# FACTORS THAT WOULD INFLUENCE PREGNANCY INTENTIONS AMONG WOMEN OF REPRODUCTIVE AGE IF THEY WERE TO TEST POSITIVE FOR HIV INFECTION: A CASE OF KINONDONI MUNICIPALITY

**By**

**Cecilia Kang'ara**

**A Dissertation Submitted in Partial Fulfilment of the Requirements for the Degree of Master of Public Health of the Muhimbili University of Health and Allied Sciences**

**November, 2007**

## CERTIFICATION

The undersigned certifies that has read and hereby recommends for acceptance a dissertation entitled **Factors that would Influence Pregnancy Intentions among Women of Reproductive Age if they were to Test Positive for HIV Infection: A Case of Kinondoni Municipality,** in fulfillment of the requirements for the degree of Master of Public Health of the Muhimbili University of Health and Allied Sciences.

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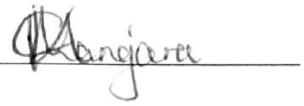
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## DEDICATION

This dissertation is dedicated to my parents, Mr and Mrs N. Kang'ara who sacrificed so much to lay a good foundation for my education which has been a stepping stone to higher grounds like this course. To my loving Husband, Mr. Martin Gatua and also to my daughter Wangari Mburu, I love you all.

## ABSTRACT

HIV/AIDS has emerged as one of the most destructive epidemics in the world and especially in sub-Saharan African. An increased number of women of reproductive age have continued to contribute to the largest proportion of infected people mainly through heterosexual transmission of HIV. Fertility rates remain high in many countries with high prevalence of HIV infection like in Tanzania at 5.7% over the last decade and an HIV prevalence of 7% in the year 2004-2005. Most women are unaware that they are infected before they begin a pregnancy and hence a major mode of transmission of the AIDS virus among children in the region is from infected mothers.

A cross-sectional analytical study was conducted in Kinondoni Municipality in Dar es Salaam during the month of June, 2007. The study aimed at determining factors that would influence pregnancy intentions if women of reproductive age were to test positive for HIV infection.

The study population constituted of 307 women of reproductive age (15-49 years), randomly selected using a multi-stage cluster sampling technique, involving the wards and the sub-wards of Kinondoni municipality.

Data was collected using a semi-structured questionnaire, which was administered by trained research assistants. The questionnaires were checked for consistency and

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Data was collected using a semi-structured questionnaire, which was administered by trained research assistants. The questionnaires were checked for consistency and

accuracy and the data was then coded, entered and analyzed using Epi info version 6 computer software.

Findings indicate that, 54.4% of the respondents were aged 20-29 years and teenagers as a group contributed to 17.6% of the total study population. The data also revealed that 42.3% of the respondents were single, 47% of them were Christians and 50% were Muslims. Sixty one percent of the respondents had completed primary education and 47% were unemployed.

A high proportion (69%) of the respondents reported that they would not be willing to have a child (for those without children) or another child if they were to test positive for HIV infection. The main reasons cited by majority of the respondents were the fear of dying and the possibility of vertical transmission of the virus. On the other hand, women who said that they would still want to have a child (27.4%) even if they tested positive for HIV gave their main reasons as the need to leave a memory behind and availability of drugs and medical services for preventing vertical transmission of the virus.

The findings also show that 84% of the respondents would be willing to take a test for HIV if asked to do so, while 65% of them confirmed to have had an HIV test. Knowledge of MTCT among the respondents was generally high, and was found to be significantly associated with pregnancy intentions ($p<0.05$). On the other hand, the

difference in risk perception among women with positive pregnancy intentions and those with negative pregnancy intentions was not found to be statistically significant (p=0.65).

Furthermore, the findings suggest that the respondents with positive pregnancy intentions were most likely to be aged 20-24 years, single, of Christian denomination, unemployed as well as those who had secondary education. Nevertheless, among socio-demographic characteristics, only the relationship between education level and pregnancy intentions was statistically significantly (p=0.01).

As a high proportion of the respondents tested for HIV at the ANC (67.7%), it is recommended that there should be strategies for encouraging women of reproductive age to also test in other sites in order to give opportunities for those who are not pregnant to access the VCT services.

Since the level of education and the knowledge of MTCT of HIV were found to be positively associated with pregnancy intentions, the study recommends that women should generally be given more opportunities for formal education and adequate information in vertical transmission of the AIDS virus to enable them make informed choices with regards to their pregnancy intentions.

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## LIST OF ABBREVIATIONS/ACRONYMS

| | | |
|---|---|---|
| AIDS | - | Acquired- Immuno Deficiency Syndrome |
| HIV | - | Human Immuno deficiency Virus |
| TDHS | - | Tanzania Demographic and Health Survey |
| UNAIDS | - | Joint United Nations Programme on HIV/AIDS |
| WHO | - | World Health Organisation |
| PMTCT | - | Prevention of Mother To Child Transmission |
| MTCT | - | Mother To Child Transmission |
| NACP | - | National AIDS Control Programme |
| THIS | - | Tanzania HIV/AIDS Indicator Survey |
| VCT | - | Voluntary Counselling and Testing |
| ARV | - | Antiretroviral |
| ANC | - | Antenatal Clinic |

# CHAPTER ONE

## 1.0 INTRODUCTION

According to the Joint United Nations Program on HIV/AIDS (UNAIDS, 2006) about 39.5 million people are living with the Human Immuno-deficiency Virus (HIV) world wide. The report further observes that the infections are on the increase with 65% of them occurring in sub-Saharan Africa, which is home to slightly over one tenth of the world's population. Tanzania, as per the 2002 national population census has a population of 34.5 million and it is among the worst hit countries with a 7% of the adult population infected with HIV (Tanzania HIV/AIDS Indicator Survey, THIS 2003-04). Poverty and other social-cultural factors continue to fuel the spread of HIV, making its prevention and treatment an uphill task especially among women and children who are the most vulnerable to the infections.

Every year more women around the world get infected with HIV as compared to men. The AIDS epidemic update (UNAIDS, 2006) observed that, globally and in every region more adult women above 15 years are now living with HIV than ever before. The 11.7 million women living with HIV in 2006 represented an increase of 1 million infected women compared with 2004. In the Carribean, the Middle East, North Africa and Oceania, close to one in every two adults infected with HIV is a female. In sub-Saharan Africa for every ten adult men living with HIV, there are about 14 adult women who are infected with the virus. Similarly, the prevalence of HIV infection

among women in Tanzania is higher than that for men, 8% and 6% respectively (THIS, 2003-04).

