PREGNANT WOMEN'S AWARENESS AND PERCEPTIONS OF INTERVENTIONS TO PREVENT MTCT OF HIV IN KINONDONI MUNICIPALITY, DAR ES SALAAM

By

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CERTIFICATION

The undersigned certifies that he has read and hereby recommends for acceptance by the University of Dar es Salaam a dissertation entitled: ***Pregnant women's awareness and perceptions of interventions to prevent MTCT of HIV in Kinondoni municipality Dar es Salaam,*** in partial fulfilment of the requirements for the degree of Master of Public Health.

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ABSTRACT

HIV/AIDS is one of the leading public health problems in Tanzania. The HIV prevalence rate is estimated to be approximately 7%. However, there is a wide regional variation in HIV prevalence in the country especially among pregnant women. The HIV prevalence among pregnant women in Dar es Salaam has been estimated to be 13%. Since 2003, there have been efforts and strategies to scale-up the prevention of MTCT of HIV nationally but the way people perceive the program is not understood. In order for such programmes to be successful, communities and women need to be sensitized about the availability of existing VCT services in the area and the benefits of interventions to decrease MTCT of HIV.

To determine pregnant women's awareness and perception of VCT services we conducted a descriptive cross sectional study in RCH clinics in Kinondoni municipality, Dar es Salaam. A structured interview questionnaire was used to interview 384 women after getting their informed consent.

Of the 384 pregnant women interviewed, 54% were below 25 years of age, 89% had primary, secondary or higher level education and 23% had a formal employment. Eighty three percent of the women were aware of various ways of preventing MTCT of HIV. Awareness of pMTCT appeared to increase with the increasing level of education. Seventy six percent (292/384) of the women knew that when a nevirapine tablet is swallowed by an HIV positive mother during labour it can decrease the chances of a

new baby to be infected with HIV while 86% perceived Nevirapine to be a safe drug to the foetus. In addition, 60% of the pregnant women admitted that Nevirapine is offered for free in RCH clinics while 55% knew that if a pregnant woman had swallowed a nevirapine tablet and ended up having false labour she would be able to get another tablet from an RCH clinic. About 69% of the women said that they would advice other HIV positive pregnant women to go for a Nevirapine tablet.

In conclusion this study has revealed that women are aware of the various ways to prevent MTCT of HIV and that they perceive Nevirapine to be safe and effective to the extent that they would be able to recommend its use by HIV positive pregnant women. This level of awareness should therefore be sustained as we strive to scale up pMTCT programme in Dar es Salaam.

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LIST OF ABBREVIATIONS/ACRONYMS

AIDS - Acquired Immune Deficiency Syndrome

ANC - Antenatal Care

ART - Antiretroviral Treatment

AYA - African Youth Alliance

BMI - Body Mass Index

FHI - Family Health International

HAART - Highly Active Anti Retroviral Therapy

HIV - Human Immunodeficiency Virus

IDU - Injection Drug Users

MMoH - Municipal Medical Officer of Health

MoH - Ministry of Health and Social Welfare

MPH - Master of Public Health

MTCT - Mother-to-Child Transmission

NACP - National AIDS Control Program

NBS - National Bureau of Statistics

NGO - Non Governmental Organisation

NVP - Nevirapine

PFI - Pathfinder International

PLWHA - People Living With HIV/AIDS

pMTCT - Prevention of Mother-to-Child Transmission

RCH - Reproductive and Child Health

sdNVP - Single Dose Nevirapine

STD/STI - Sexually Transmitted Disease/Infections

TACAIDS - Tanzania Commission for AIDS

VCT - Voluntary Counseling and Testing

UKIMWI - *"Upungufu wa Kinga Mwilini"*

UNAIDS - United Nations AIDS (UN AIDS Programme)

UNFPA - United Nations Family and Population Agency

VVU - *"Virusi Vya Ukimwi"*

WHO - World Health Organisation

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND

GLOBAL SITUATION OF HIV

The Human Immunodeficient Virus (HIV) is one of the most serious health crises the world faces today, [1] About 3,100,000 people died this year from Acquired Immune Deficiency Syndrome (AIDS) including 570,000 children who are by-far more than the toll from all natural disasters since 2005 December's tsunami. [2]

An estimated 38.5 million people world-wide were living with HIV at the end of 2005.[3] Also, about 4.1 million became newly infected with HIV. [3] Global data on HIV/AIDS shows that 1% of world's population of 15 to 49 years (40.3 million) is infected. [4] Globally, 540,000 children were infected in 2005 with HIV, of these 90%, were reported in sub-sahara Africa (SSA). [1]

Mother-to-child transmission of HIV remains to be a major public health problem world wide. Each year an estimated 600,000 infants are HIV infected, at least about 1600 every day are born in resource-constrained countries. [5]

In developing countries, 9 out of 10 people do not know their HIV status. [6] Meanwhile in Asia, a total of 1,200,000 new cases since 2003 pushed the total number of cases to

8,300,000, with the condition in countries such as Vietnam and Pakistan ripe for a rapid spread. [6]

Violence to women and HIV is the problem in societies. Intimate-partner violence happens in every country at all social levels. Women are often trapped by emotional, family and economic ties to those who assault them. For example physical and sexual violence in South Africa, leading to increasing risk of HIV infection, and fear of negotiating condom use or seeking HIV testing. [7]

Women are now considered the face of HIV infections, accounting for half of all infections worldwide. HIV is spreading rapidly in married women, who were previously considered to be at low risk and were not included in the traditionally-defined vulnerable groups for HIV/AIDS. [8]

Antenatal care (ANC) sentinel surveillance in the year 2003/4 in African continent showed that, the population based HIV serostatus survey conducted in Southern African countries, the antenatal care pregnant women have much higher rates of HIV infections compared to the rest of the continent. All countries had median prevalence above 15% with the exception of Angola which had a low rate of 2.4%. Within the region rates vary from 27.9 to 42.2% in South Africa and Swaziland respectively. In Eastern Africa, the rates of HIV serostatus among antenatal pregnant women attending clinics were less

than 10%, Kenya had 8.0% and Tanzania mainland had 7.0% (Urban 11.2% and rural 3.7%). [9]

1.1.1 HIV IN TANZANIA

HIV/AIDS is one of the leading public health problem in Tanzania. The HIV prevalence rate is estimated to be approximately 7%. However, there is a wide regional variation in HIV prevalence in the country especially among pregnant women. [10] The HIV prevalence among pregnant women in Dar es Salaam has been estimated to be 13%. [11] Since 2003, there have been efforts and strategies to scale–up the prevention of mother-to-child transmission of HIV (pMTCT of HIV) nationally but the way people perceive the program is not understood.

