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Gender Disparities in Access to HIV Testing and Antiretroviral Treatment Services

Wyatt Lombard Smith
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Gender Disparities in Access to HIV Testing and Antiretroviral Treatment Services

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Abstract

Throughout a six-week practicum period at TASO Mulago in Kampala, Uganda and St. Francis Naggalama Hospital in Naggalama, Uganda, the researcher aimed to find methods to increase male engagement in all facets of comprehensive HIV/AIDS care. Women and children generally receive most global attention on the issue of HIV/AIDS in Uganda but men are beginning to demand more attention. Antiretroviral treatment has been critical in allowing countless people to live functionally with HIV but many research projects have hypothesized that delayed access to HIV/AIDS treatment and prevention methods has resulted in men exhibiting higher mortality rates upon initiation of this treatment. The disparity in men's reception to this treatment puts the effectiveness of this and many other aspects of comprehensive HIV/AIDS treatment into question.

Through statistical analysis, observation, formal and informal interviews, and focus group discussions the researcher aimed to test the hypotheses that men are much more likely to die when they initiate antiretroviral treatment than women and that this higher mortality rate results from later initiation of treatment characterized by CD4 cell count and WHO disease stage number. Through statistical analysis the researcher established the mortality rate as 16.485 deaths per 1000 men and 11.13 deaths per women at TASO Mulago and 69.444 deaths per 1000 men and 23.809 deaths per 1000 women at St. Francis Naggalama Hospital, proving the hypothesis that men have a higher mortality rate upon initiation of ART. Significant differences in CD4 cell counts and WHO disease stage numbers proves the hypothesis that this higher mortality rate is a result of later initiation of ART.

Through qualitative data the researcher found that women are required to test for HIV at early signs of pregnancy and through antenatal care but men have no similar avenue to test for HIV and as a result they only test for HIV as a result of grave illness brought about by a weakened immune system characteristic of high HIV prevalence. Men are also highly stigmatized by social forces that further exaggerate gender differences in access to HIV/AIDS care and support. The researcher proposes enhanced male circumcision programs to serve as avenues for men to engage in all facets of

comprehensive HIV/AIDS care. Through these programs men would gain education and encouragement to join in the fight against this epidemic.

Abbreviations

ART - Antiretroviral Treatment/Therapy

TASO - The AIDS Support Organisation

HIV - Human Immunodeficiency Virus

AIDS – Acquired Immunodeficiency Syndrome

PMTCT-Preventing Mother-to-Child Transmission

UAC – Uganda AIDS Commission

UNAIDS - Joint United Nations Programme on HIV/ Acquired Immune Deficiency Syndrome

ANOVA – Analysis of Variance

PPP – Public Private Partnership

SMC – Safe Male Circumcision

RCT – Routine Counseling and Testing

Introduction

On their website, UNAIDS defines their program as “an innovative partnership that leads and inspires the world in achieving universal access to HIV prevention, treatment, care and support.”¹ The values established in this statement are critical in combating the prevalence of this virus and syndrome from our planet and for the country of Uganda these values must be swiftly implemented to create change on this issue. Much global research and attention has been directed to the problem of HIV/AIDS in Uganda but this condition continues to threaten the health and well being of many of the citizens of this country. Much of this attention is directed towards mothers and children, especially in the prevention of mother to child transmission of this virus (PMTCT).² While women and children are generally considered more vulnerable, men also play a significant role in the spread of HIV/AIDS and are starting to demand more attention on this matter.

Antiretroviral therapy, defined as “the combination of at least three antiretroviral (ARV) drugs to maximally suppress the HIV virus and stop the progression of HIV disease,” has allowed many individuals infected with the human immunodeficiency virus to live functional lives despite the tragic effects that this virus can pose on the human body³. Current research dictates, however, that men are beginning to exhibit higher mortality rates upon initiation of antiretroviral treatment than women.⁴ This hypothesis is driven by the notion that men begin treatment later than women, resulting in a higher prevalence of the human immunodeficiency virus and a lower

¹ UNAIDS. (2012) About UNAIDS. Retrieved from

² UNICEF. (2013 September 5) Children and HIV and AIDS. Retrieved from http://www.unaids.org/en/aboutunaids/http://www.unicef.org/aids/index_preventionyoung.html

³ WHO. (2013) Antiretroviral therapy. Retrieved from <http://www.who.int/hiv/topics/treatment/art/en/index.html>

⁴ Mills, E., Beyrer, C., Birungi, J., & Dybul, M. (2012 February 7). Engaging Men in Prevention and Care for HIV/AIDS in Africa. *PLOS Medicine*. Retrieved from <http://www.plosmedicine.org/article/info%3Adoi%2F10.1371%2Fjournal.pmed.1001167>

prevalence of CD4 cells, the cells essential for a functioning immune system. Universal access to HIV treatment and prevention can only be accomplished by greater involvement of men in these practices that have been successful in reducing the prevalence of HIV/AIDS and helping people live functionally with HIV. Targeting men in the fight against HIV/AIDS is critical to combating HIV transmission and infection in Uganda and eliminating HIV/AIDS from Uganda requires a holistic approach including focus on men, women, and children together.

This project sought to test the hypotheses that men have a higher mortality rate than women upon initiation of antiretroviral treatment and that men begin antiretroviral treatment at later stages of HIV infection than women. This project also studied the effects of this lack of attention towards men in Uganda further to propose methods to further include men in the scope of global research to holistically combat the prevalence of HIV/AIDS in this country. The researcher conducted this study in TASO Mulago in Kampala, Uganda and St. Francis Naggalama Hospital in Naggalama, Uganda from October 21, 2013 to December 1, 2013 over a six-week period to compare how these issues are addressed in rural and urban settings. The study used qualitative data from focus group discussions, formal and informal interviews, and field observations as well as quantitative data from the databases of TASO Mulago and St. Francis Naggalama Hospital.

Background

HIV/AIDS in Uganda

According to statistics presented by UNAIDS in 2012, approximately 7.2% of the population of Uganda currently lives with the human immunodeficiency virus and approximately 150,000 people in Uganda become infected with HIV every year. These statistics also estimate that 62,000 people die from complications of AIDS in Uganda every year⁵. According to the 2011 Uganda AIDS Indicator Survey, HIV is most

⁵ UNAIDS. (2012). HIV and AIDS Estimates in Uganda Retrieved from <http://www.unaids.org/en/regionscountries/countries/uganda/>

prevalent in the Central 1 region (10.6%) and the Central 2 region (9.0%).⁶ The map in the appendix illustrates this data further (see appendix A). TASO Mulago is located in an urban setting in Kampala, Uganda, receiving clients from the Central 1 Region and St. Francis Naggalama Hospital is located in a rural setting in the Mukono District and receives clients from the Central 2 region. The researcher carried out his study at these two facilities to compare how antiretroviral treatment is administered in rural and urban settings and to gain a more holistic understanding of the problem of HIV/AIDS in the regions exhibiting the highest HIV prevalence.

In the past many HIV/AIDS strategies addressed either prevention or treatment of this epidemic, but recent data suggests that comprehensive care in which treatment and prevention work together provides the best strategy for decreasing the presence of HIV/AIDS in Uganda (see Appendix B).⁷ According to Uganda's progress report "The epidemic is still predominantly heterosexually transmitted with 80% of infections attributable to heterosexual transmission. Mother to child transmission accounts for 20% while blood borne and other infections account for less than 1%.⁸" Despite these figures, most research focuses on PMTCT but men bear just as much responsibility as women in this battle against HIV/AIDS. In Uganda, men often engage in polygamous practices more than women and engage in more risky lifestyle habits. While many argue that these factors play no significant role in HIV transmission, research on this matter indicates, "Sharp increases in monogamy also contributed to lowering the risk for HIV infection or

⁶ UAIS (2011). 2011 Uganda AIDS Indicator Survey. Retrieved from http://health.go.ug/docs/UAIS_2011_FACT_SHEET.pdf

⁷ Salomon, J. A., Hogan, D. R., Stover, J., Stanecki, K. A., Walker, N., Ghys, P. D., & Schwartländer, B. (2005). Integrating HIV prevention and treatment: from slogans to impact. *PLoS Medicine*, 2(1), e16.

⁸ UNAIDS. (2013). Global AIDS Response Progress Report: Uganda Jan 2010-Dec 2012. Retrieved from [http://www.unaids.org/en/dataanalysis/knowyourresponse/countryprogressreports/2012countries/ce_UG_Narrative_Report\[1\].pdf](http://www.unaids.org/en/dataanalysis/knowyourresponse/countryprogressreports/2012countries/ce_UG_Narrative_Report[1].pdf)

the periods 1989-1995 and 1995-2000. These increases reduced the risk for HIV infection among younger married and among unmarried sexually active women at all ages.⁹” These polygamous relationships can lead to a network of transmission between multiple women and children and ultimately, the risky lifestyles of men result in the transmission of HIV to all groups whether they are deemed vulnerable or not. Men’s role in the transmission of HIV/AIDS is often ignored but to eradicate this condition, their presence must be addressed more thoroughly. Lack of attention towards men in HIV/AIDS care strategies has left a significant impact on many of the other methods of comprehensive care, especially antiretroviral treatment.

Antiretroviral Treatment

Antiretroviral treatment generally helps those individuals infected with HIV to live a healthy life but research indicates that men are more likely to die upon initiating antiretroviral treatment than women. Much of the HIV/AIDS research in Uganda focuses on women and children because they are generally viewed as vulnerable groups but the role of men in the prevalence and transmission of HIV/AIDS often receives less attention. Yet, approximately 530,000 men above the age of 15 currently live with HIV in Uganda suggesting that men do play a significant role in the spread and transmission of HIV/AIDS and focusing on men is critical to aiding in the fight against HIV/AIDS in this country. The impact of this lack of attention directed towards men in the fight against HIV/AIDS in Uganda will be investigated through the following literature survey. It is hypothesized that lack of focus on men results in a higher mortality rate for men beginning antiretroviral treatment than women because they generally start treatment at lower CD4-cell counts. Research has suggested that lack of attention towards men in the fight against HIV/AIDS creates fewer opportunities for men to receive provider-initiated HIV testing while women go through provider-initiated testing at early signs of pregnancy and in the midst of antenatal care. The following articles demonstrate and support this hypothesis as background for this study, which aims to determine whether

⁹ Singh, S., Darroch, J. E., & Bankole, A. (2004). A, B and C in Uganda: The roles of abstinence, monogamy and condom use in HIV decline. *Reproductive Health Matters*, 12(23), 129-135.

lack of opportunity for provider-initiated HIV testing for men in Uganda contributes to the disparity in mortality rate between men and women initiating antiretroviral treatment and to propose methods to incorporate more provider-initiated HIV testing for men into Uganda's healthcare system.