Compared to men, women are biologically, socially and economically more vulnerable to HIV infection. Some of the reasons that have been attributed to this difference include unequal access to finances, fewer education opportunities as well as the fact that women's decisions about preventive measures and seeking treatment for sexually transmitted infections including HIV/AIDS may be determined by their partners and other significant persons in their lives. Women also have to bear the burden of giving care to family members who get infected with HIV, the opportunity cost of this being very high in terms of economic activities. Women are socialized to be risk averse and less aggressive, which affects their negotiating skills in terms of practicing safer sex with their partners. In Tanzania, like most African countries the main mode of transmission according to National AIDS Control Program is heterosexual transmission, which accounts for 81.6% of all HIV infections (NACP, 2005).

Women become sexually active at relatively younger ages as compared with men and they also start childbearing early, putting themselves at risk of HIV infection and pregnancy for the better part of their reproductive years. For example, in Botswana, Zambia and Zimbabwe, where 40% of 20-24 year olds give birth by age 20, more than one quarter of 15-19 year olds attending antenatal clinics in the capital cities are infected with HIV (Rutenberg et al, 2000). Similar to most African countries, Tanzania has about 12% of women aged between 20-49 years having sex before the age of 15 years, 56%

before 18 years and 95% by their 25th year. Childbearing age in Tanzania is also early between 15-19 years in 25% of young women (THIS, 2003-04).

Pregnancy decision-making is a complex issue for any woman because it involves engaging in unprotected heterosexual vaginal sex. Women and men of reproductive age are faced with a major dilemma in many settings around the world where using condoms to reduce the risk of getting infected with HIV doesn't not support their need to bear children. This is of particular concern among Africans because of the paramount importance their culture places on fertility and speedy procreation after marriage (Preston-Whyte, 1999).

On one hand is the influence by cultural norms such as the value attached to children in the society and specific roles of men and women (Grieser et al, 2001). Being married and having children for adults in most African countries is synonymous to being an adult. Pregnancy has been thought to symbolize a woman's own wealth or at least her ability to bear healthy children and to cement the couple's relationship whether it is in the first or in subsequent marriages (Ankrah, 1991). Cultural factors that promote high fertility may facilitate HIV transmission especially in tribes with naming systems that require children to be named after their in-laws. Women achieve social status through bearing children to survive them and perpetuate their lineage (Aka-Dago-Akribi et al, 2001).

On the other hand is the risk of getting infected with HIV or transmitting the virus to the partner and the child through Mother-to-Child Transmission (MTCT). MTCT of

HIV can occur during pregnancy, labour, delivery or breastfeeding. In the absence of treatment, around 15-30% of the babies born to HIV positive women will become infected with HIV during pregnancy and delivery. An additional 5-20% will be infected through breastfeeding (de Cock et al, 2000). In the year 2005, about 700,000 children under the age of 15 years became infected with HIV, mainly through MTCT and 90% of these infections occurred in Africa (UNAIDS/WHO, 2005). In Tanzania, it is estimated that about 5.6% of the AIDS cases reported in 2005 were below 15 years of age, most of which are likely to have been through mother to child transmission (NACP, 2005). It is of concern that AIDS is beginning to frustrate the efforts made in steady reduction of child mortality through universal immunization and improved management of childhood illnesses (NACP, 2004).

In Tanzania, the knowledge of PMTCT is generally high with 69% of women and 63% of men knowing that HIV can be transmitted to the child through breastfeeding. However, the knowledge about reduction of risk of transmission to the child using anti-retroviral drugs is less widespread (THIS, 2003-04).

Voluntary counselling and testing sites have been established across Tanzania in an attempt to prevent the spread of the virus. However, may be due to lack of knowledge on the importance to test, low self perceived risk to HIV infection or for other reasons, only about 5% of women and 7% of men reported to have ever taken HIV test within the period of 12 months preceding the national HIV/AIDS survey (THIS, 2003-04).

Usually women are counselled and tested for HIV during antenatal clinics but then not all women attend the clinics during pregnancy. The prevalence of HIV at the antenatal clinics for pregnant women has been found to range from 4.7% in Kagera to 15.7% in Mbeya (NACP, 2005).

Prevention of mother to child transmission is one of the strategies adopted by the Tanzania government to fight HIV. The success of the PMTCT programs in the country depends on among other things an understanding of the factors that influence pregnancy intentions among women of reproductive age who are infected with HIV.

## 1.1 STATEMENT OF THE PROBLEM

In the African communities where childbearing is of paramount importance and the prevalence of HIV is high, many children get infected with HIV through their mothers. NACP estimates that 5.6% of AIDS cases reported in 2005 in Tanzania were among children below 15 years due to MTCT of HIV (NACP, 2005). The fertility rate in Tanzania has remained high despite the high prevalence of HIV/AIDS in the country and a majority of women who do not know their sero- status.

Women of reproductive age have high pregnancy intentions, and therefore they are exposed to the risk of HIV infection as they try to realise these intentions. Their pregnancy intentions are influenced by many factors, some of which have not been well documented. Ideally women who are infected with HIV should seek medical help

before planning to get pregnant in order to reduce the risk of vertical transmission and that of transmitting the virus to their partners. However, the situation we are faced with in Tanzania like in other African countries is that most women do not test for HIV before they conceive. For example, only about 5% of women were reported to have ever taken an HIV test within a period of one year preceding the national HIV/AIDS Indicator Survey (THIS, 2003-04). At the same time, the national average of contraceptive use is low, estimated to be 20%, suggesting that many women who are in their reproductive age are at risk of getting pregnant.

Women often learn of their sero-positive status during the visits to antenatal clinics after are pregnant. This reduces the chance of preventing transmission to their partners and children since, in most cases they are not prepared psychologically, socially and financially to take preventive measures. On the other hand women who know their sero-positive status have a better chance of protecting their partners from HIV infection by practicing safer sex. They are also empowered as far as their pregnancy intentions are concerned, because they can avoid unwanted pregnancies and seek medical help so as to reduce the risk of mother to child transmission if they want to get pregnant. While a known sero-status has the above advantages to a woman while planning for a pregnancy, there are many other associated factors that influence the pregnancy intentions. Only a few studies have been carried out to document the factors that are associated with pregnancy intentions in an area with high prevalence of HIV/AIDS. There exist conflicting views and scattered evidence on how HIV status affects

pregnancy intentions, with the emergence of two opposing views, where one proposes that known HIV status has a strong influence on pregnancy intentions. On the other hand, there is also an upheld view that a known HIV status is not associated with pregnancy intentions.

Changes in fertility are not static but rather dynamic and take different directions depending on the changes in technology, availability of Information, Education and Communication (IEC) materials, increase in literacy rates and social economic status. For example with the introduction of anti-retroviral drugs that give HIV infected people a kind of new lease to life, pregnancy intentions may have changed. Therefore, past data cannot be fully relied on and there is need for research so that updated data can be provided, particularly with regards to the effect of positive HIV status on pregnancy intentions among women in an urban setting.

## 1.2 RATIONALE OF THE STUDY

A study into the factors influencing pregnancy intentions among women of reproductive age if they were to test positive for HIV infection would provide crucial information that can be used in improving the programmes dealing with prevention of HIV/AIDS, and especially from the mother to her child. PMTCT programmes have great potential to reduce HIV transmission to the children, if such factors in the communities that women of reproductive age are living are well understood.

