risk					
You will still need to continue using other prevention methods					
There may be some side effects such as: ...elaborate the rates and types.					
Being seen taking the medicine the by those to whom you have not disclosed your orientation					
Being seen taking the medicine by your partner(s)/ friends who know your orientation					

.....

.....

F. Pre exposure prophylaxis

1. Pre Exposure prophylaxis is a medicine that you take daily to reduce your risk of getting infected with HIV/AIDS. I don't know whether you have heard about it.

Yes No

2. If yes to the above have you got an opportunity to use it?

Yes No

3. How would the following affect/ has affected (if you are taking it) your decision/ ability to use this Medicine?

Addition					
----------	--	--	--	--	--

Prep acceptance	5 (severely- meaning I won't)	4 (to quite an extent – the challenge would make my ability to cooperate poor)	3 (it doesn't matter – I might skip or take depending)	2 (A bit- I see the challenge but it is small compared to the gains)	1 (not at all – meaning I will take)
-----------------	-------------------------------	--	--	--	--------------------------------------

Appendix 3

Focus Group Discussion Guide

Subject Information Sheet/ Verbal Consent

For Focus Group Discussion Participants: To be read before starting the focus group discussion.

Hallo. My name is Apollo Gitau. I am a Graduate student at Kenya Methodist University and I am conducting a study to find out if pre exposure prophylaxis a proven oral daily pill of preventing HIV acquisition would be accepted through its uptake among MSM at SWOP CITY clinic. I would like to invite you to participate in this study. The study aims to gather this information which will be useful in mitigating the spread of HIV/AIDS. We are looking forward to hearing your experiences and learn from you and your peers. We are carrying out focus group discussions to gather this information. We are asking if you will be willing to participate in one of these group discussions and share your views. Focus discussion groups have about 8-12 people who get together and discuss their ideas and thoughts about important issues. The discussions are led by a member of our research staff and an independent facilitator. Your responses, opinions and ideas are very important to this project. You do not have to talk about your personal experiences .You will be asked to speak generally about your and others opinions and experiences. Please do not use any names when you share what others have told you. We will not use any names when writing our reports.

We would like to invite you to participate in one of the planned focus group discussion this week. This session will be tape-recorded and a transcript of the discussion will be made. By consenting to participate in the study, you are agreeing to the tape recording of the session. The session will take about 1 hour to complete.

If you are not comfortable answering some questions in front of your peers. You have the right to refuse to answer any question that you do not wish to answer. Also, you can choose to leave the discussion at any time. You do not have to participate if you do not want to but this will not affect your chances of ever joining or using the services provided through the program.

The benefit to you is that you will be sharing your opinions and experiences that will help in providing useful information on future roll out of this intervention

By agreeing to participate you are agreeing not to share information provided by this group outside this focus group discussion. However, we cannot guarantee that information discussed in the group will not be shared, so please consider this before discussing personal matters. We will protect information about you and you're taking part in this research to the best of our ability. Your name will not appear on the interview records or transcripts. We will keep all sensitive files, notes, and interview tapes password protected or in locked cabinets and we will destroy all interview tapes at the end of the study. If the results of the research are published, neither your name nor personal identifying characteristics or those of anyone else in the study groups will be revealed.

- Do you have any questions?
- Do you agree to participate in the focus group discussion? If you do not want to participate, you may leave the room at this time.

FOCUS GROUP FACILITATOR: You must sign below before proceeding. Your signature certifies that the objectives and procedures of this study have been read to the focus group participants. It also certifies that you have answered all the questions that the respondents had about the study and that each participant remaining in the room has voluntarily agreed to take part in the research.

Date

Signature of Focus Group Facilitator

Facilitator Instructions:

- The first step is to explain to participants that this focus group discussion will be recorded. Explain why you need to record the session and give them time to express questions or concerns.
- Once you have made all the people agree to the recording, start the tape recorder and begin with the informed consent process.
- As a warm up, you as the moderator need to introduce yourself (a bit of information about your job, your family, and what participants can call you)
- The discussion will assess from the MSM individuals the factors that will be associated with their willingness and acceptance of using pre exposure prophylaxis as a HIV prevention pill. The facilitator will assess the general information about the actual HIV prevention practices used by MSM and their opinions on future use of pre exposure prophylaxis
- Then find out what the participants want to be called during the tape recording session.

