FACTORS INFLUENCING FERTILITY DESIRE, INTENTIONS AND CONTRACEPTIVE USE AMONG HIV SERO DISCORDANT COUPLES IN DAR ES SALAAM REGION

By

Roseline Faustine Urrio

A dissertation submitted in Partial Fulfillment of the requirements for the degree of Master of Public Health of the Muhimbili University of Health and Allied Sciences

Muhimbili University of Health and Allied Sciences

October, 2010

CERTIFICATION

The undersigned certifies that has read and hereby recommends for acceptance a dissertation entitled **Factors influencing fertility desires, intentions and contraceptive use among HIV sero discordant couples in Dar es Salaam Region**, Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Public Health of the Muhimbili University of Health and Allied Sciences.

Dr Rose N. M .Mpembeni (MSC, PHD)

(Supervisor)

Date: 22nd October 2010

DECLARATION AND COPYRIGHT

I, **Roseline Faustine Urrio**, declare that this dissertation is my own original work and that it has not been presented and will not be presented to any other University for a similar or any other degree award.

Signature: 

Date: 22nd October 2010

This dissertation is copyright material protected under the Berne Convention, the Copyright Act 1999 and other international and national enactments, in that behalf, on intellectual property. It may not be reproduced by any means, in full or in part, except for short extracts in fair dealings, for research or private study, critical scholarly review or discourse with an acknowledgement, without the written permission of the Directorate of Postgraduate Studies, on behalf of both the author and the Muhimbili University of Health and Allied Sciences.

ACKNOWLEDGEMENT

The writing of this dissertation has been one of the most academic challenges I ever had to face. Without the support, patience and guidance of many people this study would not have been achieved. It is to them that I owe my deepest gratitude. I am heartily thankful to my supervisor Dr Rose Mpembeni who was abundantly helpful and offered invaluable assistance, support and guidance from the preliminary development of the research proposal to writing up of this dissertation despite of her many academic and professional commitments.

Special thanks to all the teaching staffs in the school of Public Health and Social Sciences (SPHSS), for their tireless teaching. Many thanks to my colleague in the 2009/2010 MPH cohort for I enjoyed their companionship, shared learning and team work.

I would like to thank all HIV sero discordant participants that agreed to take part in this study and all the research assistances that took part in data collection for their tireless time within the short time that data was to be collected.

I thank the Municipal Medical officer for Ilala, Kinondoni and Temeke Municipalities for allowing me to conduct the study in their municipalities. I also want to thank care and treatment clinic managers of Amana, Buguruni, Mwananyamala, Sinza, Temeke and Mbagala.

I wish to express my love and gratitude to my beloved husband Dr Sebastian Ndege who supported me throughout this course. Without him this effort would have been worth nothing. His love, support and constant patience have taught me so much about sacrifice and discipline.

I am also grateful to my sons Casmir and Faustine for being very understanding as I pursued the course. My parents, who have always supported, encouraged and believe in me.

Last but not least thank be to god for my life though out the year, you have made my life more generous may your name be high, honored and glorified.

DEDICATION

This dissertation is dedicated to my parents, Dr and Mrs. Tengio F Urrio who sacrificed so much to lay a good foundation in my life and my education which has been a stepping stone to higher grounds like this course. To my loving Husband, Dr Sebastian Ndege and my two sons Casmir Bigacho and Faustine Marwa, I love you all.

ABSTRACT

HIV sero discordant couples have fertility desires and intentions to have children in future. There is little information on factors that influence desires and intentions to have children and use of contraceptives among HIV sero discordant couples. An analytical cross sectional study was conducted in Dar es Salaam with the aim of assessing factors that are associated with fertility desires, intentions and contraceptive use among HIV sero discordant couples. A total of 267 men and women participated in this study of which 65.2% were females. Data were analyzed using SPSS computer software. Frequencies cross tabulations and multiple logistic regression were used to assess desires, intentions and the associated factors. One hundred and twenty six participants (47.2%) desired to have children. Majority of HIV positive women and men who are living in HIV sero discordance and desire to have children are young, have a partner who desire to have a child, have fewer children and have CD4 more than 200 /mm^3. Majority of participants who had children of their own and with their current partner intended to have only one child compared to those who had no children of their own or had no children with their current partner. Multiple logistic regression analysis indicated that participants in the older age group are less likely to desire for children as compared to the younger age groups, while participants who already have children, are significantly less likely than others, to want to have children in future.

Almost 90% of participants were using contraceptives where condoms were the most commonly used method. The use of contraceptives was significantly associated with whether or not the participant has children with the current partner. Findings of the study show that men and women living in HIV sero discordance desire to have children, these calls for the need to have reproductive health counseling for this group for them to make informed choices to have children at the time when probability of HIV transmission is lowest.

TABLE OF CONTENT

CERTIFICATION ii

DECLARATION AND COPYRIGHT iii

ACKNOWLEDGEMENT iv

DEDICATION v

ABSTRACT vi

TABLE OF CONTENT vii

LIST OF TABLES x

LIST OF ABBREVIATIONS xi

DEFINITION OF TERMS xii

CHAPTER ONE 1

1.0 INTRODUCTION 1

1.1 Background 1
1.2 Problem statement 4
1.3 Rationale for the study 5
1.4 Conceptual framework 7
1.5 Objectives 9
1.5.1 Broad Objective 9
1.5.2 Specific Objectives 9
1.6 Research questions 9

CHAPTER TWO 10

2.0 LITERATURE REVIEW 10

2.1 Global HIV/AIDS Epidemic 10
2.2 HIV/AIDS Epidemic in Tanzania 10
2.3 HIV/AIDS Epidemic Response 11
2.4 HIV sero discordance 12
2.5 Fertility desires, intentions and contraceptive use among HIV sero discordant couples 13
2.6 Stigma and discrimination 14

CHAPTER THREE 16

3.0 METHODOLOGY **16**

3.1 Study Design 16
3.2 Study Site 16
3.3 Study population 17
3.4 Sample size and Sampling procedure 18
3.4.1 Sample size 18
3.4.2 Sampling Procedure 19
3.5 Recruitment and training of Research Assistants 19
3.6 Pre-testing of the questionnaire 19
3.7 Data collection methods 20
3.8 Data quality control 20
3.9 Study variables 20
3.10 Data analysis 21
3.11 Ethical considerations 22
4.0 RESULTS **23**

4.1 Social demographic characteristics of the study participants 23
4.2 Disclosure of HIV status 24
4.3 Desires and intentions of having children among HIV sero discordant couples 25
4.4 Factors associated with fertility desires among HIV sero discordant couples 25
4.4.1 Fertility desires and socio demographic factors 25
4.4.2 Fertility desires and social factors 26
4.4.3 Fertility desires by HIV history and disease stage 27
4.4.4 Fertility desires and reproductive History 28
4.4.5 Multiple Logistic Regression analysis 29
4.5 Factors associated with fertility intentions among HIV sero discordant couples 30
4.5.1 Fertility intentions and social demographic factors 31
4.5.2 Fertility intentions and HIV history 32
4.5.3 Association of fertility intentions and Reproductive history 33
4.5.4 Multiple Logistic Regression Analysis 34
4.6 Use of family planning methods among HIV sero discordant couples 35
4.6.1 Source of contraceptive methods 36
4.7 Factors affecting choice and use of family planning methods. 36
4.7.1 Family planning use and social demographic characteristics 36
4.7.2 Family planning use and reproductive history 37
CHAPTER FIVE **39**

5.0 DISCUSSION **39**

5.1 Fertility desires and intentions among HIV sero discordant couples 39
5.2 Factors associated with fertility desire among HIV sero discordant couples 40
5.2.2 Fertility desires and social factors 40
5.2.3 Fertility desires HIV History and disease stage 41

5.2.4 Fertility desires and Reproductive History 41
5.3 Factors associated with fertility intentions among HIV sero discordant couples 42
5.3.1 Fertility intentions and Social demographic factors 42
5.4 Family planning choice and use among HIV sero discordant couples 42
5.4.1 Factors influencing family planning use 43
5.5 Study Limitation 43
CHAPTER SEVEN 46

