

**AN INVESTIGATION INTO THE FACTORS AFFECTING THE UTILIZATION  
OF MOTHER TO CHILD TRANSMISSION SERVICES BY HUMAN  
IMMUNO-DEFICIENCY VIRUS POSITIVE WOMEN  
IN ONITSHA, ANAMBRA STATE, NIGERIA**

by

**ROSEMARY NNAMDI-OKAGBUE**

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**SUPERVISOR: PROF SP HATTINGH**

**JOINT SUPERVISOR: DR T HEYNS**

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**Student number: 3578-973-5**

## **DECLARATION**

I declare that **AN INVESTIGATION INTO THE FACTORS AFFECTING THE UTILIZATION OF MOTHER TO CHILD TRANSMISSION SERVICES BY HUMAN IMMUNO-DEFICIENCY VIRUS POSITIVE WOMEN IN ONITSHA, ANAMBRA STATE, NIGERIA** is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references and that this work has not been submitted before for any other degree at any other institution.

\_\_\_\_\_  
**SIGNATURE**  
**(ROSEMARY NNAMDI-OKAGBUE (MRS.))**

\_\_\_\_\_  
**DATE**

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STUDENT NUMBER: 3578-973-5  
STUDENT: RU NNAMDI-OKAGBUE  
DEGREE: MASTER OF PUBLIC HEALTH  
DEPARTMENT: HEALTH STUDIES, UNIVERSITY OF SOUTH AFRICA  
SUPERVISOR: Prof SP HATTINGH

**ABSTRACT**

The purpose of the study is to investigate and identify the factors that affect utilisation of prevention mother to child transmission of HIV services and propose measures to promote utilisation of services by HIV positive pregnant women in Onitsha, Anambra State, Nigeria. Mother-to-child transmission of HIV accounts for over 90% of infections in children under 15 years. Infected pregnant women can pass on the infection to their babies during pregnancy, delivery or through breastfeeding. There are effective interventions now reduce of the infection to the baby. However some infected women still do not avail themselves of these services due to several reasons.

A quantitative descriptive study, using the Health Belief Model as the conceptual framework was used to conduct the research. A structured interview schedule was used to interview 102 pregnant women at two health facilities in Onitsha, Anambra state, Nigeria.

The findings from the study reveal that majority of the respondents knew about HIV transmission but not about ways the infection can be transmitted from mother-to-child. The respondents recognise that HIV/AIDS is a very serious threat in Nigeria and the study site and were of the opinion that all pregnant women should know their HIV status. The attitude of health care workers and fears about disclosure of HIV status to others was a setback. Revealing their status to the spouse was feared.

**Key concepts**

Antenatal care; pregnant women; prevention of mother-to-child transmission; Health Belief Model; antiretroviral drugs; HIV counselling and testing.

# *Dedication*

*This study is dedicated to:*

*My late parents (James and Sophie Okaka) whose believe in the girl-child and the importance of her education will always be an inspiration.*

*My husband, Nnamdi and my children, Chukwura, Ifeanyichukwu, Afamefuna and Chibuzo, for their love, support and motivation, without which I would not have been able to accomplish this.*

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## ABBREVIATIONS

AIDS	Acquired immunodeficiency syndrome
ANSACA	Anambra State Action Committee on AIDS
ART	Antiretroviral Therapy
AZT	Azidothymidine
CD4	Cluster of Differentiation 4
FHI	Family Health International
FMOH	Federal Ministry of Health
HBM	Health Belief Model
HIV	Human Immunodeficiency virus
HIVNET	HIV Nevirapine Trial
ICRW	International Center for Research on Women
MTCT	Mother-to-child transmission
m2m	Mothers2Mothers
NACA	National Action Committee on AIDS
NDHS	National Demographic and Health Survey
NPC	National Population Commission
NVP	Nevirapine
PHC	Primary Health Care
PMTCT	Prevention of Mother-To-Child Transmission
RSA	Republic of South Africa
SPSS	Statistical Package for the Social Science
TBAs	Traditional Birth Attendants
UN	United Nations
VCT	Voluntary Counselling and Testing
WHO	World Health Organization
USA	United States of America
UNAIDS	Joint United Nations Programme on AIDS
UNICEF	United Nations Children's Fund
UNISA	University of South Africa

# CHAPTER 1

## Orientation to the study

### 1.1 INTRODUCTION

The human immuno-deficiency virus and acquired immune deficiency syndrome (HIV/AIDS) pandemic remains the most serious infectious challenge to public health globally. HIV/AIDS is a worldwide pandemic and in some countries has become a major public health problem (Chama, Gashau & Oguche 2007:134; Kebaabetswe 2007:355; Onah, Obi, Agbata & Oguanuo 2007:271). In 2007, an estimated 33.2 million persons were living with HIV worldwide and half of those were women (Joint United Nations Programme on AIDS [UNAIDS]/World Health Organization [WHO] 2007:3).

A total of 2.5 million people were newly infected with HIV in 2007 while an estimated 2.1 million AIDS deaths occurred worldwide (UNAIDS/WHO 2007:1). Of these deaths, 76% were in sub-Saharan Africa (UNAIDS/WHO 2007:6). In addition, **every day** over 6 800 persons became infected with HIV and over 5 700 persons died from AIDS, due mainly to inadequate access to HIV prevention and treatment services (UNAIDS/WHO 2007:4). Mother-to-child transmission of HIV accounted for more than 90% of infections in children under 15 years of age (Chama et al 2007:134; Federal Ministry of Health [FMOH] 2007:1; Kominami, Kawata, Ali, Meena & Ushijima 2007:286).

Sub-Saharan Africa remains the most affected region in the global AIDS epidemic (UNAIDS/WHO 2007:4). More than two out of three (68%) and nearly 90% of children infected with HIV live in this region and more than three in four (76%) AIDS-related deaths in 2007 occurred in Sub-Saharan Africa (UNAIDS/WHO 2007:7).

Almost 61% of adults living with HIV in 2007 were women (UNAIDS/WHO 2007:8). The region's epidemics, however, vary significantly in scale, with adults (15-49 years) HIV prevalence ranging from less than 2% in some countries of the Sahel to over 15% in most southern Africa countries. Southern Africa alone accounted for almost one third (32%) of all new HIV infections and AIDS deaths globally in 2007 (UNAIDS/WHO 2007:8). In 2005, Cameroon had a 5.4% HIV prevalence rate; Kenya had a 6.1% rate;

South Africa had an 18.8% rate, Zimbabwe had a 20.1% rate and Swaziland had a 33.4% prevalence rate (UNAIDS/WHO 2007:11).

Nigeria officially reported the first case of AIDS in 1986 (Federal Ministry of Education [FMOE] 2006:1; National Action Committee on AIDS (NACA) 2005:3; National Population Commission [NPC] 2004:169). A sero-prevalence survey found that since 1986, the epidemic had risen from 1.8% in 1991, to 5.8% in 2001 and 5% in 2003 (NACA 2005:3). According to UNAIDS/WHO (2007:18), Nigeria still has the largest epidemic of HIV-positive individuals in the West African sub region. The epidemic in Nigeria has extended beyond the high-risk groups to the general population. Some parts of the country are more severely affected than others, but with large variation between different regions and states (Utulu & Lawoyin 2007:397-408).

All the states of Nigeria have a generalized epidemic of more than 1% among pregnant women. State-wide HIV prevalence among pregnant women conducted by the Federal Ministry of Health, Nigeria, for example, ranges from as low as 1.6% in Ekiti (in the west) to 8% in Akwa Ibom (in the south) and 10% in Benue (in the North Central) while a national prevalence of 4.4% was reported in 2005 (FMOH 2006a:4). The HIV prevalence for Anambra State has ranged from 6.0 in 1999, to 6.5% in 2001 and 4.2% in 2005 while that of Onitsha, the site for the study, has ranged from 6.0% in 2001, to 4% in 2003 and 4% in 2005 (Anambra State Action Committee on AIDS (ANSACA) 2007:12; FMOH 2006a:29-30; NACA 2005:3).

## **1.2 BACKGROUND TO THE STUDY**

The study was conducted in Onitsha North, which is located about 45 kilometres from Awka town (the State capital) of the Anambra State of Nigeria. The Onitsha North Local Government area was created in 1991 and currently has an estimated population of about 530,000 persons (permanent/stable population), which may increase to 800,000 (temporary population) at various periods of the year because of visitors and people who return home at festive periods – although some inhabitants of this area also tend to travel out of the city areas to rural areas at festive periods to visit relatives and friends (Family Health International [FHI] 2002:21).

Onitsha North is a densely populated, congested and predominantly commercial town. It is a major commercial nerve centre in the south-eastern part of Nigeria, being home to the popular Onitsha market, which is reputed to be the largest market in West Africa (FHI, Nigeria 2002:21). Onitsha is also a major stop for long distance road transportation (ANSACA 2007:12; FHI, Nigeria 2002:21).

The hospitals where the study was conducted are located in Onitsha North local government, Anambra State, Nigeria. One of the hospitals (hospital A) is government owned while the second (hospital B) is a faith-based health facility owned and run at a fee to the population and visitors. These two hospitals where the study was conducted provide health care services including the prevention of mother-to-child transmission (PMTCT) services to patients from within Onitsha and the surrounding towns.

The government of Nigeria commenced supporting interventions to prevent mother-to-child HIV transmission in 2002 (Adewole, Odutolu & Sagay 2006:369; FMOH 2005:14). The national policy on HIV/AIDS (Federal Government of Nigeria 2003:21) makes provision for the PMTCT of HIV as follows:

*“All antenatal care services shall offer voluntary counselling and testing to pregnant women as part of existing integrated reproductive health care services and shall include referrals for family planning counselling and services when necessary. Testing will not be mandatory”.*

The national policy on HIV/AIDS therefore encourages service providers to support and educate pregnant women on the importance of voluntary counselling and testing (VCT) as an intervention that will reduce the risk of mother- to -child transmission of HIV. Testing is offered routinely with the right to “opt out” by the patients (FMOH 2007:6).

Antenatal services and early interventions for the prevention of mother-to-child HIV infection are increasingly available in Nigeria and most health facilities now offer HIV counselling and testing as a standard of package of care in antenatal clinics. Nevertheless, some of the women who test positive (after receiving the test results) fail to return for antenatal follow-up appointments or come back to deliver in the facility (Manzi, Zachariah, Teck, Buhendwa, Kazima, Bakali, Firmenich & Humblet 2005:1242; Moth, Ayayo & Kasje 2005:244; Olanrewaju, Fatusi, Akintunde, Ibrahim & Fakande

2007:2; Painter, Diaby, Maita, Lin, Sibilly, Kouassi, Ekpini, Roels & Wiktor 2004:543). Failure to return for ante-natal appointments and/or to deliver in facilities providing prevention of mother-to-child transmission of HIV services means a missed opportunity to reduce HIV transmission and save the infant from becoming infected (Manzi et al 2005:1248).

The number of HIV-positive women who missed attending PMTCT of HIV programmes was estimated at 17% in Kenya, 57% in Ethiopia and 59% in Zimbabwe (Bolu, Anand, Swartzendruber, Hladik, Marum, Sheikh, Woldu, Ismail, Mahomva, Greby & Sabin 2007:S17). The influence of their partners and families, fear of stigmatisation and other factors prevent HIV-positive women from returning for antenatal services in health facilities providing PMTCT HIV services (De Paoli, Manongi & Klepp 2004:412; Ekanem & Gbadegesin 2004:91; Moth, Ayayo & Kasajre 2005:244; Olanrewaju et al 2007:2).

Annual antenatal clinic and labour wards records from Hospital A revealed that not all the HIV-positive women seen between August 2007 and January 2008 returned to deliver their babies in the hospital whereas at Hospital B more HIV-positive women that were identified within the same period delivered in the hospital (see tables 1.1 and 1.2).

**Table 1.1 HIV statistics: Hospital A Antenatal clinic and labour ward register, August 2007 – January 2008**

<i>Antenatal cases</i>			<i>Number counselled and tested</i>			<i>Deliveries</i>		
Month	Booked	Old Cases	# Counselled	# Tested 80 118	# Positive (+ve)	# Booked	# Unbooked case	# +ve delivered
Aug	217	311	217	184	19	65	14	5
Sept	195	266	195	174	13	81	12	8
Oct	260	325	260	213	21	85	15	9
Nov	231	302	231	231	21	77	19	14
Dec	173	168	173	159	19	49	9	5
Jan	302	384	302	251	18	71	13	13

Source: Hospital A (2008:1)

**Table 1.2 HIV statistics: Hospital B Antenatal clinic and labour ward register, August 2007 – January 2008**

<i>Antenatal cases</i>			<i># Counselling &amp; Tested</i>			<i>Deliveries</i>		
Month	Booked	Old Cases	# Counselling	# Tested 80 118	# Positive (+ve)	# Booked	# Unbooked case	# +ve delivered
Aug	133	562	102	102	6	95	7	14
Sept	111	593	80	80	1	94	4	13
Oct	148	522	118	118	10	137	2	15
Nov	127	584	77	77	5	89	4	12
Dec	119	660	66	66	4	59	4	6
Jan	179	322	121	121	13	85	5	9

Source: Hospital B (2008:1)

Tables 1.1 and 1.2 reveal a high uptake of counselling and testing among the antenatal women. All the pregnant women (100%) in hospital B in the six months accepted the counselling and testing services while some at hospital A did not. In addition, more HIV-positive women delivered at hospital B compared to those who delivered at hospital A in the same period. In Malawi, Manzi et al (2005:1242) found a high acceptability of voluntary counselling and HIV testing, but a progressive loss to follow up in a PMTCT programme.

Women can only benefit from interventions to prevent mother-to-child transmission of HIV if they know their HIV status. This will ensure that they are provided with infant feeding counselling, administration of antiretroviral drugs to the mother-child pair as well as other follow-up services after delivery. Preventing new HIV infections among women is critical not only for their health but also to reduce future HIV infections among infants, especially in sub-Saharan Africa, where half of the female population is of childbearing age. This is even more important as too few pregnant women are aware of their HIV status. In a 2005 survey of more than 70 low- and middle-income countries, only 10% of pregnant woman had received an HIV test. Testing coverage in pregnant women is low in several of the ten countries with the highest estimated numbers of HIV-infected pregnant women (WHO, United Nations Children’s Fund [UNICEF] & UNAIDS 2007:7).

The above background and her concern over the consequences of failure to access intervention services and the implications for the well-being of newborn babies, their mothers and the community at large motivated the researcher to conduct this study. The study therefore wished to investigate the factors affecting the utilisation of the PMTCT services by HIV-positive mothers in Onitsha, Anambra State, Nigeria.

Mother-to-child transmission of HIV accounts for more than 90% of infections in children under the age of 15 years globally (Chama et al 2007:134; FMOH 2007:1; Kominami et al 2007:286). According to Adejuyigbe, Fasuba and Onayade (2004:275) and Kasenga, Hurtig and Emmelin (2007:646), about 90% of these infections occur in sub-Saharan Africa. Each day, approximately 1,600 children born to HIV-infected mothers become infected with HIV, the great majority in sub-Saharan Africa (Newell 2003:22-24). Mother-to-child transmission accounts for 10% of all new infections. Over half of the infants infected die before their second birthday (Newell, Coovadia, Cortina-Borja, Rollins, Gaillard & Dabis 2004:1236).

A pregnant woman who is HIV-positive can pass the human immuno-deficiency virus on to her baby in the womb, during childbirth, or post-natally through breastfeeding. In the absence of specific intervention, the estimated rate of mother-to-child-transmission of HIV ranges from 15% to 25% in developed countries to between 35% and 45% in developing countries with prolonged breast feeding (FMOH 2007:2; Kasenga et al 2007:646; Newell 2006:1). In high-income countries, mother-to-child rates of less than 2% are reported, due to effective VCT, access to antiretroviral therapy, safe delivery practices and the widespread availability of breast milk substitutes (FMOH 2007:2; Newell 2006:1-5).