1.2 MAIN AIM OF VOLUNTARY COUNSELLING AND TESTING (VCT)

According to the national AIDS control program the main aim of VCT is "*to reassure and encourage the 85-90% of the population that is HIV-negative to take definite steps not to be infected and those who are infected to receive the necessary support in counseling and care to cope with their status, prolong their lives and not infect others*". [12] Furthermore, VCT aims at informing, educating, and supporting women; enabling them to look after themselves and make decisions and raise issues with their partner. [13]

Recently United Nations on AIDS (UNAIDS) and the World Health Organization recommended that HIV testing be routinely offered to all pregnant women in antenatal care. [14]

The approach used to offer HIV testing to antenatal clients influences test acceptance; uptake is higher when HIV testing is performed routinely on all women as part of antenatal care with women reserving the right to refuse testing ("opt-out" approach), when compared with the "opt-in" approach that requires women to approve HIV testing. [14]

Clearly, pregnant women need to be educated about the risks to their expected child before being invited to be tested, as most women do not perceive themselves to be at an increased risk of HIV infection. [15]

VCT is one of the most important parts of pMTCT program, targeted to cover all RCH clinics in the country. In this program pregnant women are counseled, pretested then they expect to be given their HIV results on the same day. [16] VCT is increasingly being recognized as a key intervention for both HIV care and prevention, including the prevention of mother-to-child transmission of the virus. [17]

Furthermore, VCT is the central component of pMTCT of HIV. It has additional benefit such as providing the opportunity to counsel women about safer sex options and refer them to treatment as this becomes more widely available. [18]

In addition to that, VCT programs implemented outside of pMTCT have identified advantages in counseling couples rather than individuals. Couple counseling has been shown to be more successful in promoting behaviour change, facilitating communication between couples, and decreasing HIV transmission. [18]

1.2.1 BARRIERS TO pMTCT

There are three main mechanisms that are essential to maximise effective reduction of MTCT:

1) Reducing maternal viral load with ART,

2) Preventing avoidable exposure to maternal virus at birth through improved obstetric practice and,

3) Reducing exposure to HIV through breastfeeding. Currently, improved obstetric practice is not receiving equal program emphasis. All three mechanisms should be addressed in pMTCT programs, especially in the behaviour change component. Despite impressive achievements in a short timeframe, the current level of success of pMTCT programs in reaching pregnant women and their newborns with ART and other program components demonstrates the need for rapid action to refine and strengthen pMTCT

behaviour change strategies. Documented barriers, all of which can be addressed with behaviour change interventions, include:

Missed opportunities to offer, or low uptake of, VCT during routine ANC.

Low levels of acceptance of HIV testing where it is available, by both pregnant women and partners.

Failure to return for HIV test results where rapid testing is not available.

Inadequate acceptance of ART offered to HIV-positive women at ANC.

Insufficient use of facility-based delivery where improved obstetric practices can be used, and ART for mother and newborn can be supervised.

Poor adherence to "take-home" ART for mother and newborn when given to HIV-positive women at ANC.

Low coverage of newborns with ART even when delivered in facility.

Lastly, low uptake of recommended infant feeding behaviours to minimise MTCT. [19]

A study in Kenya has found that the level of knowledge regarding pMTCT is lower in teenagers (15-19 years olds) than those more than twenty years. Due to the fact that to teenagers may be, it is the first time they visit RCH clinics, and where they heard about pMTCT for the first time. [20]

Regarding the place of delivery for pregnant women deliver and have enrolled in pMTCT, a study in Zambia reported that 10% of pregnant women enrolled in pMTCT program delivered at home. [13]

Another study in Zambia reported that, maternal and newborn non-adherence to NVP use was 4 times higher among women who had home births compared with delivery at the clinic where antenatal care had taken place. [17] Furthermore, births at the tertiary hospital were associated with significantly less chance, that the newborn would receive nevirapine, due to the fact that pMTCT programs did not cover tertiary hospitals by then. [17] While in western Kenya, it has been found that low number of HIV-positive pregnant women deliver at health facilities; by this decision of HIV-positive mothers to deliver in their homesteads, this denies the important chance of newborn babies to get NVP drops. [14]

1.2.2 MTCT of HIV

Transmissions of HIV occur during pregnancy, labour and delivery, and breastfeeding. Among women who do not breastfeed, an estimated 65 percent of perinatal HIV infections occur late in pregnancy and during labour and delivery. [5]

The following are the ways of reducing MTCT of HIV

i) Preventing HIV infection among women of child bearing age.

ii) Preventing unwanted pregnancy among HIV-positive women.

iii) Preventing transmission during pregnancy, labour and delivery, and breastfeeding. [5]

1.2.3 NEVIRAPINE

Nevirapine: is an ART drug and it is offered free to pregnant women, and has a beneficial effect to the forthcoming infant, by reducing the possibility of being born infected by their HIV positive mothers.

Many countries and programs have adopted nevirapine, as the antiretroviral regimen of choice, because of its simplicity, low cost, and feasibility. [14] Nevirapine is effective in the prophylaxis given to people who are infected with HIV-1 only. It is not for people infected with HIV-2. [1]

On the safety of the nevirapine, it has been noted that those who are taking rifampicin co administration (Tuberculosis patients undergoing treatment, with rifampicin) this drug reduces the bioavailability of nevirapine. Solution is to increase dose from 200 mg to 300 mg, to counter the effect of rifampicin. [21]

On long term use, it has been found to be linked with liver damage. [22]
Furthermore, nevirapine associated rash has been described in the Caucasians population. With increasing access to antiretroviral treatment, especially a fixed dose combination by people living with HIV/AIDS in developing countries, there is need to emphasize the led in dose of nevirapine. [23]

In addition to that, severe hepatotoxicity associated with nevirapine use in HIV infected subjects has been noted in South Africa, especially in women with low body mass index (BMI). [24]

Up to end of December 2005, 79% of districts in Tanzania Mainland had already started offering pMTCT services in Tanzania. [16]

1.3 STATEMENT OF THE PROBLEM

The rate of antenatal HIV-positive among pregnant women in Kinondoni municipality was 13.1%. [11] This rate is high and measures are needed to control this situation.