In "The first decade of antiretroviral therapy in Africa," Ford et. al discuss the global effort to decrease the cost accessibility of antiretroviral therapy in developing countries. Initially, efforts to invest in antiretroviral treatment were not viewed as cost-effective because the cost was unaffordable for the average individual in a developing country as well as the fact that prevention was viewed as a superior form of combating HIV/AIDS than treatment. Experts from all over the world urged that those living with HIV should be able to live a healthy life rather than a race to their death. Global effort effectively lowered the cost of this treatment allowing individuals in developing countries in Africa to gain access. The article urges that starting treatment earlier results in greater survival among patients and that greater antiretroviral treatment coverage can help decrease transmission of HIV. The authors insist "efforts are needed to reinforce the treatment cascade all along the pathway from HIV testing to early initiation to lifelong adherence to treatment"¹⁰. This article highlights the importance of antiretroviral treatment and urges that early adherence to the treatment is essential to survival. Therefore, this article justifies the focus on antiretroviral treatment for this study and provides background to the hypothesis that men start antiretroviral treatment later than women, leading to a higher mortality rate for men upon initiating this treatment.

In "Expanding HIV care in Africa: making men matter," the authors discuss all the efforts made to provide women with HIV treatment before stating that far more women than men receive antiretroviral treatment. The article states "men appear to enter cARTprogrammes at a more advanced clinical stage and, as a consequence, mortality rates are higher in men"¹¹. The article also urges "in many countries antenatal care services provide an important entry point to HIV/AIDS testing and treating, which

¹⁰ Ford, N., Calmy, A., & Mills, E. J. (2011). The first decade of antiretroviral therapy in Africa. *Global Health*, 7(1), 33-33.

¹¹ Mills, E. J., Ford, N., & Mugenyi, P. (2009). Expanding HIV care in Africa: making men matter. *The Lancet*, 374(9686), 275-276.

creates a particular opportunity for women to access care. Similar access points do not exist for men, although circumcision programmes, if expanded, would provide such an opportunity in the future⁸”. This article supports the hypothesis that men do have a higher mortality rate upon initiation of treatment because of a lack of opportunity for provider-initiated testing. The article also suggests circumcision programs as potential methods of implementing this level of HIV testing for men, which will be expanded upon further in this project.

In “Male gender predicts mortality in a large cohort of patients receiving antiretroviral therapy in Uganda,” the authors specify that the findings of the previous article are relevant to the country of Uganda. They state that men in Uganda have less access to HIV/AIDS care than women, creating a higher mortality rate for men beginning antiretroviral treatment. Finally, the article urges that gender sensitive antiretroviral treatment would maximize the benefits of this treatment for the country of Uganda¹². Also, in “Increased mortality among HIV-positive men on antiretroviral therapy: survival differences between sexes explained by late initiation in Uganda” the authors provide statistical analysis that prove the disparity in mortality rate between genders is caused by late initiation of treatment as a result of a lack of access to HIV/AIDS care and provider-initiated testing. These articles support the hypothesis that incorporating more provider-initiated testing for men in the healthcare system would lead to greater efficiency of antiretroviral treatment in Uganda¹³. The following section will highlight past efforts to incorporate circumcision programs into comprehensive HIV/AIDS care strategies to gain an understanding of their effectiveness in providing the citizens of Uganda with universal access to all forms of HIV/AIDS care and support.

¹² Mills, E. J., Bakanda, C., Birungi, J., Chan, K., Hogg, R. S., Ford, N., ... & Cooper, C. L. (2011). Male gender predicts mortality in a large cohort of patients receiving antiretroviral therapy in Uganda. *Journal of the International AIDS Society*, 14(1), 52.

¹³ Kanters, S., Nansubuga, M., Mwehira, D., Odiit, M., Kasirye, M., Musoke, W., ... & Mills, E. J. (2013). Increased mortality among HIV-positive men on antiretroviral therapy: survival differences between sexes explained by late initiation in Uganda. *HIV/AIDS (Auckland, NZ)*, 5, 111.

Male Circumcision Programs

Male circumcision programs have the potential to significantly reduce the prevalence of HIV/AIDS in Uganda in multiple ways. First of all, the act of circumcision for men significantly reduces the risk of contracting HIV from penile-vaginal sex.¹⁴ Based on this information, many organizations have initiated a “safe male circumcision” campaign across the country in an effort to “contribute to the reduction in HIV and other Sexually Transmitted Infections incidences through increased safe male circumcision uptake.”¹⁵ The majority of the population of Uganda remains uncircumcised so proper implementation of this program can make an impact on the prevalence of HIV/AIDS in Uganda. Despite the potential of this program to affect the health and well being of the citizens of Uganda, news sources state, “The UAC acknowledges that, since the programme's launch in 2010, it has not been formally scaled-up nationally, and effective linkages between SMC and other HIV services have not been put in place.”¹⁶ Lack of funding and coordination from the Ugandan Government effectively limits the potential of these programs and campaigns.

These programs not only can reduce the risk of HIV transmission during sex but also can create an avenue for men to engage in more provider-initiated testing and treatment for HIV/AIDS. Many hospitals and facilities have used antenatal clinics as effective methods of provider-initiated HIV/AIDS testing and care for women and these circumcision programs can be used as similar ways of engaging men in provider-initiated testing as well. This study seeks to further evaluate the effectiveness of these programs in engaging more men in provider-initiated treatment. Male engagement in comprehensive

¹⁴ Centers for Disease Control and Prevention. (2013, April 15). Male Circumcision. Retrieved from <http://www.cdc.gov/hiv/prevention/research/malecircumcision/>

¹⁵ National Communication Strategy. (2010). Safe Male Circumcision for HIV Prevention. 1-34.

¹⁶ IRIN news (2012 November 6). UGANDA: Mixed progress in male circumcision campaign from <http://www.irinnews.org/report/96725/uganda-mixed-progress-in-male-circumcision-campaign>

HIV/AIDS care strategies could potentially decrease the gender disparities in access to all forms of HIV/AIDS care and support. Universal access to treatment and support is possible but proper implementation and support by the Ugandan Government is critical in this idea becoming reality.

Justification

Efforts to eradicate HIV/AIDS from the country of Uganda have been very effective, but studies show that a lack of attention towards the treatment of HIV/AIDS for men has reduced the effectiveness of treatment and prevention for the country of Uganda. This study focuses on men in an attempt to reduce and eliminate the disparity in mortality rate between men and women initiating antiretroviral treatment, thus increasing the effectiveness of antiretroviral treatment within the entire country. This study also plans on comparing HIV/AIDS efforts of hospitals in urban and rural settings to gain a holistic perspective on HIV/AIDS treatment and prevention strategies in Uganda. Providing men with more provider-initiated testing has been hypothesized to reduce this disparity and this study aims to test this hypothesis and propose methods in which HIV testing may become more common for men. Focusing on men in the fight against HIV/AIDS is a critical step in eliminating the prevalence of the human immunodeficiency virus within the entire population and this study aims to provide that focus.

Statement of Objectives

The objectives of this study include:

1. To assess if there are gender differences in access to HIV testing and antiretroviral treatment services
2. To further examine the causes of disparities between men and women in access to HIV prevention and treatment
3. To establish the differences in mortality rate between men and women upon their initiation of antiretroviral treatment

4. To compare HIV treatment, counseling, and antiretroviral treatment services for men in urban and rural facilities in Uganda
5. To propose methods to increase opportunities for men to engage in provider-initiated HIV testing.

This study will be driven by two hypotheses;

1. Men have a higher mortality rate than women upon initiating antiretroviral treatment.
2. Men initiate antiretroviral treatment at later stages of HIV infection than women.

Methodology

Overview

This study was conducted from October 24, 2013 until December 1, 2013 over a six-week practicum period. The researcher spent the first three weeks at TASO Mulago while spending the remaining three weeks in St. Francis Naggalama Hospital in Mukono District to compare how comprehensive HIV/AIDS care is administered and received in an urban setting and a rural setting. The researcher used observation, interview, focus group discussions, and statistical analysis to gather qualitative and quantitative data.

Study Population and Sampling

For qualitative analysis, the researcher interviewed 52 men and 76 women at TASO Mulago in the form of focus group discussions. The researcher received participants randomly from client liaisons, former clients of TASO who have seen vast improvement in their lives as a result of antiretroviral therapy. These liaisons were instructed to provide the researcher with gender-exclusive and gender-mixed groups of individuals age 18 or older who currently engage in antiretroviral therapy. At St. Francis Naggalama Hospital the researcher interviewed 19 men and 23 women using focus group discussions. The Director of Data Collection at St. Francis Naggalama Hospital chose

these groups randomly under the same inclusion and exclusion principles stated earlier. The researcher accumulated participants until the data collected reached a saturation point in which no new answers were recorded.

For quantitative analysis, the researcher used the electronic records at TASO Mulago to accumulate participants who have started antiretroviral therapy from January 2011 to June 2013. To establish the mortality rate at TASO Mulago, the researcher accumulated data from all 43,158 clients initiating ART at TASO since their implementation of ART into their HIV/AIDS care strategy. The researcher used existing data sets to augment this study. These dates were chosen to represent the population of TASO clients that recently initiated antiretroviral treatment to create a sample size of 903 men and 2,355 women. When analyzing CD4 cell count, the researcher filtered out all clients who did not possess a value for CD4 cell count within 6 months before initiation of ART, leaving the sample size for CD4 cell count analysis at 384 men and 960 women. St. Francis Naggalama Hospital did not possess any electronic record system and as a result of time constraints, the researcher could not accumulate data from every client initiating antiretroviral treatment from January 2011 to June 2013. As a result the researcher used Farum's 1997 formula of calculating sample size, which states that

$$\text{Sample size} = N / (1 + Ne^2)$$

Where N is the accessible population

And e is the level of significance (0.05)

The Director of Data Collection at St. Francis Naggalama Hospital estimated that 600 clients 18 years and older have initiated antiretroviral therapy between the dates of January 2011 to June 2013. Using this number as the accessible population, the researcher randomly sampled participants from patient files in the hospital's data room to reach a sample size of 240 participants.

Inclusion

The participants included in this study must be 18 years or older and must have initiated antiretroviral treatment.

Exclusion

Participants under the age of 18 as well as participants who have not initiated antiretroviral treatment were excluded from this study.