7.0 Recommendations 46
REFERENCES 47

CHAPTER EIGHT 52

8.0 APPENDICES 52

8.1 Appendix 1: Informed Consent Form, English Version 52
8.2 Appendix II: Informed Consent Form, Swahili Version 55
8.3 Appendix III : Questionnaire English Version 58
8.4 Appendix IV : Questionnaire Swahili version 68

LIST OF TABLES

Table 1: Social demographic characteristics of the study participants.....24

Table 2: Disclosure of HIV status.....24

Table 3: Participants fertility desires and intentions.....25

Table 4: Fertility desire by socio demographic factors 26

Table 5: Fertility desire by social cultural factors 27

Table 6: Fertility desire by HIV factors 28

Table 7: Fertility desire by reproductive history 29

Table 8: Multiple Logistic regression analysis results on factors associated with fertility desires.....30

Table 9: Fertility intention by socio demographic factors 32

Table 10: Fertility intentions by HIV history 33

Table 11: Fertility intentions by reproductive history 34

Table 12: Logistic regression analysis results on factors associated with fertility intentions 35

Table 13: Distribution of use of family planning methods.....35

Table 14 Source of Family planning methods 36

Table 15: Family planning methods use by socio demographic factors 37

Table 16: Family planning methods use by reproductive history 38

LIST OF ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
ANC	Antenatal Care
AOR	Adjusted Odds Ratio
ARV	Antiretroviral
CD4	Clone of Differentiation group 4
CI	Confidence Interval
COR	Crude Odds Ratio
CTC	Care and Treatment Centre
HIV	Human Immuno Deficiency Virus
MOHSW	Ministry of Health and Social Welfare
NACP	National AIDS Control Program
PI	Principal Investigator
PMTCT	Prevention of Mother to Child Transmission of HIV
RA	Research Assistant
SPSS	Statistical Package for Social Scientists
STI	Sexually Transmitted Infections
TACAIDS	Tanzania Commission for AIDS
TDHS	Tanzania Demographic and Health Survey
THMIS	Tanzania HIV and Malaria Indicator Survey
UNAIDS	Joint United Nations Program on HIV/AIDS
VCT	Voluntary Counseling and Testing

DEFINITION OF TERMS.

Sero discordance – in this study sero discordance is used to describe couples in which one partner is HIV positive and the other is HIV negative.

Fertility Desire – in this study fertility desire means wanting to bear a child or children in future among study participants.

Fertility Intentions – In this study fertility intention means the number of children that those who want to bear children in future would prefer to have.

Contraceptive use – in this study participant who report to be using means of preventing unwanted pregnancy or plan for future pregnancies will be reported as using modern methods of contraceptives.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

The Human Immunodeficiency Virus (HIV) continues to affect the lives of many people especially women, children and young people in the world. It was estimated that 33.4 million people were living with HIV in the world in 2008 of whom 15.7 million were women and 2.1 million were children under the age of 15 years. Sub Saharan Africa accounted for 67% of the people living with HIV infection in the world and 70% of the world new adult HIV infections and deaths. Ninety percent of new infections among children was reported to come from sub Saharan Africa. Women account for 60% of HIV infection in sub Saharan Africa (UNAIDS, 2009).

In Tanzania, it is estimated that 1.4 million people are living with HIV of whom 54% are women and 10% are children under 15 years. Heterosexual transmission was reported to be the major route of transmission of HIV in Tanzania constituting 80% of all reported cases of HIV among adults. Eighteen percent of HIV infection was estimated to be due to mother to child transmission of HIV and 1.8% was infection due to blood transfusion, unsafe injections or traditional practices like male circumcision and female genital mutilation (TACAIDS, 2007). The HIV prevalence among adults aged 15-49 years is 5.7% in Tanzania. HIV prevalence among women is higher (6.6%) compared to men (4.6%) (THMIS, 2007-2008). The prevalence of HIV still remains high because of increase in incidence of HIV in the rural

areas. Also the wide uptake of ARV in the country for the past four years has increased the life expectance of people living with HIV hence increasing the prevalence. Poverty, low social economic status, gender inequality and local cultural practices involving women are some of the causes for high prevalence among women as compared to men. Also, women are biologically more susceptible to HIV infection than men during vaginal sexual intercourse. This is because women have a large surface area of exposed tissue that is the vagina and cervix compared to men where a small tear can make easy passage of the infection.

The risk of HIV transmission from female to male is lower as compared to male to female. In developing countries where some ethnic groups do not do male circumcision then the risk of female to male transmission is also high. Sexually transmitted infections (STI) may increase the chances of infecting the negative partner with HIV. Treatable STI's were found to be common among discordant couples and therefore diagnosis and treatment of STI's and condom use may reduce the chances of HIV infection (Guthrie et al, 2009).

In October 2004, the government of Tanzania started to provide antiretroviral (ARVs) drugs free of charge to people living with HIV. The life expectancy of people living with HIV has increased since the introduction of antiretroviral drugs and thus HIV has become a chronic illness. As a result quality of life has become an important aspect of life.

Studies in the world and including Tanzania have shown that there are an increasing number of HIV sero discordant couples than HIV sero concordant couples (de Walque, 2007). It has

been seen that a high proportion of new heterosexual HIV transmission in Africa occurs among HIV sero discordant stable couples which is estimated at 55-93% (Dunkle et al, 2008). These are couples that have been on sexual relationship for more than one year and it has been seen that most of them are married couples. Population based surveys in East, Central and West Africa have shown that at least two thirds of HIV infected couples are discordant (de Walque, 2007). In the African context a married couple is supposed to bear children and most of them have desire to have children but the challenge is how to get children without infecting the HIV sero negative partner.

The desires and intentions to have children among HIV sero discordant couples is a challenge since unprotected sex can lead to the negative partner acquiring HIV infection. The use of condoms in this situation does not satisfy their desires and intentions of parenthood.

1.2 Problem statement

The HIV prevalence in Tanzania is still high and this has caused threat to the Tanzanian social and economic development. Heterosexual transmission of HIV is the most predominant mode of transmission in the country which accounts for 80% of all HIV transmission. More than 60% of HIV in the country occurs among young adults especially among women.

There has been an increase in HIV sero discordant couples in Tanzania. It has been reported that at least two thirds of the infected couples are HIV sero discordant couples (de Walque, 2007). Despite their increase there has been little attention to address their reproductive needs. HIV care, treatment and support programs addresses the needs of individuals living with HIV without considering their reproductive needs.

HIV sero discordant couples have desire to have children like any other couples. A study done in Tanzania, Ukraine and South Africa showed that 74% of HIV sero discordant couples without a child desired to have a child (Rispel et al, 2009). The decision to bear children becomes complicated considering the risk of HIV transmission to the sero negative partner. It has been found that the risk of HIV transmission during sexual intercourse is high when the HIV positive partner has a high viral load (Quinn et al, 2000). The risk of transmission to the baby is of concern when the HIV positive partner is a woman. About 90% of HIV infected children below 15 years is due to mother to child transmission of HIV infection.

Over 50% of new HIV infection occurs in a sero discordant relationship (Guthrie et al, 2007). Only 60% of sero discordant couples always practiced safer sex through consistent condom

use (Rispel et al, 2009). As it was shown, consistence condom use among HIV sero discordant couples is low and there is also limited information on their use of contraceptives to prevent unplanned pregnancies.

This study on fertility desires, intention and contraceptive use among sero discordant couples will be able to provide comprehensive information on the magnitude of fertility desires and intentions and the associated factors among this group and the magnitude of contraceptive use to prevent unplanned pregnancies and plan for future pregnancies.

1.3 Rationale for the study

There is an increasing number of HIV sero discordant couples in Sub Saharan Africa including Tanzania. These are individuals who are sexually active in their reproductive age and continue to desire and bear children. Despite knowing that one's partner is HIV negative or positive but desires of wanting to bear children still exist.