One of the areas to be used for intervention is in RCH clinics, being part of pMTCT. For pregnant women who will be found to be HIV-negative, counseling will be on measures to be taken by pregnant women, so that they remain with the same serostatus. Whereas, those who will be found HIV-positive, counseling will be on how to get a baby who will be HIV-negative. That is, pregnant women will be required to take nevirapine, and swallow it during labour, and she will be supposed to send the newborn baby to RCH clinic within 72 hours after delivery, to be given nevirapine solution.[13]

MTCT of HIV is a strategy trying to decrease the rate of infection among the expectant women, as part of its routine antenatal care, with single dose nevirapine (sdNVP) and

infant peripartum nevirapine prophylaxis of HIV infected expectant women and their infants.

The single dose nevirapine has been shown to be effective in reducing MTCT of HIV. That is, a pregnant woman is instructed to take a tablet when she starts to experience labour pain. Also, the new born child is supposed to be given nevirapine drop (about 2 mg/kg body weight) less than 72 after being born. [25,26]

This study looked at the factors which influence pregnant women's perception on VCT services in RCH clinics in Kinondoni Municipality. Availability of treatment for mother and baby, if these expectant mothers knew about the availability of these MTCT services in RCH clinics. The study also aimed at finding out whether pregnant women shared their serostatus with partner/relatives, as some women who are positive and who have enrolled in pMTCT programme, may have not disclosed this information to their partner/relatives. The study also tried to find out where did the pregnant women deliver, and the type of type of counseling received. The study also sought out information from about their awareness of the possibility of HIV infected pregnant women infecting their offsprings, if they do not take Nevirapine tablets.

1.4 RESEARCH QUESTION

How to determine pregnant women's awareness and perceptions of interventions to prevent MTCT OF HIV in Kinondoni municipality, Dar es Salaam?

1.5 RATIONALE OF THE STUDY

The government of Tanzania through the Ministry of Health and Social Welfare introduced pMTCT services since 2002, in an attempt to try to reduce the spread of HIV infection through infected pregnant women to their babies either during pregnancy, delivery, or during breast feeding. These intervention measures were instituted in all RCH clinics. These services included pre-test counseling, HIV testing and post-test counseling. To scale up the program countrywide, the government made sure that these services are free of charge to all pregnant women, and HIV results are obtained on the same day.

No study has been done so far to study specifically how to increase the level of coverage of pMTCT among pregnant women and how to sensitize Tanzanians on the importance of sending pregnant women to VCT services.

This study was therefore meant to provide some answers that shall therefore contribute towards improvement of the pMTCT services in RCH clinics and also improve pregnant women's awareness towards VCT through community sensitization efforts in the country.

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1.5.1 THE RESEARCH OBJECTIVES

1.5.2 BROAD OBJECTIVE

To determine pregnant women's level of awareness and perceptions of interventions to prevent MTCT of HIV in Kinondoni municipality, Dar es Salaam?

1.5.3 SPECIFIC OBJECTIVES

1. To determine whether pregnant women are aware of free VCT services offered in the RCH clinics.
2. To determine whether pregnant women are aware about ways for preventing mother-to-child transmission of HIV during pregnancy and delivery.
3. To determine pregnant women awareness of nevirapine prophylaxis availability for the prevention of mother-to-child transmission of HIV.
4. To determine pregnant women's perception concerning effectiveness of nevirapine prophylaxis for the prevention of mother-to-child transmission of HIV.
5. To determine pregnant women's perception of the safety of nevirapine prophylaxis in pregnancy.

CHAPTER TWO

LITERATURE REVIEW

It had been shown that couple counseling was more successful in promoting behaviour change, facilitated communication between couples and decreased HIV transmission. [27] In addition to that, Voluntary Counseling and Testing (VCT) and prevention of mother-to-child transmission of HIV (pMTCT) has recently become a major focus of HIV control programme in developing countries. [28]

VCT provides an opportunity to access accurate and comprehensive information on HIV/AIDS, also serves as a good entry point for prevention, care, support and treatment programmes. VCT enables a person to confidentially find out and understand his or her risk of HIV infection. It also provides an opportunity to fully understand the implications of one's serostatus and learn about lifestyles for protecting and preventing further spread of HIV infection to non-infected persons also facilitates making of informed decisions about HIV testing. [12]

VCT is a critical component of PMTCT programs and has been a recommended practice in overall HIV/AIDS prevention and care programs, with a high level of scientific evidence. [29] Extensive literature has reported the benefits of individual HIV pretest counseling for women in Africa especially in the era prior to routine PMTCT. [29] Since, both knowledge of pMTCT services and their reported existence in health facilities where women booked for ANC or delivered were significantly associated with the fact of being tested. As individual pretest counseling is not undertaken in a routine

opt-out HIV strategy, there is a need to emphasize the importance of improving the quality of group pretest counseling as well as individual post-testing counseling for HIV negative and positive women and also guarantee confidentiality throughout the process. A study that was done in West Africa confirmed the feasibility of integrating group counseling into ANC as well as its effectiveness in promoting a good level of knowledge on HIV/AIDS matters including PMTCT. [29]

"Opt-out" strategies for HIV testing, where all clients are tested unless they actively decline, might lead to more complete "uptake" with results closer to the true prevalence within a given clinic. [30]

These results highlight the importance of reinforcing primary prevention messages on pMTCT, as poor understanding indeed affects the decision of a woman to test for HIV. Previous research concerning the level of education and acceptability of HIV testing has been inconsistent in that study, that shown level of education has influence on the testing acceptability. This has implications for the design of focused health information and education programs adapted to vulnerable sections of the population, including women and their partners of low educational and socioeconomic status. [29]