Variables

In focus group discussions, the researcher explored variables including occupation, gender, marriage status, motivations for HIV testing, perceptions of HIV testing, perceptions of antiretroviral therapy, challenges of engaging in antiretroviral therapy, and perceptions of male circumcision to gain a greater understanding of cultural and social factors responsible for men's lack of engagement in comprehensive HIV/AIDS care. The interview schedule used in these focus group discussions has been appended here in Appendix C (See Appendix C). In semi-structured interviews with various healthcare professionals, the researcher sought to gain a better understanding of gender differences in reception of sensitization strategies, perceived effectiveness of antiretroviral therapy as a treatment strategy, and perceived impact of circumcision programs as methods of increasing male engagement in provider-initiated HIV testing. Variables measured in quantitative analysis include gender, age at initiation of antiretroviral therapy, CD4 cell count at initiation of antiretroviral therapy, WHO disease stage at initiation of antiretroviral therapy, and mortality after initiation of antiretroviral therapy. These variables were measured to test the hypothesis that men have a higher mortality rate upon initiation of antiretroviral treatment as a result of delayed access to comprehensive HIV/AIDS care and provider-initiated testing and counseling. CD4 cell count represents the strength of the immune system and typically ranges from 500-1000 cells/mm.³ A client with a CD4 cell count value of less than 350 cells/mm³ should begin

antiretroviral treatment.¹⁷ WHO disease stage numbers range from 1 to 4. Full descriptions of each clinical stage can be found in the appendix (See Appendix D)¹⁸.

Procedure

The methods of focus group discussion, formal and informal interviews, observation and statistical analysis will be expanded upon and discussed in the following sections.

Observation

The researcher used observation to better understand and compare how TASO Mulago and St. Francis Naggalama Hospital each administered HIV/AIDS care and support based on setting and location. The researcher used this method of data collection to set a critical foundation for the facilitation and operation of other data collection methods. Observation strengthened the questionnaires and interview schedules used to acquire data in focus group discussions and formal and informal interviews. These other methods of data collection supplemented various observations noted by the researcher. Observation included noting clinic days, observing the ratio of male to female patients receiving antiretroviral therapy, examining the processes that clients experienced to receive treatment, and identifying the procedure that each facility followed in their administration of HIV/AIDS care. Through observation the researcher was able to properly implement the following data collection methods to gain a holistic understanding of antiretroviral treatment administration and reception in a rural and urban setting.

¹⁷ AIDS.gov. (2010 October 11). CD4 Count. Retrieved from <http://www.aids.gov/hiv-aids-basics/just-diagnosed-with-hiv-aids/understand-your-test-results/cd4-count/>

¹⁸ World Health Organization. (2005 February). INTERIM WHO CLINICAL STAGING OF HIV/AIDS AND HIV/AIDS CASE DEFINITIONS FOR SURVEILLANCE. Retrieved from <http://www.who.int/hiv/pub/guidelines/clinicalstaging.pdf>

Focus Group Discussions

In the interest of time, the researcher used focus group discussions in groups of 5-7 participants to reach a substantial number of participants initiating antiretroviral treatment ages 18 and older. The groups were mostly a mixture of men and women but groups of all men and all women were included to eliminate group dynamics as a variable for how responses were given. A standard interview schedule was used to better compare the answers provided by each focus group. The researcher hired an interpreter at each facility to eliminate the language barrier between the researcher and the participants. The interpreter at TASO Mulago was chosen by the facility to help provide an interpreter that had significant knowledge of the problem of HIV/AIDS in Uganda. The Director of Data Collection at St. Francis Naggalama Hospital served as the interpreter for focus group discussions facilitated at Naggalama. The researcher recorded every focus group discussion with an electronic recording device and transcribed the responses later while the interpreter asked the questions provided by the researcher in the local language. Every discussion began with a general introduction to the purpose of the study and all participants were informed that all answers were anonymous and not mandatory.

Formal and Informal Interviews

The researcher conducted interviews with selected healthcare professionals to gain as much knowledge from each individual as possible. Interviews were semi-structured in which the majority of questions previously prepared and some questions were created on the spot as a result of certain responses. Interview schedules for each of these interviews can be found in the appendix (see appendix E). Participants were chosen to represent all aspects of comprehensive HIV/AIDS care including antiretroviral medication and therapy, counseling, community sensitization, and circumcision programs. An interview with an HIV/AIDS counselor at TASO Mulago on November 7, 2013 helped the researcher contextualize community sensitization and counseling services while analyzing the effectiveness of these strategies on each gender. On November 8, 2013 Dr. Simon Sentumbwe, a physician and researcher of HIV/AIDS in Uganda provided great insight to issues concerning research and administration of

comprehensive HIV/AIDS care strategies as well as engaging men in circumcision programs. Also on November 8, 2013 a nurse at the safe male circumcision clinic sponsored by Makerere University in Kampala, Uganda was interviewed to provide insight to the manner in which the clinic recruits clients as well as how the clinic operates. Finally, a pharmacist at St. Francis Naggalama Hospital was interviewed on November 19, 2013 to gain a better perspective of the efficiency and effectiveness of antiretroviral medication. These interviews were supplemented with various informal interviews throughout the duration of the study. Overall, these interviews augmented and validated the information received from participants in focus group discussions and provided a better understanding of all facets of comprehensive HIV/AIDS care strategies.

Statistical Analysis Using ANOVA Chi-Squared Test

For the quantitative aspect of this study, the researcher used Analysis of Variance (ANOVA) to test the hypothesis that the higher mortality rate exhibited by men at their initiation of antiretroviral treatment is attributed to later initiation measured by initial CD4 cell count and initial WHO disease stage. Analysis of variance was used to quantify the statistical significance that gender had on CD4 cell count (measured in cells/mm³) at initiation of antiretroviral treatment. The analysis used the mean values of CD4 cell counts for men and women at ART initiation. Data recorded from patient files are accurate within six months of initiating ART. P values less than 0.05 were considered significant. All data was collected from the electronic databases of TASO Mulago and from patient files from St. Francis Naggalama Hospital. All analysis was conducted using STATA, a data analysis and statistical software. The mortality rate of those individuals aged 18 or older who have initiated ART anytime within January 2011 to June 2013 was calculated using the following formula.

$$R = \left(\frac{x}{t}\right) 10^3$$

Where R is the Mortality Rate

x is number of dead clients

t is the total population sampled

These dates were chosen to represent those recently initiating treatment while allowing for 6 months of progression on the treatment regime. The rate estimates the number of clients dead per 1000 clients. At St. Francis Naggalama Hospital, mortality was not recorded in patient files. Therefore, the researcher deemed those patients who have not returned to the facility within six months of their follow-up date as lost to follow up. The researcher also inferred that 30% of patients lost to follow up were dead, following the procedure of other studies conducted within the same subject matter in Uganda.¹⁹

Finally, the researcher used a Chi-Squared Test to establish the statistical significance of these established mortality rates and to identify the statistical significance of collected WHO disease stage numbers at ART initiation. The Chi-Squared test was used based on the null hypothesis that men and women should have the same mortality rate upon initiation of ART. This test provides a probability that a difference in mortality rate is statistically significant or due to chance. P-values smaller than 0.05 were considered significant. The Chi-squared test was also used to test the null hypothesis that men and women should initiate ART at the same WHO disease stages. The probability value resulting from this test will determine whether differences in WHO disease stages numbers between men and women initiating ART were due to chance or statistically significant. P-values smaller than 0.05 were considered significant.

Challenges and Biases

Each method the researcher used played a great role in the accumulation of data necessary for this project but all data collection methods provide challenges and biases. Observations can incorporate a researcher's personal biases into the data collected and as a result the researcher attempted to supplement all data collected from observations with formal and informal interviews and focus group discussions.

¹⁹ Mills, E. J., Bakanda, C., Birungi, J., Chan, K., Ford, N., Cooper, C. L., ... & Hogg, R. S. (2011). Life expectancy of persons receiving combination antiretroviral therapy in low-income countries: a cohort analysis from Uganda. *Annals of internal medicine*, 155(4), 209-216.

The researcher selected interpreters with a vast knowledge of the subject matter and sometimes interpreters would analyze information rather than translate it, resulting in concise, summarized responses rather than full responses. This may have resulted in personal bias in some of the responses recorded from the focus group discussions as well as some missing information. Use of interpreters also forces the researcher to rely on the interpreters providing correct responses to ensure valid collected data.

Mortality is rarely recorded at TASO Mulago because client contacts may not communicate the death of a client to the facility that was providing the client treatment. Therefore the electronic records from TASO Mulago may not represent every individual who has died after initiating ART but this outside factor should affect men and women clients equally. Therefore, the data collected by the researcher equally represents the men and women who are clients at TASO Mulago and St. Francis Naggalama Hospital. Also, substantial differences in sample size may distort the researcher's ability to compare statistics at each facility. The researcher relied on Farum's 1997 formula to provide justification for proper representation of clients recently initiating ART at St. Francis Naggalama Hospital to allow proper comparison to statistics from TASO Mulago.

Statement of Ethics

The researcher of this study conducted all research in an ethical manner. Permission to conduct this preliminary study was provided by TASO Mulago and St. Francis Naggalama Hospital and the investigator adhered to all the ethical conduct required in this exercise. More specifically, all respondents shall remain anonymous and the researcher shall not publish any responses to survey, focus groups, or interviews without written consent from TASO, St. Francis Naggalama Hospital, or the respondents. The results gathered from this study are presented as accurately as possible without bias or manipulation. Most of all, the researcher attempted to respect and honor the rules and philosophies of the facilities used as well as respect and honor the participants of this study. Follow up permission has been granted by the Uganda National Council for Science and Technology body through the School for International Training Research

Model 3. Consent forms used during the key informant interviews have been appended under Appendix F (see Appendix F).

Results

Mortality

The researcher sought to test two hypotheses with this study. The researcher established the mortality rate for men and women at TASO Mulago and St. Francis Naggalama Hospital to test the hypothesis that men exhibit a higher mortality rate than women upon initiation of antiretroviral treatment. Furthermore, the researcher used statistical analysis to test the hypothesis that this higher mortality rate can be attributed to delayed access to provider-initiated HIV/AIDS care for men. Using baseline CD4 cell counts, baseline WHO disease stage numbers, and measuring all-cause mortality, the researcher conducted the same analysis at each facility as a means of greater representation for the Central 1 and Central 2 regions of Uganda, the regions with the highest prevalence of HIV/AIDS, while comparing urban and rural facilities.