In 2005, approximately 74,000 children were infected largely due to mother-to-child transmission of HIV in Nigeria (FMOH 2006a:32). Mother-to-child transmission of HIV is postulated to be the second major mode of transmission of HIV in Nigeria with possible routes of transmission during pregnancy, during birth, and through breastfeeding (FMOH 2007:2). The burden of mother-to-child transmission of HIV is higher in sub-Saharan Africa than the rest of the world, because of higher levels of heterosexual transmission, a high female-to-male ratio, higher total fertility rates and higher rates of breast feeding. The rate of mother-to-child transmission of HIV is affected by viral, maternal, obstetric, foetal and breastfeeding factors (FMOH 2007:2).

### **1.3 PURPOSE OF THE STUDY**

The purpose of the study was to investigate and identify the factors that affect utilisation of services and to propose measures to promote utilisation of services by HIV-positive pregnant women in Onitsha, Anambra State, Nigeria.

#### **1.3.1 Research questions**

To achieve the aim of the study, the researcher wished to answer the following questions:

- What are the perceptions of pregnant women regarding the utilisation of the PMTCT services in Onitsha, Anambra state, Nigeria?
- What are the factors that prevent HIV-positive pregnant women from returning to the health facilities providing PMTCT intervention services for follow-up and delivery in Onitsha, Anambra state, Nigeria?
- What measures can be applied to promote utilisation of PMTCT services by HIV-positive pregnant women?

#### **1.3.2 Objectives**

The objectives of this study were to:

- Investigate the perceptions of pregnant women of the utilisation of PMTCT services in Onitsha in the Anambra state, South East Nigeria.
- Identify factors that prevent HIV-positive pregnant women from returning to the health facility for follow-up and delivery in Onitsha in the Anambra state, South East Nigeria.
- Explore measures that would promote the utilisation of PMTCT services by HIV-positive pregnant women.

## **1.4 SIGNIFICANCE OF THE STUDY**

Significance refers to the relevance of a research to some aspect of a profession, its contribution towards improving the knowledge-base of a profession and its contribution to evidence-based practice (Burns & Grove 2005:3; Polit & Beck 2004:70).

The findings of the study should assist programme planners and health care providers in refocusing their approach in the management of women during antenatal care. The results should also assist the Nigerian Federal Ministry of Health to achieve its goals of providing quality PMTCT services through training and re-training of service providers so that all HIV-positive pregnant women will benefit from the interventions.

In addition, this study should provide insight into HIV-positive women's concerns and fears so that these are taken into consideration during the counselling process, particularly after the test results for HIV are known.

Programme planners, the academic community, policy makers, service providers at antenatal clinics and, most importantly, HIV-positive pregnant women should benefit from the opportunity of accessing interventions that will protect their babies from becoming infected with HIV.

## **1.5 THEORETICAL FRAMEWORK**

The researcher used the Health Belief Model (HBM) as the conceptual framework for the study. According to the HBM, people's beliefs about whether or not they are susceptible to disease and their perceptions of the benefits of trying to avoid it influence their readiness to act (National Cancer Institute 2005:13). Moreover, health behaviour is based on perceived threat of the disease. People are ready to act if they:

- Believe they are susceptible to the condition (perceived susceptibility).
- Believe the condition has serious consequences (perceived severity).
- Believe taking action would reduce their susceptibility to the condition or its severity (perceived benefits).
- Believe cost of taking action (perceived barriers) is outweighed by the benefits.
- Are exposed to factors that prompt action (cue to action)

- Are confident in the ability to successfully perform an action (self-efficacy).

According to Salazar (in Stanhope & Lancaster 2000:271-272), the HBM is beneficial in assessing health protection or disease prevention behaviours. It is also useful in organising information about clients' views on their state of health and what factors may influence them to change their behaviour. When used appropriately, the HBM provides organised assessment data about clients' abilities and motivation to change their health status. Health education programmes can be developed to better fit the needs of clients/patients. The HBM is divided into three major components, namely individual perceptions about health; modifying factors, which include demographic, socio-psychological and structural variables, and the likelihood of action (Dennill, King & Swanepoel 1999:156).

The HBM was used to acquire a better understanding of the knowledge, awareness, perception and practice among pregnant women attending antenatal clinics. The researcher developed a structured interview schedule based on the model to determine and examine HIV-positive pregnant women's knowledge and perceptions of HIV/AIDS, mother-to-child transmission of HIV/AIDS (perceived susceptibility, perceived severity, perceived benefits and barriers to adopting preventive behaviours) and the implications of not utilising services provided to HIV-positive pregnant women. The study intended to identify factors and reasons why women do not utilise PMTCT services in Onitsha, Anambra State, Nigeria. Based on the findings, the researcher would explore measures to effectively promote HIV-positive women's utilisation of these services to enable them protect their babies from becoming infected.

## **1.6 DEMARCATION OF THE STUDY FIELD**

The study was conducted at two selected health facilities (referred to as Hospital A and Hospital B) in Onitsha, Anambra State, Nigeria.

### **1.6.1 Brief discussion of Nigeria**

Nigeria is situated in the West African region and lies between longitude 3° and 14° and latitudes 4° and 14° (NACA 2005:2). Nigeria occupies a total land area of approximately 923,768 square kilometres and 800 kilometres of coastline. Nigeria is bordered in the

north by the Niger Republic; in the east by the Republic of Chad and Cameroun; in the west by the Republic of Benin and in the south by the Atlantic Ocean. The country has about 400 ethnic nationalities and languages. Christianity and Islam are the major religions (FMOH 2005:3; NACA 2005:2).

Nigeria is a democratic Federal Republic consisting of 36 states and the Federal Capital Territory. The states and the Federal Capital Territory are organised for political administration and are further divided into 774 local government areas (FMOH 2006a:3).



**Figure 1.1 Map of Nigeria**

(Source: Collins 2009:11)

According to the projections of the National Population Commission, based on the 1991 national population census figure of 88,992,220 and using the growth rate of 2.83% per

annum, Nigeria's population is estimated at 134 million for 2005 (FMOH 2006a:2). Nigeria's population is a young one, with persons below the age of 15 years constituting about half of the population. Nigeria is presently at mid transition point of high fertility and declining mortality resulting in relatively young population with median age of 17 years. Nigeria's population is predominately rural with estimated 46% living in urban areas in 2000. A high level of rural-urban migration occurs in the country and this has implications on the demand for social-infrastructure, general development planning and quality of life of the citizenry (FMOH 2006a:3; FMOH 2006b:2).

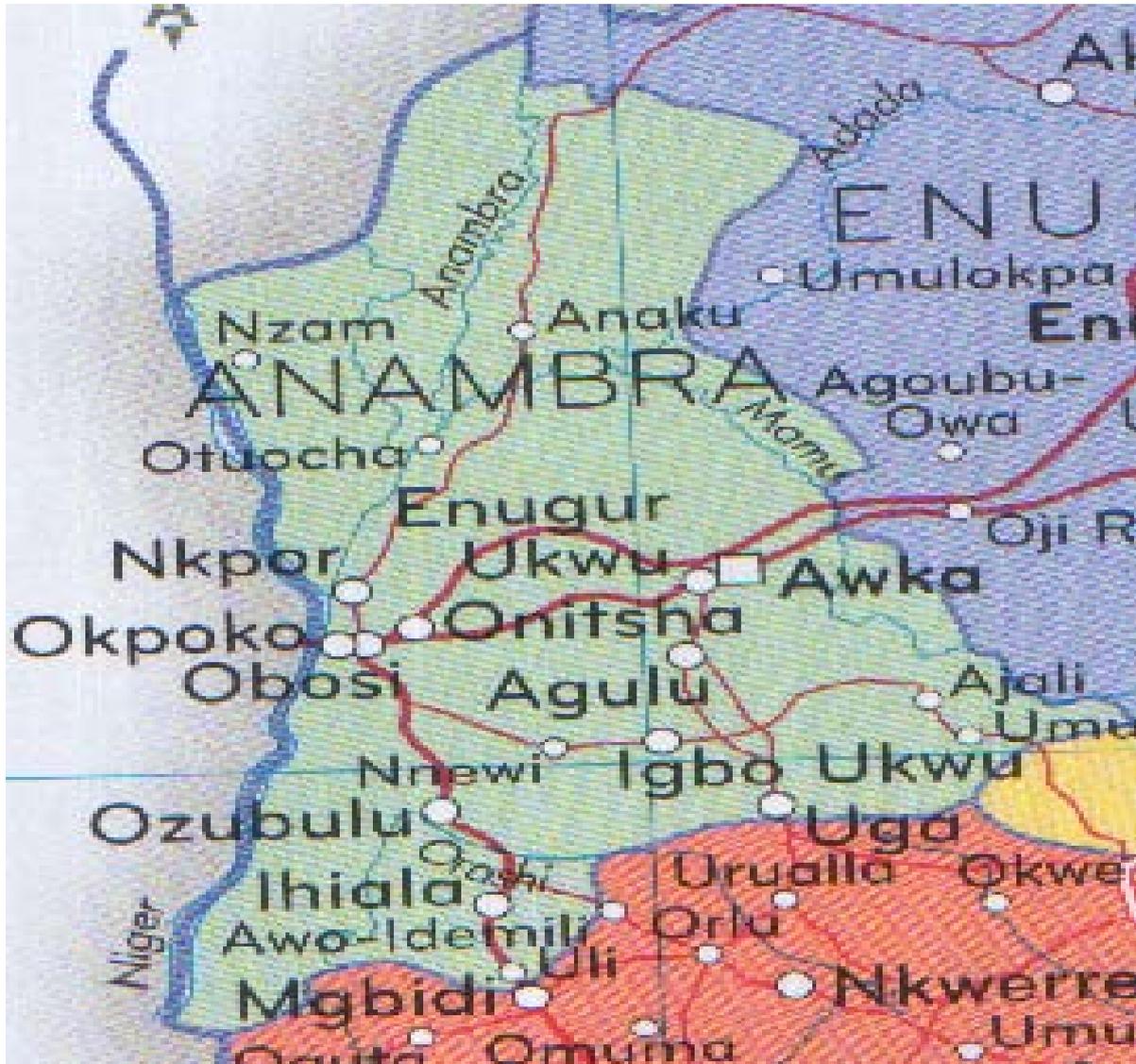
The total fertility rate in Nigeria has remained constantly high over time and results from the 2003 Nigeria Demographic and Health Survey was 5.7 (FMOH 2006b:2). Findings from the National HIV/AIDS and reproductive health survey (FMOH 2006b:100-105) revealed that 61.6% of pregnant women received antenatal care during their last pregnancy, 34% were delivered by a skilled attendant and 40.9% received postnatal care. Findings from the same survey revealed that only 4.8% of the respondents did not breastfeed their last baby. Infant mortality rate was 100 deaths per 1000 live births and overall under-five mortality rate for the period was 201 deaths per 1000 births (National Population Commission 2004:108).

Life expectancy in Nigeria has been low, and there are indications suggesting that the life expectancy has been declining in recent years, partially due to the effect of HIV/AIDS. The life expectancy at birth, which was 53.2 years in 1991 (53.3 years for females and 52.6 years for males), has declined to 43.9 for females and 43.6 years for males in recent years (FMOH 2006b:2).

### **1.6.2 Description of the area and hospitals under study**

Anambra State is one of the 36 states in Nigeria and is located in the south east of the country. Onitsha north, the study site is located about 45 kilometers from Awka town, the State capital of Anambra State, Nigeria. Onitsha North is a densely populated, congested and predominantly a commercial town. It is a major commercial nerve centre in the southeastern part of Nigeria, being home to the popular Onitsha market, which is reputed to be the largest market in West Africa (Family Health International, Nigeria 2002:21). Onitsha is also the major stop for long distance road transportation (Anambra State Action Committee on AIDS 2007:12; Family Health International, Nigeria

2002:21). The health facilities provide health care services including prevention of mother-to-child transmission services.



**Figure 1.2 Map of Anambra State with Onitsha shown**

(Source: Collins 2009:21)

The two hospitals are located along major road networks and easily accessible. Both facilities offer general medical, surgical, laboratory services, obstetric and gynecological management of cases as well HIV/AIDS management, HIV counselling and testing services and prevention of mother-to-child of HIV services. Hospital A started HIV screening in the early 1990's and has been one the sites for the sero sentinel survey conducted by the Federal Ministry of Health (FMOH 2006a:29-30) as well as a treatment site where antiretroviral therapy is offered. The nurses/midwives in antenatal clinic and labour/postnatal wards have undergone HIV counselling and testing training

as well as training on prevention of mother-to-child transmission and infant feeding counselling (Family Health International 2001:28, 31).

## **1.7 RESEARCH DESIGN AND METHODOLOGY**

A research design is “a blueprint for the conduct of a study that maximises control over factors that could interfere with the validity of the findings” (Burns & Grove 2005:211). In this study the researcher selected a non-experimental research design using a quantitative, descriptive and exploratory approach (see chapter 4, section 4.3.1).

### **1.7.1 Population**

The population is all the elements (individuals, objects, or substances) that meet certain criteria for inclusion in a given universe (Burns & Grove 2005:40). The study sample is drawn or selected from the population (Babbie 2007:190; Babbie & Mouton 2001:174). The population is the entire set of individuals having common characteristics in which a researcher is interested (Polit & Beck 2008:761). The target population for this study referred to pregnant women attending antenatal care in the selected hospitals that met the eligibility criteria for inclusion in the study (see chapter 4, section 4.3.2.1).

### **1.7.2 Sampling and sample size**

Sampling refers to the process of selecting a group of people, events, behaviours, or other elements with which to conduct a study (Brink, Van der Walt & Van Rensburg 2006:124; Burns & Grove 2005:40; Polit & Beck 2008:339). A sample is a subset of the population that is selected for a particular study, and the members of the sample are the subjects (Burns & Grove 2005:40; Polit & Beck 2008:339). The selected elements are referred to as a sample (Polit & Beck 2004:291). Sample size refers to the number of elements that are included in the sample (Brink et al 2006:135).

Convenience sampling, which is a non-probability method of sample selection, was used to identify a minimum of 50 pregnant women who participated in this study and agreed to be interviewed (see chapter 4, section 4.3.2.3).

### **1.7.3 Data collection**

Data collection is the precise, systematic gathering of information relevant to the research purpose or specific objectives, questions, or hypotheses of a study. In quantitative studies it involves the generation of numerical data to address the research purpose or specific objectives and questions (Burns & Grove 2005:42; Stommel & Wills 2004:362).

In this study, the researcher and her assistants collected data from the respondents during individual face-to-face interviews, using structured interview schedules. The interviews lasted 15 to 20 minutes (see chapter 4, section 4.3.3).

### **1.7.4 Data analysis**

Data analysis is conducted to reduce, organise and give meaning to data (Burns & Grove 2005:733).

A statistician analysed the data using the Statistical Package for Social Sciences (SPSS version 14) computer program to generate tables, frequencies, cross-tabulations, establish the presence or absence of relationships and determine statistical differences in line with the objectives of the study (see chapter 4, section 4.6).

### **1.7.5 Validity and reliability**

The *validity* of an instrument refers to the extent to which the instrument actually reflects the abstract construct being examined (Burns & Grove 2005:42). *Reliability* of a measure denotes the consistency of measures obtained in the use of a particular instrument and is an indication of the extent of random error in the measurement method (Burns & Grove 2005:374). The measures to ensure validity and reliability are described in chapter 4.

## **1.8 DEFINITION OF KEY TERMS**

For the purpose of this study, the following terms were used as defined below.