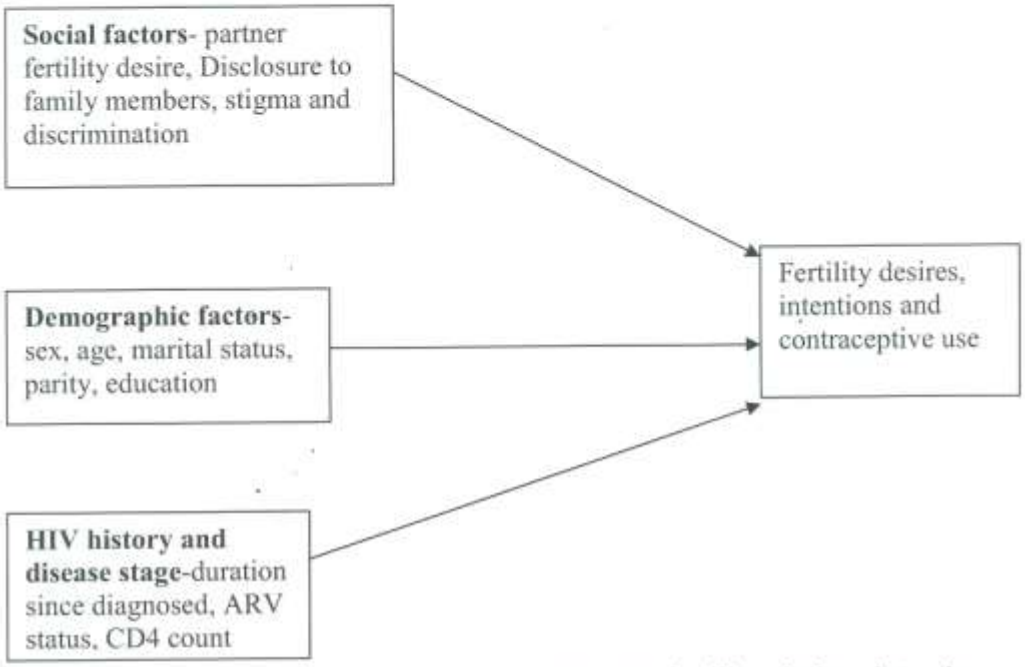
Knowing the proportion of those who desire to have children will help policy makers to put up policies that addresses the problem and put up interventions to reduce further spread of HIV transmission among sero discordant couples.

In addition by understanding factors that influence fertility desires of HIV sero discordant couples to have children will enable the community and health sector to have non judgmental and culturally sensitive approach towards child bearing among HIV sero discordant couples and help them in making decisions to have children.

HIV sero discordant couples should be encouraged to make informed reproductive choices and the health workers have a role to play. Information from this study can be shared with the MOHSW for them to train their staffs so that they can provide adequate information and guide HIV sero discordant couples when is safe to become pregnant and provide care throughout the process of pregnancy and after delivery.

Information obtained from this study will be used to put up strategies to prevent HIV infection to the HIV sero negative partner by promoting consistent condom use among sero discordant couples.

1.4 Conceptual framework.



Conceptual frame work showing factors influencing fertility desire, intentions and contraceptive use among HIV sero discordant couples

The study of fertility desires, intentions and contraceptive use was conducted based on conceptual frame work above which portrays fertility desires, intentions and contraceptive use as the dependent variables. The framework also shows socio cultural, demographic and HIV history and disease stage as the independent variables.

Social factors:

In African setting, bearing children after marriage is expected and it's an obligation to the couple to respond to each other's demand for children. The desire and intention to bear children in future is therefore likely to be influenced by whether a partner wants a child or not.

To avoid stigma and discrimination from the society PLHA may desire to have children as a way of showing to the community that they are fine health wise.

Demographic Factors:

The young people who have not had children of their own may differ from the elderly in their fertility desire and intentions as the older members are likely to have had children already or because of their advanced ages they don't expect to bear children. The women in particular will need to demonstrate their ability to have children of their own so that they are not considered infertile and are more prone to bow to their partner desires in order to maintain their relationship. The higher the level of education it is expected that there is a higher level of understanding the effects of child bearing for a PLWHA as compared to a PLWHA with lower education level. This may lead to differences in their fertility desires.

HIV history and Disease Stage:

Patients who are in early stages of the disease are still more energetic and enjoy better quality of life compared to those in advanced disease stages and this may influence their desires and intentions to have children compared to those in later disease stage. Also the fact that HIV transmission to the unborn baby occurs at advanced stages of disease, those in early disease stages may underestimate the chances of MTCT and hence be more likely to desire for children compared to those in late stages of disease. Health condition and perception of one's health status after ARV drug initiation may also influence fertility desires and intentions as improvements in health associated with the use of ARV drugs makes PLWHA consider him/herself better compared to the time before they start ARV drugs.

1.5 Objectives

1.5.1 Broad Objective

To assess factors influencing fertility desires, intentions and contraceptive use among HIV sero discordant couples in Dar es Salaam.

1.5.2 Specific Objectives

1. To determine the proportion of HIV sero discordant couples who desire to have children.
2. To assess factors associated with fertility desires among HIV sero discordant couples.
3. To assess factors associated with fertility intentions among HIV sero discordant couples.
4. To determine the proportion of HIV sero discordant couples that uses at least one method of family planning.
5. To determine factors affecting the use of different methods of contraceptive among HIV sero discordant couples.

1.6 Research questions

1. What is the proportion of HIV sero discordant couples who desire to have children?
2. What factors are associated with fertility desires and intentions among HIV sero discordant couples?
3. What contraceptive methods are used by sero discordant couples?

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Global HIV/AIDS Epidemic

The HIV and AIDS epidemic has continued to become one of the major health problems in the world. In 2008 it was estimated that 33.4 million people were living with HIV. Two million and seven hundred thousand people were newly infected by the virus in 2008 and 2.0 million people died from AIDS related illness. Although HIV and AIDS are found all over the world but some areas are more affected than others. Sub Saharan Africa is the worst affected region which accounts for 67% of the people infected with HIV in the world. The gender gap in HIV infection in Sub Saharan Africa continues to grow where there are more women infected accounting for 60% of all infection than men (UNAIDS, 2009). Despite the challenges that have been facing the world in the spread of HIV there have been global efforts to address the epidemic. Prevention strategies that have been put up have led to the global decrease of HIV prevalence and the number of people receiving ARV has increased (UNAIDS 2009).

2.2 HIV/AIDS Epidemic in Tanzania

Tanzania like any country in Sub Saharan Africa has been affected by HIV/AIDS since early nineteen eighties. By 1986 all the regions of Tanzania mainland had reported at least one case of AIDS to the ministry of Health. There is currently regional variation in the HIV prevalence in the country with Iringa, Mbeya and Dar es Salaam having the highest prevalence in the country of 14.7%, 7.9% and 8.9% respectively (MOH/NACP, 2008). The disease had moved

from becoming a rear disease to a common disease. There have been some changes in the prevalence of HIV since its discovery, in the 2003/2004 the TDHS reported for it to be 7.0% and in the year 2007/2008 it went down to 5.8%. Finding from all the years show that women are the once with high prevalence as compared to men. The prevalence among women dropped from 7.7% to 6.6% in 2003/2004 and 2007/2008 respectively while for men the change was (6.8% to 4%) in 2003/2004 to 2007/2008. It is estimated that 1.4 people are living with HIV/AIDS in the Tanzania. Unprotected sex was reported to be the main contributing factor to a high HIV prevalence in the country where only 38% of women reported using condoms compared to 50 % of men (DHS, 2003/2004).

2.3 HIV/AIDS Epidemic Response

Due to the increase of number of people living with HIV /AIDS in 1999 the third president of Tanzania declared HIV/AIDS a national disaster. In 2001 the government established an HIV/AIDS coordinating board called TACAIDS which has a responsibility of coordinating all HIV/AIDS prevention and control programs and activities in policy formulation advocacy and resource mobilization. Coordination of care and treatment of HIV/AIDS is done by NACP which is under the MOH. It also foresees preventive services like VCT. Government has put on plans and strategies to strengthen the health system to ensure safe blood transfusion, management of STI, care of HIV infected and affected and raising the public awareness to HIV infection to over 95%. In prevention of new infection there has been an increase in the coverage of STI screening and treatment from the hospital, health center and to 60% of dispensaries. There has been widely availability of male condoms and an increase of more

than three times of voluntary and counseling centers for people to know their HIV status so as to facilitate early access to care and treatment for those who are infected as well as to get advice on how to prevent their partners from getting infection for the HIV sero discordant couples and protecting themselves from re-infection. PMTCT program has been rolled out in ANC in the country to prevent HIV transmission to the infants and unborn baby and to provide comprehensive care and support to the infected mothers (TACAIDS, 2008). The MOH is implementing the rollout of treatment of opportunistic infections and provision of ARV in public and private health facilities free of charge. By March 2009 there were 563 health facilities in the country providing care and treatment, there were 457,314 people enrolled for HIV care and treatment and among them 235,092 people are on ARV (NACP, 2009).