Most of what is known about the effect of HIV on childbearing intentions is from individuals who already know that they are sero-positive (Rutenberg et al, 2000). In reality however, many individuals who do not know their HIV status will do so upon progression to symptomatic HIV disease and are unlikely to remain well long enough to significantly alter their total fertility (Seltel, 1995). This is particularly so in a country like Tanzania where utilization of VCT services is low, estimated at 15% (THIS, 2003-04). This study will involve women who do not generally know their sero-status and the findings are therefore a reflection of the situation in the general population of similar women in the urban settings.

Most of the studies relating HIV to fertility are qualitative, using in-depth interviews and focus group discussions. On the contrary this study shall use quantitative methods so as to provide data that can be analysed statistically. This kind of analysis has the advantage of enabling comparisons of the findings with other related quantitative studies elsewhere.

## 1.3 STUDY QUESTIONS

1) What is the proportion of women of reproductive age in Kinondoni municipality who intend to become pregnant if they were to test positive for HIV infection?
2) What are the factors which are associated with pregnancy intentions among these women?

## 1.4 STUDY OBJECTIVES

### Broad objective

To determine factors that would influence pregnancy intentions among women of reproductive age in Kinondoni Municipality if they were to test positive for HIV infection.

### Specific objectives:

1. To determine the proportion of women of reproductive age in Kinondoni municipality who intend to become pregnant if they were to test positive for HIV infection.
2. To determine the association between self perceived risk of HIV infection and pregnancy intentions among women of reproductive age in Kinondoni municipality.
3. To determine the relationship between the level of knowledge on MTCT of HIV and pregnancy intentions among the women.

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3. To determine the relationship between the level of knowledge on MTCT of HIV and pregnancy intentions among the women.

4. To determine the reasons for the pregnancy intentions among the women if they were to test positive for HIV infection.
5. To determine the proportion of women of reproductive age who will be willing to test for HIV if asked to do so.
6. To determine the association between the socio-demographic characteristics of women of reproductive age and their pregnancy intentions.

# CHAPTER TWO

## 2.0 LITERATURE REVIEW0

Majority of women who are infected with HIV are of reproductive age and are not aware of their status hence it is necessary to determine the relationship between HIV and pregnancy intentions. While many women infected with HIV might desire and intend to have children despite their status, a few neither desire nor intent to have children (Chen et al, 2001; Cooper et al, 2005). The factors that are associated with this difference among women who are infected are not well understood because behavioral responses tend to be determined by overlapping factors.

The high prevalence of HIV infection in Africa sends mixed feelings and reactions about whether women who know their sero-positive status would realize their pregnancy intentions or they would forego childbearing. Findings from a three country assessment covering Kenya, South Africa and Zimbabwe, reported that respondents were indifferent about the effect of HIV on reproductive intentions. While some said that couples who perceive themselves to be at risk of HIV infection could decide to stop having children. Others underscored the importance of children even if one is infected with HIV as they give care to their parents when they become sick. Some further suggested that there was need to "replenish" the population that had been reduced by AIDS related deaths (Ngom et al, 2005).

Several studies done on the impact of HIV on reproductive decision-making under different contexts suggest the emergence of two schools of thoughts. The proponents of the first school of thought argue that HIV status alone is not a key factor in reproductive decision-making, and as such it has no effect or negative effect on child bearing (Rutenberg et al, 2000; Kishenbaum et al, 2001).

Interventions with HIV positive women in Africa have not been found to have significant change in reproductive outcomes. Couples appeared to be cognizant of the risk of HIV infection and AIDS and especially to their children and even though sometimes changes were reported about their contraceptive behaviour, fertility levels were not affected significantly (Rutenberg et al, 2000).

In a study among women living with HIV/AIDS, (de Bruyn, 2002) some of their reasons for having children include not wanting to miss out on motherhood; the wish to leave memory behind; and the social norms that dictate that a woman is only an adult when she gives birth to a child. As such women would rather risk getting HIV infection than becoming childless as this would result to divorce and stigmatization (de Bruyn, 2002). Another study concurs with these findings where by, the relationship between an HIV diagnosis and subsequent fertility behaviour was found to have little association with childbearing and most women planned to become pregnant despite being infected (Grieser et al, 2001).

Heather (2006) found that irrespective of ones HIV status, the experience of expressing oneself sexually and the desire of being a parent is regarded by majority to be central to what it means to be human. Therefore bearing children in most societies plays the role of social identity and couples are expected to have children.

Having or wanting to have children is generally accepted as a norm in many societies across the world irrespective of HIV status. The society has defined roles for women and men, where having healthy children and a well managed home is at times used to rank the success of a woman while men are ranked by their ability to provide for their families. Women want their children to be healthy and holding other factors constant they would go a long way to ensure that they deliver healthy children and remain healthy enough to provide for them. Some circumstances like lack of parental resources and serious medical conditions like HIV may affect the ability of a woman to conform to the norm. However, even in such dire circumstances not having children of ones own is viewed as a violation of the norm and could lead to stigmatization, separation or divorce of the woman ( Kirshenbaum et al, 2004).

In their study, Aka-Dago-Akribi et al, 1999 found that the desire to have another child continued to be paramount among all the HIV positive women who participated in the in-depth interviews. This was despite being repeatedly advised not to have more children because of their status and awareness of the risk of MTCT of HIV. Pregnancy

was considered as a way of complying with normality and it reduced the risk of being rejected by husband and family and therefore a risk worth taking.

While the second school of thought proposes that, HIV affects reproductive intentions by increasing or reducing childbearing. In response to child mortality as a result of AIDS related illnesses, individuals may adopt insurance and replacement strategies (Grieser et al, 2001). Replacement strategy involves replacing children who die with new births while the insurance strategy involves having many children so that in the event some die, then one is not left without children. These strategies imply therefore that men and women at high risk of HIV infection or those already infected might increase the pace of childbearing. This is referred to as an attempt to "hurry up" fertility as a characteristic response to HIV (Setel, 1995).

Elsewhere, findings from a study in Ndola, Zambia, an area with a high prevalence of HIV, revealed that respondents repeatedly pointed out the difficulties people face in discussing how HIV/AIDS has influenced their reproductive decisions if they do not know their sero-status. However, many women said that if they suspected to have being infected with HIV, they would fear getting pregnant as it would "bring out" the disease (Rutenberg et al 2000). In another study involving HIV infected women, it was observed that women would feel emotional pain if they knew that they would not live long enough to fully participate in their children's lives and therefore they did not intend to have children (Kirshenbaum et al, 2004).