Women are accustomed to follow health workers' advice; therefore, VCT makes new and unusual demands in the context of health care delivery. The women's acceptance of VCT seems to depend upon their perception that VCT and other alternative feeding strategies provide clear benefits, primarily for the child. [13]

Results in Vietnam indicate that most women do not perceive themselves to be at risk, and that many high-risk women will not be tested. It is important to help women recognize their own risk. We believe that an 'opt-out' approach (declining testing) would result in a higher uptake than either a selective or opt-in (request testing) approach. [15]

Also a study in Uganda on attitude of women on VCT showed, almost all women were willing in principle to take HIV test in the event of pregnancy, and to reveal their HIV status to maternity staff. They were anxious, however, about confidentiality and there was a widespread fear that maternity staff might refuse to assist them when time came to deliver if their status is known. [31] Furthermore, a prospective study of HIV-positive women in Rwanda reported that 75% of women who had been tested did not expect a supportive response from their partner. [25]

A study that was done in Zambia revealed that women who disclose their serostatus with their partners had been noted to be more likely to report adverse social events, than those women who did not disclose their serostatus. [18] In northern Tanzania, pregnant women expressed fear of discussion of HIV results with their partners. This was due to lack of openness among couples in discussing HIV/AIDS issues. [25]

In Uganda, it was shown that, low uptake of voluntary counseling and testing , some of pregnant women might accept to be tested for their HIV status, but they did not come

for their results had been noted in RCH clinics. [18,33] However, in northern Tanzania it was found that 49% of pregnant women interviewed in a survey, did not want to test ('no test, just treat'). [25] Meanwhile, it has been found that in 23% of women at risk in Zambia wished to be given ART to all of them without undergoing serostatus test. [13] Some expectant mothers in Northern Tanzania were afraid of HIV testing, because they might eventually be found out to have contracted a fatal illness. [25]

In Botswana, problem of counseling was noted to be contributed by inadequate space in the health facilities and shortage of manpower to offer counseling. [34] In other country such as Kenya, it was noted that, increasing comprehensive pre-testing counseling increased the number of pregnant women to attend antenatal clinics. [14]

Women who participate in pMTCT programme in Botswana were enrolled in formular feeding, this causes suspicion and prejudice amongst people in the local community. As few people influence a woman's decision to participate in pMTCT guidelines on breast milk substitute, at the same time these women usually do not disclose their HIV-positive status to neighbours, relatives or friends, who may not understand why a particular healthy looking lady is using formular feeding instead of breast feeding [13]
Between 2000 and 2005, there were various programs organized by various NGOs addressing towards adolescents aged between 10 to 24 years in Kinondoni municipal. [35] Sensitization of youth on pMTCT in African Youth Alliance (AYA) project covered Dar es Salaam region, and Kinondoni being one of the municipalities. During 2001-

2005 duration periods, this project introduced the use of quality youth-friendly adolescent environment, for youth to come to the health facilities where educational and entertainment was performed. [35] Time for these activities was set in the afternoon and venue is not at the routine treatment rooms, so as to avoid youth meeting with elderly patients or parents/guardians. Also the project involved non medical personnel in the activities, and they tried to minimize time client waited to be attended. Sexual and reproductive health services were offered. [35]

AMREF is one of NGO which had Adolescent Sexual Reproductive Health programme (ASRH) in Kinondoni Municipality, at the Mwananyamala Youth Centre. [36] Since this municipality is the most densely populated area in Dar es Salaam, with low social economic indicators like high unemployment rate and prostitution. The project had several phases; targeted group was adolescents 10 to 24 years. Its objective included clinical component, delivering health services in youth-friendly, focusing on STI, VCT, and contraception. It also did education and entertainment to capture young people through their interest, improve their talents on performing theatre, sports and games. Also, equip youths with knowledge and skills that enable them cope with risky life situations and prevent HIV/AIDS/STI. [36]

Furthermore, last NGO conducted mass mobilization campaigns at ward level on pMTCT to young population segment aged between 10 to 24 years in all three municipalities. It had three key messages: early booking for ANC, uptake of VCT on

HIV counseling, and male involvement in ANC. This educative and entertainment campaigns resulted in an increase in number of women enrollment in pMTCT services in all three municipals. These community mobilization campaigns resulted in Kinondoni and other municipals an increase in proportion of eligible women attending clinics. In Kinondoni particular, eligible women attending RCH clinics increased from 60% to 65% , and those returning for HIV results increased from 76% to 85%. Data was collected for seven weeks, then community mobilization was performed for seven weeks. Later seven weeks were for collecting data. These activies were conducted in the second half of 2002. [37]

CHAPTER THREE

METHODOLOGY

3.1 DESCRIPTION OF STUDY AREA

Kinondoni is one of three municipalities, which make Dar es Salaam region, others are Ilala and Temeke. It borders with Bagamoyo district in the north, in the western part with Kibaha and Kisarawe districts, while Ilala district is on its southern boundary, on the east is bordering with Indian ocean. It has an area covering 531 square kilometers. The district is situated on the eastern part of Tanzania.

This is the municipal with highest number of people in Tanzania.

The municipality had a population of 1,088,867 people, according to 2002 census. Total number of reproductive women was 217,773. (Women who are aged between 15 and 49 years). [38]

Kinondoni municipality is divided into four divisions namely Kinondoni, Kawe, Magomeni and Kibamba. It has 113 urban location (mitaa) and 14 villages. There are 27 wards wholly urban in Magomeni and Kinondoni divisions, while Kibamba and Kawe divisions are mostly rural with 14 villages. [38]

Top five diseases affecting the inhabitants in the municipality of Kinondoni are Malaria, HIV/AIDS, Tuberculosis, Diarrhoea and Acute respiratory diseases. [38]

Health facilities were either government or privately owned. The Kinondoni Municipality had 28 public health facilities and 146 private health facilities. Municipality had 669 health staff in public health facilities. [38]

Up to December 2005, PMTCT services were already established in 12 RCH clinics, four of them were private health facilities, and eight were public health facilities (8% of all health facilities). [38]

This research was done in two Municipal health facilities, namely Magomeni and Sinza Health Centres. pMTCT in Kinondoni municipality is organized as follows; it has been established in the existing RCH clinics, by increasing more partitions of rooms, so that more privacy is obtained. Also, they do not have an independent laboratory, as they use the existing Health facility laboratories for testing their samples. [39]