2.4 HIV sero discordance

The prevalence of HIV sero discordant couples is high in countries with high prevalence of HIV as compared to the prevalence of HIV sero concordant HIV couples. In South Africa migrant couples were 2.5 times likely to be HIV sero discordant than non migrant couples (Lurie et al, 2003). In Tanzania the 2003-2004 TDHS reported that two thirds of the HIV infected couples only one partner is infected (de Walque, 2007). It can take some years before the other partner is infected when among them no one has STI and it will also depend on the frequency of sexual intercourse. The high prevalence of discordance has been contributed by the use of ARV by the HIV positive partner. The rate of HIV transmission among sero discordant couples is high when the infected partner has a high viral load (Ulgen et al, 2001).The rate of HIV transmission depends on sex of an infected partner where the rate of

male to female transmission is greater as compared to the rate of HIV transmission from female to male. In African countries it has been shown that the rate of transmission from female to male is greater in uncircumcised men (Gray et al, 2000). Many studies on HIV sero discordance have shown that in 67% of the discordant couples it is the female partner who is infected (Jairam et al, 2009, Meghan et al, 2010).

2.5 Fertility desires, intentions and contraceptive use among HIV sero discordant couples

Despite the discordance HIV sero discordant couples have shown to have desires of having children to fulfill the role of parenthood. Fifty nine percentage of HIV sero discordant couples in Uganda desire to have children and this was mainly influenced by the fact that one partner wanted a child (Beyeza Kashesya et al, 2010). Studies have shown that the desire to have children among HIV sero discordant couples differ between HIV positive partners where by 45% of HIV positive women desired to have children and 38% of HIV men desired to have children among HIV sero discordant couples in Switzerland (Panozzo et al, 2003). The desire to have children among HIV positive is influenced by the number of current children , 47% of HIV positive individuals with children desire children as compared to 74% of those with no children. Studies have shown that young age, having no children and been on ARV are some of the factors that influence fertility desires and intentions (Panozzo et al, 2003,Chen JL et al,2001). That pressure from relative to have children and securing relationship through having children have also been seen to be some of the factors that influence desire to have children among discordant couples (Beyeza Kashesya et al, 2009). The fertility desires of infected individuals do not always agree to those of their partners. The fact that a large number of

couples are HIV sero discordant and therefore the issue of having children is an area of concern. The desires and intentions of having children become complicated since it warrants use of unprotected heterosexual vaginal intercourse.

HIV sero discordant couples may wish to use contraceptives in order to prevent unplanned pregnancies and plan intended pregnancies. Knowledge of other types of contraceptive apart from condoms among HIV discordant couples is high but their use is low. This was shown in Zambia and Rwanda (Grabbe et al, 2009). HIV sero discordant couples prefer to use condoms for the prevention of pregnancy as compared to other means of contraceptives as it was seen among Parisian sero discordant couples where 84% of them used condoms alone while 12% used dual method (condoms and oral contraceptives or intrauterine device) (Heard et al, 2004). Couples in HIV sero discordant relationship, use condom for the sake of preventing pregnancy and not for prevention of HIV transmission. Forty six percent of HIV infected women reported using condoms for contraception (Jairam et al, 2009).

2.6 Stigma and discrimination

Despite of the existence of HIV/AIDS disease for more than two decades but stigma and discrimination has been the sole problem of non disclosure of HIV status to couple, family members, relatives and friends. Studies have shown that in HIV sero discordant relationship 75% of HIV negative compared to 80% of HIV positive had disclosed that they are living in a discordant relationship. Even though some disclose their HIV status but very few have shown to be living openly in discordant relationship. Fear of disclosure to relatives and other family

members has led to pressure from relatives to have more children for those with few children (Bunnell et al, 2005).

The use of condoms among sero discordant couples is low in sub Saharan Africa. In Ethiopia, Malawi and Tanzania women reported that the use of condom is associated with stigma of unfaithfulness and HIV infections and therefore inhibits suggesting to their partner to use condom. There is no difference in consistent condom use among discordant couples in the developed and developing countries. Consistent condom use was reported to be 73% in Switzerland and 72% in Tanzania, Ukraine and South Africa among HIV sero discordant participants (Panozzo et al 2003, Rispel et al, 2009).

There is little information about desires to have children and contraceptive use among HIV sero discordant couples in Tanzania. This study will be able to add to the available literature on fertility desires and contraceptive use among HIV sero discordant couples.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Study Design

The design of the study was an analytical cross sectional study which employed quantitative research methods.

3.2 Study Site

The study was conducted in Dar es Salaam region. Dar es Salaam was selected as the area of study because of its high prevalence of HIV of 8.9% and a high concentration of CTCs. It ranks second after Iringa. Dar es Salaam City is in the east of Tanzania, it is bordered by the Indian Ocean on the east and Coastal region on the other sides. Dar es Salaam is divided into 3 municipal councils which are Temeke, Ilala and Kinondoni. It has a total surface area of 1,393 square kilometers with a population of approximately 3 million people.

A small part of the population is employed in the public sector, where others are employed in the private sector, which includes industries and other formal business. The majority of the population is involved in petty business, fishing, livestock keeping and agriculture including horticultural especially for those in the peripheral areas.

Fertility is on the decline as revealed by the falling Crude Birth Rate (CBR) and Total Fertility Rate (TFR) reflecting the rise age at first marriage and greater awareness of family planning. The current Crude Birth Rate is 40/1000(TDHS 2004).

There are 48 private and public health facilities providing care and treatment to people living with HIV. There are 107 VCT centers providing HIV counseling and testing and also VCT provided by ANGAZA project run by AMREF.

3.3 Study population

The study population included HIV positive men and women who are in an HIV sero discordant relationship attending care and treatment centers in Dar es Salaam.

Inclusion criteria

- Adult males 15-60 years and female 15-49 years (the rational for age limit was to take in those that are sexually active and women who are in reproductive age)
- HIV infected individuals receiving care and treatment in the selected care and treatment clinics in Dar es Salaam.
- Consenting individuals
- Individuals in HIV sero discordant relationship(one partner HIV positive and another HIV negative)

Exclusion criteria

- Non consenting individuals
- Males below 15 years and above 60 years and females below 15 years and above 49 years

- Too sick to be interviewed
- Mental illness making it difficult to consent or perform interview
- Individuals in HIV sero concordant relationship.

3.4 Sample size and Sampling procedure

3.4.1 Sample size

A study done among HIV sero discordant couples in South Africa revealed that 49% of discordant study participants desired to have a child (Rispel et al 2009). This proportion was used to calculate the sample size.

The minimum sample size was calculated using the following formula for estimating a single proportion.

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

Where

n=sample size

z= The percentage point of the normal distribution corresponding to the level of significance which is 1.96 (for 5% significance level)

p=proportion of HIV sero discordant couples that desire to have children (49%)

ε=margin of error (6%)

From the above formula

$$N=1.96^2 \times 49\ (100-49)$$

$$\frac{}{6^2}$$

$$N=267$$

Therefore the minimum required sample size of respondents will be 267.

3.4.2 Sampling Procedure

A total of six Care and treatment centers were randomly selected using simple random sampling technique out of a total of 47 CTCs in Dar-es-Salaam. All patients who were in sero discordant relationships who attended at the selected CTCs during the period of data collection and who met the study entry criteria were included in the study.

3.5 Recruitment and training of Research Assistants

Six research assistants (RAS) were recruited to assist in the data collection. The RAs had a diploma in nursing with experience in HIV/AIDS Care and Treatment. RAS were trained for one day on the objectives of the study, data collection processes and data collection instruments.