- **Acquired immune-deficiency syndrome (AIDS)**

*Baillière's Nurses' Dictionary* (2005:13) defines AIDS as “the late symptomatic stage of chronic disease caused by human immuno-deficiency virus (HIV) infection which progressively impairs the body's cell-mediated immune responses to infections and cancers system”. AIDS is an infectious disease caused by the human immunodeficiency virus. The virus affects and destroys the immune system and people become more prone to opportunistic infections and other conditions (Lindsay 2001:4).

In this study, AIDS was regarded as the final stage of the infection with the human immuno-deficiency virus among HIV-positive pregnant women in Onitsha, Anambra State, Nigeria that may have the potential to be transmitted from mother-to-child before, during or after birth.

- **Ante-natal care**

Ante-natal care refers to the care that is given to a pregnant woman from the time that conception is confirmed until the beginning of labour (Fraser, Cooper & Nolte 2006:237).

Care focuses on ensuring, supporting, and maintaining maternal and foetal well-being throughout pregnancy and childbirth as well as sharing information with the pregnant woman to facilitate her making informed choices about her care (FMOH 2006c:49; Fraser et al 2006:237).

Antenatal care includes recording medical history, assessment of individual needs, advice and guidance on pregnancy and delivery, screening tests, education on self-care during pregnancy, identification of conditions detrimental to health during pregnancy, first-line management, and referral if necessary (WHO 2009:541).

In this study, the antenatal care was provided to pregnant women who required all the above services as well as education about HIV/AIDS including mother-to-child transmission of HIV and measures that will help them reduce transmission to their baby in the health facilities where the study was conducted in Onitsha, Anambra state, Nigeria.

- **Antiretroviral drugs**

An antiretroviral drug is medicine that inhibits HIV replication. Antiviral drugs such as nevirapine are drugs that are effective against viruses causing diseases (*Baillière's Nurses' Dictionary* 2005:26).

The anti-retroviral drugs described in this study were:

**AZT (azidothymidine**, also known as **Zidovudine [ZDV]**), an antiretroviral drug that inhibits HIV replication (see chapter 3, section 3.4.2.3.3).

**Nevirapine**, an antiretroviral drug commonly used either to treat HIV infections or as prophylaxis, alone or in combination with other drugs to prevent mother-to-child transmission of HIV (Newell 2004:vi) (see chapter 3, section 3.4.2.3.3).

- **Human immuno-deficiency virus**

Human immuno-deficiency virus is the virus that causes AIDS. There are two types of HIV. Type 1 is the most common found worldwide. Type 2 is found in West Africa and is rare. Mother-to-child transmission of HIV-2 is rare (Newell 2004:iv; WHO 2000:4).

In this study, a pregnant woman infected with HIV can transmit the virus to her child during pregnancy, delivery or breastfeeding.

- **Mother-to-child transmission**

A mother is the female parent of a child (*Oxford Advanced Learner's Dictionary* 2005:956).

A child is a young human who is not yet an adult; may also be an unborn child (*Oxford Advanced Learner's Dictionary* 2005:245).

Transmission (transfer) is the act or process of passing something from one person, place or thing to another. It is also transmission of the disease or risk of transmission (*Oxford Advanced Learner's Dictionary* 2005:1573).

**Mother-to-child transmission** of HIV to a child from an HIV-infected woman during pregnancy, delivery, or breastfeeding indicates that the immediate source of the child's infection is the mother. The use of the term "mother-to-child" implies no blame, whether or not a woman is aware of her own infection status (Newell 2004:vi).

- **Cessation of breastfeeding**

Cessation means the stopping of something; a pause in something (*Oxford Advanced Learner's Dictionary* 2005:230).

Breastfeeding is when a woman feeds her baby with milk from her breasts (*Oxford Advanced Learner's Dictionary* 2005:174).

Cessation of breastfeeding refers to the complete stopping of breastfeeding, including suckling (Newell 2004:iv).

In this study, cessation of breastfeeding meant the HIV-infected woman completely stopped breastfeeding her baby in order to avoid transmitting HIV to the baby through breast milk.

- **Exclusive breastfeeding**

Exclusive breastfeeding refers to when an infant receives only breast milk, and no other liquids or solids, not even water, with the exception of drops or syrups consisting of vitamins, mineral supplements or medicines (Newell 2004:iv).

- **Perception (insight, awareness, discernment)**

The *Oxford Advanced Learner's Dictionary* (2005:1079) defines perception as the way that you think about something or the impression you have of it.

In this study, it was assumed that all pregnant women should understand and avail themselves of access to interventions that will reduce mother-to-child transmission of HIV.

- **Knowledge**

The *Oxford Advanced Learner's Dictionary* (2005:821) defines knowledge as the information, understanding and skills that you gain through education or experience.

In this study, knowledge referred to the respondents' information and understanding of the condition of HIV and its implications in relation to its transmission from mother-to-child and the available interventions that can help reduce the rate of transmission through this mode.

- **Pregnant (pregnancy)**

*Baillière's Nurses' Dictionary* (2005:314) defines pregnant as being with child and pregnancy as the condition from conception to the expulsion of the foetus. Pregnancy is the condition of being pregnant or the period of time during which a female is pregnant (*Oxford Advanced Learner's Dictionary* 2005:1142).

- **Pregnant women**

Pregnant women are regarded as adult women that have a developing embryo or foetus in their uterus. The period lasts about 40 weeks (9 months) and is divided into three trimesters of three months each.

A woman is an adult female human being (*Oxford Advanced Learner's Dictionary* 2005:1692).

In this study, pregnant women referred to HIV-positive women who were pregnant and might transmit the HIV infection to their infants during pregnancy, delivery or breast feeding.

- **Utilise (Utilisation)**

If you utilise something, you use it especially for practical purposes (*Oxford Advanced Learner's Dictionary 2005:1629*).

In this study, the researcher investigated and identified factors that affect utilisation of PMTCT services among pregnant women in Onitsha, Anambra State, Nigeria.

- **Prevention**

To prevent something means to ensure that it does not happen (*Oxford Advanced Learner's Dictionary 2005:1149*).

In this study, prevention of mother-to-child transmission entailed those interventions that are available and accessible which are provided to pregnant women in order to prevent/reduce the transmission of HIV from mother to child. Such interventions include counselling and testing, infant feeding counselling on options, use of antiretroviral therapy, safe obstetrics practices and replacement feeding that are aimed at reducing mother-to-child transmission of HIV from an infected pregnant woman to her infant either during pregnancy or delivery or through breastfeeding.

## **1.9 ETHICAL CONSIDERATIONS**

Ethics deals with matters of right and wrong. Ethics is concerned with the degree to which research and procedures adhere to professional, legal, and social obligations to the study participants (Polit & Beck 2008:753). Ethical considerations include the right to privacy, including refusal to participate in the research; the right to anonymity and confidentiality; the right to full disclosure about the research, and the right not to be harmed in any manner (Mouton 2001:243).

In this study, the researcher obtained permission to conduct the study, and respected the respondents' right to self-determination, privacy, anonymity, and confidentiality (see chapter 4, section 4.5). The researcher submitted her research proposal to the Research Ethics Committee of the Department of Health Studies at the University of

South Africa for approval. Permission was also sought from the government and the management of Hospital A and B before commencement of the study.

### **1.10 LIMITATIONS OF THE STUDY**

Limitations are restrictions or problems in a study that may decrease the generalisability of the findings and may be theoretical and methodological (Burns & Grove 2005:39).

The study was only conducted at two hospitals in Onitsha, Anambra State, Nigeria. Consequently, the research findings may not be generalisable to pregnant women's PMTCT practices in other parts of Nigeria, or to other pregnant women attending antenatal clinics. The main languages spoken by the respondents were Igbo and English and the researcher is fluent in both these languages. However, the interviews were conducted in English which was seen as a limitation.

### **1.11 OUTLINE OF THE STUDY**

Chapter 1 introduces the study and describes the problem, purpose and significance of the study and the research design and methodology.

Chapter 2 discusses the HBM, which formed the theoretical framework.

Chapter 3 covers the literature review.

Chapter 4 describes the research design and methodology.

Chapter 5 presents the data analysis and interpretation, and findings.

Chapter 6 concludes the study, briefly discusses its limitations and makes recommendations for practice and further research.

## **1.12 CONCLUSION**

This chapter briefly described the background to, purpose and significance of this study, the HIV/AIDS situation globally and in Nigeria, the research design and ethical considerations, and defined key concepts.

Chapter 2 discusses the HBM, which formed the theoretical framework for the study.

## **CHAPTER 2**

### **Conceptual framework of the study**

#### **2.1 INTRODUCTION**

This chapter discusses the conceptual framework used in the study.

A conceptual framework broadly presents an understanding of the phenomenon of interest, and reflects the assumptions and philosophic views of the model's designer (Polit & Beck 2008:141). A model "is frequently described as a symbolic depiction of reality. It provides a schematic representation of certain relationships among phenomena, and it uses symbols or diagrams to represent an idea" (Brink et al 2006:23). The phenomena under study were factors affecting HIV-positive pregnant women's utilisation of prevention of mother-to-child transmission services. The conceptual framework enabled the researcher to discover what was known or not known about the topic of interest in order to conduct research that added to the body of knowledge and also lay the foundation of the study (Polit & Beck 2006:88). The researcher used the Health Belief Model (HBM) as the conceptual framework for this study.

#### **2.2 HEALTH BELIEF MODEL (HBM)**

The HBM was developed to provide a framework for understanding why some people take specific actions to avoid illness, whereas others fail to protect themselves (Dennill et al 1999:156; Stanhope & Lancaster 2000:271). In addition, the HBM postulates that health-seeking behaviour is influenced by a health problem and the value associated with actions aimed at reducing the threat (Polit & Beck 2008:150).

The HBM is beneficial in assessing health protection or disease prevention behaviours. It is also useful in organising information about clients' views on the state of health and what factors may influence them to change their behaviour. When used appropriately, the model provides organised assessment data about clients' abilities and motivation to

change their health status. Health education programmes can be developed to better fit the needs of clients/patients (Salazar 1991 in Stanhope & Lancaster 2000:271-272).

The HBM is considered one of the most influential models in health promotion (Hochbaum 1956:107; Strecher & Rosenstock 1997:227). It is a useful tool for health care professionals to help clients and manage illness prevention or to address health problems and has been used by nurses in different practice areas (Roden 2004:1). The researcher used the HBM in this study to better understand why some HIV-positive pregnant women do not utilise prevention of mother-to-child transmission intervention services.

### **2.2.1 Origin and development of the HBM**

The HBM is a psychological model introduced in the 1950s by social psychologists, Godfrey Hochbaum, Irwin Rosenstock and Stephen Kegels working in the United States of America (USA) Public Health Service (Edelman & Mandle 1995:228). The HBM attempts to explain and predict health behaviours by focusing on individuals' attitudes and beliefs. The model was developed to describe why people fail to participate in programmes to detect and prevent disease, particularly a free and conveniently located tuberculosis (TB) screening programme. The question thus was why, despite the fact that this service was offered without charge in several convenient locations, the programme only had limited success (Edelman & Mandle 2006:222; National Cancer Institute [NCI] 2005:13; Stanhope & Lancaster 2000:271). Hochbaum identified the main components of the HBM in 1958 (Dennill et al 1999:157). Subsequent amendments were made to the model as late as 1988. The key variables of the HBM are (FHI 1996:2; Polit & Beck 2008:150):

- **Perceived threat:** The perceived susceptibility and perceived severity of a health condition.
  - **Perceived susceptibility:** An individual's subjective perception of the risk of contracting a health condition (in this study, transmitting the infection),
  - **Perceived severity:** Feelings about the seriousness of contracting an illness or of leaving it untreated (including evaluations of both medical and clinical consequences and possible social consequences).

- **Perceived benefits:** The believed effectiveness of strategies designed to reduce the threat of illness (using the interventions in place to prevent mother-to-child transmission of HIV).
- **Perceived barriers:** The potential negative consequences that may result from taking particular health actions, including physical, psychological, and financial demands (such as social stigma, fear of rejection by spouse).
- **Cues to action:** Events, either bodily (e.g., physical symptoms of a health condition) or environmental (e.g., media publicity), that motivate individuals to take action.
- **Other variables:** Diverse demographic, socio-psychological and structural variables that affect an individual's perceptions and thus indirectly influence health-related behaviour.
- **Self-efficacy:** The belief of being able to successfully accomplish the behaviour required to produce the desired outcomes (Bandura 1977:212). Self-efficacy is a relatively new concept added to the HBM (Campbell 2004:28).

The HBM changed when applied to problems concerning immunization and more broadly to people's different responses to public health measures and their use of health services. In these wider applications, the model substituted a belief in susceptibility to a disease or health problem for the more specific belief that one could have a disease and not know it, which had featured in Hochbaum's original study as the most important belief accounting for seeking screening examinations (Becker 1974:293).

In 1974, Becker (1974:470) described the model's history and experience and its wide-ranging applications. In 1977, Maiman, Becker and Kirscht (1977:215) reviewed the standardised scales for measuring its several dimensions. The model continued to evolve into the 1980s, largely due to Becker's work at Johns Hopkins University and later at the University of Michigan School in the USA (Becker, 1974:475; Janz & Becker, 1984:1-47; Edelman & Mandle 2006:222). Since then, the HBM has been adapted to explore a variety of long- and short-term behaviours, including sexual risk behaviours and the transmission of HIV/AIDS (Beaudoin 2009:1; Rosenstock, Strecher & Becker 1994:5).

The HBM relates largely to the cognitive factors predisposing individuals to health behaviour, concluding with a belief in their self-efficacy for the behaviour. The model leaves much still to be explained by factors enabling and reinforcing individuals' behaviour, and these factors become increasingly important when the model is used to explain and predict more complex lifestyle behaviours that need to be maintained over a lifetime (Campbell 2004:32).

A systematic, quantitative review of studies that had applied the HBM among adults into the late 1980s found it lacking in consistent predictive power for many behaviours, probably because its scope is limited to predisposing factors (Harrison, Mullen & Green, 1992:107-116; Mullen, Hersey & Iverson 1987:973-981). Nevertheless, the HBM continued to be the most frequently applied model in health education and health behaviour in the early 1990s. Although other trans-theoretical models of stages of change have emerged and are used, the HBM remains a valuable guide to practitioners in planning the communication component of health education programmes (Collins & Benedict 2006:45).

### **2.2.2 Core assumptions and statements**

The HBM is based on the understanding that individuals will take a health-related action (for instance use of prevention of mother-to-child transmission services) if they:

- Feel that a negative health condition (e.g., transmission of HIV from mother-to-child) can be avoided.
- Have a positive expectation that by taking a recommended action, they will avoid negative health conditions (knowing their HIV status, and if positive – taking necessary precautions including taking antiretroviral (ART) and also ensuring their babies receive it, making sure they deliver in health facilities where safe obstetric practices are ensured and making informed infant feeding choices).
- Believe that they can successfully and confidently take a recommended action (availing themselves of the interventions put in place to prevent mother-to-child transmission of HIV).

The HBM was based on four constructs representing the perceived threat and net benefits: perceived susceptibility, perceived severity, perceived benefits, and perceived

barriers. These concepts were proposed as accounting for people's *readiness to act*. An added concept, cues to action, would motivate that readiness and stimulate overt behaviour. A recent addition to the HBM is the concept of self-efficacy, or an individual's confidence in the ability to successfully perform an action (Endelman & Mandel 2006:222; National Cancer Institute 2005:13).