In a study among women with known sero-positive status, potential factors influencing pregnancy intentions included demographic characteristics, HIV related factors and personal beliefs and attitudes (Sowell et al, 2002). Younger age, increased motivation for childbearing, decreased perceived threat of HIV infection, higher traditional gender role orientation and greater avoidance coping were all associated with greater intension for becoming pregnant.

High levels of worry regarding HIV/AIDS infection have been found to reduce childbearing except among young women who are subject to relatively stronger childbearing promotion norms (Noël-Miller, 2000). Socio economic status and the burden of caring for relatives who have been orphaned through HIV may also influence the decision making on childbearing since in most developing countries, the extended family is expected to take up such responsibility.

Childbearing after a confirmed diagnosis of HIV infection has been associated with null parity, low level of knowledge on vertical transmission of HIV, perceived absence of clinical illness and the wish to avoid stigma and other repercussions of being perceived to be infected or unable to bear offspring. These were findings with respondents from Kenya and Tanzania in a study that involved a comparison of pregnancy status at pre and post HIV diagnosis (Forsyth et al, 2002). However, this differs from findings in Uganda where knowledge of MTCT and PMTCT exposure were not significantly related to the desire to have children (Nakayiwa et al, 2006).

Disclosure of HIV status by women who are positive is crucial as far as realisation of pregnancy intentions is concerned Cooper et al, 2005, using in in-depth interviews in Cape Town found that the married women who had disclosed their status to spouses and family members were discouraged from having children. Fear of vertical transmission and concern for the health of the women were the explanation given. On the other hand, women who had not disclosed their sero-status due to fear of stigmatization expressed pressure to reproduce from family and spouses.

Furthermore, women may lack choice in negotiating fertility choices and safer sex regardless of their response to HIV infection and those who are infected may not disclose their status to their partners (Seltel, 1995; Ruternberg et al, 2000). In some cases continued reproduction is not a matter of choice for women since they have a low bargaining power. Quite often men tend to have an upper hand in making these decisions and women are likely to have different pregnancy intentions from their partners.

# CHAPTER THREE

## 3.0 METHODOLOGY

### 3.1 Study area

The study was conducted in Kinondoni municipality, one of the three municipalities in Dar es Salaam Region. Dar es Salaam was chosen because of its high HIV prevalence. It is among the three leading regions in HIV prevalence after Mbeya (14%) and Iringa (13%) with a prevalence of 11% (THIS, 2003-04). Kinondoni was purposely selected because of its high prevalence of HIV, which is about 18.2% (NACP, 2007) as well as the fact that the researcher was more familiar with the area than the other municipalities.

Kinondoni municipality is divided into four divisions for administrative purposes namely; Kawe, Kinondoni, Kibamba and Magomeni. These divisions are further subdivided into 27 wards, which are in turn sub-divided into villages for the rural areas and streets for urban areas.

The currently projected population for Kinondoni municipality is 1,337,875, which includes 675,263 males and 662,612 females. The total fertility rate is higher than the national average, 6.5% and 5.7% respectively. The population in the municipal varies from settlement to settlement, with high-populated areas being the unplanned settlements while low population densities are in peripheral localities. The rapid

population increase in the municipality is influenced by both natural causes and immigration (birth rates and net immigration rates respectively), and the population growth rate is 5.4%. Although the indigenous tribe of residents in Dar es Salaam is the Zaramo, almost all Tanzanian tribes and therefore cultures are found in this area. It is estimated that 360,000 residents are employed, 95% of them being in the private sector. The majority of the residents are involved in petty business, fisheries, livestock keeping and agriculture including horticulture especially for those in the peripheral areas.

The model of health services delivery in Kinondoni municipality like in other municipalities in Tanzania is based on preventive, promotive and curative care. The line of operation starts from the dispensary, health center to the municipal hospital. The total number of health facilities is 192, with the government owning 27 of the facilities. The municipal has a total of 29 Voluntary Counselling and Testing (VCT) centres and 22 clinics that offer services for the Prevention of Mother To Child Transmission (PMTCT) of HIV. Some of these are privately owned.

### 3.2 Study design

An analytical cross sectional study design using quantitative research methods was adopted in addressing the research problem.

### 3.3 Target population

This consisted of all women of reproductive age (15-49 years) residing in Kinondoni municipality.

### 3.4 Study population

The study population consisted of women of reproductive age (15-49 years) residing in three randomly selected wards of Kinondoni Municipality, namely Hananasif, Kijitonyama and Mabibo.

### 3.5 Sample size determination

The sample size was determined using the single proportion formula.

$$n = \frac{(z)^2 P(100-P)}{\varepsilon^2}$$

Where:

n= Minimum sample size desired.

z= The percentage of standard normal distribution corresponding to 95% confidence interval which is 1.96 (approximately)

P= The proportion of women of reproductive age who would be willing to have a child (for those without children) or another child if they were to test positive for HIV infection estimated to be at 50%.

$\varepsilon$ = The margin of error of P, set at 6%

Substituting for the above formula, the minimum sample size was 278. However, 10% was added to take care of any shortfalls, making a minimum sample size of 306 women.

### 3.6 Sampling procedure

A multi-stage cluster sampling technique was used to obtain the study population. The sampling process was carried out in two stages, the first being at the ward level. A list of all the 21 urban wards in Kinondoni municipality was obtained from the municipal council and 3 wards were selected randomly. These included Hananasif, Kijitonyama and Mabibo. In the second stage, three streets were randomly selected from each of the three selected wards forming a total of nine streets. All eligible women aged between 15-49 years in the households located within the selected streets were invited to participate in the survey.

### 3.7 Data collection procedures

Data was collected from respondents by using an interviewer administered structured questionnaire. The questionnaire had both closed and open-ended questions. The questions were first formulated in English and then translated to Kiswahili language, which is the national language in Tanzania. Data was collected on all days of the week including weekends as most adults are likely to be at home on such days. The research team made house to house visits and conducted interviews with all eligible women residing in that particular house. In cases where some respondents were not at home a call back was made to ensure all women were interviewed.

### 3.8 Variable measures

The dependant variables included pregnancy intention if tested positive for HIV infection; self perceived risk of HIV infection; and level of knowledge of MTCT. The independent variables were age, number of children, education, marital status, occupation and religion.

### 3.9 Training of research assistants and pre-testing of the research tool

Before the data was collected the questionnaire was pre-tested and the necessary amendments were made. Two research assistants were trained for two days prior to data collection in order to make them familiar with the research tool. The principal investigator was responsible for training of the research assistants and supervision of data collection.

### 3.10 Data management

Every day after data collection, all filled in questionnaires were checked for consistency and accuracy so as to make corrections where necessary and ensure proper filling in.

### 3.11 Data processing and analysis

Knowledge on MTCT of HIV was assessed using a purposively designed scale that had a maximum of 9 points which an individual could score. The scores were categorized into three levels- high, low and moderate levels. All respondents scoring 0-3 points were considered as having low level of knowledge of MTCT of HIV, while scores of 4-6

points were classified as moderate level of knowledge and scores above 7 points were classified as high levels of knowledge.