Based on all 43,158 clients initiating ART at TASO Mulago (14,316 men and 28,842 women) 236 men and 321 women were recorded as dead resulting in a mortality rate of 16.485 deaths per 1000 male clients and 11.130 deaths per 1000 female clients. These results suggest that men have a higher mortality rate than women upon initiation of antiretroviral treatment at TASO Mulago. The following table highlights this data.

Table 1. Mortality Rate of Male and Female Patients at TASO Mulago²⁰

	Male	%	Female	%
Dead	236	1.65	321	1.11
Total	14316		28842	
Mortality Rate	16.485		11.13	

²⁰ Data collected by the researcher from electronic records at TASO Mulago

At St. Francis Naggalama Hospital, the researcher analyzed 240 clients (72 men and 168 women) for mortality but mortality was not recorded in patient records. As a result, the researcher tracked those patients lost to follow up and assumed 30% of patients lost to follow up had died. 13 women and 18 men were lost to follow up, resulting in an estimation that 4 women and 5 men had died since their initiation of ART. Using the same protocol, the researcher established that the mortality rate for men is approximately 69.444 deaths per 1000 clients initiating ART at St. Francis Naggalama Hospital and for women the rate is approximately 23.809 deaths per 1000 clients initiating ART at this hospital. This is highlighted in the following table.

Table 2. Mortality Rate of Male and Female Patients at St. Francis Naggalama Hospital²¹

	Male	%	Female	%
Dead	5	6.94	4	2.38
Total	72		168	
Mortality Rate	69.444		23.809	

To establish the statistical significance of these mortality rate values, the researcher utilized a chi-squared test to determine the probability that men's higher mortality rate was based on chance. According to the null hypothesis, men should have the same mortality rate as women at both facilities. Therefore men should have a mortality rate of 11.130 deaths per 1000 clients, the same rate as women at TASO Mulago and 23.809 deaths per 1000 clients, the same rate as women at St. Francis Naggalama Hospital. Based on this null hypothesis, approximately 159 men should have died rather than 236 at TASO Mulago and approximately 2 men should have died rather than 5 at St. Francis Naggalama Hospital. Considering data with a p-value less than 0.05 as statistically significant, the test resulted in p-values less than 0.0001 and 0.01 at TASO Mulago and St. Francis Naggalama Hospital respectively. Therefore, these values were compared to find that men's observed mortality rate is significantly higher than that for women at both facilities. The results from both facilities have been summarized in the following table. The causes for this significant difference will be explored in detail in the following section.

²¹ Data collected by the researcher from patient files at St. Francis Naggalama Hospital

Table 3. Results of Chi-Squared Test of Mortality Rate²²

Sample	Variable	Observed #	Expected #	Chi-Squared Value	dF	p-value
TASO Mulago	Dead	236	158.9076	37.82	1	p<0.0001
	Alive	14080	14157.0924			
St. Francis Naggalama	Dead	5	1.7136	6.456	1	p=<0.0111
	Alive	67	70.2864			

Differences in Mortality Explained by Late Initiation

The researcher tested the second hypothesis that men's higher mortality rate upon initiation of ART is a result of a later initiation by gathering CD4 cell counts and WHO disease stage numbers from clients at TASO Mulago and St. Francis Naggalama Hospital at their initiation of ART. These values represent the condition of the client at their ART initiation and their timing of care. A lower CD4 cell count and a higher disease stage number are both characteristics of later initiation and greater prevalence of the human immunodeficiency virus within the human body.

At TASO Mulago 1,344 people possessed a baseline CD4 cell-count upon initiation of ART between January 2011 and June 2013 (384 men and 960 women). The average CD4 cell count for men at this facility was 250.3 cells/mm³ and the average for women was 317.6 cells/mm³. Using one-factor ANOVA to analyze the statistical significance of this difference, the researcher found a p-value less than 0.0001, proving that at TASO Mulago men begin ART with a significantly lower CD4 cell count representing later initiation. The results have been summarized in the following table.

²² Based on data collected by the researcher from electronic records at TASO Mulago and patient files at St. Francis Naggalama Hospital

Table 4. ANOVA results for CD4 cell count at ART initiation from TASO Mulago²³

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
Female	960	317.5958	195.7538	6.317926	0	1180
Male	384	250.2708	157.4733	8.036024	2	1222
Total	1344	298.3601	188.0441	5.129323	0	1222

ANOVA					
	Sum of Squares	df	Mean Square	F	p-value
Between Groups	1243243	1	1243243	36.07731	P<0.001
Within Groups	46246009	1342	34460.51		
Total	47489252	1343			

At St. Francis Naggalama Hospital the researcher followed the same protocol with a sample size of 240 clients (72 men and 168 women). The average CD4 cell count for men was 157.89 cells/mm³ and the average CD4 cell count for women was 214.29 cells/mm.³ Results from the one-factor ANOVA revealed a p-value of 0.0019, proving that at St. Francis Naggalama Hospital men also initiate ART at significantly lower CD4 cell counts. Thus, late initiation based on CD4 cell counts is a common factor at both facilities. The results have been summarized in the following table.

Table 5. ANOVA results for CD4 cell count at ART initiation from St. Francis Naggalama Hospital²⁴

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
Female	168	214.2917	131.0907	10.1139	0	827
Male	72	157.8889	117.4554	13.8422	3	643
Total	240	197.3708	129.5258	8.3609	0	827

ANOVA					
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²³ Based on data collected by the researcher from electronic records at TASO Mulago

²⁴ Based on data collected by the researcher from patient files at St. Francis Naggalama Hospital

	Sum of Squares	df	Mean Square	F	p-value
Between Groups	160336.1764	1	160336.1764	9.91	0.001854
Within Groups	3849353.819	238	16173.7555		
Total	4009689.996	239			

Using WHO disease stage as another indicator of late initiation, the researcher found that at TASO Mulago, 7.5 percent of male clients initiated ART at WHO stage 3 and 1.6 percent of men initiated ART at stage 4. At the same facility, 4.6 percent of women initiated ART at stage 3 and 0.9 percent of women initiated ART at stage 4. At St. Francis Naggalama Hospital, the researcher found that 22.2 percent of men initiated ART at stage 3 and 11.1 percent of men initiated ART at stage 4. At the same hospital, 11.3 percent of women initiated ART at stage 3 and 2.4 percent of women initiated ART at stage 4. The following tables highlight this data.²⁵

Table 6. WHO disease stage numbers of clients at TASO Mulago at ART Initiation

Gender	Female		Male		Total	
	N	%	N	%	N	%
Stage 1	23	1.0	11	1.2	34	1.0
Stage 2	2,202	93.5	810	89.7	3,012	92.4
Stage 3	109	4.6	68	7.5	177	5.4
Stage 4	21	0.9	14	1.6	35	1.1
Total	2,355	100	903	100	3,258	100

Table 7. WHO disease stage numbers of clients at St. Francis Naggalama Hospital at ART initiation²⁶

Gender	Female		Male		Total	
	N	%	N	%	N	%
Stage 1	28	16.667	6	8.333	34	14.167
Stage 2	117	69.642	42	58.333	159	66.25
Stage 3	19	11.31	16	22.222	35	14.583
Stage 4	4	2.381	8	11.111	12	5
Total	168	100	72	100	240	100

²⁵ Based on data collected by the researcher from electronic records at TASO Mulago

²⁶ Based on data collected by the researcher from patient files at St. Francis Naggalama Hospital

While these results indicate that men initiate ART at higher WHO disease stages than women at both facilities, the researcher utilized another chi-squared test to determine the statistical significance of these findings. Considering any data with a p-value less than 0.05 as statistically significant, the researcher found probability values less than 0.0001 and less than 0.0001 at TASO Mulago and St. Francis Naggalama Hospital respectively, demonstrating that men initiate ART at significantly higher WHO disease stages than women at both facilities. The following tables illustrate these findings.

Table 8. Results of Chi-squared test of WHO disease stages at TASO Mulago and St. Francis Naggalama Hospital.²⁷

Sample	Variable	Observed #	Expected #	Chi-Squared Value	dF	p-value
TASO Mulago	Stage 1	11	9.03	22.926	3	p<0.0001
	Stage 2	810	844.305			
	Stage 3	68	41.538			
	Stage 4	14	8.127			
St. Francis Naggalama	Stage 1	6	12.00024	34.95	3	p<0.0001
	Stage 2	42	50.14224			
	Stage 3	16	8.1432			
	Stage 4	8	1.71432			

Findings and Discussion

After testing those hypotheses as a basis for the study, the researcher collected and analyzed qualitative data to determine the reasons for these significant differences in mortality rate, CD4 cell count, and WHO disease stage numbers between men and women in Uganda. The researcher analyzed differences in perceptions of HIV testing, antiretroviral treatment and circumcision programs as well as differences in opportunities for men and women to engage in provider-initiated HIV/AIDS care and support to understand why each facility had significantly more women than and to determine why men initiate ART later than women. The findings for these critical aspects of

²⁷ Based on data collected by the researcher from the electronic records at TASO Mulago and patient files at St. Francis Naggalama Hospital

comprehensive HIV/AIDS care will be explored in further detail in the following sections.

Reasons and Motives for HIV Testing

The researcher found a significant difference in the reasons men and women seek HIV testing. Based on focus group discussions the majority of clients at TASO Mulago and St. Francis Naggalama Hospital test for HIV as a result of Routine Counseling and Testing (RCT). Most healthcare facilities highly encourage patients to test for HIV at the sign of illness to insure proper treatment for the ailment that they are diagnosing. Most clients that the researcher interviewed entered a healthcare facility to seek treatment for some illness and tested for HIV under this RCT method. The researcher found that 23 of the 50 men interviewed at TASO tested for HIV for this reason while 25 of the 67 women interviewed tested under this method. At St. Francis Naggalama Hospital 17 of 20 men interviewed used RCT as a testing method while 13 of the 20 women interviewed followed the same protocol. The difference in motivations for HIV testing resulted in a law insisting that women test for HIV during pregnancy. The researcher found that 14 of 67 women at TASO Mulago tested for HIV as a result of this law while only 1 of 20 women at St. Francis Naggalama Hospital tested under this same principle. Men do not have a similar avenue to test for HIV and, as a result, men are more likely to test for HIV once the harmful effects of the virus begin to show. This results in lower CD4 cell counts and higher WHO disease stages as noted earlier, resulting in a higher mortality rate for men as they initiate ART as well as a smaller number of men being engaged in HIV/AIDS care.