Facilitator: *“I am going to describe for you the situation faced by a homosexual that has been living together for 10 years. As I read, think about whether you know any one like them and think about what their life must be like. Then I will ask you some questions on how they might act in a certain situation.”*

“James and Peter” Have been having sexual relations for about 10 years. Peter is married and has one child while James has no children of his own. James works as a Security officer. During a recent visit to the medical facility, they had a HIV test done that showed James as HIV positive, Peter on the other hand is HIV negative. James had fallen sick many times in the recent past. They joined the local support group where they are given free counseling, treatment and even preventive measures such as condoms. James has been advised to have his CD4 levels and viral load determined. The medical staffs who are helpful and supportive would want him to begin his antiretroviral treatment as soon as possible. However, to date, James is yet to begin his treatment.

1. Do you think James and Peter should seek medical care and support group together regularly?
2. Do you think that they face social stigma due to their discordant status and homosexuality?
3. What is the main role of the antiretroviral drugs and do you think James should start taking the antiretroviral therapy as advised by the medical practitioner?
4. At what stage should James start taking the medication? (At diagnosis or when he starts getting opportunistic infections?)
5. Do you think that Peter being HIV negative would benefit from pre exposure prophylaxis (Discuss the benefits linked to pre exposure prophylaxis) and do you think peter would be willing to accept pre exposure prophylaxis? (Discuss prevention of HIV infection prevention to him and his family)
6. If not Why would Peter not take the beneficial pre exposure prophylaxis?(Discuss side effects, stigma associated with taking of the drugs, lifelong daily oral pill, fear of being known by the spouse,)
7. What incentives or additives should be included in order to improve the uptake of pre exposure prophylaxis?
8. Do you think James has a casual sexual partner around the workplace?
9. The medical staff at the support facility advocates for various prevention methods to reduce the transmission rates. The most common is correct and consistent use of condoms known to reduce the transmission rates for HIV. How often do you think that they use condoms?

10. Do you think that they practice these preventive methods correctly and consistently? When do you think they avoid the preventive methods?(Every Sunday/during a birthday/anniversary/any other celebration)
11. How many times do you think they have sex? Was this the rate even before the positive HIV and AIDS diagnosis was made?
12. How often do you think they use condoms with the partner and if they don't use condoms all the time, is it because of the love they have for each other or the trust they have in one another?
13. Do you think peter uses condoms consistently with her wife and would peters wife know the sexual orientation of peter?
14. James finally accepts and gets his viral load and CD4 levels checked. He begins treatment at the nearby medical facility. His CD4 levels were still high and the viral loads were low. Low viral loads means he has reduced chances of transmission to the negative partner. Do you think that he should still start the treatment?

Appendix 4

Data Collection Approval



DEPUTY REGISTRAR – ACADEMIC AFFAIRS,
Kenya Methodist University,
P.O Box 267-60200,
Meru, Kenya

Dear Sir/Madam

RE: APOLLO KAMAU GITAU – PHT-3-1676-1/2015 DATA COLLECTION APROVAL

This is to confirm that the above named student is also our employee and has presented to us the requisite university ethical clearance and NACOSTI research authorization letter. His study is titled:- **“Factors influencing acceptance and willingness to use HIV pre- Exposure prophylaxis among men who have sex with men at the SWOP city clinic Nairobi County - ref no.**

NACOSTI/P/17/50526/17930. Happy to inform your office that he has been approved by the PHDA management to collect the required data for his thesis.