Self perceived risk to HIV infection was assessed using one question where by the respondents were required to give their perception on what was the chance that they may get infected with HIV. The response categories were high to moderate chance, low to no chance and not sure of the chance of getting infected with HIV. This depended on whether the respondents had been exposed to any of the risk of acquiring HIV infection.

Data from individual questionnaires were coded, entered and analyzed using Epi info Version 6 computer software. Statistical analysis was done using the same soft ware. Where appropriate, Chi square test was used to test for associations between the dependent and independent variables.

**3.12 Ethical considerations**

Ethical clearance was obtained from the Muhimbili University of Health and Allied Sciences. Thereafter permission for conducting the survey was obtained from the Kinondoni municipal and the respective wards and streets authorities. The aim of the research was explained to the respondents and informed verbal consent obtained from each of them. To ensure privacy during the interviews, respondents were requested to select a place away from other members of the household where they felt comfortable to talk to the research assistant. They were also assured of confidentiality and that the

information obtained would only be used for research purpose and that it would not be disclosed to other people.

# CHAPTER FOUR

## 4.0 RESULTS

### 4.1 Socio-demographic characteristics of the study population

A total of 307 women from Kinondoni municipality were randomly selected to participate in the study. All of them agreed to fully participate by responding to the administered questionnaire resulting to a response rate of 100%. Their socio-demographic characteristics are summarized in Table 1. The minimum age of the respondents was 15 years while the maximum age was 49 years, and the mean was 25.9.

Each of the age groups 20-24 and 25-29 years consisted of more than a quarter of the respondents (25.7% and 28.7% respectively). Teenagers aged 15-19 years as a group contributed to about 17.6% while the least proportion (12.1%) was among the age group 35+ years. Women who were single were about 42.3%, while those who were married were 34.9%. Close to 19% of the respondents were cohabiting and the rest were divorced, separated or widowed.

Sixty one percent of the women had primary education, 29% had completed secondary education, while a further 5% had achieved college education. The data also indicates that Christians and Muslims were the predominant religions constituting 47% and 50% of the respondents respectively. With regards to occupation, 47% of the women were unemployed, and 13% were students.

**Table 1: Socio-demographic characteristics of women of reproductive age in Kinondoni municipality**

| Characteristics | Frequency | Percentage |
|---|---|---|
| **Age(Years)** | n=307 | |
| 15-19 | 54 | 17.6 |
| 20-24 | 79 | 25.7 |
| 25-29 | 88 | 28.7 |
| 30-34 | 49 | 16.0 |
| 35+ | 37 | 12.1 |
| **Marital status** | | |
| Single | 130 | 42.3 |
| Married | 107 | 34.9 |
| Cohabiting | 57 | 18.6 |
| Others(divorced, separated, widowed) | 13 | 4.2 |
| **Religion** | | |
| Christian | 143 | 47.0 |
| Muslim | 155 | 50.0 |
| Others(traditional religion) | 9 | 3.0 |
| **Educational level** | | |
| No formal education | 16 | 5.0 |
| Primary education | 187 | 61.0 |
| Secondary education | 89 | 29.0 |
| College education | 15 | 5.0 |
| **Occupation** | | |
| Student | 39 | 13.0 |
| Self employed | 71 | 23.0 |
| Employed | 51 | 17.0 |
| Unemployed | 146 | 47.0 |

## 4.2 Proportion of women who would be willing to have a child (for those without children) or another child if they were to test positive for HIV

Table 2 shows that out of the 307 women who participated in the study, 63.8% had children. The number of children per woman varied from one to more than four, with a mean of 2.0. Three quarters of the respondents had one or two children.

When asked how important it was for them to have children of their own, most of the respondents (79%) said it was very important while for 9% of them, it was not important at all. About 68.4% of the respondents said that they would be willing to have children in future. Further analysis revealed that out of the 307 women interviewed, 84 (27.4%) said that they would be willing to have a child or another child if they were to test positive for the infection.

**Table 2: Distribution of the respondents according to various characteristics**

| Variable | Frequency | Percentage |
|---|---|---|
| **Number of children per woman (n=196)** | | |
| 1 | 75 | 38.3 |
| 2 | 72 | 36.7 |
| 3 | 34 | 17.3 |
| 4+ | 15 | 7.7 |
| **Importance of having children (n=307)** | | |
| Very important | 241 | 78.5 |
| Of little importance | 38 | 12.4 |
| Not important at all | 28 | 9.1 |
| **Willingness to have children In future (n=307)** | | |
| Yes | 210 | 68.4 |
| No | 66 | 21.5 |
| Not sure | 31 | 10.1 |
| **Pregnancy intention if tested HIV positive(307)** | | |
| Yes | 84 | 27.4 |
| No | 212 | 69.0 |
| Not sure | 11 | 3.6 |

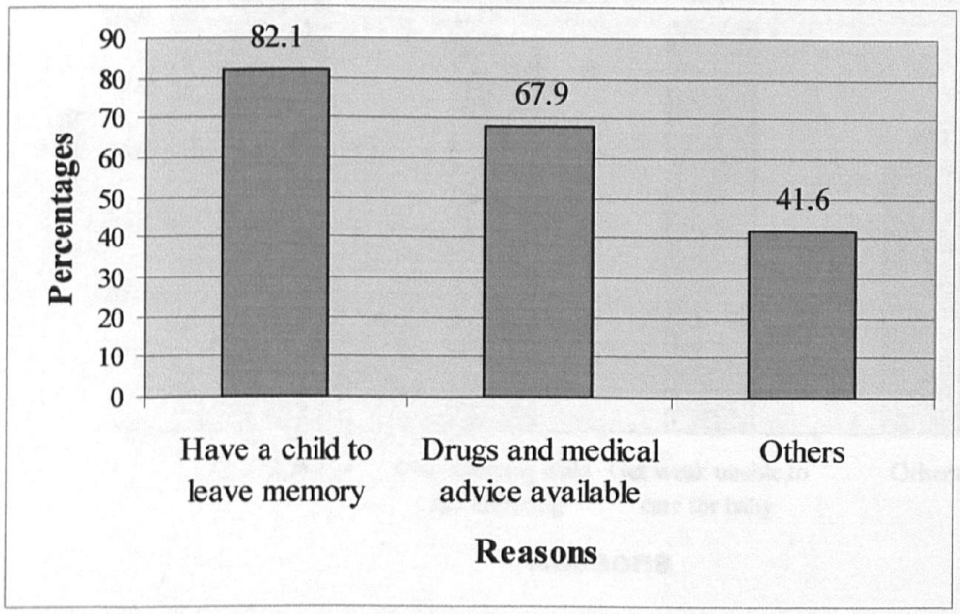
## 4.3 Reasons for the pregnancy intentions if one was to test positive for HIV infection

### 4.3.1 Reasons for positive intentions

All the 84 women who indicated positive intentions to bear a child even if they were to test positive for HIV infection, were asked to give reasons for such intentions. The most common reason cited by 82.1% of the respondents was "I love to have my own child to take care of me and to leave a memory behind." This was followed by 67.9% of the

women who stated, "Drugs and medical advice are available to prevent infecting the child" (as shown in Figure 1). Other reasons included not wanting to look barren, one's right to give birth, enough number of children and the desire to know ones HIV status.