This law also explains the larger number of women engaged in antiretroviral treatment services. To properly combat HIV prevalence, healthcare facilities must engage men in HIV/AIDS testing services before the virus begins to show symptoms. The Human Immunodeficiency Virus can remain in the human body for decades before symptoms begin to show.²⁸ This high prevalence not only gives men in Uganda a large window of time to transmit the virus without any knowledge of its prevalence in their

²⁸ AIDS and HIV Infection. (n.d.). AIDS and HIV Infection. Retrieved December 1, 2013, from http://www.healthcentral.com/encyclopedia/408/101.html?ic=506048#encyc_symptoms

body but also puts the health of hundreds of thousands of men in Uganda at risk. A proper HIV/AIDS care strategy must be able to limit this level of prevalence to protect the health and well being of the citizens of this country and an avenue for earlier HIV testing for men is the first step to accomplishing this task.

Community sensitization and counseling services could provide an avenue for men to engage in HIV/AIDS care at earlier stages of HIV infection. Clients in focus group discussions insisted that men are often too stubborn or too busy to test for HIV. According to a counselor at TASO, the notion of being sick makes men feel weak which is highly discouraged in Ugandan culture.²⁹ Therefore, promoting HIV testing for men becomes a lot more difficult because of these cultural and social factors. The counselor insisted that skits and plays prove very effective in educating vulnerable groups about the dangers of HIV and the benefits of HIV testing. Effective sensitization can impact these social and cultural factors so that men feel encouraged to test though many men will discover their status and change no aspect of their lives out of fear of weakness. They do not inform their partners of their status, they hide the news from their families and friends, and they simply wait to die from the complications of AIDS. The counselor insisted that men often have a saying that “what I don’t know won’t hurt me but what I do know can hurt me.” The values in this saying drive a lot of the decisions that men in Uganda make about whether or not to test for HIV or if treatment is worthwhile. These social and cultural barriers to male engagement in HIV testing services suggest that while sensitization and counseling have provided great results in promoting effective HIV care, other avenues are necessary to promote more men to test for HIV services.

Many individuals in focus groups argued for mandatory HIV testing for all men but the counselor urged that this strategy would create more harm than good. She insisted that men should have the right to choose and forcing them to test for HIV will not effectively cross the social and cultural barriers to sensitization and counseling. Men must become interested and invested in their own health for true change to occur. Proper investment includes following treatment regimes, sharing knowledge of status with sexual partners, and eliminating transmission of the virus through safe sex and

²⁹ Interview Counselor at TASO, Kampala 7 November 2013

contraception. The counselor stated that forcing men to test only solves one part of a large puzzle, suggesting that knowing one's status is not enough. Joining in the fight against the prevalence of transmission is everyone's responsibility and this is only possible through constant engagement in comprehensive HIV/AIDS care strategies.

Antiretroviral Treatment Services

Focus group discussions also provided the researcher with social and cultural factors affecting initiation and adherence to antiretroviral treatment. Many respondents in these focus groups stated that they were scared to take antiretroviral treatment because of various rumors suggesting that ARV's were created to kill those living with HIV to eliminate the possibility of transmission. Stigma surrounding the use of antiretroviral medication and treatment creates another barrier to proper HIV/AIDS care. Without mandatory HIV testing for men, the critical step of persuading men to engage in HIV/AIDS care strategies with such rumors becomes extremely difficult. Sensitization and counseling services must prevent such rumors from spreading. Antiretroviral treatment has been an affordable and essential aspect of the battle against HIV/AIDS by promoting life in the midst of HIV infection and initiation of this treatment must not be hindered. This social factor also encourages the later initiation of men on antiretroviral treatment discussed earlier. Women must adhere to these medications during pregnancy but men can refuse to begin or adhere to these medications, especially those living with the belief that ART is designed to kill them. Proper education must be established to inform individuals holding this belief of the proper purpose and good intent of ART programs in Uganda.

Some respondents also suggested timing as a reason for lack of men testing for HIV and late initiation of antiretroviral treatment. Many clients at both TASO Mulago and St. Francis Naggalama Hospital spend the majority of their day waiting to receive medication and counseling services. An interview with Dr. Simon Sentumbwe revealed that many men have jobs in which they cannot leave for such a long time.³⁰ He insisted that many men must rely on private facilities because government facilities are

³⁰ Interview Dr. Simon Sentumbwe, Kampala, Uganda 8 November 2013

overcrowded, resulting in a large waiting time. Dr. Sentumbwe encouraged more public private partnership (PPP) to allow for government-sponsored hospitals to limit waiting times while providing private facilities with more affordable medication, resulting in a larger audience. While the large time commitment necessary for proper health should be considered a sound investment, facilities can play a greater role in decreasing waiting times to promote greater interest and adherence to all forms of HIV/AIDS care, especially antiretroviral therapy.

Many respondents also indicated that poverty takes a huge toll on adherence to antiretroviral medication. According to Dr. Simon Sentumbwe, taking the medication requires a significant amount of water and the human body responds to the side effects of the medication better when the medicine is taken with a full meal. Antiretroviral treatment itself is affordable and even free at some institutions like TASO but proper adherence and avoidance of caustic side effects requires consistent access to food and water, which many clients simply do not possess. Respondents in focus groups have reported that this lack of access to food and water creates severe side effects such as hallucinations, skin rashes, and even temporary paralysis. While these side effects cause great trauma to an individual, they also create stigma around the use of antiretroviral medication, causing many people to believe in rumors such as the one stated in the previous paragraph. Once again, this finding discourages men from initiating and adhering to antiretroviral medication, leading to a higher mortality rate among men once they actually initiate ART.

Finally, the life-changing effects of antiretroviral medication can do more harm than good. Based on an interview with a pharmacist at St. Francis Naggalama Hospital, many individuals believe that ARVs have cured their HIV status even though it only addresses the symptoms.³¹ As a result they become sexually active and can potentially transmit the virus even though their harsh symptoms may disappear. Cultural norms permit men in particular to participate in polygamy so that this transmission can lead to a large number of partners becoming infected with the virus. Sensitization and education can each play a huge role in this aspect of HIV/AIDS care by informing people that transmission of HIV is still probable for individuals taking antiretroviral medication. As

³¹ Interview Pharmacist, St. Francis Naggalama Hospital 19 November 2013

stated earlier, comprehensive HIV/AIDS care strategies create the best opportunity to combat HIV prevalence (See Appendix B). Thus, simply taking medication or testing for HIV are each critical preliminary steps to eliminating HIV from the country of Uganda but proper adherence to all aspects of comprehensive HIV/AIDS care including counseling, proper utilization of medication, sharing knowledge of one's status and using contraception are all valuable and essential to combating HIV/AIDS prevalence. Forcing an individual to participate in one aspect of care will not prove effective. To fully eliminate gender disparities in access to comprehensive HIV/AIDS care requires that men fully engage in all aspects of HIV/AIDS care to join the fight to lower the prevalence of this virus from the country of Uganda. Based on these findings, the researcher proposes greater implementation of male circumcision programs to provide men in Uganda with the best opportunity to engage in comprehensive, provider-initiated HIV/AIDS care.

Male Circumcision Programs as Avenues of Engagement

As stated earlier, implementation of circumcision programs would provide an avenue for men to test for HIV similar to the avenue women have through pregnancy and antenatal services. Based on focus group discussions, 35 of 50 men were not circumcised at TASO Mulago and 15 of 20 men at St. Francis Naggalama Hospital were not circumcised. Implementation of circumcision programs would benefit a large percentage of the population of men in Uganda by reducing their risk of contracting all STI's and by engaging them in HIV care. Based on focus group discussions, social and cultural factors also create stigma on this issue. The Muslim faith encourages all individuals in their faith to circumcise at an early age but many men of other religions feel as if they should be excluded from this act if they are not Muslim. One respondent indicated that political leaders of Muslim faith have attempted to encourage safe male circumcision but they have met their fair share of opposition because of their faith. A large number of people felt that this was an attempt to convert the entire country to the Muslim faith rather than an attempt to expand the health benefits of male circumcision. Community sensitization must be implemented in these programs to combat stigma and encourage people of all faiths to engage in this aspect of HIV/AIDS care.

Circumcision programs are currently in place but they come with a fair share of flaws. Many respondents in focus group discussions stated that they feared circumcision because they only have access to government-sponsored hospitals in which patients only receive painkillers. Improper treatment of the wound resulting from circumcision surgery can result in severe complications that hinder a man's ability to function in daily tasks. Some men have seen father figures and relatives die from the complications of circumcision because of a lack of proper treatment and, as a result, they refuse to become circumcised. Proper treatment comes from proper funding and lately donor and government funding has decreased for male circumcision programs according to Dr. Sentumbwe. Many outside benefactors understand the health benefits of the act of circumcision but using male circumcision programs as avenues for greater male access to comprehensive HIV/AIDS care services provides greater justification as to why these programs should be funded further.

Makerere University initiated a safe male circumcision program that targets young men in an attempt to provide men with an accessible method of circumcision. Based on an interview with faculty at this circumcision facility, circumcisions are performed within an hour of patients arriving after a series of educational talks about the benefits of circumcision.³² Yet, this facility offers very little sensitization and treatment. Painkillers are administered after the surgery with instructions on how to handle the wound but based on focus group discussions these tactics still instill fear into a majority of men who are in need of the services.

Through enhanced male circumcision programs men would receive sensitization about the problem of HIV/AIDS in Uganda as well as counseling on the proper steps to live functionally with the virus while taking the responsibility of aiding in the fight against HIV/AIDS prevalence. Education about antiretroviral treatment and its effects, proper contraception and abstinence, and disclosure to partners would all result from the act of circumcision, which already plays a role in decreasing HIV/AIDS transmission. Proper treatment must also be administered as well as referral to a facility with the resources necessary to provide all aspects of antiretroviral therapy services. Based on findings from this study, the majority of men living with HIV have not been circumcised,

³² Interview Nurse, Safe Male Circumcision Clinic, Kampala, Uganda 8 November 2013

suggesting that a large number of men living with HIV in Uganda have not only refused to test for HIV based on the findings discussed earlier but also have not been circumcised. The potential audience for these programs is massive but proper funding must become a reality for proper implementation of these programs. Full engagement of men in comprehensive HIV/AIDS care can be achieved and an enhanced male circumcision program is the first step.