3.1.1 STUDY DESIGN

A descriptive cross sectional study was conducted among pregnant women attending Sinza and Magomeni RCH clinics in Kinondoni municipality. The objective was to determine their awareness and perception of intervention to pMTCT services in Kinondoni Municipality. Specifically the study was geared toward finding out whether women knew about availability of Nevirapine as an intervention to prevent mother-to-child transmission of HIV, and how they perceived its effectiveness, safety and

accessibility during labour. The inclusion criteria that was applied in selecting the respondents of the study sample is described below:

1. Pregnant women who attended RCH clinics in Kinondoni municipality.

2. Only those who gave consent to what were interviewed.

3.1.2 STUDY POPULATION

Sample population was obtained from the pregnant women who attended Reproductive and Child Health Clinics in Kinondoni municipality. Selected clinics were Magomeni and Sinza health centres. The two health centres were chosen purposefully, because they received more clients as compared to other clinics in the municipality.

3.1.3 SAMPLE SIZE ESTIMATION

The sample size was obtained using the following formular:

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

Where n = the estimated sample size.

ε = the margin of error 5%

P = the proportion of pregnant women (51%) who responded that, they were willing to take nevirapine after getting VCT services. [25]

Z = confidence interval = $(1.96)^2$ = 95%

$$n = \frac{(1.96)^2 \times 51(100 - 51)}{(5)^2}$$

= 384, minimum sample size.

3.1.4 SAMPLING PROCEDURE

In this study, sampling frame included pregnant women attending the two RCH clinics. Systematic sampling was used, in which sampling interval (three) was obtained by taking the total number expected to attend the 2 clinics (1052) for the period of 6 weeks divided by sample size (384). Thus, every third pregnant mother attending RCH was included in the study. The first case was chosen randomly in each RCH clinic, and every day when the exercise was being conducted.

3.1.5 PRE-TESTING OF INSTRUMENTS

One day was set aside for pre-testing of the questionnaire, in Temeke municipal area in Kigamboni Health Centre, where 30 pregnant women were interviewed. The aim was to check the extent to which the clients understood the questions, and to identify areas which needed modifications, and hence to effect any changes, prior to the data collection. In addition to that, the exercise was taken to familiarize the four research assistants, on the data collection techniques.

3.1.6 STUDY VARIABLES

In this study, the independent variables were: age, level of education, marital status, while the dependent variables were: awareness of availability of free VCT services in RCH clinics and awareness of pMTCT of HIV using nevirapine. We also assessed awareness of the possibility of prevention of MTCT of HIV during pregnancy and

delivery. The issue of perception by the pregnant women was based on how they perceived the whole issue of safety and effectiveness of nevirapine.

3.2 DATA COLLECTION

Data collection was conducted in Kinondoni municipality, with assistance of four field research workers. Data processing and report writing took six weeks. The Principal investigator and 4 research assistants, approached pregnant women before being attended at the two RCH clinics. An explanation of the study was given to each woman then they were asked to give their consent to participate in the study. First client was selected randomly, and then every third client was picked systematically. A diary of activities done on each day was maintained throughout the data collection period.

Structured interviews were used to collect information from study participants. The questionnaire included the social demographic characteristics of the study participants, with closed and open ended questions were used. A questionnaire with each question was read and recorded answers from the client, by the research team.

3.3 ETHICAL CONSIDERATIONS

Ethical clearance to carry out the study was sought from MUCHS College Research and Publications Committee. Permit to carry out the study in the institutions was sought from the relevant authorities. The study participants were informed about the aim of the study, and written consent was sought from the respondents before starting the

interview, and that they were informed that their participation in the study was voluntary. Furthermore, study participants were informed that, their refusal to participate in this study would not affect the quality of services they were going to receive. Also a pregnant woman who had changed her mind and then decided to participate in the study was accepted forthwith without any prejudice.

3.4 DATA ENTRY AND ANALYSIS

Data cleaning was done to check for the completeness and accurateness of all questionnaires, before and after entering the data into the computer.

All the information in the questionnaire was entered into the computer, using Epi info computer program by the principal investigator daily. Analysis of the data was done using Epi info 6 for window 2002 computer program. The first level of analysis involved examination of the frequency distribution of respondents` characteristics, which provided an insight into the structure/profile of the study population.

CHAPTER FOUR

RESULTS

4.1 Socio-demographic characteristic of the study population

The study involved 384 pregnant women who were attending reproductive and child health (RCH) clinics at Magomeni (223) and Sinza (161) health facilities. Both facilities are located in Kinondoni municipality, one of the three municipals in Dar es Salaam Region.

Table 1 below provides the distribution of the study sample by socio-demographic characteristics of the respondents including age, marital status, the level of education, and occupation. Of the 384 pregnant women interviewed, 54% were below 25 years of age, 56% were married, 89% had primary, secondary or higher level education while less than a quarter (22.7%) had a formal employment and 42% had no employment at all.

Table 1: Distribution of socio-demographic characteristics of the study women (n=384)

Characteristic	Clinic location		
	Magomeni (n=223)	Sinza (n=161)	Total (n=384)
	No (%)	No (%)	No (%)
Age (in years)			
15-24	147 (65.9)	59 (36.6)	206 (53.6)
25-34	67 (30.0)	75 (46.6)	142 (37.0)
35-44	9 (4.0)	27 (16.8)	36 (9.4)
Marital status			
Not married	67 (30.1)	40 (24.8)	107 (27.9)
Cohabiting	26 (11.7)	36 (22.4)	62 (16.1)
Married	130 (58.3)	85 (52.8)	215 (56.0)
Level of Education			
None	30 (13.5)	11 (6.8)	41 (10.7)
Primary	151 (67.7)	94 (58.4)	245 (63.8)
Secondary & beyond	42 (18.8)	56 (34.8)	98 (25.5)
Occupation			
None	107 (48.2)	53 (32.9)	160 (41.8)
Salaried employment	48 (21.6)	39 (24.2)	87 (22.7)
Self employed	16 (7.2)	37 (22.9)	53 (13.8)
House wife	51 (23.0)	32 (19.9)	83 (21.7)

*** Not married included: single, separated, divorced and widowed.**

4.2 Prevention of mother-to-child transmission (pMTCT) of HIV

Women were asked questions on their awareness of various ways of decreasing chances of transmitting HIV from an infected pregnant woman to a foetus. 82.8% responded that there are ways to decrease HIV transmission from mother to child. Also, 83.3% of pregnant women responded that it is possible for HIV pregnant women to infect her child. On examining whether there was an association between awareness of pMTCT with some of the socio-demographic characteristics of women, we found that education was significantly associated with awareness of pMTCT (χ^2 ; p=0.02) (Table 2). In particular, the percentage of those who are aware of pMTCT of HIV tends to increase with increasing level of education. However, awareness of pMTCT was not significantly associated with other demographic characteristics (age, marital status and occupation).