According to the National Cancer Institute (2005:13), people are ready to act if they:

- Believe they are susceptible to the condition (perceived susceptibility).
- Believe the disease has serious consequences (perceived severity).
- Believe taking action would reduce their susceptibility to the condition or its severity (perceived benefits).
- Believe costs of taking action (perceived barriers) are outweighed by the benefits.
- Are exposed to factors (internal and external) that prompt action (e.g., a television programme, health education at antenatal clinic) (cue to action).
- Are confident of their ability to successfully perform an action (self-efficacy).

### **2.2.3 Scope and application of the HBM**

The HBM has been applied to a broad range of health behaviours and subject populations (Abraham, Norman & Connor 2003:3; Janz & Becker 1984:36). Three broad areas can be identified:

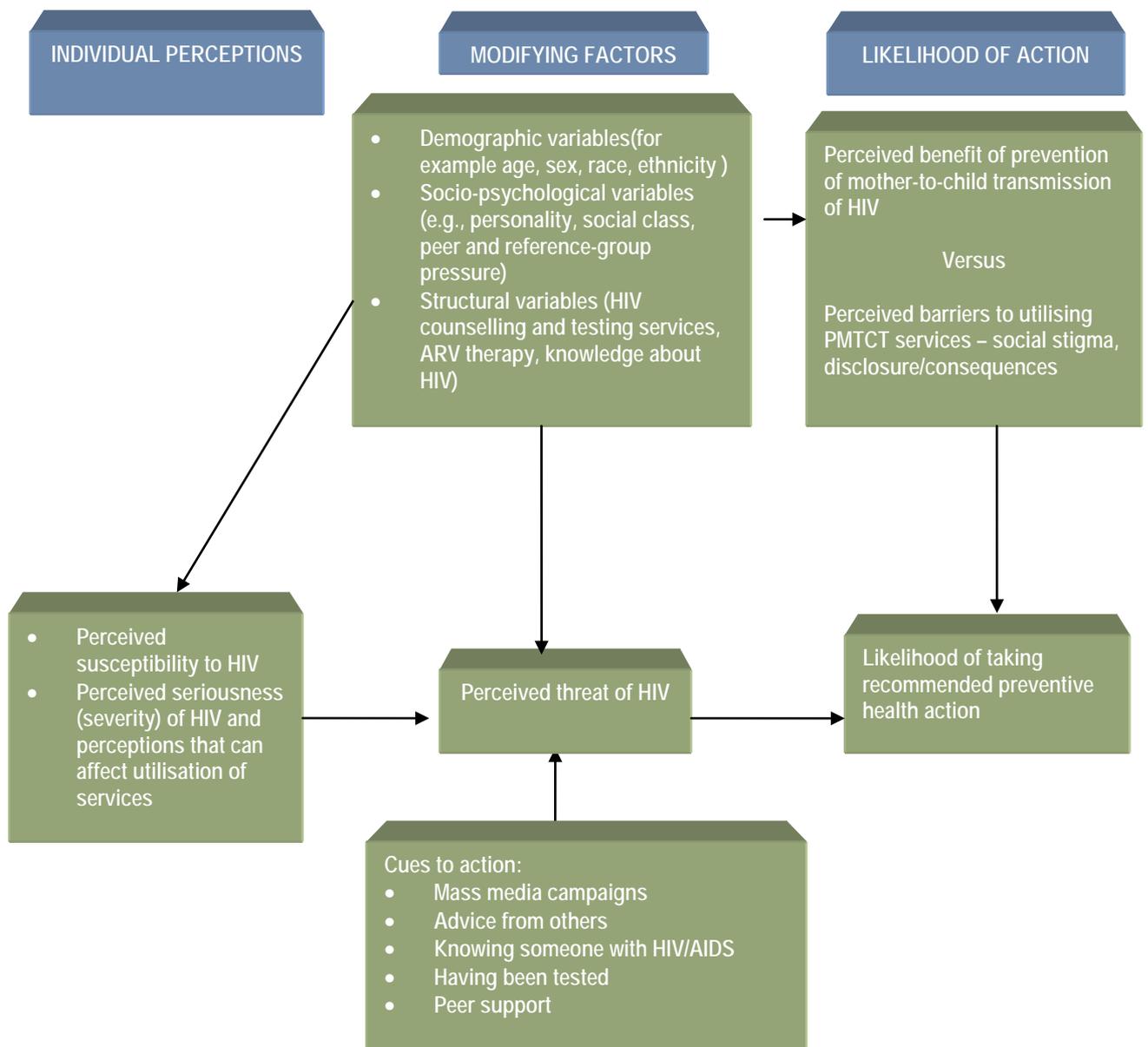
- Preventive health behaviours, which include health-promoting (e.g. diet, exercise) and health-risk (e.g. smoking) behaviours as well as vaccination and contraceptive practices.
- Sick role behaviours, which refer to compliance with recommended medical regimens, usually following professional diagnosis of illness.
- Clinic utilisation behaviours, including physician visits for various reasons.

According to Rosenstock (1974:328), the HBM itself has not changed much since its inception despite the later addition of more components and more in-depth descriptions of what is actually being monitored and/or measured with those components. Among the additions were variables such as 'cues to action' and 'modifying factors'. Cues to

action or triggers instigate preventive health activity, while levels of susceptibility and severity provide the stimulus to act and the perception of barriers offers a preferred mode of action. Modifying factors can be demographic, socio-psychological and structural, and serve to condition an individual's perceptions about perceived benefits of preventive health actions (Salazar 1991:128).

### **2.3 COMPONENTS OF THE HBM APPLIED TO PMTCT OF HIV**

The HBM is divided into three major components, namely individual perceptions about health, modifying factors, which include demographic, socio-psychological and structural variables, and the likelihood of action (Dennill et al 1999:156). According to Salazar (in Stanhope & Lancaster 2000:271), cues to action such as mass media campaigns, advice from others, reminder postcards from health care providers, illnesses of family members or friends, and newspaper or magazine articles may help motivate clients to take action. Figure 2.1 shows the variables and relationships in the HBM.



**Figure 2.1 The Health Belief Model's components**  
 (Adapted from Cookfair (1991:172) in Dennill et al (1999:157))

### 2.3.1 Individual perceptions

Individuals' perceptions of an issue/disease vary. Individual perceptions involve individuals' belief about their susceptibility to disease, as well as the seriousness with which they view the perceived threat of illness (Polit & Beck 2008:150; Salazar 1991:128). The level of knowledge individuals have about an issue (in this study mother-to-child transmission of HIV) influences their perception and, in turns, helps

them to recognise and interpret events in their community. An individual's risk perception is a "mental process whereby the individual organises and interprets knowledge to determine the risk that he or she is exposed to" (Bergh & Theron 1999:116). As such, a pregnant woman's decision to access interventions to prevent mother-to-child transmission of HIV will depend on the following:

- Perceived susceptibility (risk of infection)
- Perceived severity of infection
- Perceived benefits of prevention of HIV infection to child
- Perceived barriers to prevention of HIV infection
- Perceived individual ability to prevent mother-to-child transmission of HIV
- Cues to action

### **2.3.2 Modifying factors**

Modifying factors include demographic, socio-psychological and structural variables.

#### **2.3.2.1 Demographic**

Demographic variables such as age, gender, marital status and educational level may influence an HIV-positive pregnant woman's perception of and decision regarding her follow-up visits to a particular health facility and where she goes to deliver her baby.

#### **2.3.2.2 Socio-psychological**

Socio-psychological variables such as personality, social class and peer pressure influence an individual's perception of an illness and the likelihood of taking preventive action (Dennill et al 1999:156). An HIV-positive pregnant woman who fears the outcome of disclosure of her status to her partner/spouse or perceives negative attitudes of health workers in the facility may not return to the facility for follow-up antenatal clinic and delivery.

### **2.3.2.3 Structural**

Individuals' perception and likelihood of taking action can be influenced by structural variables such as knowledge about and previous contact with the disease (Dennill et al 1999:157; Stanhope & Lancaster 2000:271). A pregnant woman who is well informed and knowledgeable about HIV/AIDS and the implications as well as the benefits in preventing infection to her baby if she uses the intervention services, is more likely to return for the follow-up and delivery. Relevant knowledge and positive perceptions are predisposing factors for behavioural change, making individuals more likely to seek healthcare and medical treatment (Dennill et al 1999:157). According to Edelman and Mandle (2000:222), clients are likely to comply with a treatment plan if they perceive it will benefit them.

### **2.3.3 Variables affecting the likelihood of actions**

Variables affecting the likelihood of taking action to prevent a disease are influenced by individuals' perceptions of the severity of the disease and the level to which they feel at risk of contracting (transmitting) the disease. This is viewed together with the cost-benefit analysis of taking preventive action and the perceived ability to take preventive action (Dennill et al 1999:157). Furthermore, individuals' perceived benefits of action minus their perceived barriers to accomplishing action will equal the likelihood that they will take action to change their behaviours (Polit & Beck 2008:271). This study expected that pregnant women would avail themselves of prevention of mother-to-child transmission intervention services available but this was often not so. The study therefore wished to investigate and identify factors that prevented them from utilising the services.

## **2.4 SUMMARY OF THE HBM COMPONENTS**

Table 2.1 summarises the components of the HBM.

**Table 2.1 Components of the HBM**

<b>Concept</b>	<b>Definition</b>	<b>Application</b>
<b>Perceived susceptibility</b>	Opinion of chances of getting a condition	Define population(s) at risk, risk levels; personalize risk based on a person's features or behaviour; heighten perceived susceptibility if too low.
<b>Perceived severity</b>	Opinion of how serious a condition and its consequences are	Specify consequences of the risk and the condition
<b>Perceived benefits</b>	Belief in the efficacy of the advised action to reduce risk or seriousness of impact	Define action to take; how, where, when; clarify the positive effects to be expected.
<b>Perceived barriers</b>	Opinion of the tangible and psychological costs of the advised action	Identify and reduce barriers through reassurance, incentives, assistance.
<b>Cues to action</b>	Strategies to activate "readiness"	Provide how-to information, promote awareness, reminders.
<b>Self-efficacy</b>	Confidence in ability to take action	Provide training, guidance in performing action.

Source: Glanz, Rimer and Lewis (2002:52)

#### **2.4.1 Perceived susceptibility**

This refers to “one's opinion of chances of getting a condition” (Glanz et al 2002:52). Pregnant women are at risk of becoming infected with HIV since they are mostly among the reproductive age group (15-49 years) that are prone to being infected. There is a need to adequately and correctly disseminate health information to pregnant women attending antenatal clinics about HIV/AIDS, including the various modes of transmission, in order to increase their awareness of the possibility of transmitting the infection to their babies either during pregnancy, delivery or breastfeeding (FMOH 2007:2). This may influence their decision to undergo HIV counselling and testing and enrol for interventions to prevent mother-to-child transmission of HIV for those who are HIV positive.

Personal risk or susceptibility is one of the more powerful perceptions in promoting the adoption of healthier behaviour. If people believe that they are not at risk or have a low risk of susceptibility, they are more likely to engage in unhealthy behaviour (Salazar 1991:130; Mullen et al 1987:973). If the perception of threat is a serious condition such as a pregnant woman passing on HIV infection to her baby, she is likely to take action to prevent it.

#### **2.4.2 Perceived severity**

This refers to individuals' opinion of how serious a condition and its consequences are (Glanz et al 2002:52). Even when individuals recognise personal susceptibility, action will not occur unless they perceive the severity to be high enough to have serious organic or social implications (Polit & Beck 2008:150). Since healthy-looking women may be HIV positive without being aware of it, pregnant women may not be aware of transmission to their baby and should therefore be informed about the consequences of not knowing their HIV status. HIV counselling and testing is the only entry point to knowing one's HIV status which will help pregnant women to access interventions that will help prevent the transmission of HIV from mother to child.

**2.4.3 Perceived benefits** refer to individuals' belief in the efficacy of the advised action to reduce risk or seriousness of impact (Glanz et al 2002:52). Individuals tend to adopt healthier behaviours when they believe the new behaviours will decrease their chances of developing a disease (Eisen, Zellman & McAllister 1992:249).

Dennill et al (1999:157) describe the perceived benefit of taking action to prevent disease as "people's belief in the efficacy of the advised action to reduce the risk or seriousness of impact". In order to perceive any benefit, pregnant women need information regarding *what* action to take to prevent mother-to-child transmission of HIV, *how* to take the action, as well as *where* and *when* to take the advised action.

**2.4.4 Perceived barriers** refer to individuals' opinion of the tangible and psychological costs of the advised action (Glanz et al 2002:52). The perceived benefits of preventing HIV transmission are weighed against the perceived barriers to prevention of HIV transmission and the outcome of that cost-benefit analysis determines the likelihood of taking action to prevent HIV transmission (Dennill et al 1999:157). It is essential that pregnant women are helped to identify barriers that may prevent them from accessing services to prevent mother-to-child transmission of HIV (see chapter 3, section 3.4.1.4). They should be helped to look at options to reduce barriers through reassurance, incentives, assistance.

**2.4.5 Cues to action** refer to strategies to activate "readiness" (Glanz et al 2002:52). Pregnant women should receive reminder cues that prompt them to take action in the

form of short messages during health talks at antenatal clinic, posters on prevention of mother-to-child in the antenatal clinics, mass media campaigns and handbills on the prevention of mother-to-child transmission of HIV.

The combined levels of susceptibility and severity provide the energy or force to act and the perception of benefits (fewer barriers) provides a preferred path of action (Rosenstock 1974:328).

**2.4.6 Self-efficacy** refers to confidence in individuals' ability to take action (Glanz et al 2002:52). Self-efficacy is the process by which "people process, weighs and integrate diverse sources of information concerning their capability, and they regulate their choice behaviour and effort expenditure accordingly" (Bandura 1977:212). Pregnant women should be educated on the importance of their spouses/partners knowing their HIV status so that they can co-operate with them if they are HIV positive in decisions regarding delivery and infant feeding options.

## **2.5 LIMITATIONS OF THE HBM**

The HBM does not specify the interventions that will influence an individual's likelihood of taking action, but rather explains the role of values and beliefs in predicting treatment outcomes and adherence, while generating data that guide nurses in choosing effective educational strategies (Edelman & Mandle 2006:222). In addition, the HBM may effectively promote behaviour change by altering patients' perspective, but does not acknowledge that the most appropriate interventions for any individual must be discussed and agreed upon by the individual and the health worker. The health worker for her part should also assist to reduce or ameliorate health care barriers that prevent patients/clients from accessing services. The model reflects the type of theoretical perspective that has dominated nursing education and health behaviours for many years (Nies & McWen 2007:43).

General limitations of the HBM (FHI 1996:3) include:

- Most HBM-based research to date has incorporated only selected components of the HBM, thereby not testing the usefulness of the model as a whole.

- As a psychological model it does not take into consideration environmental, economic or other factors that may influence health behaviours.
- The model does not incorporate the influence of social norms and peer pressure on individuals's decisions regarding their health behaviours.

Another criticism levelled at the HBM is that it assumes that individuals undertaking health behaviours do so in a rational or conscious way (Roden 2004:3).

## **2.6 CONCLUSION**

This chapter discussed the HBM which was the conceptual framework used as the basis of the study.

Chapter 3 discusses the literature review undertaken for the study.

## **CHAPTER 3**

### **Literature review**

#### **3.1 INTRODUCTION**

This chapter discusses the literature review on factors affecting utilisation of PMTCT services by HIV-positive women. The review was guided by the components of the HBM (see chapter 2).

Polit and Beck (2008:756) describe a literature review as “a critical summary of research on a topic of interest, often prepared to put a research problem in context”. In addition, a literature review is an organised written presentation of what has been published on a topic by scholars. The purpose of the literature review is to convey to the reader what is currently known regarding the topic of interest (Burns & Grove 2005:93).