Rural vs. Urban Comparison

Throughout this practicum period, the researcher noticed some substantial differences in HIV/AIDS care in rural and urban areas. First of all, the mortality rates established at St. Francis Naggalama Hospital are much higher for both genders than the mortality rates at TASO (69.4 deaths per 1000 men and 23.8 deaths per 1000 women at St. Francis Naggalama Hospital versus 16.5 deaths per 1000 men and 11.1 deaths per 1000 women at TASO Mulago). Average CD4 values were also much lower at St. Francis Naggalama Hospital (157.9 cells/mm³ for men and 214.3 cells/mm³ for women versus 250.3 cells/mm³ for men and 317.6 cells/mm³ for women at TASO Mulago) while more clients exhibited a stage 3 or stage 4 WHO disease stage. Many individuals in rural areas do not have the same access to healthcare facilities and as a result they prolong initiation of ART even longer. Men in rural areas feel the effects of this fact most of all because they have multiple factors contributing to their late initiation, resulting in their substantially higher mortality rate (69.4 deaths per 1000 men). As a result men in rural areas were much more likely to test for HIV through the RCT method (17 out of 20 men). Men already have less access to comprehensive HIV/AIDS care and the rural setting further perpetuates this lack of access. Based on observations, the researcher found that many male clients at St. Francis Naggalama Hospital often missed appointments but followed up later at a random date to receive care. These delays signify the level of access these men have to access treatment. Their persistence to arrive at a later date suggests that they desire treatment and value their health but they often cannot engage at the proper timing. The researcher also noticed a substantial amount of men transferring to other facilities to increase access to HIV/AIDS services. This step plays a great role in efforts to engage men as well as in battling HIV prevalence all over the country. Greater

effort to involve men in HIV/AIDS care must be universalized for the entire country to access. A holistic approach is necessary to fully combat HIV/AIDS prevalence and universal access to these services involves those in urban and rural settings equally.

Conclusions

Based on the findings, the researcher has drawn conclusions based on the objectives of the study.

Objective 1: To assess if there are gender differences in access to HIV testing and antiretroviral treatment services.

The researcher found numerous gender differences in HIV/AIDS care access. Results from the statistical analysis prove that men are more likely to die upon initiation of antiretroviral treatment. These results also indicate that men begin antiretroviral treatment at significantly lower CD4 cell counts and significantly higher WHO disease stage numbers, both of which emphasize later initiation of antiretroviral treatment. Using qualitative data to supplement these results, the researcher found differences in perception, adherence, and ultimately, opportunity to access comprehensive HIV/AIDS care, which will be explored in the next objective.

Objective 2: To further examine the causes of disparities between men and women in access to HIV prevention and treatment

Most participants interviewed in focus group discussions began HIV/AIDS care at the sign of symptoms of HIV infections, which can occur up to decades after initial HIV infection. Women often engaged in care as a result of pregnancy and without a similar avenue, the vast majority of men only accessed treatment and support as a result of grave illness. This finding explains the lower CD4 cell counts and higher WHO disease stages observed in the results section. Men require an avenue for provider-initiated HIV testing similar to women that informs them of their HIV status before symptoms begin to show.

Men struggle with stigma surrounding HIV testing and treatment services. Men view themselves as weak for testing for HIV or acknowledging their status. Therefore they often refuse to test or they never disclose their HIV status to their sexual partners. Other rumors also discourage men from seeking HIV/AIDS treatment such as the notion that ARVs were invented to kill all people with HIV to eliminate its transmission. Poverty also causes the harmful side effects of ARVs to plague those initially taking the medication. Other men see these side effects and, as a result, feed into the rumors and stigma surrounding this treatment.

Objective 3: To establish the differences in mortality rate between men and women upon their initiation of antiretroviral treatment

Electronic records at TASO Mulago and patient files from St. Francis Naggalama Hospital provided the researcher with the necessary data to establish the mortality rate of men and women at each facility. At TASO Mulago the mortality rate was 16.485 deaths per 1000 men and 11.13 deaths per 1000 women. At St. Francis Naggalama Hospital the mortality rate was 69.444 deaths per 1000 men and 23.809 deaths per 1000 women. Through this data, the researcher tested and proved the hypothesis that men initiate ART at higher mortality rates based on the facilities the researcher utilized.

Objective 4: To compare HIV treatment, counseling, and antiretroviral treatment services for men in urban and rural facilities in Uganda.

Based on observations and statistical analysis, the researcher concluded that living in a rural area creates even less opportunities for men and women to engage in HIV/AIDS care. As established in the previous objective, the mortality rate for men and women was higher at St. Francis Naggalama Hospital than at TASO Mulago. Men in particular had a much higher mortality rate at 69.444 deaths per 1000 men. Expanding on this fact, the average CD4 cell count for men at St. Francis Naggalama (157.9 cells/mm³) was much lower than at TASO Mulago (250.3 cells/mm³). CD4 cell counts lower than 350 cells/mm³ are considered significantly low, so the data from St. Francis Naggalama

is alarming. These men have very few opportunities to engage in HIV/AIDS care because they lack a proper avenue for provider-initiated HIV testing and they live in a rural area with lack of access to proper facilities for treatment. Many men often missed their formal appointment date to return on a different day, suggesting that men are interested in engaging in treatment and support but access is quite limited.

Objective 5: To propose methods to increase opportunities for men to engage in provider-initiated HIV testing.

The researcher proposed that enhanced male circumcision programs provide the best method of increasing opportunity to engage in provider-initiated HIV testing. This method involves sensitization and education about HIV/AIDS prevalence and transmission, HIV testing, circumcision, and referral to a facility with proper resources for those infected with HIV. All of these aspects are critical to combating HIV/AIDS prevalence in Uganda and forcing men to engage in any one aspect alone will not empower them to want to make a difference in the prevalence of this epidemic. Encouragement and support through this avenue of provider-initiated testing are the best methods of engaging men more in the fight against HIV/AIDS.

Recommendations

Based on findings throughout this practicum period, the researcher proposes the following recommendations. Global efforts to eliminate PMTCT have been extremely effective but this effort needs to provide more focus on men living in Uganda with HIV/AIDS. As stated earlier, 80 percent of new cases of HIV result from heterosexual contact as opposed to PMTCT, which results in 20 percent of new cases. Both methods of transmission need to be addressed thoroughly but if the same level of attention posed toward PMTCT was directed towards men in the fight against HIV/AIDS prevalence and transmission then the great strides that have significantly reduced PMTCT can also significantly reduce heterosexual transmission.

While many individuals recommend mandatory HIV testing for men through various methods, the researcher recommends the opposite. Forcing men to engage in one

aspect of HIV/AIDS treatment will not effectively combat all of the social and cultural forces that stigmatize HIV testing and treatment. Forcing men to test will not encourage them to seek treatment or disclose their status to their sexual partners. Healthcare facilities must promote interest in the area of HIV/AIDS transmission and prevalence. Every citizen of Uganda can play a role in the battle against HIV/AIDS. Proper encouragement will lead to significant interest and, as a result, a large majority of Ugandan citizens can make great steps to ending this epidemic.

This global effort should place emphasis on Safe Male Circumcision Programs. Current programs do not have the resources to properly sensitize the community to combat the stigma surrounding HIV testing and male circumcision. These programs would provide a great avenue for men to engage in all facets of comprehensive HIV/AIDS care and support. Proper funding and support for these programs would insure that men become educated about the problem of HIV/AIDS in Uganda and encourage that interest mentioned earlier. Yet, testing and circumcision represent the initial steps to proper implementation of these programs. Referrals should be made for clients based on location and facilities must continue to provide counseling and adequate treatment. The effectiveness of these programs relies on all of these aspects working efficiently and collectively to promote the reduction of HIV/ AIDS prevalence.

Political leaders should continue to encourage the men of Uganda to engage in comprehensive HIV/AIDS care and support. This act should be highly celebrated as a strong, responsible action for all men to become involved in. Media also plays a great role in this step. Men should feel empowered through the act of circumcision and HIV testing rather than weak and vulnerable. Combating rumors and stigma is just as significant as combating HIV transmission and the individuals responsible for empowering the community can effectively decrease the power of stigma in relation to concerns of male engagement in HIV/AIDS care.

Everyone feels the effects of HIV prevalence in Uganda and, as a result, everyone must play a role in eliminating this prevalence. Many individuals have lost their lives to complications from this virus and many people have lived in fear of exposing themselves to this condition. The time has come to mobilize the entire population of Uganda to join in this fight. Great strides have been made to decrease the effects of this epidemic.

Educating and involving men, women, and children creates unity and unity is absolutely required to eradicate this epidemic from Uganda and the planet. UNAIDS and the rest of the world can achieve universal access to HIV services but the next step is involving and engaging men in this goal. “Getting to zero” is the goal promoted by UNAIDS and with unity it is only a matter of time before this goal is realized.

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Appendix

A.