Table 2: Awareness of pMTCT by selected socio-demographic characteristics

Characteristic	Being Aware of pMTCT: Yes — No.	(%)	χ^2	P-value
Age (in years)			**0.14**	**0.93**
15-24	171	(83.0)		
25-34	118	(83.1)		
35-44	29	(80.6)		
Marital status			**3.87**	**0.14**
Not married	90	(84.1)		
Cohabiting	46	(74.2)		
Married	182	(84.7)		
Level of Education			**7.66**	**0.02**
None	29	(70.7)		
Primary	201	(82.0)		
Secondary & beyond	88	(89.8)		
Occupation			**5.01**	**0.17**
None	125	(78.1)		
Salaried employment	47	(88.7)		
Self employed	76	(87.4)		
House wife	69	(83.1)		

*** Not married included: single, separated, divorced and widowed.**

The overall results revealed that, 83% interviewed pregnant women were aware of various ways of preventing MTCT of HIV (Table 3).

TABLE 3: Awareness of pMTCT among interviewed pregnant women (n= 384)

Characteristic	No	%
Aware	318	82.8
Not aware	66	17.2
TOTAL	**384**	**100.0**

4.2.1 Awareness of respondents about caesarean section in relation to prevention of HIV transmission from mother to child

Caesarian section is one of pMTCT measures to reduce MTCT of HIV.

Women were asked if they thought that a child born by caesarean section had a lesser chance of being infected with HIV by a mother who is infected by HIV, than a child born through spontaneous vaginal delivery. Sixty one percent (61.2%) (235/384) of the respondents believed that the risk of HIV transmission from the infected mother to the new born was less in a caesarian section mode of delivery than in the normal delivery mode (Table 4). Education and occupation were significant factors that were associated with knowledge that caesarian section has less chance of transmission of HIV from mother to child, while age and marital status were not.

4.3 Awareness of availability of nevirapine for pMTCT by pregnant women.

Nevirapine is a drug which is offered freely at reproductive and child health (RCH) clinics for the purpose of reducing the risk of mother-to-child transmission of HIV. The tablet is to be taken orally by a pregnant woman during labour. In this study, among other issues, pregnant women were interviewed to assess their awareness of the drug and gather their views on the extent of availability of the drug at RCH clinics. It was found that a majority (71.6%) of pregnant women attending RCH clinics knew about the drug. However, 60% of the pregnant women reported to be aware that the drug was being offered freely.

Table 4:Delivery by caesarian section has less chance of MTCT of HIV compared to normal deliveries (n= 384)

Characteristic	Yes		χ^2	P-value
	No	(%)		
Age (in years)			**2.94**	**0.22**
15-24	133	(64.6)		
25-34	79	(55.6)		
35-44	23	(63.9)		
Marital status			**3.35**	**0.18**
Not married	73	(68.2)		
Cohabiting	38	(61.3)		
Married	124	(57.7)		
Level of Education			**6.79**	**0.03**
None	29	(70.7)		
Primary	138	(56.3)		
Secondary & beyond	68	(69.4)		
Occupation			**10.48**	**0.03**
None	98	(61.2)		
Salaried employment	41	(77.4)		
Self employed	53	(60.9)		
House wife	42	(50.6)		

Table 5: Knowledge among interviewed pregnant women that delivery by caesarian section had lesser chance of MTCT of HIV compared to spontaneous vaginal deliveries

About 60% of pregnant women were aware that caesarian section has a lesser chance of MTCT compared to normal spontaneous vaginal delivery. (Table 5)

Characteristic	No	%
Aware	235	61.2
Not aware	149	38.8
TOTAL	**384**	**100.0**

Seventy six percent of the women knew that nevirapine when taken during labour can decrease the chances of a new baby to be infected by her HIV positive mother while 86% perceived that nevirapine is safe to the foetus. In addition, 60% admitted that Nevirapine is offered for free in RCH clinics while 55n% of pregnant women knew that if a pregnant woman had swallowed a nevirapine tablet and ended up having false labour she would be able to get another tablet from an RCH clinic. About 69% of the women said that they would advice other HIV positive pregnant women to go for a nevirapine tablet.

4.4 Effectiveness of tablet swallowed during labour in reducing mother-to-child HIV transmission

Pregnant women were asked about a tablet swallowed during labour on its effectiveness in reducing the possibility of a newborn baby being infected by a mother who is HIV positive. More than three quarters (76%) of the pregnant women were of the opinion that the tablet can reduce risks of mother-to-child HIV transmission. Age was associated with perception of nevirapine tablet effectiveness. Younger women aged below 35 years were more likely to perceive NVP to be effective in pMTCT of HIV. (P = 0.007), than those aged between 35 to 44 years age group. This perception was independent of marital status, level of education, and occupation. The highest proportion of pregnant women who perceive the tablet as being effective in reducing mother-to-child (MTCT) HIV transmission was seen in the age group of 25-34 years (80.3%), followed by the age group of 15-24 years (76.7%), while the lowest proportion was among those aged 35-44 years (55.6%). Table 6 below gives details of these findings.