**Figure 1: Reasons for positive pregnancy intentions (n=84)**

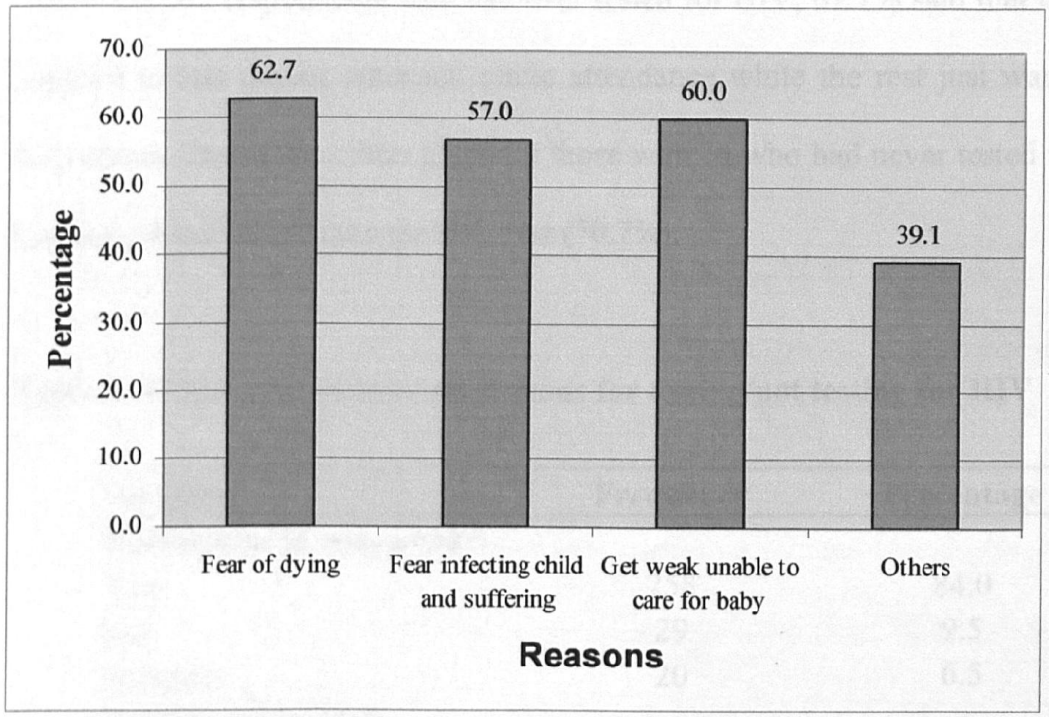



### 4.3.2 Reasons for negative intentions

Likewise, the remaining 223 women who said that they would not be willing to have a child if they were to test positive for HIV infection were asked to give their reasons. The most common reason advanced by 62.7% of the respondents was "I am going to die". Fifty seven percent said that "The child is going to get infected with the virus and suffer a lot" while another 60% said that "I will get very weak and not be able to care for the child", as shown in the Figure 2. Other reasons given included not wanting to leave an

orphan behind, having enough children and the fear of not being able to carry a pregnancy to term.

**Figure 2: Reasons for negative pregnancy intentions (n=233)**




### 4.4 Willingness and reasons for testing/ not testing

A high proportion of the respondents (96.4%) said it was important for women to know their HIV status and 84% of them indicated willingness to test for HIV if asked to do so. When asked to cite their main reasons, 81.4% stated that the main importance was to know ones health while 43.1% mentioned protecting others from getting infected with the virus. Others mentioned the importance of testing to include having peace of mind, organizing ones life, planning for future as well as getting treatment and advice.

It was further inquired from the respondents whether they had ever taken an HIV test, and 65.5% of them reported affirmatively. Their reasons for taking the test as well as reasons advanced by their colleagues who had never tested are summarized in Table 3.

Out of the 201 respondents who had ever tested for HIV, 67.7% said that they had been required to test during antenatal clinic attendance while the rest just wanted to know their status. The main reason given by those women who had never tested was that they had not yet decided to take the HIV test (70.7%).

**Table 3: Willingness to test and reasons for testing/not testing for HIV**

| Variable | Frequency | Percentage |
|---|---|---|
| **Willingness to test( n=307)** | | |
| Yes | 258 | 84.0 |
| No | 29 | 9.5 |
| Not sure | 20 | 6.5 |
| **Ever tested (n=307)** | | |
| Yes | 201 | 65.5 |
| No | 106 | 35.5 |
| ***Reasons for testing (n=201)** | | |
| Routine ANC | 136 | 67.7 |
| Marriage | 14 | 7.0 |
| Know status | 65 | 32.3 |
| Others | 29 | 14.4 |
| ***Reasons for not testing (n=106)** | | |
| Fear of testing | 23 | 21.7 |
| Not yet decided | 75 | 70.7 |
| Others | 10 | 29.2 |

**Multiple responses allowed*

**4.5 Association between self perceived risk and pregnancy intentions.**

In assessing self perceived risk to HIV infection the respondents were asked to give their perception on what was the chance that they may get infected with HIV. The response categories were classified as high to moderate chance, low to no chance and not sure of the chance of getting infected with HIV.

A total of 77 (25.1%) respondents perceived themselves to be at high to moderate risk of acquiring HIV infection. A high proportion (63.5%) of the respondents was not however sure whether they were at risk or not (as shown on Table 4).

Further analysis revealed that women who perceived themselves to be at low risk of acquiring the infection (31.4%) were most likely to have positive pregnancy intentions. On the other hand those who reported not to be sure (74.4%) about their risk perception had a tendency of having negative pregnancy intentions. However, the association between their risk perception and pregnancy intentions was not statistically significant (p=0.65).

**Table 4: Association between perceived risk to HIV infection and pregnancy intentions (n=307)**

| | Pregnancy intention | | | | |
|---|---|---|---|---|---|
| | Positive | | Negative | | Total |
| **Risk perception** | No | % | No | % | |
| High to moderate | 23 | 30.0 | 54 | 70.0 | 77 (25.1) |
| Low | 11 | 31.4 | 24 | 68.6 | 35 (11.4) |
| Not sure | 50 | 25.6 | 145 | 74.4 | 195 (63.5) |
| **Total** | 84 | | **223** | | **307** |

( $X^2$=0.87 P=0.65)

### 4.6 Relationship between knowledge of MTCT of HIV and pregnancy intentions

In assessing knowledge of MTCT of HIV, respondents were asked nine questions and their scores were categorized as low (0-3), moderate (4-6) and high (≥ 7).