#### **3.2 PURPOSE OF A LITERATURE REVIEW**

The review of literature is to give meaning and direction to the development and implementation of a study (Burns & Grove 2005:95). A literature review helps the researcher to gain adequate understanding of the state of knowledge about a given topic (Stommel & Wills 2004:339). Researchers conduct literature reviews for various reasons (Brink et al 2006:67-68; Burns & Grove 2005:95; Polit & Beck 2008:106-107):

- To conduct a critical analytical appraisal of recent scholarly work on the topic thereby helping to determine what is already known about the topic.
- To place the research project in the context of the general body of knowledge, thus minimising the possibility of unintentional duplication and increasing the probability that the new study makes a valuable contribution.
- To obtain clues to the methodology and instruments for the study.
- To compare the findings of existing studies with those of the study at hand. This process shows the relevance of the latter findings to the existing body of knowledge.

The purpose of literature review in this study was to identify factors affecting utilisation of PMTCT by HIV-positive women from previous studies to enable the researcher to make recommendations to improve and increase service utilisation.

### **3.3 SCOPE OF THE LITERATURE REVIEW**

The literature review focused on factors affecting utilisation of PMTCT services by HIV-positive women guided by the HBM.

#### **3.3.1 Overview of HIV/AIDS**

Acquired immune-deficiency syndrome (AIDS) is the most severe manifestation of the clinical spectrum of illness caused by infection with the human immuno-deficiency virus (HIV). The syndrome is defined by the development of serious opportunistic infections, neoplasm, or other life-threatening manifestations resulting in progressive HIV-induced immune-suppression (Mandell, Bennett & Dolin 2005:1477). AIDS was first recognised in the mid-1980's, when unusual clusters of pneumocystis carinii pneumonia and Kaposi's sarcoma were reported in young, previously healthy homosexual men in New York, Los Angeles, and San Francisco in the USA (Centres for Diseases Control and Prevention 1981:250, 305; Fauci 2008:289). The subsequent documentation of cases among haemophilia, blood transfusion recipients, and heterosexual drug users and their sexual partners suggested that a transmissible agent was the primary cause of the immunologic defects characteristic of AIDS. In 1983, a cytopathic retrovirus was isolated from persons with AIDS and associated conditions such as chronic lymphadenopathy (Barré-Sinoussi, Chermann, Rey, Nugeyre, Chamaret, Gruest, Dauguet, Axler-Blin, Vézinet-Brun, Rouzioux, Rosenbaum & Montagnier 1983:868; Fauci 2008:289; Gallo, Sarin, Gelmann, Robert-Guroff, Richardson, Kalyanaraman, Mann, Sidhu, Stahl, Zolla-Pazner, Leibowitch & Popovic 1983:865).

There are two main types of HIV. Type 1 (HIV-1) is the most common, and type 2 (HIV-2) is found predominately in West Africa, with some pockets in Angola and Mozambique (Miyazaki 1995:75; Newell 2004:iv; WHO 2004:4). While HIV-1 infection prevalence is increasing in these areas, the prevalence of HIV-2 has remained fairly stable, and the clinical course of HIV-2 disease is slower than that of HIV-1. Dual infection with HIV-1

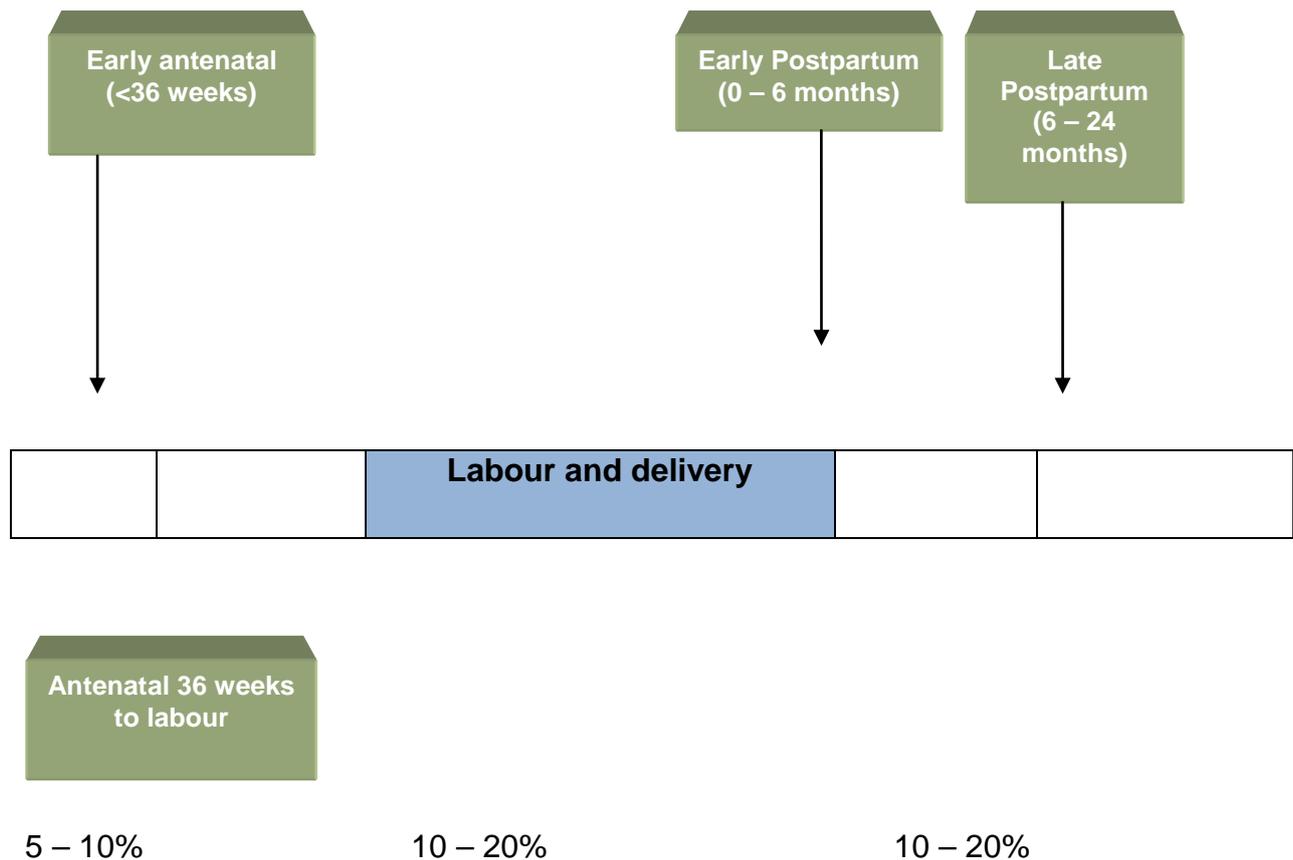
and HIV-2 is possible, although it has been suggested that HIV-2 infection can confer some protection against HIV-1 acquisition (WHO/UNAIDS 1998:3).

In Africa, the first report on AIDS in patients from central Africa was published in 1983 (Clumeck, Mascart-Lemone, De Maubeuge, Brenez & Marcelis 1983:642). By 1986 it was clear that HIV-1 had spread in the populations of many countries in sub-Saharan Africa and was posing a major public health problem (Quinn, Mann, Curran & Piot 1986:955). The discovery of AIDS in African patients who were neither homosexual men nor intravenous drug users led to the realisation that HIV could be transmitted through heterosexual intercourse. In fact, sexual intercourse between men and women results in most HIV-1 infections acquired in adults in sub-Saharan Africa. Transmission through blood transfusion, injection with infected needles, and scarification are thought to represent only a few infections (Berkley 1991:S87).

### **3.3.2 Mother-to-child transmission of HIV globally**

A pregnant woman who is HIV-positive can pass the virus on to her baby in-utero, at the time of labour and delivery, or post-natally through breastfeeding. In the absence of specific intervention, the estimated rate of mother-to-child-transmission of HIV ranges from 15% to 25% in developed countries to between 35% and 45% in developing countries with prolonged breastfeeding (FMOH 2007:2; Kasenga et al 2007:646; Newell 2006:1). In high-income countries, mother-to-child rates of less than 2% are reported, thanks to effective voluntary counselling and testing (VCT), access to antiretroviral therapy, safe delivery practices and the widespread availability of breast milk substitutes (FMOH 2007:2; Newell 2006:1-5).

Figure 3.1 illustrates the timing of mother-to-child HIV transmission with breastfeeding and no ARV use. From figure 3.1 it is clear that the rate of mother-to-child transmission of HIV from conception to before 36 weeks is about 5% to 10%. Furthermore, there is a 10% to 20% probability of transmission during the period of labour and delivery as well as a 10% to 20% probability of transmission during early post partum (0-6months) and late post partum (6-24months).



**Figure 3.1 Timing of mother-to-child HIV transmission with breastfeeding and no ARV**

(Source: Department of Health Studies (2006:30))

Mother-to-child transmission of HIV accounts for more than 90% of infections in children under the age of 15 years globally (Chama et al 2007:134; FMOH 2007:1; Kominami et al 2007:286). According to Adejuyigbe et al (2004:275) and Kasenga et al (2007:646), about 90% of these infections occur in sub-Saharan Africa. In South Africa, the risk of vertical transmission from HIV-infected mothers to their infants is estimated to be between 19% and 36%, depending on whether or not the child is breastfed (Coutsoudis, Pillay, Spooner, Tsai & Coovadia 2001:379). The burden of mother-to-child transmission of HIV is higher in sub-Saharan Africa than the rest of the world because of higher levels of hetero-sexual transmission, high female-to-male ratio, higher total fertility rates and higher rates of breastfeeding. Each day, approximately 1,600 children born to HIV-infected mothers become infected with HIV, the great majority in sub-Saharan Africa (Newell 2003:22-24). Mother-to-child transmission accounts for 10% of

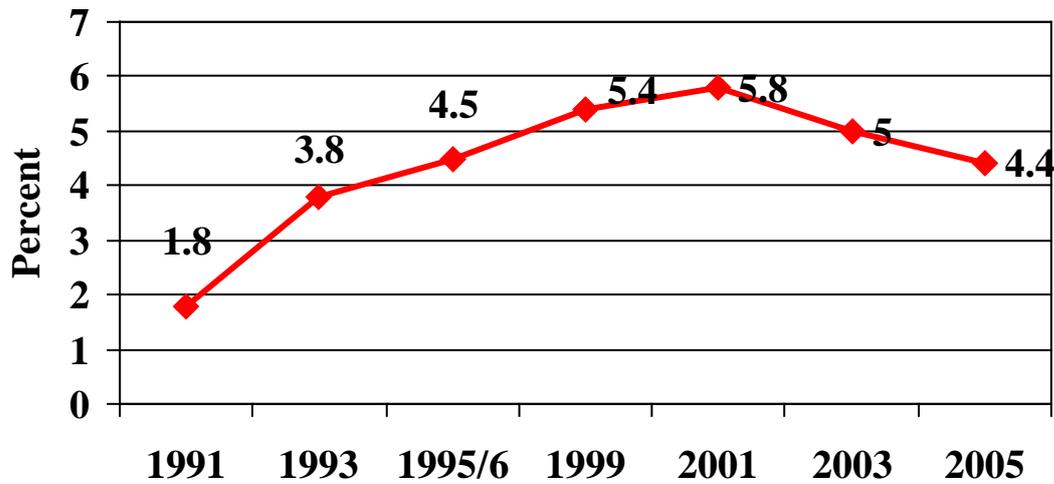
all new infections. Over half of the infants infected die before their second birthday (Newell et al 2004:1236).

In 2001, in view of the gravity of mother-to-child transmission, the UN General Assembly Special Session on HIV/AIDS declared one of the goals to be to reduce the proportion of infants infected by HIV by 20% by 2005 and 50% by 2010 (FMOH 2007:3). The UN (WHO 2004:9) adopted a comprehensive strategic approach to the prevention of transmission of HIV to infants and young children which has four components:

- Prevention of HIV infection in general, especially in young women and pregnant women
- Prevention of unintended pregnancies among HIV-infected women
- Prevention of HIV transmission from HIV-infected women to their infants
- Provision of care, treatment and support to HIV-infected women, and their infants and families.

### **3.3.3 Mother-to-child transmission in Nigeria**

The Nigerian government is committed to the implementation of interventions to reduce the rate of mother-to-child transmission of HIV among pregnant women and services have been offered free since the inception of the programme. The prevalence of HIV among antenatal clients was 1.8% in 1991, 4.5% in 1996, 5.0% in 2001 (FMOH 2006a:4) (see figure 3.2). In 2005, a drop in prevalence to 4.4% was reported (FMOH 2006a:29). However, the variation in HIV prevalence in states in Nigeria has continued with the highest prevalence of 10% in Benue state, 4.2% in Anambra state and 6.5% in Enugu state, which borders Anambra state (FMOH 2006a:29) (see figure 3.2).



**Figure 3.2 Trend analysis of HIV prevalence in Nigeria**

(Source: FMOH (2006a:29))

Based on the concern about the prevalence of HIV among antenatal women, the government commenced supporting interventions to prevent mother-to-child HIV transmission in 2002 (Adewole et al 2006:369; FMOH 2005:14). In line with the national policy on HIV/AIDS, the national goal for the PMTCT was to reduce transmission of HIV through mother-to-child transmission by 50% by the year 2010 and to increase access to quality HIV counselling and testing services by 50% by the same year (FMOH 2007:6) as well as the following:

- All antenatal care facilities shall offer HIV counselling and testing for all pregnant women as part of existing integrated reproductive health care services ... testing will be offered routinely with the right to opt-out.
- Nigeria shall place the highest possible priority on ensuring nationwide access to antiretroviral medication for all pregnant women with HIV.
- Appropriate mechanisms shall be put in place to ensure the training of health providers in involved in the programme at all levels.

In 2005, approximately 74,000 children were infected largely through mother-to-child infection in Nigeria (FMOH 2006a:32). Mother-to-child transmission of HIV is estimated to be the second major mode of transmission of HIV in Nigeria with possible routes of

transmission during pregnancy, during birth, and through breastfeeding (FMOH 2007:2). The rate of mother-to-child transmission of HIV is affected by many factors, including **viral** (high maternal viral load, viral characteristics), **maternal** (advanced disease, HIV infection acquired during pregnancy or breastfeeding), **obstetrical** (vaginal delivery, prolonged rupture of membrane and labour), **foetal** (prematurity, first of multiple deliveries) and **breastfeeding** factors (mixed feeding, breast disease) (FMOH 2007:2-3).

The specific management and interventions offered with regard to mother-to-child transmission of HIV include (FMOH 2007:5):

- HIV counselling and testing for all pregnant women except those who choose to opt out.
- HIV and infant feeding counselling.
- Modification of obstetric practices.
- Administration of antiretroviral prophylaxis to mother-child pair.
- Care and support for HIV positive women and their families (PMTCT plus).

The following indicators are monitored under the PMTCT programme (FMOH 2007:67; NACA 2007:54):

- Number of pregnant women who received HIV counselling and testing for PMTCT and received their test results.
- Number of pregnant women counselled on infant feeding options.
- Number of women who agreed to partner notification.
- Number of partners who were counselled and tested and received results.
- Number of women receiving a complete course of antiretroviral prophylaxis to reduce the risk of mother-to-child transmission within a calendar year.
- Number of HIV-exposed children who received complete course of ARVs (single dose nevirapine within 72 hours of birth and AZT for 6 weeks) for prevention of mother-to-child transmission.
- Number of health facilities providing a complete PMTCT package.

The collected data are aggregated at local, state and national levels to measure programme effectiveness at all levels and guide toward achieving goals and set

strategic objectives as well as provide information for informed policy development, guidelines and implementation (FMOH 2007:65).

### **3.4 THEORETICAL FRAMEWORK**

A model is “frequently described as a symbolic depiction of reality. It provides a schematic representation of certain relationships among phenomena” (Brink et al 2006:23) The HBM and its three major components were applied in this study (see chapter 2 and figure 2.1).