Table 6: Pregnant mothers' perception on effectiveness of Nevirapine tablet swallowed during labour

Characteristic	Nevirapine tablet being effective in reducing MTCT (n=384) Yes		χ^2	P-value
	No.	(%)		
Age (in years)			**9.74**	**0.007**
15-24	158	(76.7)		
25-34	114	(80.3)		
35-44	20	(55.6)		
Marital status			**4.33**	**0.11**
Not married	75	(70.1)		
Cohabiting	45	(72.6)		
Married	172	(80.0)		
Level of Education			**0.57**	**0.75**
None	30	(73.2)		
Primary	185	(75.5)		
Secondary & beyond	77	(78.6)		
Employment			**1.49**	**0.82**
None	120	(75.0)		
Salaried employment	41	(77.4)		
Self employed	65	(74.7)		
House wife	65	(78.3)		

4.5 Pregnant mothers' perception on safety of tablet swallowed during labour to the foetus

Further to measuring pregnant mothers' perception on the effectiveness of the tablet swallowed during labour, pregnant women were asked on how they perceived on its safety.

Table 7 below shows the percentage of pregnant women who perceived that the tablet, that was swallowed by pregnant women in labour, was safe to the foetus.

The pregnant women below 34 years had better perception of safety of nevirapine compared to those above 34 years (P=0.01). On the contrary, other socio-demographic characteristics were not associated with perception of safety.

Table 7: Perception on safety of the tablet being taken during labour to the foetus

Characteristic	Tablet being safe to the foetus (n=384) Yes No.	(%)	χ^2	P-value
Age (in years)			**8.13**	**0.01**
15-24	171	(83.0)		
25-34	131	(92.3)		
35-44	28	(77.8)		
Marital status			**3.40**	**0.18**
Not married	88	(82.2)		
Cohabiting	51	(82.3)		
Married	191	(88.8)		
Level of Education			**5.59**	**0.06**
None	33	(80.5)		
Primary	206	(84.1)		
Secondary & beyond	91	(92.9)		
Occupation			**7.81**	**0.09**
None	132	(82.5)		
Salaried employment	48	(90.6)		
Self employed	81	(93.1)		
House wife	68	(81.9)		

Table 8 below shows overall perception of pregnant women on nevirapine tablet effectiveness in pMTCT when taken during labour, above three quarters of them perceived the nevirapine tablet as effective.

Table 8: Perception of pregnant women interviewed on NVP tablet effectiveness swallowed during labour (n= 384)

Characteristic	NO	%
Perceived NVP tablet is effective	292	76.0
Perceived NVP tablet is not effective	92	24.0
TOTAL	384	100.0

4.6 Perception of availability, safety, and effectiveness of NVP tablet among pregnant women interviewed.

Nearly 60% of pregnant women admitted that they knew that nevirapine is offered for free in RCH clinics (Table 9), also 71.6% of the women knew that nevirapine tablet taken during labour pain can decrease the possibility of newborn baby being infected by her an HIV positive mother.

Regarding nevirapine tablet which had been taken by a pregnant woman but she developed false labour pain, 55.2% of pregnant women interviewed knew that she can go again to the ANC for another tablet and it will be offered free of charge.

To these respondents, when asked if they would advice other HIV positive pregnant women to go for nevirapine tablet, 68.5% responded that they would advice so.

Table 9: Perception of availability, safety and effectiveness of nevirapine tablet among interviewed pregnant women (n= 384).

Response of pregnant women to different questions on perception		
Responses	**Number of respondents (YES)**	**(%)**
Knew that NVP tablet is offered free in RCH clinics	230	59.9
Knew that NVP tablet taken during labour, decreases MTCT of HIV	275	71.6
Knew that NVP will be given again free of charge, after previous tablet was taken during false labour	212	55.2
Respondents said they will advice other HIV-positive mothers to go for NVP tablet	263	68.5

CHAPTER FIVE

DISCUSSION

The government of Tanzania through the Ministry of Health and Social Welfare (MoHSW) introduced pMTCT in RCH clinics since 2002. The main objective behind pMTCT was to make all RCH clinics able to offer VCT services to pregnant women. These services include, pretest counseling, HIV test with results given on the same day, and post test counseling to all pregnant women who attend RCH clinic services throughout the country. These services were voluntary applied to all RCH attendees. The aim was to ensure that, newborn babies do not contract HIV infection vertically, from their HIV infected mothers during delivery.

Women were considered as an attractive group for pMTCT programmes, because of their roles as mothers, hence they made frequent contacts with health facilities. This condition had necessitated an arrangement of planned services with various medical tests in the health facilities for them. [27]

This study found that, the level of awareness among pregnant mothers attending RCH clinics in Kinondoni municipality on pMTCT of HIV was between 80.6% to 83.1% among different age groups.The lowest percentage was noted in 35-44 years age group. Similar findings had been reported in a study that was done in Zimbabwe, 82.8%. [40] and in Mbarara, Uganda, 81%. [33] but was higher than that found in Burkina Faso, 62%. [28]

The high level of awareness may be due to the fact that, Kinondoni was covered by three adolescent programes on safe sex, HIV/AIDS/STI, male involvement in ANC, and education and entertainment. [37] However, in Burkina Faso, lack of services might be the contributing factor, but there was no data showing risk perception and willingness to undergo HIV testing in this rural area. [28] Furthermore, looking at the issue of pMTCT knowledge among pregnant women, a study in Vietnam found that 60% of women interviewed did not know about pMTCT or prevention options. [15]

Increase in the level of education was associated with increase in the level of awareness of pMTCT among interviewed pregnant women in Kinondoni municipality. This scenario could further be associated with the fact that, respondents who reached secondary and beyond level of education had better accessibility and understanding to media influence such as newspapers, posters and television programmes.

In a study done in USA, which showed that educated people were shown to be more likely to have access to many sources of health and HIV-related information and were more likely to read newspapers, or to visit private or public health services where HIV-related information are provided. If information comes through channels they already use, the marginal cost of obtaining HIV/AIDS information, will be low for the well educated. [41]

Education may also make it easier for individuals to process and understand the information that may be complement in the production function for health knowledge. Further, those with more schooling have already made large investments in the future. Since their future stream of earnings, hence consumption and utility, is higher, they have greater incentives to protect their health and insure their longevity by gathering or being attentive to information about HIV prevention. Great investment in education may be a reflection of a lower discount rate, which again would incline those with education to seek information and change behaviors to insure their longevity. In young cohorts, at least, those who went to or stayed in school may have been exposed to school-based HIV/AIDS programs. [41]

Furthermore, dissemination information through health centres, schools, print media, TV, and possibly even radio are more likely to reach a better educated audience. This would lead to strengthening of the association of HIV knowledge and education over time.