I am currently the Clinical Director for PHDA, a Kenyan NGO that manages a collaborative HIV prevention, care and research unit based in Nairobi supported through grants from the University of Manitoba, Canada and CDC-PEPFAR. The University of Manitoba and its affiliates within the University of Nairobi have been active in research in Kenya for many years. Therefore, the unit has been a lead organization in HIV prevention and care among key populations for the past three decades. We also generate strategic information on key populations that continues to influence HIV/AIDS programs and policy formulation in the region. If additional information is required to support him, please do not hesitate to contact me.

Yours Faithfully,

A handwritten signature in blue ink, appearing to read "Dr. Joshua Kimani".

Dr. Joshua Kimani

Clinical Director and Board Member
+254 733 719711
jkimani@csrtkenya.org

PHDA Address; Geomaps Centre, 4th Floor, Wing B, Matumbato Rd, Upper Hill, P.O. Box 3737-00506, Nairobi, Kenya. Tel: +254 20 2654716

Research Authorization Letter from NACOSTI



**NATIONAL COMMISSION FOR SCIENCE,
TECHNOLOGY AND INNOVATION**

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When replying please quote

9th Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No. **NACOSTI/P/17/50526/17930**

Date: **12th July, 2017**

Apollo Kamau Gitau
Kenya Methodist University
P.O. Box 267- 60200
MERU.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on *“Factors influencing acceptance and willingness to use HIV Pre-Exposure Prophylaxis among men who have sex with men at the Swop City Clinic Nairobi County,”* I am pleased to inform you that you have been authorized to undertake research in **Nairobi County** for the period ending **12th July, 2018.**

You are advised to report to **the County Commissioner, the County Director of Education and the County Director of Health Services, Nairobi County** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit a **copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

**GODFREY P. KALERWA MSc., MBA, MKIM
FOR: DIRECTOR-GENERAL/CEO**

Copy to:

The County Commissioner
Nairobi County.

Kenya Methodist University Ethical Clearance



KENYA METHODIST UNIVERSITY

P. O. BOX 267 MERU - 60200, KENYA
TEL: 254-064-30301/31229/30367/31171

FAX: 254-64-30162
EMAIL: INFO@KEMU.AC.KE

7TH MARCH, 2017

Apollo Kamau Gitau
PHT-3-1676-1/2015

Dear Apollo,

SUBJECT: ETHICAL CLEARANCE OF A MASTERS' RESEARCH THESIS

Your request for ethical clearance for your Masters' Research Thesis titled "Factors Influencing Acceptance and Willingness to Use HIV Pre-Exposure Prophylaxis among Men Who Have Sex with Men at The Swop City Clinic Nairobi County" has been granted to you in accordance with the content of your Thesis proposal.

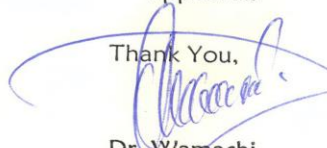
As Principal Investigator, you are responsible for fulfilling the following requirements of approval:

1. All co-investigators must be kept informed of the status of the Thesis.
2. Changes, amendments, and addenda to the protocol or the consent form must be submitted to the SERC for re-review and approval prior to the activation of the changes. The Proposal number assigned to the Thesis should be cited in any correspondence.
3. Adverse events should be reported to the SERC. New information that becomes available which could change the risk: benefit ratio must be submitted promptly for SERC review. The SERC and outside agencies must review the information to determine if the protocol should be modified, discontinued, or continued as originally approved.
4. Only approved consent forms are to be used in the enrollment of participants. All consent forms signed by subjects and/or witnesses should be retained on file. The SERC may conduct audits of all study records, and consent documentation may be part of such audits.

5. SERC regulations require review of an approved study not less than once per 12-month period. Therefore, a continuing review application must be submitted to the SERC in order to continue the study beyond the approved period. Failure to submit a continuing review application in a timely fashion will result in termination of the study, at which point new participants may not be enrolled and currently enrolled participants must be taken off the study.

Please note that any substantial changes on the scope of your research will require an approval.

Thank You,


Dr. Wamachi

Chair, SERC

Cc: Dean, RD&PGS