**Table 5: Relationship between knowledge of MTCT of HIV and pregnancy intentions**

| | **Level of Knowledge** | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **High** | | **Moderate** | | **Low** | | **Total** | |
| **Pregnancy intentions** | No | % | No | % | No | % | No | % |
| Positive | 17 | 20.2 | 64 | 76.2 | 3 | 3.6 | 84 | 27.4 |
| Negative | 158 | 70.8 | 38 | 17.0 | 27 | 12.1 | 223 | 72.6 |
| **Total** | **175** | **57.0** | **102** | **33.2** | **30** | **9.7** | **307** | **100.0** |

(P= 0.00, $x^2$ for trend 24.22)

As summarized in Table 5, generally the level of knowledge on MTCT of HIV among the respondents was good. A high proportion of women (57.0%) depicted a high level of knowledge.

The results also reveal that women with positive pregnancy intentions were most likely to have moderate level of knowledge, while those with negative pregnancy intentions were most likely to have high level of knowledge. There was also a tendency of an increase in the proportion of women with negative pregnancy intentions with an increase in the level of knowledge and this trend was significant (P=0.00).

### 4.7 Association between pregnancy intentions and socio-demographic characteristics if tested positive for HIV

Findings suggest that women between 20-24 years; single women; women belonging to Christian denomination; women who had college education as well as students were more likely to have positive pregnancy intentions if tested positive for HIV compared to their colleagues in the other socio-demographic categories as shown on Table 6. The data also shows increasing number of respondents with positive pregnancy intentions with the increase in the level of education among the respondents. However, only education level showed difference that was statistically significant (p=0.00).

**Table 6: Association between pregnancy intentions and socio-demographic characteristics of women if they were to test positive for HIV (n=307)**

| | Pregnancy intention | | |
|---|---|---|---|
| **Characteristic** | **Positive (n=84)** | **Negative (n=223)** | |
| **Age (Years)** | | | |
| 15-19 | 11 (20.4) | 43(79.6) | |
| 20-24 | 32 (40.5) | 47(59.5) | |
| 25-29 | 25 (28.4) | 63(71.6) | |
| 30-34 | 11(22.4) | 38(77.6) | |
| 35+ | 5(13.5) | 32(86.5) | P=0.14 |
| **Marital status** | | | |
| Single | 43(33.0) | 87(67.0) | |
| Married | 26(24.3) | 81(75.7) | |
| Cohabiting | 14(24.6) | 43(75.4) | |
| Others(separated, widowed, divorced) | 1(7.7) | 12(92.3) | P=0.14 |
| **Religion** | | | |
| Christian | 41(28.7) | 102(71.3) | |
| Muslim | 40(25.8) | 115(74.2) | |
| Other( Tradition religion) | 3(33.3) | 6(66.7) | P=0.78 |
| **Educational level** | | | |
| No formal education | 2(12.5) | 14(87.5) | |
| Primary education | 46(24.6) | 141(75.4) | |
| Secondary education | 27(30.3) | 62(69.7) | $x^2$ for trend =8.44 |
| College education | 9(60.0) | 6(40.0) | P= 0.03 |
| **Occupation** | | | |
| Student | 15(38.4) | 24(61.6) | |
| Self employed | 18(25.4) | 53(74.6) | |
| Employed | 15(29.4) | 36(70.6) | |
| Unemployed | 36(24.7) | 110(75.3) | P = 0.36 |

# CHAPTER FIVE

## 5.0 DISCUSSION

Tanzania has one of the highest HIV prevalence, ranging from 4.7% (in Kagera) to 15.7% (in Mbeya) among pregnant women attending antenatal clinics (NACP, 2005). Coupled with a total fertility rate of 5.7, reducing the level of MTCT of HIV is very critical. Majority of women are unaware that they are infected before they begin a pregnancy, making it difficult to determine whether their pregnancy intentions could be the same if they were aware of their positive sero-status before they conceived. This study sought to determine factors that would influence pregnancy intentions if women were to test positive for HIV.

### 5.1 Pregnancy intentions if tested positive for HIV

The findings revealed that only about a quarter of the respondents would be willing to have a child (for those without children) or another child if they were to test positive for HIV. Such results support the assertion that a known sero-positive status may be a factor determining whether women would want to have children or not. This however contradicts findings by de Bruyn (2002) and Heather (2006) who documented that pregnancy intentions were not affected by a known sero-positive status.

Furthermore, the findings from the current study conform very well with the observations from a qualitative study in an urban city in Zambia, in which women were

asked to consider a hypothetical case where a woman knew she was HIV positive and majority were of the view that pregnancy should be avoided (Rutenberg et al, 2000). On the contrary, a study in Cape Town revealed that many HIV infected men and women were firm about their desire not to have children because of their sero-status (Cooper et al, 2005). For some, the desire to bear children might be attributed to the paramount importance placed on fertility, especially after a marriage as documented elsewhere by Preston-Whyte (1999). However, caution should be exercised in making direct comparisons with these studies as there were considerable differences in the study designs and settings although they may be useful in identifying the trends in pregnancy intentions.

It should be emphasized that in most instances, HIV infected individuals are stigmatized by the surrounding communities. It is not therefore surprising that in the context of the communities like this, a higher proportion of respondents would not want to have a child if they were to test positive for HIV. Being infected might be viewed as being different and incapable of giving birth to healthy children and remaining healthy like other uninfected women.

Interpretation of the findings from this and similar studies may be limited by the inherent difficulties in establishing whether the respondents would maintain their mind sets about their willingness to bear children if they were actually to test positive for HIV. A more reliable way in determining the pregnancy intentions among women would be to

determine the intentions pre and post HIV testing and then follow-up the participants to observe whether they become pregnant over a given time.

**5.2 Reasons for pregnancy intentions among the respondents**

The need for a woman to have a child of her own who would take care of her and the desire to leave behind memory after death were the two main driving forces for the willingness to have a child even if one was to test positive for HIV. Similar reasons have also been advanced by respondents living with HIV in other studies where the importance of leaving ancestry and memory behind was emphasized (de Bruyn, 2000; Nakayiwa et al, 2006). Such findings may be explained by socio-cultural pressures especially in cultures where there exist naming systems that require women to give birth so that the 'name' of the family can get to the future generations. In supporting this argument further, Aka-Dago-Akribi et al, (2001) found out in Abidjan that women achieve social status through having children to survive them and perpetuate the lineage.

Availability of antiretroviral (ARV) drugs and medical advice was given as a motivation for women who reported that they would want to have children despite HIV positive status. This implies that following the commencement of PMTCT services the pregnancy intentions of individuals who are infected may have changed. The ARVs increase the quality of life and survival of the individuals and they can therefore reduce the risk of infecting their children and remain strong long enough to give care to their children. For individuals who have been given a kind of new lease in life through ARVs,

having children may go a long way to give meaning to their life and enable them to lead a 'normal' life.