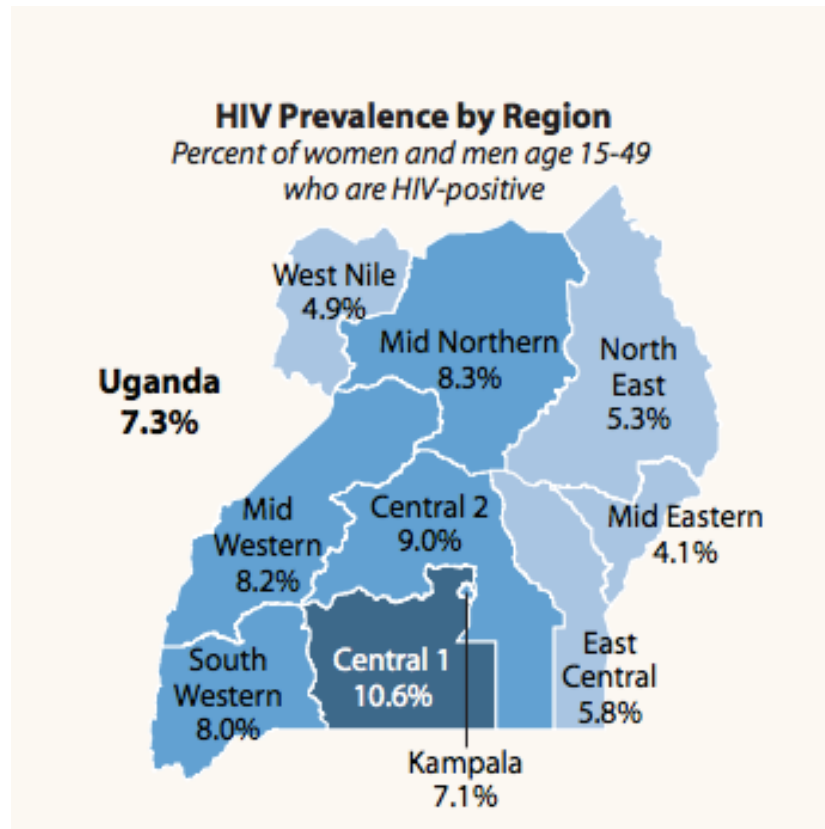
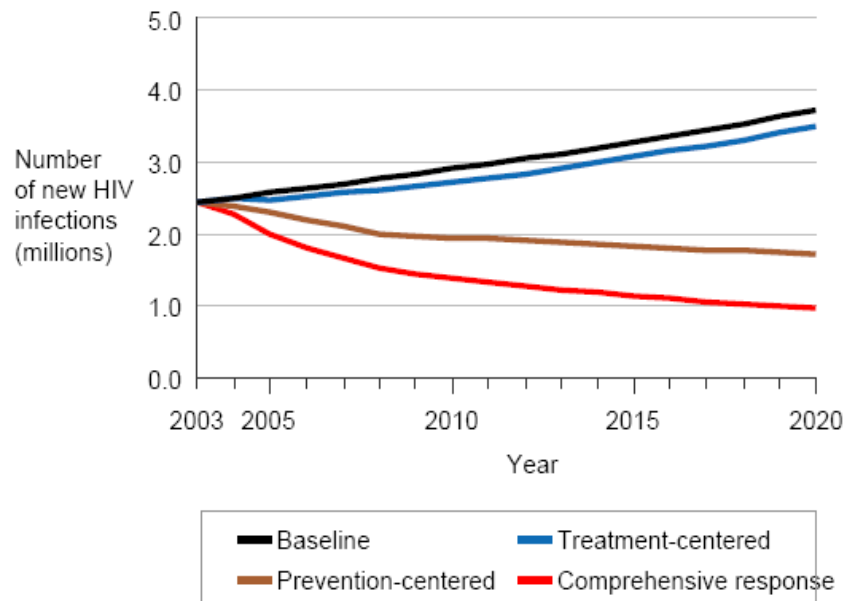


Figure 1. HIV Prevalence by Region in Uganda

B.

Impact of three scenarios on HIV infection in sub-Saharan Africa, 2003–2020



Source: Salomon JA et al. (2005). Integrating HIV prevention and treatment: from slogans to impact

Figure 2. Impact of three scenarios on HIV infection in sub-Saharan Africa, 2003-2020.

C.

Questionnaire for Focus Group Discussions Version 3.0

Age:

Gender:

Married (Yes or No):

Occupation:

1. What motivated you to test for HIV?
2. Does your partner know his/her status?
3. Did/do you encourage your partner to get tested?
4. Has a hospital ever insisted that you take a HIV test? If so, at when did they insist that you test for HIV?
5. Why don't more men test for HIV?
6. How can we get more men to test for HIV?
7. What motivated you to take antiretroviral medication?
8. What specific antiretroviral medication do you take?
9. What challenges do you face while taking antiretroviral medication?
10. Do you feel that the medication is helping? Why or why not?
11. (For men) Are you circumcised?
 - a. If yes: Did you get circumcised at a hospital or using traditional means?
 - b. If no: Has a hospital ever encouraged you to get circumcised?

REVISED WHO CLINICAL STAGING OF HIV/AIDS FOR ADULTS AND ADOLESCENTS

(Interim African Region version for persons aged 15 years or more with positive HIV antibody test or other laboratory evidence of HIV infection)^b

TABLE 1. REVISED WHO CLINICAL STAGING OF HIV/AIDS FOR ADULTS AND ADOLESCENTS

Primary HIV infection
Asymptomatic
Acute retroviral syndrome
Clinical stage 1
Asymptomatic
Persistent generalized lymphadenopathy (PGL)
Clinical stage 2
Moderate unexplained weight loss (<10% of presumed or measured body weight)
Recurrent respiratory tract infections (RTIs, sinusitis, bronchitis, otitis media, pharyngitis)
Herpes zoster
Angular cheilitis
Recurrent oral ulcerations
Papular pruritic eruptions
Seborrhoeic dermatitis
Fungal nail infections of fingers
Clinical stage 3
<i>Conditions where a presumptive diagnosis can be made on the basis of clinical signs or simple investigations</i>
Severe weight loss (>10% of presumed or measured body weight)
Unexplained chronic diarrhoea for longer than one month
Unexplained persistent fever (intermittent or constant for longer than one month)
Oral candidiasis
Oral hairy leukoplakia
Pulmonary tuberculosis (TB) diagnosed in last two years
Severe presumed bacterial infections (e.g. pneumonia, empyema, pyomyositis, bone or joint infection, meningitis, bacteraemia)
Acute necrotizing ulcerative stomatitis, gingivitis or periodontitis
<i>Conditions where confirmatory diagnostic testing is necessary</i>
Unexplained anaemia (<8 g/dl), and or neutropenia (<500/mm ³) and or thrombocytopenia (<50 000/mm ³) for more than one month

^b All clinical events or conditions referred to are described in the Annexes. The UN defines adolescents as persons aged 10–19 years but, in the present document, the category of adults and adolescents comprises people aged 15 years and over for surveillance purposes.

Clinical stage 4

Conditions where a presumptive diagnosis can be made on the basis of clinical signs or simple investigations

- HIV wasting syndrome
- Pneumocystis pneumonia
- Recurrent severe or radiological bacterial pneumonia
- Chronic herpes simplex infection (orolabial, genital or anorectal of more than one month's duration)
- Oesophageal candidiasis
- Extrapulmonary TB
- Kaposi's sarcoma
- Central nervous system (CNS) toxoplasmosis
- HIV encephalopathy

Conditions where confirmatory diagnostic testing is necessary:

- Extrapulmonary cryptococcosis including meningitis
- Disseminated non-tuberculous mycobacteria infection
- Progressive multifocal leukoencephalopathy (PML)
- Candida of trachea, bronchi or lungs
- Cryptosporidiosis
- Isosporiasis
- Visceral herpes simplex infection
- Cytomegalovirus (CMV) infection (retinitis or of an organ other than liver, spleen or lymph nodes)
- Any disseminated mycosis (e.g. histoplasmosis, coccidiomycosis, penicilliosis)
- Recurrent non-typhoidal salmonella septicaemia
- Lymphoma (cerebral or B cell non-Hodgkin)
- Invasive cervical carcinoma
- Visceral leishmaniasis

E.

Interview Schedule for TASO Counselor at TASO Mulago Version 3.0

1. Can you explain how the sensitization and counseling process works?
2. Do you feel that men respond differently to these methods?
3. Are people generally receptive to these sensitization strategies?
4. Why is there such a lack of men engaged in antiretroviral treatment in this facility?
5. What rumors do you typically have to address concerning HIV testing or ARVs?
6. Do you think that ARVs are effective as a method of treatment?
7. Do you find any differences between how men respond to ARVs?
8. Do you think circumcision programs would create an avenue for men to engage in comprehensive HIV/AIDS care?
9. Should laws exist that insure mandatory HIV testing for men?

Interview Schedule for Dr. Simon Sentumbwe Version 3.0

1. Why don't more men test for HIV?
2. How can we combat the stigma around men testing for HIV/AIDS?
3. Can you describe in detail some past male circumcision programs?
4. Why did these programs end?
5. What do you think is the best strategy to better engage men in comprehensive HIV/AIDS services?
6. Many clients at TASO Mulago complained about improper treatment after circumcision. Can you describe what they may be referring to?
7. Should laws exist that insure mandatory HIV testing for men?

8. Do you think circumcision programs would create an avenue for men to engage in comprehensive HIV/AIDS care?

Interview Schedule for Nurse at Makerere Circumcision Clinic Version 3.0

1. Do you know how this clinic got started?
2. Can you elaborate on your community sensitization methods?
3. Many clients at TASO Mulago complained about improper treatment after circumcision. Can you describe what they may be referring to?
4. What process does a typical client experience at this clinic?
5. How long does the wound from circumcision take to heal?
6. Do you test for HIV before performing the surgery?
7. Should laws exist that insure mandatory HIV testing for men?
8. Do you think circumcision programs would create an avenue for men to engage in comprehensive HIV/AIDS care?

Interview Schedule for Pharmacist at St. Francis Naggalama Hospital Version 3.0

1. How long have you worked at St. Francis Naggalama Hospital?
2. Have ARVs changed over your duration of working here?
3. Do you think that ARVs are effective as a method of treatment?
4. Do you find any differences between how men respond to ARVs?
5. Should laws exist that insure mandatory HIV testing for men?
6. Do you think circumcision programs would create an avenue for men to engage in comprehensive HIV/AIDS care?

F.

CONSENT FORM

The purpose of this study is to gain a better understanding of Antiretroviral Treatment in Uganda, specifically how men and women respond to this treatment differently. This study also hopes to test the hypothesis that men initiate antiretroviral treatment later than women. Finally, this study will attempt to propose methods for more provider-initiated HIV testing for men.

Rights Notice

In an effort to uphold the ethical standards of all SIT ISP proposals, this study has been reviewed and approved by a Local Review Board or SIT Institutional Review Board. If at any time, you feel that you are at risk or exposed to unreasonable harm, you may terminate and stop the interview. Please take some time to carefully read the statements provided below.

- a. **Privacy** – all information you present in this interview may be recorded and safeguarded. If you do not want the information recorded, you need to let the interviewer know.
- b. **Anonymity** – all names in this study will be kept anonymous unless the participant chooses otherwise.
- c. **Confidentiality** – all names will remain completely confidential and fully protected by the interviewer. By signing below, you give the interviewer full responsibility to uphold this contract and its contents. The interviewer will also sign a copy of this contract and give it to the participant.