#### **3.4.1 Individuals’ perceptions of HIV**

According to Salazar (1991:128), individuals’ perceptions of an issue/disease vary. Individuals’ perceptions involve their belief about their susceptibility to disease, as well as the seriousness with which they view the perceived threat of illness (Stanhope & Lancaster 2000:271). Perceived susceptibility is an individual’s perception that a health problem is personally relevant or that a diagnosis is accurate. Even when individuals recognise personal susceptibility, action will not occur unless they perceive the severity is high enough to have serious organic or social implications (Polit & Beck 2008:150).

An individual’s risk perception is a “mental process whereby the individual organises and interprets knowledge to determine the risk that he or she is exposed to” (Bergh & Theron 1999:116). Therefore, individuals’ level of knowledge about an issue (in this study mother-to-child transmission of HIV) influences their perception and, in turn, helps them to recognise and interpret events in their community. Considering the importance of knowledge with regard to mother-to-child transmission, it is crucial that women of childbearing age and, in particular, pregnant women are well informed about the topic to assist them in making informed decisions about their health and that of their baby. The right information and decision, considered against the benefits of the interventions, will help increase utilisation of the services thereby reducing the rate of transmission, infant morbidity and mortality. Pregnant women’s decision to access interventions to prevent mother-to-child transmission of HIV will thus depend on the following:

- Perceived susceptibility (risk of infection)
- Perceived severity of infection

- Perceived benefits of prevention of HIV infection to child
- Perceived barriers to prevention infection of HIV
- Perceived individual ability to prevent mother-to-child transmission of HIV
- Cues to action

#### **3.4.1.1 *Perceived susceptibility (risk) of mother-to-child transmission of HIV***

In the context of the HBM, perceived susceptibility refers to an individual's perception that a health problem (HIV) is personally relevant or that a diagnosis is accurate (Polit & Beck 2008:150). Individuals' perception of susceptibility to a disease or condition varies and depending on their perception they may deny the possibility of being affected by the disease or condition. If people believe that they are not at risk or have low risk of susceptibility, they are more likely to engage in unhealthy behaviour (Mullen et al 1987:973; Salazar 1991:130). If the perception of threat is a serious condition, such as a pregnant woman passing on HIV infection to her baby, she is likely to take action to prevent it. However, the FMOH (2006b:43) found that only 2% of the respondents rated their chances of being infected high, 29% rated their chances low and 67% believed that they were at no risk at all. These views may influence some pregnant women's perception of their risk.

A pregnant woman who is HIV-positive has a risk of passing the virus to her baby in the womb or during childbirth, or post-natally, through breastfeeding (FMOH 2007:2). It is therefore essential that a pregnant woman is assisted to understand her risk and the possibility of transmitting the virus to her baby if the necessary interventions are not utilised. The information received will help the woman to make informed choices (e.g., undergoing HIV counselling and testing, receiving antiretroviral drugs) that will help to protect their babies from becoming infected. Every pregnant woman desires to have a healthy baby at term and is therefore most likely to do anything that will produce the said result.

#### **3.4.1.2 *Perceived severity of mother-to-child transmission of HIV***

Perceived severity refers to an individual's opinion about how serious a condition is and its consequences (Glanz, Rimer & Lewis 2002:52; Rosenstock 1974:329),. Even when individuals recognise personal susceptibility, action will not occur unless they perceive

the severity as high enough to have serious organic or social implications (Polit & Beck 2008:150). Pregnant women should therefore be made to understand the seriousness of HIV/AIDS and its consequences, namely transmission from mother to child if one is HIV positive. Information from sentinel studies among pregnant women around the country on the prevalence of the HIV epidemic should be discussed since most of the women involved are usually unaware of their status before then. The information will serve to drive home the point that otherwise healthy women may be infected without their knowing since many people have not yet undergone testing. Only about 10.8% of Nigerians have ever undergone HIV testing (FMOH 2006b:78).

#### **3.4.1.3 Perceived benefits of PMTCT of HIV**

An individual's perception of the value or usefulness of an action is referred to as perceived benefits. Perceived benefits are the patient's beliefs that a given treatment will cure the illness or help prevent it, and the perceived costs are the complexity, duration and accessibility of treatment (Polit & Beck 2008:150). The perceived benefits could be complying with the treatment plan (Edelman & Mandle 1995:228). For pregnant women to perceive the benefits of interventions, they need information about what actions are required to prevent mother-to-child transmission of HIV, how to take the action, as well as where and when to take the advised action.

Perceived benefits play an important role in the adoption of secondary prevention behaviours (Rosenstock 1974:329). Individuals tend to adopt healthier behaviours when they believe the new behaviours will decrease their chances of developing or preventing a disease (Eisen, Zellen & McAllister 1992:249; Mattson 1999). Based on the focus of this study, pregnant women should also be made to understand the benefit of their partners knowing their own HIV status. This is crucial to ensure that they co-operate with each other in making informed decisions about delivery and breastfeeding options as well as for family planning.

#### **3.4.1.4 Perceived barriers to utilising PMTCT services**

Behavioural changes from what individuals are used to can be a difficult process and one of the constructs of the HBM addresses the issue of perceived barriers to change (FHI 1996:2). The HBM addresses individuals' perceptions as barriers that will prevent

them from adopting the new action advised. Of all the constructs of the HBM, perceived barriers are the most significant in determining behaviour change (Robinson, Bielamowicz, Rodgers, Wong & Konzelmann 2008:44). Individuals are ready to act if they believe the costs of taking action (*perceived barriers*) are outweighed by the benefits (National Cancer Institute 2005:13). It is important that in promoting prevention of mother-to-child transmission of HIV, health workers need to identify such barriers and work with the pregnant women to reduce them.

Some of the perceived barriers to participating in PMTCT services by pregnant women include (Kebaabetswe 2007:355) Moth et al 2005:244; Painter et al 2004:543):

- Fear of knowing one's own HIV status as some think that knowing one's HIV status could lead to unhealthy, stressful life which might end in suicide. Many fear that if they test and the results are positive, they will commit suicide.
- Denial of a positive diagnosis.
- Stigma associated with HIV/AIDS in the community. Many pregnant women are afraid of being stigmatised or discriminated against as well as being shunned by family.
- Suspicion of HIV status if a mother is not breastfeeding. Exclusive breastfeeding is common practice and with the increasing awareness of HIV/AIDS any woman who is not breastfeeding may be suspected of being infected with the virus, which could lead to stigmatisation.
- Infant feeding distribution stigma. Many women fear that people will talk badly about them if they are seen obtaining baby formula and this discourages women who have not enrolled in the programme.
- Lack of male partners' support is a major barrier to promoting and maximising the benefits of the programme. Some men refuse to allow their partner permission to test thereby hindering them from taking part in the programme (Bajunirwe & Muzoora 2005; Kebaabetswe 2007:358; Sarker, Sanou, Snow, Ganame & Gondos 2007:1481).
- Negative experiences of health workers' attitude. The literature review revealed several instances of this. For example: "I went to the hospital for help because my husband was hostile with me and does not want to hear anything to do with the hospital. I talked to one of the sisters and she told me to wait for the matron who never turned up then I left without being helped" (Moth et al 2005:247). "I

came for an appointment, but unfortunately I went to see a clinic midwife who had been seeing me. She told me that I did not have an appointment, so I did not know which midwife to see. I didn't know whom to ask, and I was afraid of being yelled at in front of other pregnant women. So I went home and I did not do anything else because I was discouraged" (Painter et al 2004:544).

- Belief that they could not transmit HIV to their unborn babies (Olanrewaju et al 2007:[2]).
- Fear of domestic violence and desertion upon disclosure to partner and in-laws. For example: "I cannot disclose my HIV status to my spouse because I fear for my life, physical beating and discrimination. He can even chase me from his home and if this happens where do I go at my age?" (Moth et al 2005:247). Women are also fearful of violence, divorce and of being left alone to die if they are found to be infected with HIV (Bond, Chase & Aggleton 2002:347; Temmerman, Ndinya-Achola, Ambani & Piot 1995:969).
- Worry about confidentiality of HIV testing and the results (De Paoli et al 2004:241).

The perceived benefits of preventing HIV transmission are weighed against the perceived barriers to prevention of HIV transmission and the outcome of that cost-benefit analysis determines the likelihood of taking action to prevent HIV transmission (Dennill et al 1999:157). Since all pregnant women want to have a healthy baby they are likely to take action to avoid the risk of transmitting HIV to their baby if the benefits are adequately explained to them.

#### **3.4.1.5 Cues to action to prevent mother-to-child transmission of HIV**

Cues to action are strategies that activate "readiness" (Glanz et al 2002:52). These can be events, either bodily, people, or environmental that motivate people to take action (Rosenstock et al 1994). Pregnant women should be provided with information or reminder cues that will prompt them to take action to prevent mother-to-child transmission of HIV. These could be reminders such as knowledge of someone with HIV or a woman who is HIV positive and has an HIV-negative baby, mass media campaigns, posters at antenatal clinics, and health information by health care workers at antenatal clinics, handbills/pamphlets on mother-to-child transmission distributed at clinics. All of these can encourage a pregnant woman to take action.

The combined levels of susceptibility and severity provide the energy or force to act and the perception of benefits (fewer barriers) provides a preferred path of action (Rosenstock 1974:328).

#### **3.4.1.6 Self efficacy to prevent of mother-to-child transmission of HIV**

Self-efficacy is the process by which “people process, weigh, and integrate diverse sources of information concerning their capability, and they regulate their choice behaviour and effort expenditure accordingly’ (Bandura 1977:212). Efficacy or efficaciousness is the ability to produce an intended result and self-efficacy refers to confidence in one’s ability to take action (Glanz et al 2002:5). In this study, it meant the HIV-positive pregnant woman’s ability to successfully undertake all interventions that will help to prevent mother-to-child transmission of HIV.

#### **3.4.2 Modifying factors**

According to the HBM, demographic, socio-psychological and structural variables are modifying factors that impact on the perceived threat of a disease (Dennill et al 1999:157).

##### **3.4.2.1 Demographic**

Demographic variables such as age and gender have an effect on the individual’s perceived threat of an illness such as HIV/AIDS and the ability to avoid risk behaviour (Dennill et al 1999:157). Individuals’ developmental stage may also influence their risk behaviour in relation to HIV transmission. Women are among the “at risk” group as almost half (15.4 million) of the 33.2 million people living with HIV are women (UNAIDS/WHO 2007:8; Eyakuze, Jones, Starrs & Sorokin 2008:33). Generally, women are less informed about HIV than men in both urban and rural areas. This is the case even in countries where more than one out of 10 adults is infected (Asamoah-Odei, Garcia Calleja & Boerma 2004:35). Evidence also indicates that HIV-negative women are at greater risk of HIV infection during pregnancy, for physiological, not behavioural, reasons that are not yet understood (Gray, Li, Kigozi, Serwadda, Wabwire-Mangen, Nalugoda, Kiddugavu, Sewankambo, Reynolds & Wawer 2005:1182).

According to Collins and Toure (2004:5), women and girls may not be able to make decisions about sexual and reproductive life as such. Even if they perceive HIV/AIDS as a severe disease and wish to prevent it, they may feel helpless to take preventive measures due to the negative effect of gender inequality. Females are socially subservient in issues pertaining to health (Mudokwenyu-Rawdon 2001:38). Women are brought up to be submissive to men particularly in issues regarding sex. For example, in the researcher's hometown of Onitsha, a new wife is commonly advised on her wedding day to respond any time her husband asks for sexual intercourse (undocumented). Wives are not allowed to refuse sex from their husband, or to use a condom, even if their husband is infected with HIV-1 (Buve, Bishikwabo-Nsarhaza & Mutangadura 2002:2014). Van Rensburg, Friedman, Ngwena, Pelser, Steyn, Booyens and Adendoff (2002:29) found that "even when a woman wants to protect herself, she is confronted by an entrenched culture of male dominance that renders her powerless". Women are not recognised and treated as equals of men; they cannot make decisions even concerning their health (Jackson 2002:93). Shears (2002:17) emphasises that gender stereotypes of submissive females and dominant males promote HIV-risk behaviour, sexual exploitation of women and the belief that risk behaviour is unavoidable.

Furthermore, extramarital affairs by both sexes are tolerated in many parts of sub-Saharan Africa, but most cultures have rules requiring women to have very little sexual experience before marriage and to be monogamous thereafter, whereas for men premarital and extramarital sex are tolerated or even expected. Young men and boys are often encouraged by their peers to demonstrate their masculinity through early sexual initiation and many sexual conquests (Zulu, Ezeh & Nii-Amoo Doodoo 2000). The foregoing underscores that male involvement is critical in addressing the prevention of mother-to-child transmission of HIV because they also need to learn about HIV/AIDS, its implications for women, and their own HIV status so that they can provide the necessary support to their partners if they are HIV positive.

#### **3.4.2.2 Socio-psychological**

Socio-psychological variables, such as personality, social class and peer pressure have an influence on an individual's perception of an illness and the likelihood of taking preventive action (Dennill et al 1999:156). An HIV-positive pregnant woman who has fears about the outcome of disclosure of her status to her partner/spouse or perceives

negative attitudes of health workers in the facility may not return to the facility for follow-up antenatal clinic and delivery.

### **3.4.2.3 Structural**

Individuals' perception and likelihood of taking action can be influenced by structural variables such as knowledge about the disease and previous contact with the disease (Dennill et al 1999:157; Stanhope & Lancaster 2000:271). If a pregnant woman is well informed and knowledgeable about HIV/AIDS and the implications as well as the benefits of preventing infection to her baby if she uses the intervention services, she is more likely to return for the follow-up and delivery.

#### *3.4.2.3.1 Knowledge of HIV transmission*

In the context of the HBM, individuals' perception of risk of an illness can be influenced by their knowledge and thus their likelihood of taking action to adopt healthy behaviour and prevent the illness (Dennill et al 1999:157; Lollis, Johnson & Antoni 1997:551). Awareness about HIV/AIDS is generally high in Nigeria (94%), with a 98% level in urban areas compared to 91% in rural areas (FMOH 2006b:40). The high level of knowledge of HIV/AIDS is comparable to 89.9% and 97%, respectively found in Lagos and Kano, Nigeria (Ekanem and Gbadegesin 2004:91; Iliyasu, Abubakar, Kabir & Aliyu 2006:1920).

Awareness is higher in males (96%) than in females (90%) (FMOH 2006b:40). Similarly, the National Demographic Health Survey (NDHS) also revealed awareness of AIDS being higher in men (97%) than women (86%) (National Population Commission 2003:169).

Knowledge was found to be lowest among people who never attended school (82%) and highest among people with higher education (99.6%) (FMOH 2006b:40). According to the National HIV/AIDS and Reproductive Health Survey (FMOH 2006b:45), knowledge on the routes of transmission were: sexual intercourse (91%), unscreened blood transfusion (81%), and mother-to-child transmission (69%). Iliyasu et al (2006:1919) also found knowledge about mother-to-child transmission low (67.1%). Responses to whether the virus that causes AIDS could be transmitted from mother-to-

child during pregnancy, delivery and/or by breastfeeding revealed that 72% knew it could be transmitted during pregnancy, 63% during delivery and 64% possible transmission through breastfeeding, and 70% knew that a healthy-looking person could also transmit the virus (FMOH 2006b:51-52). In her study, Chivonivoni (2006:67) found that 62% of the pregnant women had knowledge about prevention of parent-to-child transmission of HIV/AIDS while 38% indicated that they had no knowledge about it.