In addition to that, mobilization campaigns like community outreach programs, and information sessions held at public gatherings such as weekly village markets, the cost of access to information may fall the most for less educated individuals. [41]

Most of the communication channels to which women have access, have several limitations. The print media for example, poses problem of language, literacy,

communication patterns, low education, skewed socio-economic and power relations and failure to sustain reader interest. [42]

In addition to that, it had been noted that: As people acquire more education, their hygiene improves, and their responsiveness to public information programs increases. [43] So, the increase of the level of basic education will most likely increase the level of awareness of pregnant women to pMTCT, through reading newspapers, posters and television programs on their reproductive health and well being.

Between 55.6% to 64.6% among different age groups of interviewed pregnant women perceived that, the risk of HIV transmission from an infected mother to the newborn was less likely from caesarian section than normal delivery. This finding probably was contributed by programs which existed within the municipality to sensitize people, starting at ward level. [37] This figure differs from women attending ANC in Lagos, Nigeria, where only 30.4% of respondents knew MTCT of HIV during delivery. [44] This could be due to the lack of pMTCT programs organized at national level. Also it was noted even among these women who had tested HIV, no counseling was offered. 39.2% of the studied women had been tested in the previous pregnancies. Out of these, 25.2% had received pre test counseling, while 20% received post test counseling.

When a mother is HIV positive and already taking ARVs, then a caesarean section will often not be recommended because the risk of HIV transmission will already be very

low. Caesarean delivery may be recommended if the mother has a high level of HIV in her blood, but the procedure is seldom available and/or safe in resource poor settings such as India. [45] Contrary to this is the recommendation that, the risk of MTCT can be reduced to under 2% by interventions that include ARVs prophylaxis, given to women during pregnancy and labour and to the infant in the first week of life, obstetrical interventions including elective caesarian section delivery prior to the onset of labour and rupture of membranes, and complete avoidance of breast feeding. [1]

The possible difference in the two above schools of thought is probably due to the fact that, in India they have HIV-2, while in Central, Eastern and Southern Africa, are infected with HIV-1. The latter, is the type with likely MTCT of HIV rate up to 40% including breast feeding, while in HIV-2, MTCT is 0-4% among newborn babies who have been breast fed. [1]

Furthermore, a longitudinal term study in England found that, with the use of HAART (where the level of virus is undetectable), and elective caesarian section the level of MTCT could be reduced to less than 2%. [46]

As it was seen in this study, about 71.6% of pregnant women have heard about nevirapine. Another study conducted *in Dar es Salaam Tanzania, showed almost similar* results, where 71.1% of interviewed Dar es Salaam city women responded that, risk of MTCT can be reduced by mother taking special drugs during pregnancy, [47] high than in

Burkina Faso, where only 18% of pregnant women mentioned taking the medication on knowing their HIV status. Although the Burkina Faso respondents, were taught about pMTCT, prior to the assessment of knowledge of pMTCT. [28] Their level of understanding was lower than those in Kinondoni. The later had more knowledge about pMTCT, probably due to influence of community sensitization. [37]

In a study among women attending ANC in Nigeria it was noted that, 24.5% of them had awareness of ARVs. This could be due to absence of pMTCT programe, hence the need to start it at national level. [44]

Furthermore, since the difference in age groups on perception of effectiveness of nevirapine swallowed during labour to reduce MTCT of HIV is statistically significant (P=0.005), high percentage in younger age groups 15-24 and 25-34, had 76.7% and 80.35% respectively. While, old age goup, 35-44, had 55.6%, this is probably due to sensitization of youth on pMTCT programs in Kinondoni. [37]

This distribution probably shows the probably effects of health education programs to adolescents in Kinondoni municipality. That is, these programs started in 2000, so those in the leading group, 25 to 34 years, were in the program. So does for youngest age group, aged 15 to 24 years was also in the program. However, the oldest age group, aged 35 to 44 years was not in the adolescent program, and thus they had scored the lowest percentage.

CHAPTER VI

CONCLUSION AND RECOMMENDATIONS

CONCLUSION

Level of awareness on pMTCT among pregnant women attending RCH clinics in Kinondoni municipality was very high (above 80%). This high level of awareness among respondents may be explained by efforts made by municipal authorities and NGOs on sensitization of local residents towards the welfare of the mother and the child well being. In addition to that, most women have knowledge on various ways of prevention of transmission of HIV from mother-to-child among the respondents. 61.2% among them were aware that caesarian section mode of delivery, reduced the chances of transmission of HIV from mother-to-child.

It has been found out that, the level of education is one of determinants of knowledge of pMTCT of HIV in Kinondoni Municipality, that is those with higher level of education had higher level of knowledge of pMTCT, than those with lower level of education.

Single dose nevirapine has been perceived as a safe and effective regimen to protect newborn children form being infected by their HIV positive mothers in countries with limited resources.

Among pregnant women interviewed, about 71% among them had the information on the drug for pMTCT (Nevirapine). Furthermore, 76% of pregnant women perceived that nevirapine was safe for use in pMTCT. Likewise, 92.3% of the pregnant women perceived that nevirapine was effective in prevention of transmission of HIV.

However, about 25% of them, perceived that nevirapine not to be safe and effective, This group needs more information education and communication on pMTCT, so that eventually they may change their perceptions on the use of nevirapine for pMTCT and its impact on newborn babies to be infected by their HIV-positive mothers.

RECOMMENDATIONS

Though the proportion of pregnant women had high level of awareness of pMTCT this level has to be increased and to be sustained through community sensitization and participation programmes.

Prevention of MTCT of HIV should be integrated to the wards, out patients departments and all section of health care facilities. This should be introduced in community meetings in order to increase knowledge of community on pMTCT.

Continued health education should be given to all mothers attending antenatal clinics, on the effectiveness and efficacy of nevirapine.

In addition to that, further studies are required to understand what makes a quarter of pregnant women to have negative perception about nevirapine.

More information, education and communication on pMTCT, should be extended to pregnant women who cast doubt on the safety and effectiveness of nevirapine so as to increase coverage and prevention of MTCT of HIV.

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