3.6 Pre-testing of the questionnaire

The questionnaires were pre-tested by interviewing 20 PLWHA in sero discordance relationship at AKC and IDC clinics which are CTC centers similar to those where the study was done, prior to the commencement of the study to test for clarity and validity of the

questionnaire. Based on the experiences of the pre testing exercise, the questionnaires were amended and finalized before conducting the study.

3.7 Data collection methods

Data for this study were collected between 9th and 24th June 2010 using quantitative methods which involved interview of the participants using interview schedule. The interview schedule contained both open and close ended questions. The interview schedule were formulated in English then translated to Swahili language which is used by most of Tanzanians. Data was collected on all clinic days Monday to Friday.

3.8 Data quality control

PI supervised questionnaire filling by visiting all the study sites every day to oversee data collection process and check filled questionnaires for consistence and completeness. Errors and omissions were corrected by re-interviewing the respondent.

3.9 Study variables

Dependent variables are

- Fertility desire
- Fertility intention
- Use of contraceptive methods

Independent variables are

- Demographic characteristics
    - age
    - sex
    - education
    - Occupation
    - marital status
    - parity
- Cultural factors
    - Stigma
    - Disclosure to family members
    - Partner desire to have children
- HIV history and disease stage
    - Use and duration of ARV
    - CD4 number
    - Perceived health status after starting ARV

3.10 Data analysis

Data from the interview schedules were coded, and entered into the computer by using SPSS computer software. Data cleaning was done by running frequencies distributions to look for outlying values and by doing consistency checks. Data analysis was done using the same software. Frequency tables were used to assess fertility desires and intentions while cross tabulations and chi square test were used to test for associations between dependent and the

independent variables. Multiple logistic regressions were used to test the contribution of each independent variable in predicting fertility desires and intentions. P values < than 0.05 were considered significant.

3.11 Ethical considerations

Ethical clearance for the proposed study was obtained from the Institution Review Board (IRB) of Muhimbili University of Health and Allied Sciences (MUHAS). Permission to conduct the study was obtained from the City Medical Officer, District Medical officers of the three municipals and from the in charges of health facilities of the selected care and treatment centers. Written consent was obtained from the study participants after been explained the aim of the study. To ensure privacy and confidentiality interviews were conducted in a private room where they were comfortable to talk to the research assistant and the interview schedule were given code numbers instead of participants' names. Participants were assured that information obtained will be kept confidential and used for research purposes only and will not be disclosed to other people by any means.

CHAPTER FOUR

4.0 RESULTS

4.1 Social demographic characteristics of the study participants

A total of 267 HIV positive individuals living in an HIV sero discordant relationship participated in the study after consenting. Participants were recruited from the HIV care and treatment clinics in the three municipal councils of the Dar es Salaam region where 80(30%) came from Ilala municipality and 94(35.2%) from Temeke municipality. Their socio demographic characteristics are summarized in Table 1. Their age ranged from 18 to 60 years with a mean age of 36.7 years. For males the mean age was 41.9 (SD=8.21) where as that for females was 33.8 (SD=6.50) years. The majority 173(64.8%) of the participants were females. A large percentage 218 (81.6%) were currently married and 185 (69%) had primary level of education or below.

Table 1: Social demographic characteristics of the study participants

Characteristics	n (%)
Age	
15-34	104 (39)
35-44	121 (45.3)
45+	42 (15.7)
Sex	
Male	94 (35.2)
Female	173 (64.8)
Marital status	
Currently Married	218 (81.6)
Cohabiting	49 (18.4)
Level of education	
Primary or below	185 (69.3)
Secondary and above	82 (30.7)
Occupation	
Employed	195 (73)
Not Employed	72 (27)
Total	267 (100)

4.2 Disclosure of HIV status

All the study participants had disclosed their HIV status to their partners. Almost 47% of the participants had disclosed their HIV status to a relative. Nineteen (7.1%) participants had disclosed their HIV status to a friend while 11(4.6%) had disclosed their HIV status to their children. (Table 2)

Table 2: Disclosure of HIV status

Disclosure to	Yes n (%)	No n (%)
Relative	125(46.8)	142(53.2)
Friend	19(7.1)	248(92.9)
Child	11(4.1)	256(95.9)

Note: The totals are more than the 267 because participants had disclosed their HIV status to more than one person.

4.3 Desires and intentions of having children among HIV sero discordant couples

One hundred and twenty six (47.2%) participants responded that they would like to have children in future. Among those who desired to have children 76 (60.3%) intended to have one child. (Table 3)

Table 3: Participants fertility desires and intentions

Fertility desire and intention	Total n (%)
Desire for a child	
Yes	126 (47.2)
No	141 (52.8)
No of children intended	
1	76 (60.3)
>2	50 (39.7)

4.4 Factors associated with fertility desires among HIV sero discordant couples

4.4.1 Fertility desires and socio demographic factors

Findings of this study showed that more than half of the participants (57.7%) who desired to have children were in the age group 15-34 years where as those aged 45 years and more had lowest percentage who desired to have children and the differences between desires and age was statistically significant (p=0.002). A high proportion of females (53.2%) desired to have children compared to males (36.2%) and the difference was statistically significant (p=0.006). There was no significant difference between married and cohabiting couples on desire for children (p>0.05). Eighty six (46.5%) participants who had primary education or below desired to have children as compared to 40(48.8%) participants that had secondary education

or above but the difference was not statistically significant(p=0.729). A higher proportion of participants who were not employed desired to have children as compared to those who were employed however the difference was not statistically significant (p=0.576). (Table 4)

Table 4: Fertility desire by socio demographic factors

Characteristics	Fertility Desire		Total	P value
	Yes (%)	No (%)		
Age				
15-34	60 (57.7)	44 (42.3)	104	
35-44	55 (45.5)	66 (54.5)	121	
45+	11(26.2)	31 (73.8)	42	.002
Sex				
Male	34 (36.2)	60 (63.8)	94	
Female	92 (53.2)	81 (46.8)	173	.006
Marital Status				
Currently married	101(46.3)	117(53.7)	218	
Cohabiting	25(51)	24(49)	49	.552
Education Level				
Primary or below	86(46.5)	99(53.5)	185	
Secondary or above	40(48.8)	42(51.2)	82	.729
Occupation				
Employed	90(46.2)	105(53.8)	195	
Not employed	36(50)	36(50)	72	.576

4.4.2 Fertility desires and social factors

Findings from this study showed that a significantly higher proportion (82.2%) of participants who reported that their partner desire to have children desired to have children in future as compared to those whose partner did not desire to have children and the difference was statistically significant (P<0.001). Seventy (49.3%) participants that had not disclosed their HIV status to a relative desired to have children as compared to 44.8% among those who had

children as compared to only 44% among those on ARV for less than two years. However the difference was not statistically significant (p>0.05). (Table 6)

Table 6: Fertility desire by HIV disease factors

Characteristics	Fertility desire		Total	p-value
	Yes n (%)	No n (%)		
ART status				
Yes	91(44.6)	113(55.4)	204	
No	35(55.6)	28(44.4)	63	.128
Perceived Health status				
Excellent	69(47.6)	76(52.4)	145	
Good	22(37.3)	37(62.7)	59	.180
CD4 Level				
Less than 200	32(36.8)	55(63.2)	87	
More than 200	94(52.2)	86(47.8)	180	.018
Duration on ARV				
0-2	65(43.9)	83(56.1)	148	
3+	61(51.3)	58(48.7)	119	.232

4.4.4 Fertility desires and reproductive History

A significant proportion 18 (81.8%) of participants with no children desired to have children as compared to those with children (p=0.001). A significantly high proportion of participants (73.8%) with one child desire to have children compared to those with two or more children and the difference was statistically significant (p<0.05). Results of this study also showed that a significant proportion (53.7%) of participants who did not have a child with their current partner desired to have children compared to (38 %) of those who had children with their current partner (p<0.05). A higher proportion of participants 17 (48.6%) who had one child

with the current partner desired to have children as compared to (42%) of those with two or more children and the difference was statistically significant (p<0.05). (Table 7)