In Tanzania, Kominami et al (2007:289) found awareness of HIV was 98.2% for those who had been tested for HIV and 98.4% of those who had not been tested whereas awareness of mother-to-child transmission of HIV was relatively low: 66.3% of those who had been tested and 43.3% of those who had not been tested. In addition, only 49.4% of those who had been tested for HIV and 45.4% of those who had not been tested knew that HIV-positive pregnant women can transmit the virus to their babies during pregnancy. Okonkwo, Reich, Alabi, Umeike and Nachman (2007:255) found that 42.9% of their respondents believed that HIV could be transmitted by a pregnant woman to her unborn child while 32.9% were unsure. Peltzer, Mosala, Shisana and Nqeteko (2006:57) found that the majority (81%) of pregnant women knew that a pregnant woman infected with HIV could transmit the virus to her unborn child even though only 9% of the women and 13% of their partners or husbands had ever had an HIV test.

Petrovici and Ritson (2006:222) point out that health motivation, belief that diet can prevent disease, knowledge about nutrition, level of education and age have a positive influence on dietary health preventive behaviour. Peltzer et al (2006:57) and Iliyasu et al (2006:1920) also found out that having been provided with HIV/AIDS information, wanting to know their HIV status and concern for the transmission of HIV from mother to the unborn child were major factors that encouraged pregnant women to go for an HIV test. In view of the seriousness of mother-to-child transmission of HIV therefore and in order to meet the goals of the national programme, it is essential that pregnant women are provided with adequate knowledge to help them make informed decisions and choices that have implications for the outcome of their babies' sero status. According to Iliyasu et al (2006:1920), the antenatal clinic provides an appropriate and ideal opportunity for educating women about HIV/AIDS and other health-related issues.

Other factors such as barriers and perceived susceptibility and severity should also be considered together with the issue of knowledge. Included is also the availability of trained and knowledgeable health workers with the right attitude to support the pregnant women in the process.

#### *3.4.2.3.2 HIV counselling and testing services*

HIV counselling and testing is an essential component of comprehensive AIDS prevention and treatment programmes (Merywen 2004:1). HIV counselling and testing is one of the specific interventions for the prevention of mother-to-child transmission of HIV in Nigeria and during pregnancy an entry point for women to learn their sero status and for them to access specific interventions to reduce mother-to-child transmission of HIV if they are HIV positive (Adewole et al 2006:360; FMOH 2007:5; Sint, Dabis, Kamenga, Shaffer & de Zoysa 2005:224). With the opt-out approach, HIV testing is included in routine antenatal care, unless the client explicitly refuses it (Basset 2002:347; Chandisarewa, Stranix-Chibanda, Chirapa, Miller, Simoyi, Mahomva, Maldonado & Shetty 2007:846; De Cook, Marum & Mbori-Ngacha 2003:1847). Although the Nigerian government widely advocates and promotes HIV counselling and testing for all eligible individuals and recommends that it be provided as part of the routine package of antenatal services, only 10.8% have ever tested for HIV. A higher percentage of 31% was recorded among people with higher education and lowest 2.3% among those who had never attended school (FMOH 2006b:78).

High rates of acceptance for testing and subsequent enrolment are imperative for the effectiveness of the programme (Coetzee, Hilderbrand, Boule, Draper, Abdullah & Goemaere 2005:491; Ekanem & Gbadegesin 2004:91; Iliyasu et al 2006:1922).

Other studies in Africa have demonstrated the feasibility of PMTCT programmes in routine settings, but generally report a high rate of attrition between being offered, testing and subsequent enrolment in the programme (Bajunirwe & Muzoora 2005; Manzi et al 2005:1242; Msellati, Hingst, Kaba, Vihi, Wellferns-Ekra & Dabis 2001:641; Stringer, Sinkala, Stringer, Mzyece, Makuka, Goldenberg, Kwape, Chilufya & Vermund 2003:1377). Most women are willing to undergo HIV counselling and testing, if knowledge of their status would assist in preventing HIV transmission to their babies (De Paoli et al 2004:420-421; Ekanem & Gbadegesin 2004:91; Kominami et al

2007:290). Partner involvement has an influence on acceptance of services (Kakimoto, Kanal, Mukoyama, Chheng, Chou & Sedtha 2007:381; Okonkwo et al 2007:256). Regarding the acceptability and feasibility of VCT, issues of confidentiality between counsellor and patient, quality of services and the counsellor's sensitivity to the women's fear of stigmatization and partner violence determine successful implementation of the services (De Paoli et al 2004:411; Medley, Garcia-Moreno, McGill & Maman 2004:299; Nuwaha, Kabatesi, Muganwa & Whalem 2002:626. In Zimbabwe, Chivonivoni (2006:61) found that some pregnant women feared that they would experience social rejection, discrimination and their husbands would blame them for bringing the disease into their homes if they were tested and found to be HIV positive. Out of the 27 respondents in her study who were willing to be tested, 85% said they would inform someone about their test result while 15% said they would not disclose their HIV-positive result to anyone (Chivonivoni 2006:63).

#### 3.4.2.3.3 *Antiretroviral therapy*

Antiretroviral (ARV) drugs inhibit HIV replication. ARV's, such as Nevirapine, are drugs that are effective against viruses causing diseases (Baillière's Nurses' Dictionary 2005:26). Pregnancy in the HIV sero-positive woman is an indication for prophylactic ARV therapy, irrespective of the cluster of differentiation 4 (CD4) count, viral load or clinical stage of the disease. The time of commencement and choice of antiretroviral therapy depends on the clinical setting (FMOH 2007:31).

*Nevirapine* is an antiretroviral drug commonly used either to treat HIV infections or as prophylaxis, alone or in combination with other drugs to prevent mother-to-child transmission of HIV (Newell 2004:vi). Nevirapine is a non-nucleoside reverse transcriptase inhibitor. It has several characteristics such as being a prophylactic agent against HIV infection and also crosses the placenta and is safe to use for mother-to-child transmission of HIV (Tabi & Frimpong 2003:246). A single dose of 200mg Nevirapine is administered to a pregnant woman when she is in established labour. A single dose of 2mg/kg bodyweight is administered to the newborn baby within 72 hours of birth (FMOH 2007:31). The use of single dose Nevirapine at onset of labour and a single oral dose to the infant within 72 hours of birth has been shown to reduce the rate of transmission by 50% (Moodley, Moodley, Coodavia, Gray, McIntyre, Hofmyer, Nikodem, Hall, Gigliotti, Robinson, Boshoff & Sullivan 2003:725).

Nevirapine is beneficial in reducing transmission to the baby, but does not benefit the mother and causes resistance in the mother if used as a single dose in HIV management. Nevirapine as a single drug cannot be used in HIV management.

**AZT (azidothymidine, also known as Zidovudine [ZDV])** is an antiretroviral drug that inhibits HIV replication. It was the first drug licensed to treat HIV infection. Today, it is commonly used in combination with other antiretroviral drugs to treat HIV infection, and, alone or in combination, in the prevention of mother-to-child transmission of HIV infection (Newell 2004:vi). Where available and depending on the setting, combination antiretroviral therapy is used. *AZT (azidothymidine, also known as Zidovudine [ZDV])* is given to pregnant women in combination with other drugs in the prevention of mother-to-child transmission of HIV infection in Onitsha, Anambra state, Nigeria.

The HIV nevirapine trial (HIVNET) 012 and Thailand zidovudine (four weeks) short course Zidovudine (AZT) regimen given twice daily from 36 weeks and single dose Nevirapine (NVP) to the mother and child during labour and to the baby within 72 hours after delivery have been found to significantly reduce the transmission risk (Guay, Musoke, Fleming, Bagenda, Allen, Nakabiito, Sherman, Bakaki, Ducar, Deseyve, Emel, Mirochnick, Fowler, Mofenson, Miotti, Dransfield, Bray, Mmiro & Jackson 1999:795; Shaffer, Chuachoowong, Mock, Bhadrakom, Siriwasin, Young, Chotpitayasunondh, Chearskul, Roongpisuthipong, Chinayon, Karon, Mastro & Simonds 1999:773). These are much more cost effective and easier for struggling primary health care (PHC) systems to offer as the combination of these two regimens (i.e., AZT from 36 weeks and single dose NVP to the mother and baby at delivery) now offers a simple and very effective intervention that might under optimal circumstances reduce in utero and intra-partum transmission from 15-20% to 2-4% (Department of Health Studies 2006:33).

In developing countries, peripartum ARV prophylaxis with one drug alone can decrease the rate of infection in breastfed infants assessed at two to three months of age to around 10% (Dabis & Ekpini, 2002:2097; Guay et al 1999:795; The Petra Study Team, 2002:1178), and with two or more drugs to about 7% at six weeks (Dabis, Ekouevi, Rouet, Bequet, Viho, Horo, Fassinou, Toure, Welfens-Ekra & Leroy 2003:S219). A maternal short-course zidovudine regimen reduces mother-to-child transmission of HIV-1 at age 24 months, despite prolonged breastfeeding. However, efficacy was observed

only among women with CD4 cell count above or equal to 500/ml (Leroy, Karon, Alioum, Ekpini, Meda, Greenberg, Msellati, Hudgens, Dabis & Wiktor 2002:631).

#### 3.4.2.3.4 *Infant feeding in PMTCT of HIV*

Breastfeeding refers to when a woman feeds her baby with milk from her breasts (*Oxford Advanced Learner's Dictionary* 2005:174). Infant feeding is embedded in traditional relationships of intimacy; both relatives and breadwinner have influence and even authority over options and modes of infant feeding (Buskens, Jaffe & Mkhathshwa 2007:1101).

*Exclusive breastfeeding* refers to when an infant receives only breast milk, and no other liquids or solids, not even water, with the exception of drops or syrups consisting of vitamins, mineral supplements or medicines (Newell 2004:iv). Exclusive breastfeeding – breastfeeding with no other food or drink, not even water – is the ideal mode of infant feeding for the first six months of life. For optimal growth, development and health, infants should be exclusively breastfed for their first six months, and should then receive nutritionally adequate and safe complementary foods, while breastfeeding continues up to 24 months or beyond (WHO 2004:1). Exclusively breastfed infants in developing countries are at lower risk of HIV transmission than mixed-fed infants (Buskens et al 2007:1101). One of the most beneficial attributes of breast milk is that it protects against common childhood infections such as diarrhoea, pneumonia, neonatal sepsis and acute otitis media (Habicht, Da Vanzo & Butz 1986:279; Habicht Da Vanzo & Butz 1988:456; WHO Collaborative Study Team, 2000; WHO 2004:5). Andresen, Rollins, Sturm, Conana and Greiner (2007:409) found that many mothers did not follow recommended practices in preparing and feeding the bottles. These findings have implications for the well-being and nutritional status of the infant.

With the onset of the HIV/AIDS epidemic, however, and the recognition that HIV-infected mothers could transmit HIV to their infants through breastfeeding, specific recommendations apply to infants born to HIV-infected mothers. The risk through breastfeeding is cumulative; the longer the HIV-infected mother breastfeeds, the greater the additional risk of transmission through breastfeeding. Where breastfeeding is common and prolonged, transmission through breastfeeding may account for up to half of HIV infections in infants and young children (WHO 2004:1).

HIV can be transmitted through breast milk at any point during lactation, thus the rate of infection in breastfed infants increases with duration of breastfeeding (WHO 2004:12). Breastfeeding by an infected mother increases the risk by 5% to 20% to a total of 20% to 45%. The risk can be reduced to under 2% by a combination of antiretroviral prophylaxis during pregnancy and delivery and to the neonate with elective caesarean section and avoidance of breastfeeding (WHO 2004:1). In view of the risk of transmission through this route, it is essential that HIV-infected pregnant women are provided with unbiased infant feeding counselling to enable them to make informed choice based on their own situation/circumstances (FMOH 2007:42).

In Thailand, Rollins, Meda, Becquet, Coutoudis, Humphrey, Jeffery, Kanshana, Kuhn, Leroy, Mbori-Ngacha, McIntyre and Newell (2004:191-192) found that among HIV-positive women, 62% were concerned about not breast-feeding and 70% acknowledged that other family members and friends were concerned about their avoidance of breast-feeding. About half had found it hard to explain to people in the community why they were not breast-feeding and so unexpectedly family concerns significantly influenced their decisions and practices. Leshabari, Blystad and Moland (2007:544) also allude to the gap between intentions and infant feeding practice in a context where the social expectations to breastfeed are high, and where kin and neighbours are part of the decision-making team surrounding infant feeding.

Exclusive breastfeeding is recommended for HIV-infected women for the first six months of life unless replacement feeding is acceptable, feasible, affordable, sustainable and safe for them and their infants before that time. When replacement feeding is acceptable, feasible, affordable, sustainable and safe, avoidance of all breastfeeding by HIV-infected women is recommended (WHO 2006:4). *Replacement feeding* refers to feeding infants who are receiving no breast milk with a diet that provides the nutrients the infants need until the age at which they can be fully fed on family foods. During the first six months of life, replacement feeding should be with a suitable breast-milk substitute. After six months the suitable breast-milk substitute should be complemented with other foods (Newell 2004:vi).

According to Onah, Ibeziako, Nkwo, Obi and Okonkwo (2008:278), 98.9% of the HIV-positive women in their study chose exclusive breast feeding substitutes for their

babies. There is however no information on the follow-up outcomes of the infants of these women in terms of their well-being and how safely the women practised and managed their choice of feeding. According to Kagaayi, Gray, Brahmabhatt, Kigozi, Nalugoda, Wabwire-Mangen, Serwadda, Sewankambo, Ddungu, Ssebagala, Sekasanvu, Kigozi, Makumbi, Kiwanuka, Lutalo, Reynolds and Wawer (2008:5), in using replacement feeding the preparation and storage of safe formula was inadequate despite the counselling and support given by the programme. Mothers failed to follow guidelines for sterile preparation and storage of formula, for cleansing of utensils and for avoidance of bottle feeds. This poor practice probably led to contamination of formula feeds and consequent gastrointestinal infection in the children. These findings also suggest that formula feeding may be particularly hazardous for HIV-infected infants, since all infants HIV infected by one month of age in the formula-feeding group died by twelve months, compared to none in the breastfeeding group.

### **3.4.3 Variables affecting likelihood of taking action to prevent mother-to-child transmission of HIV**

Variables affecting the likelihood of taking action to prevent a disease are influenced by an individual's perception of the severity and the magnitude of the disease and to what extent the individual feels at risk of contracting the disease. This is viewed together with the cost-benefit analysis of taking preventive action and the perceived ability to take preventive action (Dennill et al 1999:157).

#### *3.4.3.1 Sources of information on mother-to-child transmission of HIV accessible to pregnant women*

Pregnant women obtain information regarding mother-to-child transmission of HIV from different sources, including the antenatal clinic, television and radio. The antenatal care can be more effective in preventing adverse pregnancy outcomes when it is sought early in the pregnancy and continues through to delivery. The National Population Commission (2004:115-117) reported that most pregnant women (71.1%) attended antenatal clinic at least four times while 8.4% attended two to three times during their pregnancy. As such, the antenatal clinic visit provides an opportunity for the health workers to discuss mother-to-child transmission of HIV with pregnant women (Iliyasu et al 2006:1920). The information will help to increase their knowledge about the topic and

help them to make informed decisions concerning interventions that will help reduce the rate of transmission to their babies.

#### *3.4.3.1.1 Health facility*

According to Moth et al (2005:246), more than half (52.4%) of the respondents in their study obtained information from the health facility while Kominami et al (2007:289) found that 68.4% of the women received information about mother-to-child transmission of HIV from the antenatal clinic. Chivonivoni (2006:67) found that 32% of the pregnant women received information about prevention of parent-to-child transmission of HIV from the health centres. Besides the health talks and counselling given by the health care workers, posters on PMTCT are also strategically placed in the antenatal clinics to inform and educate pregnant women. In view of the importance of this source of information to pregnant women, it is critical that health care workers in antenatal clinics should have adequate knowledge and skills to enable them to provide appropriate and accurate information to pregnant women.