On the other hand, the study demonstrated that women who had negative pregnancy intentions cited fear of dying (43.5%) as the main reason for not wanting to have a child if were to test positive for HIV. Some respondents raised a concern that the virus weakens the women so much that they are unable to care for the child. Therefore getting pregnant while infected with the virus may be seen as weakening the body further hence making the woman more vulnerable to diseases leading to premature death.

Fear of vertical transmission (40%) and not wanting to have an ailing child were cited as some of the reasons for not wanting to have children. These findings corresponded with observations by Kirshenbaum et al (2004) who documented that vertical transmission risk is often overestimated by the respondents in many studies and feelings of guilt of infecting an innocent child were similarly commonly cited. However, this is not in line with the high level of knowledge of MTCT depicted by the women in the study show that most of them (95%) knew that it was possible for an infected mother to deliver a child who is not infected with HIV.

**5.3 Willingness to test for HIV if asked to do so**

Majority (84%) of the women interviewed indicated that they would be willing to test for HIV if they were asked to do so. About 96.4% of the respondents knew that taking

an HIV test is of importance to a woman to enable her know her HIV status. However, this proportion is higher than those who said that they would accept an HIV test themselves if asked to do so (96.4% versus 84%). The data implies that there is a gap between knowledge about the advantage of having a known HIV status and the application of the knowledge.

Contrary to the findings in the recent national HIV/AIDS survey (THIS, 2003-04) where only about 5% of women had ever taken an HIV test within the period of 12 months preceding survey, majority (65.5%) of the women in the Kinondoni study reported to have tested for HIV. This may be due to the fact that this study involved women of reproductive age and majority of them (63.2%) had children, therefore they tested as a routine procedure while attending the antenatal clinics following counseling for the purpose. Indeed, out of those who reported to have tested for HIV, 44.3% actually confirmed to have tested during routine ante-natal clinic visits.

The variation between the respondents who reported that they would be willing to test for HIV if asked to do so and those who reported to have ever tested, (84% versus 65.5% respectively) may be attributed to the barriers in assessing VCT services. The health seeking behaviour of most women especially those who are unemployed as in the case in this study may be influenced by their partners. The women may know the importance to test and be willing to test for HIV but they cannot make this decision on their own unless they get support from their husbands.

## 5.4 Relationship between socio-demographic characteristics of women and pregnancy intentions

Women who reported that they would be willing to have a child or another child were most likely to be between the ages of 20-24 years. This might be attributed to the fact that the women at this age are most probably in early marriage or have not got married and hence their childbearing motivations are high. These findings are in keeping with findings in a related study where women at young ages were similarly more willing to have children even if they were HIV infected (Noël-Miller, 2000).

The relationship between level of education and pregnancy intentions was found to be statistically significant, which implies that there is a difference in the level of education between the respondents with positive pregnancy intentions and those with negative pregnancy intentions. Women with college education had a higher tendency of having positive pregnancy intentions compared to their collegues who were less educated. Perhaps women with higher education are most likely to have better coping skills in terms of social pressure that could discourage them from realizing their pregnancy intentions even if they are infected. These women might also have better access to medical services and afford alternative feeding for their children if they realized their pregnancy intentions while they are infected.

### 5.5 Association between level of knowledge of MTCT of HIV and pregnancy intentions

Findings of this study generally demonstrate a high level of knowledge of MTCT among the respondents. This may be attributed to the health education provided at the ANC given that majority of the women had children and that they tested for HIV during pregnancy.

The difference in the level of knowledge between the respondents with positive pregnancy intentions and those with negative pregnancy intentions was found to be statistically significant. The results reveal that the respondents who scored high level of knowledge of MTCT of HIV were most likely to be those with negative pregnancy intentions compared to those who scored low and moderated levels of knowledge. These findings concur with what was found by Forsyth et al, 2000 who established that low level of vertical transmission after a confirmed diagnosis was associated with child-bearing intentions.

Findings from this study however, challenge those of a related study in Uganda among women who were infected with HIV, where knowledge of MTCT was not significantly related to the desire to have children (Nakayiwa et al, 2006). This may be attributed to the difference in awareness of sero-positive status in the study populations, given that this study did not limit its participants to only those who were infected.

## 5.6 Association between self-perceived risk to HIV infection and pregnancy intentions

With regards to self perceived risk to HIV infection, the results of this study suggest that a high proportion (63.5%) of the respondents reported not to be sure about their risk of getting infected with HIV. Ascertainment of the risk of getting infected may have been tricky for the respondents especially if they may have been exposed to the risks of getting infected without their knowledge.

Further analysis of the findings to explore the relationship between self-perceived risk to HIV infection and pregnancy intentions did not reveal a significant difference between the perception of risk among the respondents with positive pregnancy intentions and those with negative pregnancy intentions ($p=0.65$). However, such findings contradict what was observed by Sowell et al (2002) where perceived threat to HIV infection was significantly associated with positive pregnancy intentions. Moreover, in this study the respondents who reported low risk (31.4%) of getting infected with HIV were most likely to have positive pregnancy intentions.

## 5.7 Study limitations

This survey assumed that the study participants did not generally know their HIV status. This might have interfered with the results since; some of the respondents might have been aware of their positive sero-status given that 65.5% of the respondents reported to

have taken an HIV test. Hence some of the respondents might have given answers based on their actual situations.

# CHAPTER SIX

## 6.0 CONCLUSION AND RECOMMENDATIONS

### 6.1 CONCLUSION

The findings from this study reveal that a lower proportion of women of reproductive age in Kinondoni municipality had positive pregnancy intentions compared to those with negative pregnancy intentions if tested positive for HIV. The factors that were found to be significantly associated with this difference in pregnancy intentions were the level of education of the respondents and the level of knowledge on MTCT of HIV.

The study also demonstrates that majority of the women in the study reported to be willing to test for HIV if asked to do so and that most of them had tested at the ante-natal clinics. The level of knowledge of MTCT was generally good among the women in the study population, probably attributed to health education given to mothers at the ANC clinics.

Majority of the respondents reported that they were not sure about their chance of getting infected with HIV. There was no significant difference in level of self perceived risk among respondents with positive pregnancy intentions and those with negative pregnancy intentions.

## 6.2 RECOMMENDATIONS

The study revealed that, a high proportion of women tested for HIV at the ANC. It is therefore recommended that there should be strategies for encouraging women of reproductive age to also test in other sites in order to give opportunities for those who are not pregnant to access the VCT services.

The level of education and knowledge of MTCT of HIV were found to be significantly associated with pregnancy intentions. It is therefore recommended that women should generally be given more opportunities for formal education and adequate information on vertical transmission of the AIDS virus to enable them make informed choices with regards to their pregnancy intentions.

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