Table 7: Fertility desire by reproductive history

Characteristics	Fertility desire		Total	p-value
	Yes n(%)	No n(%)		
Has own child				
Yes	108(44.1)	137(55.9)	245	
No	18(81.8)	4(18.2)	22	.001
No of children				
1	45(73.8)	16(26.2)	61	
2+	81(39.3)	125(60.7)	206	.000
Has children with current partner				
Yes	57(38)	93(62)	150	
No	51(53.7)	44(46.3)	95	.000
No of children with current partner				
1	17(48.6)	18(51.4)	35	
2+	81(42)	112(58)	193	.004

4.4.5 Multiple Logistic Regression analysis

Variables which showed a significant association with fertility desires in bivariate analysis were added into a logistic regression model. Findings showed that participants whose partner had desire for children were 44 times likely to desire for children as compared to those whose partner had no desire for children (COR=44.15; 95% CI: 20.61-94.58), which changed to 34 times likely to desire for children after controlling for other factors (AOR=34.02; 95%CI:13.62-85.00). Participants who had two or more children were 81% less likely to desire for children as compared to those with one child (COR=0.19; 95% CI: 0.10-0.35) and

rose to 82% less likely to desire for children after adjusting for other factors (AOR=0.18; 95% CI: 0.06-0.55). (Table 8)

Table 8: Multiple logistic regression analysis results on factors associated with fertility desires

Characteristics	Crude OR(95%CI)	Adjusted OR(95%CI)	P value
Age			
15-34	1.00		
35-44	0.61(0.36 -1.04)	1.02(0.39 -2.69)	.968
45+	0.26(0.12 -0.57)	1.03(0.28 -3.87)	.964
Partner desire for children			
No	1.00	1.00	
Yes	44.15(20.61 -94.58)	34.02(13.62 -84.95)	.000
CD4 level			
Less than 200	1.00	1.00	
More than 200	1.88(1.11 -3.18)	1.54(0.63 -3.76)	.341
No of children			
1	1.00	1.00	
2+	0.19(0.10 -0.35)	0.18(0.06 -0.55)	.003
Has children with current partner			
No	1.00	1.00	
Yes	0.53(0.31 -0.89)	0.78(0.19 -3.21)	.730
No of children with current partner	1.00		
1		1.00	
2+	0.39(0.15 -1.01)	0.61(0.12 -3.12)	.549

4.5 Factors associated with fertility intentions among HIV sero discordant couples

In this study fertility intention was defined as the number of children that those who desired to have children in future would prefer to have. Majority 76 (60.3%) of those who desired to have children their intentions were to have one child.

4.5.1 Fertility intentions and social demographic factors

Findings of this study showed that two thirds (66.7%) of participants in the older age group (35-60 years) intended to have one child as compared to (53.3%) among those in the age group 15-34 years but this difference was not statistically significant ($p>0.05$). A large proportion of participants (63.4%) who were married intended to have one child as compared to those who were cohabiting however the difference between them was not statistically significant ($p=0.160$). A higher proportion of participants that had secondary school or above intended to have one child as compared to those with primary education or below and the difference was statistically significant ($p=0.007$). Almost two thirds (64%) of the participants who were employed intended to have one child as compared to 50% among those who were not employed but the difference was not statistically significant ($p>0.05$).(Table 9)

Table 9: Fertility intentions by socio demographic factors

Characteristics	Fertility intentions		Totals	p-value
	1	2+		
Age				
15-34	32(53.3)	28(46.7)	60	
35-60	44(66.7)	22(33.3)	66	.127
Marital Status				
Married	64(63.4)	37(36.6)	101	
Cohabiting	12(48)	13(52)	25	.160
Level of education				
Primary or below	45(52.3)	41(47.7)	86	
Secondary or above	31(77.5)	9(22.5)	40	.007
Occupation				
Employed	58(64.4)	32(35.6)	90	
Non employed	18(50)	18(50)	36	.134

Note: **For fertility intentions two categories (1 and 2+) was used because majority of participants intended to have one or two children.**

4.5.2 Fertility intentions and HIV history

Findings of this study showed that a significant proportion (65.9%) of participants who were on ARV intended to have one child as compared to (45.7%) among those not on ARV and the difference was statistically significant (p=0.038). Two thirds of participants who perceived their health status to be excellent or good intended to have one child. Majority of participants 20 (62.5%) that had CD4 level less than 200 per mm^3 intended to have one child as compared to (59.6%) among those who had CD4 more than 200 per mm^3 (p>0.05). Majority 41(63.1%) of those who were on ARV for two years or less intended to have one child as compared to 35(57.4%) among those on ARV for three years or more.(Table 10)

Table 10: Fertility intentions by HIV history

Characteristics	Fertility Intentions		Total	p-value
	1	2+		
ARV status				
Yes	60(65.9)	31(34.1)	91	
No	16(45.7)	19(54.3)	35	.038
Perceived health status				
Excellent	46(66.7)	23(33.3)	69	
Good	14(63.6)	8(36.4)	22	.794
CD4 level				
Less than 200	20(62.5)	12(37.5)	32	
More than 200	56(59.6)	38(40.4)	94	.770
Duration on ARV				
0-2	41(63.1)	24(36.9)	65	
3+	35(57.4)	26(42.6)	61	.513

4.5.3 Association of fertility intentions and Reproductive history

Majority (65.7%)of participants who had children of their own intended to have one child where as only 27.8% of those who did not have children wanted to have one child. The difference in fertility intentions by no of children the respondent had was found to be statistically significant (p=0.02). A large proportion of participants (64.4%) who had one child intended to have only one child as compared to only 58% of those who had two or more children. Sixty eight percent of participants who had children with their current partner and 62% of those with no children with the current partner intended to have one child and this difference was statistically significant p=0.008. The study findings also showed that the number of children the participants had with their current partner did not show a significant association with their fertility intentions. (Table 11)

Table 11: Fertility intentions by reproductive history

Characteristics	Fertility intentions		Totals	p-value
	1	2+		
Has own children				
Yes	71(65.7)	37(34..3)	108	
No	5(27.8)	13(72.2)	18	.002
No of children				
1	29(64.4)	16(35.6)	45	
2+	47(58)	34(42)	81	.480
Has children with current partner				
Yes	39(68.4)	18(31.6)	57	
No	32(62.7)	19(37.3)	51	.008
No of children with the current partner				
1	13(76.5)	4(23.5)	17	
2+	49(60.5)	32(39.5)	81	.264

4.5.4 Multiple Logistic Regression Analysis

Further analysis with multiple regression showed that participants who had primary education or below were 68% less likely to intend to have one child as compared to those who had secondary education or above (COR 0.32; 95% CI: 0.14 -0.75) and rose to 75% less likely to intend to have one child as compared to those who had secondary education or above after controlling for other factors (AOR 0.25; 95% CI: 0.09 -0.71). (Table 12)

Table 12: Logistic regression analysis results on factors associated with fertility intentions

Characteristic	Crude OR(95%CI)	Adjusted OR(95%CI)	P value
Level of education			
Secondary or above	1.00	1.00	
Primary or below	0.32 (0.14 -0.75)	0.25(0.09 -0.71)	.009
ARV status			
No	1.00	1.00	
Yes	2.30(1.04 -5.08)	1.71(0.65 -4.47)	.277
Children with current partner			
No	1.00	1.00	
Yes	1.29(0.58 -2.85)	0.91(0.39 -2.16)	.834

4.6 Use of family planning methods among HIV sero discordant couples

Findings of the study showed that (88.8%) of the participants were currently using at least one method of family planning. Table 13 shows the distribution of various family planning methods used. Eighty five percent of the participants reported to use condoms, 1% reported to use pills, while (3%) were using injectables and abstinence. (Table 13)

Table 13: Distribution of use of family planning methods

Family planning method	Frequency N (%)
Condom	227 (85)
Pills	3 (1.1)
Injectables	8 (3)
Abstinence	8 (3)
BTL	2 (0.7)

4.6.1 Source of contraceptive methods

One hundred and seventy three (73.3%) participants reported that they get contraceptives from the CTCs where they get treatment for their HIV disease and 63 (26.7%) reported that they buy from the drug shop.