Participant's name printed

Participant's signature and date

Interviewer's name printed

Interviewer's signature and date

For any questions or concerns please contact:

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Charlotte Mafumbo
Telephone: 0794518549
E-mail: charlotte.mafumbo@sit.edu

Demographic Information from Focus Group Discussions

Chart 1. Age Groups of Men at Each Facility

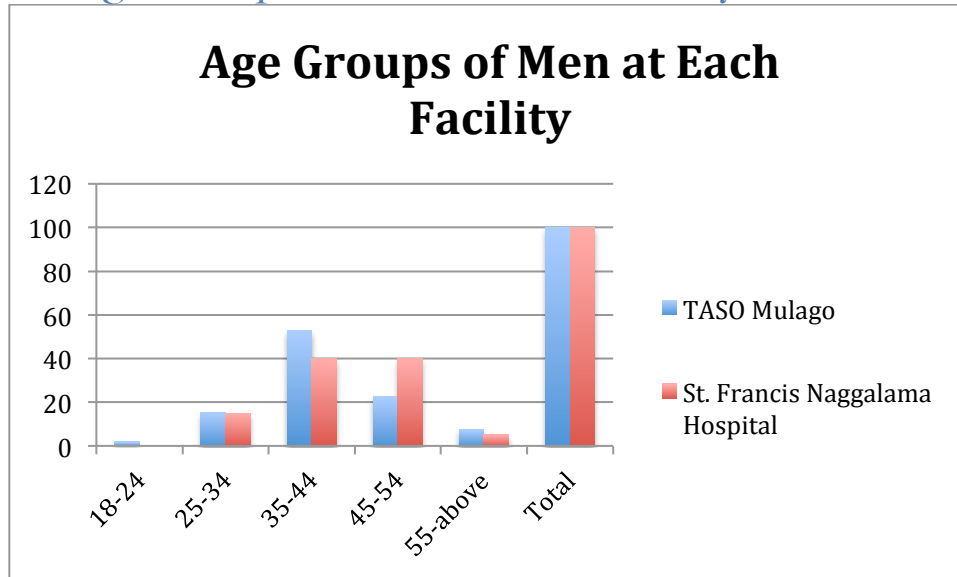


Chart 2. Age Groups of Women at Each Facility

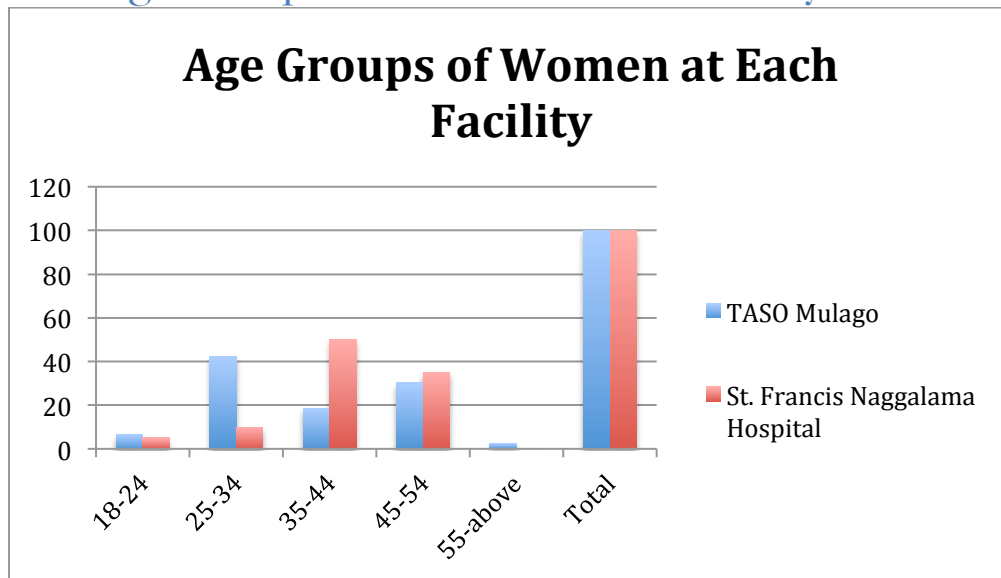


Chart 3. Percentage of Clients' Marriage Status at Each Facility

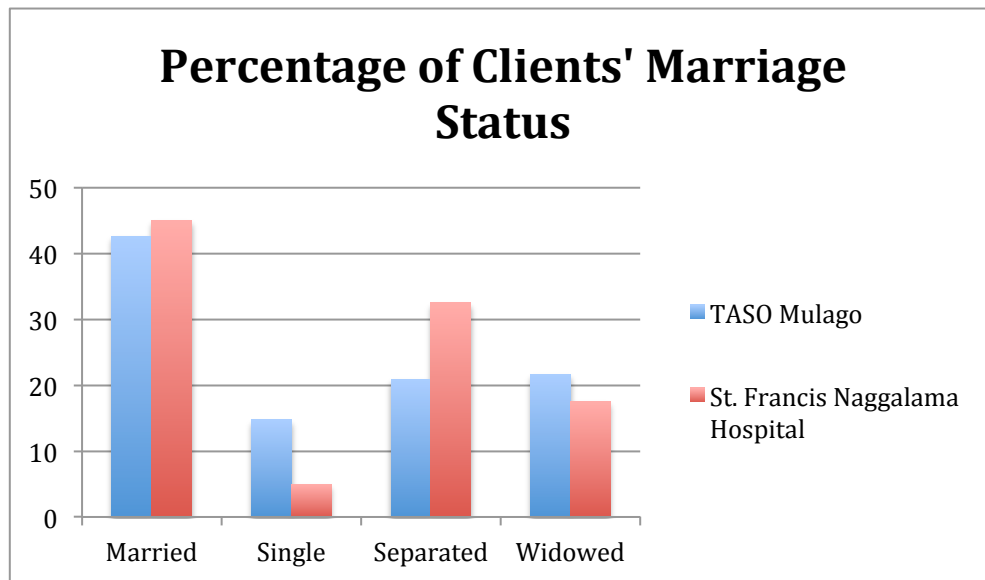
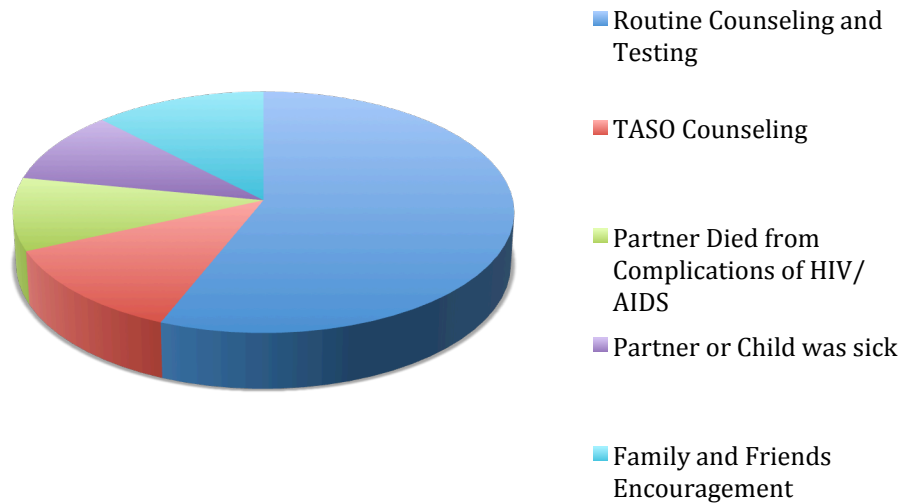
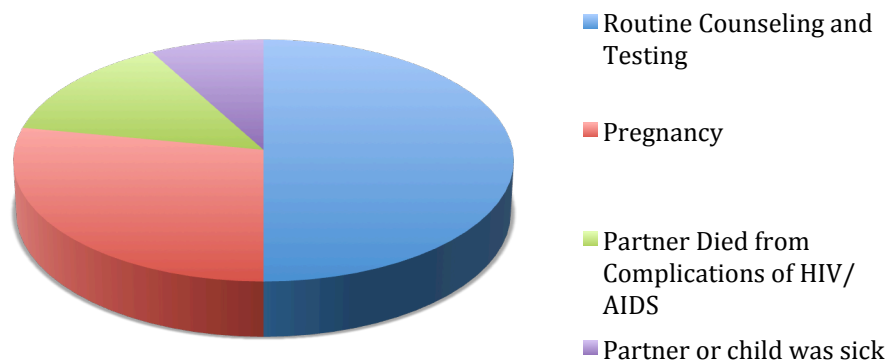


Chart 4. Motivations for HIV Testing

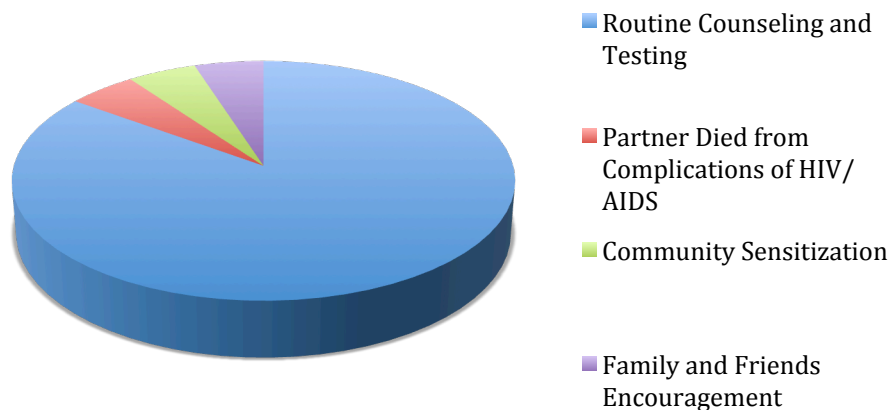
Motivations for HIV Testing for Men at TASO Mulago



Motivations for HIV Testing for Women at TASO Mulago



Motivations for HIV Testing for Men at St. Francis Naggalama Hospital



Motivations for HIV Testing for Women at St. Francis Naggalama Hospital

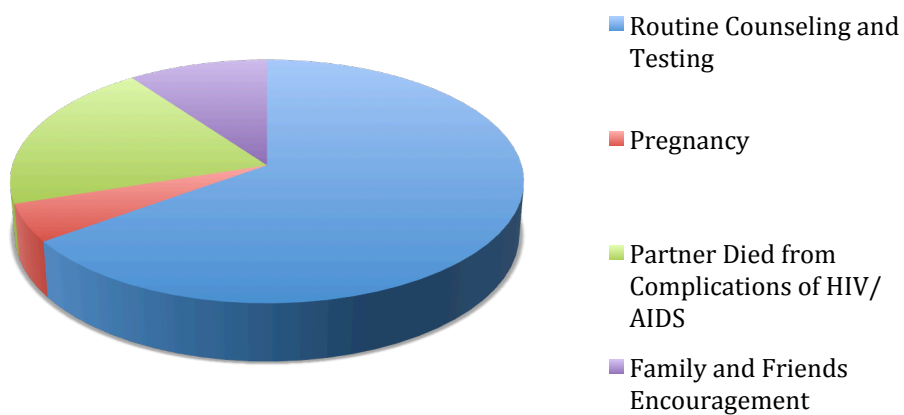


Chart 5. Circumcision Survey