Table 14 Source of Family planning

Source of Family planning	Frequency (%)
CTC	173(73.3)
RCH in the CTC	37(15.7)
RCH near home	9(3.8)
Private hospital	6(2.5)
Drug shop	63(26.7)
Shop	9(3.8)
Office	2(0.8)

Note: Participants were getting their family planning methods from more than one source

4.7 Factors affecting choice and use of family planning methods.

4.7.1 Family planning use and social demographic characteristics

Findings of this study showed that majority 109(90.1%) of participants in the age group 35-44 years were using family planning as compared to the other age groups. There was no significant difference on use of contraceptive methods with age and marital status ($p>0.05$). Majority 179(91.8%) of participants who were employed were using family planning methods as compared to 80.6% of those that were not employed and the difference was statistically significant ($p<0.05$). (Table 15)

Table 15: Family planning methods use by socio demographic factors

Characteristics	Family planning use		Totals	p-value
	Yes n(%)	No n(%)		
Age				
15-34	91(87.5)	13(12.5)	104	
35-44	109(90.1)	12(9.9)	121	
45+	37(88.1)	5(11.9)	42	.820
Marital Status				
Married	193(88.5)	25(11.5)	218	
Cohabiting	44(89.8)	5(10.2)	49	.800
Level of Education				
Primary of below	163(88.1)	22(11.9)	185	
Secondary or above	74(90.2)	8(9.8)	82	.610
Occupation				
Employed	179(91.8)	16(8.2)	195	
Not employed	58(80.6)	14(19.4)	72	.010

4.7.2 Family planning use and reproductive history

Results of this study showed that majority 220(89.8%)participants who had children of their own were using family planning methods as compared 17(77.3%) of those who did not have children however the difference was not statistically significant p>0.05. Ninety two percent of participants who had children with their current partner were using family planning methods as compared to 86.3% of those who did not have children with their partners (p=0.08). A significantly large proportion 94.3% of participants that had one child with their current partner were using family planning methods as compared 90.7% of those who had two children with the current partner (p=0.006). Participants that did not desire to have children and their partners did not desire to have children had a higher proportion (91.4%) who were using family planning methods compared to 87.4% of those whose partners desire to have children however the difference was not statistically significant (p>0.05). (Table 16)

Table 16: Family planning methods use by reproductive history

Characteristics	Family planning use		Total	p-value
	Yes n(%)	No n(%)		
Has own children				
Yes	220(89.8)	25(10.2)	245	
No	17(77.3)	5(22.7)	22	.084
No of children				
1	54(88.5)	7(11.5)	61	
2+	183(88.5)	23(11.2)	206	.946
Has children with current partner				
Yes	138(92)	12(8)	150	
No	82(86.3)	13(13.7)	95	.080
No of children with current partner				
1	33(94.3)	2(5.7)	35	
2+	175(90.7)	18(9.3)	193	.006
Fertility desire			126	
Yes	109(86.5)	17(13.5)	142	
No	128(90.8)	13(9.2)		.270
Partner fertility desire				
Yes	118(87.4)	17(12.6)	135	
No	106(91.4)	10(8.6)	116	.311

CHAPTER FIVE

5.0 DISCUSSION

HIV sero discordant couples continue to desire and bear children despite of them knowing that they are living in a sero discordant relationship. The introduction of highly active antiretroviral therapy has led to increase in life expectancy, improvement of quality of life and reduction in viral load which significantly reduces the risk of HIV sexual transmission. Due to this many PLHA expressed the desire to father or mother a child. Fertility desire among HIV sero discordant couples poses a risk of HIV infection transmission to the uninfected partner and to the unborn baby through vertical transmission from mother to child if the HIV infected partner is a female. Due to that this study was aimed at investigating factors that are associated with fertility desire, intentions and contraceptive use among HIV sero discordant couples living in the Dar es Salaam region.

5.1 Fertility desires and intentions among HIV sero discordant couples

The findings of this study showed that about 47.2% of the participants who live in HIV sero discordance desired to have children in future. This finding was in line with what was reported by Rispel et al (2010) who reported that (49%) desire to have children. However in other studies the rate of fertility desire was high for example Beyeza Kashesya et al (2010) reported a rate of 59%. The HIV positive partner in HIV discordant relationship has the same desire to have children as other couples in the general population with reasons that are common like to have children to increase the family tree, to have a child of a specific sex or because they do not have children.

Majority (60.3%). of participants in this study wanted to have one child, this was lower than what was reported by Beyeza Kashesya et al (2010) where majority wanted two children. The low fertility intention can be explained by the fact that these couples know that they are living with HIV virus and that if they give birth they are likely to get an infected child.

5.2 Factors associated with fertility desire among HIV sero discordant couples

5.2.1 Fertility desires and social demographic characteristics

The findings of this study showed that the desire to have children is highest among those who are young and decreases as one grows older. Other studies have also reported that HIV patients that desire to have children are young (James et al 2001).

A high proportion of married participants in this study desired to have children as compared to those cohabiting. This can be explained by the fact that the society expects couples to have children otherwise will be labeled as infertile. The desire for children is likely to be associated with the economic status that's why in this study it was well seen that higher proportion participants who were employed desired to have children as compared to unemployed participants.

5.2.2 Fertility desires and social factors

The desire to have children in this study was significantly influenced by whether or not their partners desire to have children. Previous studies have also reported that HIV positive women and men who desired children in future had partners who would like to have a child (James et al 2001). The desire to have children in many families is influenced by relatives, in most setting couples are expected to bear children after marriage. The knowledge of one's HIV

status can influence otherwise. The study findings showed that participants that had not disclosed their HIV status to relatives were more likely to desire for children. This was also noted by Beyeza Kashesya et al 2010 that participants who did not disclose their HIV status were more likely to desire a child.

5.2.3 Fertility desires HIV History and disease stage

It is known that when one has a high CD4 count the chances of infecting the unborn child is low as compared to those with low CD4 count. A large percentage of participants in this study who had high CD4 count desired to have children as compared to those with low CD4 count. This was contrary to findings from Panozzo et al 2003 that CD4 count had no effect on the desire for children. With regard to ARV this study has shown that ARV status has no influence on the desire to have children among HIV positive men and women living in HIV sero discordant relationship. However these findings are different from many studies which showed that the desire to have children among PLWHA is high among those who are on ARV (Beyeza Kashesya et al 2010, Panozzo et al 2003).

5.2.4 Fertility desires and Reproductive History

The tendency to desire children among participants who did not have children of their own was high (81.2%). This was also found in other studies where individuals without children were more likely to desire children than those who already had one or more children (Rispel et al 2009)

5.3 Factors associated with fertility intentions among HIV sero discordant couples

Majority 60.3% of participants in this study wanted to have one child this was in line with study by Rajana (2006) who found that 87% of respondents wanted one child, however the percentage found this study is higher as compared to what was reported by Zubairu et al who gave an estimate of 7.3% of HIV positive women and men wanting one child.

5.3.1 Fertility intentions and Social demographic factors

Fertility intention was found to be associated with marital status and the level of education. It was seen that majority of participants who are married intended to have one child as compared to those who are cohabiting likewise participants who had secondary education wanted one child, this can be explained by the fact that people who have higher education are more exposed to issues concerning child spacing and the need to control the family size. Participants who were cohabiting intended to have two children and above this can be explained by the fact that this could be a means of strengthening their relationships.

5.4 Family planning choice and use among HIV sero discordant couples

This study showed that a high proportion of participants were using at least one method of family planning. The rate of condom use was found to be the highest (95.8%), this was in line with other studies which also reported high condom use among discordant couples (Beyeza et al 2010,Allen et al 2003). However Panozzo et al 2003 reported low (73%) condom use among HIV sero discordant couples. The high condom use among study participants could be

explained by the fact that PLWHA are counseled to use condoms in every sexual act to prevent new infection and are provided free at the HIV care and treatment clinics.

5.4.1 Factors influencing family planning use

In this study the use of family planning among study participants was high among those who had two or more children with their current partner and among those who did not desire to have children. Several studies have reported the same findings where use of family planning was low among those who desire to have children (Jolly et al 2009, Panozzo et al 2003).

5.5 Study Limitation

Participants in this study were recruited from HIV care and treatment clinics and thus have better access to health services and HIV programs and therefore may not reflect the perspective of typical HIV discordant couples in the community.

The study relied on self reported information, which may be subject to desirable responses and response bias

Causal and temporal relationship are difficult to establish since this was a cross sectional study.

Desires and intentions may change over time since they take a process.

Dar es Salaam is a metropolitan area with residents from different regions, ethnic groups and socio demographic profiles. Since the sample was selected using a random sampling technique

and the response rate was very high it is likely that despite the above limitations, the sample is representative and hence the findings can be generalized.

CHAPTER SIX

6.0 Conclusion

A significant proportion of men and women, who are living in HIV sero discordance desire to have children. Participants who desire to have children are younger and have partner who desire to have a child. It was also noted that the desire to have children was significantly associated with having no children, the number of children one has and having no children with the current partner.

The study showed that education level and ARV status were significant determinant of fertility intention. It was also found that the number of children one had with the current partner has influence to the intended number of children.

Condoms were the commonly used family planning method among HIV sero discordant couples, and CTC was the main source of condoms which were distributed freely.

CHAPTER SEVEN

7.0 Recommendations

1. The National AIDS Control Program should make sure that they address reproductive health needs of HIV sero discordant couples so that they can meet their desire but at the same time prevent further transmission of HIV to uninfected partner and to the unborn baby.
2. The MOHSW should put efforts to address the issue of discordance in the strategies to reduce HIV epidemic in doing so it should develop policies and guidelines that guides management of HIV discordance.
3. As there are many programs that deals with PLWHA this calls for the need for development of programs and support groups that will deal with HIV discordant couples and addresses their reproductive health challenges and fertility desires.
4. Since HIV discordant couples like uninfected couples have desires and intentions of having children they may wish to became pregnant and plan for their families and therefore health workers should counsel them on appropriate family planning methods and the appropriate time for them to conceive in order to reduce the chances of infecting the negative partner and reducing the vertical transmission of HIV if the HIV positive partner is a woman.

REFERENCES

AIDS Epidemic update (2009) UNAIDS and WHO 2009.

Allen S M D,J Kautzman, M et al (2003)Sexual behavior of HIV discordant couples after HIV counseling and tesing. AIDS 17:733-40

Bunnell R.E, J.Nasozzil, E. Marum, J. Mubangizi, S. Malamba, B. Dillon, J. Kalule ,J. Bahizi, N. Musoke and J.H Mermin (2005)Living with discordance Knowledge,Challenges and prevention strategies of HIV discordant couples in Uganda. AIDS Care 17(8): 999-1012

Chen JL, Philips KA, Kanouse DE, Collins RL, Miu A (2001)Fertility desire and intentions of HIV positive men and women. Family planning perspective 33(4):144-52

De Walque D. (2007). Sero discordant couples in five African couples: Implication for prevention Strategies. Population and Development Review 33(3): 501-23

Dunkle KL, Stephenson R, Karita E et al (2008) New heterosexually transmitted HIV infections in married or cohabiting couples in urban Zambia and Rwanda: an analysis of survey and clinical data. Lancet 371:2183-2191

Galvao Marlli T Gimeniz et al (2004) Contraceptive measures and HIV transmission protection among women with HIV/AIDS. Rev Saude Publica 38(2):197-200

Grabbe K,Stephenson R, Vwalika B, Ahmed Y,Vwalika C, Chomba E,Karika E, Kayitenkore K, Tichacek A,Allen S (2009). Knowledge, use and concerns about contraceptive methods among sero discordant couples in Rwanda and Zambia. Journal of Women's health (2002); 18(9): 1449-56.

Gray RH, Kiwanuka N, Quinn TC, et al (200).Male circumcision and HIV acquisition and transmission:Cohort studies in Rukai Uganda.AIDS 14: 2371-81

Guthrie BL, Kiarie JN, Morrison S, John-Stewart GC, Kinuthia J, Whittington WL, Farquhar C (2009). Sexual transmitted infections among HIV-1 discordant couples. PloS ONE 4 (12): 8276.

Guthrie BL, de Bruyn G, Farquhar C (2007). HIV 1-serodiscordant couples in Sub-Saharan Africa: Explanations and implications for high rates of discordance. Current Research 5: 416-429.

Heard I, Potard V, Costagliola D, Kazatchkine MD (2004). Contraceptive use in HIV positive women. JAIDS 36(2):714-720.

Jairam RL, Erin K, Nelly M, Andrew M, Amalia M,Jared B,Elizabeth AB, Graig RC, Elly K, Allan R, James K, Carey F, Grace JS, Joseph M, M Essex, Edwin W, Kenneth F et al. (2009)

Characteristics of HIV-1 Discordant Couples Enrolled in a trial of HSV-2 Suppression to Reduced HIV-1 Transmission. Plos ONE4(4): e5272.

Jolly Beyeza-Kashesya, Frank Kharuza, Florence Mirembe, Stella Neema, Anna Mia Ekstrom Asli Kulane (2009). The dilemma of safe sex and having children: challenges facing HIV sero discordant couples in Uganda. Africa Health Sciences 9(1):2-12

James L. Chen, Kathryn A Phillips, David E Kanouse, Rebecca L Collins and Angela Miu (2001). Fertility desires and intentions of HIV positive men and women. Family Planning Perspectives 33(4):144-152&165

Lurie M.N, Williams B.G, Zuma K, Mkaya- Mwamburi D, Garnett G.P, Sweat M.D, Joel Gittelsohn and Salim S Abdool Karim (2003). Who infected whom? HIV-1 concordance and discordance among migrant and non migrant couples in South Africa. AIDS 17: 2245-2252.

Meghan Bishop and Karen Foreit (2010). Sero discordant Couples in Sub Saharan Africa: What do survey Data Tell Us? U S Urgency for International Development (USAID)

National AIDS Control Programme, HIV/AIDS/STI Surveillance Report, Report number 21, 2009

National Bureau of Statistics (NBS) (Tanzania)and ORC Macro. 2005. Tanzania Demographic and health Survey 2004-05.Dar es Salaam, Tanzania: National Bureau of statistics and ORC Macro.

Panozzo L, Battegay M, Friedlc A, Vernazza PL (2003). High risk behaviour and fertility desires among heterosexual HIV positive patients with a serodiscordant partner. Swiss Med wkly 133:124-127

Quinn TC, Wawer MJ, Sewankambo N, Serwadda D, Li C, Wabwire-Mangen F, Meehan MO, Lutalo T, Gray RH(2000). Viral load and heterosexual transmission of human immunodeficiency virus type 1. The New England Journal of Medicine 342: 921-929

Rajana Singh Fertility and Desire for Children among HIV infected Persons with a special reference to Mumbai:http:/paa2006.princeton.edu/download.aspx?submissionId=60164

Rispel L, Metcalf C, Moody K, and Cloete A. (2009). Exploring Coping Strategies and Life Choices made by HIV Discordant couples in Long Term Relationship: Insight from South Africa, Tanzania and Ukraine. Amsterdam, Global Network of People Living with HIV.

The HIV epidemic in Tanzania Mainland: Where have we come from, where is it going, and how are we responding? Final Report 6TH November 2008 ASAP, UNAIDS, TACAIDS.

Tanzania HIV/AIDS and Malaria Indicator Survey 2007/2008. Preliminary Report, Dar es Salaam: National Bureau of Statistics Dar es Salaam, Tanzania 2008.

Tanzania Commission for AIDS (TACAIDS), (2007) UNGASS Country Progress Report Tanzania Mainland, Reporting Period January 2006- December 2007.

Ulgen Semaye Fedeli, Susan A. Allen, Rosemary Musonda, Stan Trask, Beatrice H. Hahn, Heidi Weiss, Joseph Mulenga, Francis Kasolo, Sten H. Vermund, and Grace M Aldrovandi,(2001) Virologic and Immunologic Determinants of Heterosexual Transmission of Human Immunodeficiency Virus Type 1 in Africa AIDS Research Hum Retroviruses,17(10):901-910

United Republic of Tanzania, Dar es Salaam City Profile, November 2004.

United Republic of Tanzania, Prime Ministers office, The second National Multi-sectoral Strategic Framework on HIV and AIDS (2008-2012) Plan

Zubairu Iliyasu, Isa S Abubakar, Mohammed Kabir, Musa Babashani ,Faisal Shuaib, Muktar H Aliyu (2009): African Journal of Reproductive health 13(3):71-83