#### *3.4.3.1.2 Radio*

The radio was found to be another important source of information on mother-to-child transmission of HIV (Kominami et al 2007:289; Moth et al 2005:246). Listening to foreign and local radio broadcasts is a popular pastime with the inhabitants of northern Nigeria and such media can therefore be used to effectively convey HIV/AIDS prevention messages (Iliyasu et al 2006:1922). The majority of respondents in the National Demographic and Health Survey (2004:28) listened to the radio at least once a week, making this a popular source of information. Chivonivoni (2006:67) also found that most of the respondents had obtained information about PMTCT of HIV through the mass media, particularly radio broadcasts in different languages in Zimbabwe. Radio can also be used to provide two-way communication, giving women the chance to talk about their concerns (Kominami et al 2007:291).

#### *3.4.3.1.3 Magazines/newspapers*

Magazines and newspapers are also vital sources of information on mother-to-child transmission of HIV (Kominami et al 2007:289; Moth et al 2005:246).

#### 3.4.3.1.4 *Other sources*

Information is also obtained from schools, churches, neighbours, friends, schools and family/relatives (Kominami et al 2007:289; Moth et al 2005:246).

The different sources reveal that pregnant women obtain information regarding mother-to-child transmission of HIV from various sources.

#### 3.4.3.1.5 *Peer support*

In the '*mothers2mothers*' (m2m) programme mentor mothers provide education and psychological support to pregnant women and new mothers receiving prevention of mother-to-child transmission services. The mentor mothers are HIV-positive mothers who give health talks in waiting rooms and conduct one-on-one sessions and support groups for HIV-positive pregnant women and new mothers. They teach the women about reducing the risk of transmitting HIV through information on the programme and feeding choices (Fransman 2007:39).

### **3.5 CONCLUSION**

This chapter discussed the literature review conducted on PMTCT of HIV to provide an insight into what is known about the factors affecting utilisation of PMTCT of HIV services by HIV-positive pregnant women. The literature review revealed that PMTCT of HIV is considered important and is increasingly being recognised as a key strategy to help reduce the rate of HIV infection.

Chapter 4 describes the research methodology used in the study.

## **CHAPTER 4**

### **Research design and methodology**

#### **4.1 INTRODUCTION**

This chapter describes the research methodology, including the design, population and sample, data collection and analysis, validity and reliability, and ethical considerations.

The purpose of the study was to investigate and identify the factors that affect the utilisation of PMTCT services and to propose measures to promote utilisation of services by HIV-positive pregnant women in Onitsha, Anambra State, Nigeria.

The objectives of the study were to:

- Investigate the perceptions of pregnant women of the utilisation of PMTCT services in Onitsha in the Anambra state, South East Nigeria.
- Identify factors that prevent HIV-positive pregnant women from returning to the health facility for follow-up and delivery in Onitsha in the Anambra state, South East Nigeria.
- Explore measures that would promote the utilisation of PMTCT services by HIV-positive pregnant women.

#### **4.2 RESEARCH SETTING**

Setting refers to the physical location and conditions in which data collection takes place in a study (Burns & Grove 2005:751; Polit & Beck 2008:766).

The setting in which this study was conducted was two hospitals in Onitsha, Anambra State, Nigeria – one mission hospital and one government-owned hospital where antenatal services and PMTCT services are offered.

### **4.3 RESEARCH METHODOLOGY**

Research methodology refers to the entire strategy of the study from the identification of the problem to the final plans for data collection (Burns & Grove 2005:23).

The selection of a research methodology or strategy is the core of a research design and is probably the single most important decision the investigator has to make. The research methodology must include the research design, definition and selection of the population of interest, definition of variables (characteristics of the individuals in the population), their status and relationships to one another, data-collection instrument and data-analysis procedure (WHO 2001:11).

#### **4.3.1 Research design**

Polit and Beck (2006:730) describe a research design as an overall plan for obtaining answers to the research questions that have been posed and an explanation of how the researcher intends to cope with the difficulties that will occur during the research process. A research design is “a blueprint for the conduct of a study that maximises control over factors that could interfere with the validity of the findings” (Burns & Grove 2005:211; Polit & Beck 2008:765). The type of design directs the selection of a population, sampling procedure, methods of measurement, and a plan for data collection and analysis (Burns & Grove 2005:40). According to Stommel and Wills (2004:32-33), a research design is “a plan according to which the research will be carried out. It specifies what observations to make (which variables to focus on), how to make them (which measurement procedures to adopt), and when to make them”. The research design is a plan or blueprint of how the researcher intends to conduct the research (Mouton 2001:55; Polit & Beck 2008:66).

In this study, the researcher used a non-experimental, quantitative, explorative descriptive research design to systemically gather information from antenatal attendees in the selected health facilities to identify factors that prevent HIV-positive mothers from utilising PMTCT services. The data obtained from the subjects was analysed using statistical procedures.

#### **4.3.1.1 Non-experimental**

In non-experimental studies, the researcher only makes observations and collects data, and does not attempt to intervene in any way to alter the phenomena of interest (Stommel & Wills 2004:144). In addition, non-experimental designs are often used in nursing studies because some human characteristics are not subject to experimental manipulation because of ethical implications (Polit & Beck 2004:188). The main purpose of non-experimental research is to describe phenomena and explore relationship between variables. In this study, a non-experimental research design was used since the researcher wished to observe, describe and document factors affecting the utilisation of PMTCT services by HIV-positive pregnant women.

#### **4.3.1.2 Quantitative**

Burns and Grove (2005:747) define quantitative research as a “formal, objective, systematic process in which numerical data are utilised to obtain information and describe variables and their relationships”. While quantitative research uses structured tools to generate numerical data, it also uses statistics to interpret, organize, represent and make sense of the data collected. The research design of this study may be described as quantitative because the researcher used a structured interview schedule to conduct face-to-face interviews with the respondents for data collection.

#### **4.3.1.3 Descriptive**

Descriptive studies entail the collection, analysis and interpretation of data. The distinctive feature of this approach is that its primary concern is with description rather than with the testing of hypotheses or proving causality (WHO 2001:16). Descriptive designs are utilised to gain more information about characteristics within a particular field of study (Burns & Grove 2005:232). A descriptive study involves the identification of a phenomenon of interest and the variables that contribute to the phenomenon. It also provides a method for developing conceptual and operational definitions of the variables and for describing the variables themselves (Burns & Grove 2005:232; Polit & Beck 2006:189). Descriptive studies provide valuable baseline information. The descriptive approach allowed the respondents to discuss their experience and situations while also assisting the researcher to describe and identify the factors affecting their

utilisation of PMTCT.

Furthermore, the researcher systematically selected and reviewed literature that provided conceptual definitions, and examined and described the phenomenon under study (Burns & Grove 2007:240-241).

#### *4.3.1.4 Cross-sectional*

Cross-sectional studies entail the collection of data on a cross-section of the population which may comprise the whole population or a proportion (sample) of it (WHO 2001:17). Somekh and Lewin (2005:216) state that a cross-sectional study involves the collection of quantitative data on at least two variables at one point in time and from a number of cases.

In this study, the researcher and her assistants collected data from a cross-section of HIV-positive pregnant women attending the antenatal clinics in the selected health facilities, using the developed structured interview schedule.

#### *4.3.1.5 Exploratory*

Exploratory studies are not intended for generalization to large populations. They are designed to increase knowledge of the field of study (Burns & Grove 2005:357). The purpose of exploratory research is to investigate a phenomenon as comprehensively as possible, the mode of its existence in the world, and other related factors and characteristics typical of it in order to gain additional information about a particular situation or practice. Exploratory research is used to increase a researcher's knowledge about a field of study, and generates valuable baseline information for further investigation (Polit & Beck 2006:21).

In this study an explorative design was used in order to:

- Satisfy the researcher's curiosity about factors affecting utilisation of PMTCT services.

- Gain a better understanding of HIV-positive pregnant women's knowledge about mother-to-child transmission of HIV and barriers that prevent them from utilising the services.
- Plan and implement the research methodology to achieve the research objectives.
- Monitor and reflect on the implementation of actions.

The researcher also explored literature on relevant research on the topic in order to verify or contradict the findings of this study. The researcher was thus willing to examine new ideas and possibilities.

### **4.3.2 Research method**

The research method includes the population, sample frame, data collection and data analysis.

#### **4.3.2.1 Population**

The population is all the elements (individuals, objects, or substances) that meet certain criteria for inclusion in a given universe (Kerlinger & Lee [2000] in Burns & Grove 2005:40). It is the population from which the study sample is drawn or selected (Babbie 2007:190; Babbie & Mouton 2001:174). Furthermore, Somekh and Lewin (2005:217) refer to a population as a "complete set of units studied when time, costs and accessibility often prohibit the collection of data from every member or about every item". It is also the entire set of individuals having common characteristics (Polit & Beck 2008:761).

To be included in the study, the respondents had to be HIV-positive pregnant women who:

- Attended ANC in Hospital A and Hospital B.
- Had received counselling and testing (VCT) for HIV in the selected hospitals for the purpose of preventing mother-to-child transmission of HIV.
- Were willing to participate in the study and gave informed consent.

#### **4.3.2.2 Sampling frame**

In order for each person in the target or accessible population to have an equal opportunity to be selected for the sample, they have to be identified and listed. This listing of members of the population is referred to as the sampling frame (Burns & Grove 2005:346). The sampling frame is a comprehensive list of the sampling elements in the target population from which the sample is drawn (Brink et al 2006:124). In this study, the sampling frame was derived from the pregnant women attending antenatal clinic in the two selected hospitals. The health services managers at both hospitals provided a register of women attending clinic on the days that the researcher and her assistants were available and introduced the researcher to the women. Those who met the criteria for inclusion were approached and those who gave their consent after explanation of the purpose of the study were interviewed, using the structured interview schedule.

#### **4.3.2.3 Sample and sampling**

A sample is a subset of the population that is selected for a particular study, and the members of the sample are the subjects (Brink et al 2006:214; Burns & Grove 2005:40; Polit & Beck 2008:339; Stommel & Wills 2004:297). The selected elements are then referred to as a sample (Polit & Beck 2004:291). Sample size refers to the number of elements that are included in the sample (Brink et al 2006:135). The sample for this study was drawn from pregnant women attending antenatal clinic who met the criteria at the two selected hospitals.

Sampling refers to the process for selecting a group of people, events, behaviours, or other elements with which to conduct a study in order to obtain information on the phenomenon of interest (Brink et al 2006:124; Burns & Grove 2005:341; Polit & Beck 2008:339). The selected elements are then referred to as a sample (Polit & Beck 2004:291).

Convenience sampling, which is a non-probability method of sample selection, was used to identify 102 HIV-positive pregnant women (51 from each hospital) who participated in this study and agreed to be interviewed, using the structured interview guide by the researcher/assistants. In convenience sampling, respondents (also referred to as subjects) are included in the study because they happen to be in the right

place at the right time (Brink et al 2006:132-133). Available respondents are simply entered into the study until the desired sample size is reached (Burns & Grove 2005:350). In this study, pregnant women attending antenatal clinic who met the selection criteria and were present on the days the researcher was conducting the interviews were included. The use of this method “is justified on the grounds of feasibility” (Babbie & Mouton 2001:166).

In this study, the following procedures were used to select the sample:

- The health service manager in charge of the clinic checked the register in which the patients were entered for the day and introduced all patients who reported for antenatal care to the researcher. This introduction was necessary as the researcher had no prior knowledge of the patients’ HIV status or access to patient records or information. The nurses who work in the antenatal clinical meet with patients on a daily basis and know the patients’ status and relevant therapeutic interventions that have been done with them.
- The researcher and the trained research assistants approached the respondents who met the criteria individually.
- The purpose of the study was explained to each respondent after which they were asked if they were willing to participate in the research.
- If they gave their verbal consent the interview was then conducted.
- The data was collected over a period of two weeks (2 - 14 November 2009 from 08h00 to 16h00 every day).

#### **4.3.2.4 Number of respondents**

Sample size is a major issue in conducting and evaluating quantitative research (Polit & Beck 2006:267). Sample size refers to the number of elements that are included in the sample (Brink et al 2006:135). Complete coverage of the population is seldom possible and even if it were possible, time and cost considerations usually make this a prohibitive undertaking (Saks & Allsop 2007:157). Stommel and Wills (2004:318) state that “there is no simple rule that can be applied across the board”. According to Polit and Beck (2006:135), there are “no hard and fast rules that can be applied to the determination of sample size; however, the researcher must consider both scientific and pragmatic factors influencing the sample size when he/she decides on the number of subjects to

be included in the study. These factors vary with the purpose, design and type of sample used.” The larger the sample size, the smaller the error will be in estimating the characteristics of the whole population, but the more it will cost to administer the survey and analyse the data (Saks & Allsop 2007:158).

The women reported at the antenatal clinic on a fortnightly basis according to the registers. An average of 110 patients for Hospital A and 140 for Hospital B attended. Therefore the researcher regarded a minimum of 50 respondents as representative for the two clinics to be included in the study. A sample of 50 was considered adequate due to time constraints since a larger sample would take a much longer time to complete. This was also discussed with the statistician who agreed to this number of respondents.

### **4.3.3 Data collection**

Data refers to pieces of information that are collected during a study (Burns & Grove 2005:733). Data collection is the precise, systematic gathering of information relevant to the research purpose or specific objectives, questions, or hypotheses of a study. Quantitative research involves the generation of numerical data to address the research purpose or specific objectives and questions (Burns & Grove 2005:42; Stommel & Wills 2004:362).

In this study, the researcher selected and trained three research assistants for the data collection. The research assistants were trained to uphold confidentiality of information, to respect the respondents and their opinions as well as to be patient and maintain a positive attitude during the interviews. The researcher and the research assistants collected data from the respondents in individual face-to-face interviews, using structured interview schedules. All the the respondents were asked the same questions. This allowed the researcher and her assistants to control the interviews within the perspective of the study and collect similar types of data from all the respondents, which facilitated the processes of comparing their responses and data analysis (Burns & Grove 2005:430; Stommel & Wills 2004:362).

#### **4.3.3.1 Characteristics of structured data collection**

A structured data-collection instrument has the following characteristics (Babbie 2007:264-265; Brink et al 2006:151; Polit & Beck 2008:414):

- The wording used is pre-determined and standardised and the same method or instrument is used for all respondents.
- The researcher develops the data-collection instrument beforehand.
- Respondents are asked to answer the same questions in the same order and with the same set of response options.
- The questions are asked orally in a face-to-face interview.
- The interviewer can clarify matters that the respondents do not understand clearly thereby obtaining relevant responses.
- It is most appropriate when straightforward, factual information is desired.
- The interviewer's presence decreases the number of "Don't knows" and "No answers".
- It achieves a higher completion rate.
- The researcher is required to have some knowledge of the expected behaviour.

In this study, the same interview guide was administered with all the respondents. The information addressed the objectives of the study (see section 4.1). The researcher had done a literature review to gain some knowledge of the phenomenon of interest in the research.

#### **4.3.3.2 The research instrument**

A structured interview "is formalised so that all the respondents hear the same questions in the same order and in the same manner" (Brink et al 2006:151). The structured interview schedule helped the researcher to control the interview within the scope of the study and to collect similar types of information from all the respondents. This was in order to minimise the interviewer's role and influence of the interviewer and to enable a more objective comparison of results.

#### **4.3.3.3 Development of the data-collection instrument**

For the purpose of data collection, the researcher developed a measuring instrument to ensure uniformity and consistency. The instrument was divided into different sections to address questions related to study problem, purpose and research objectives. It also contained information obtained during the literature review and in line with the conceptual framework used in the study.

#### **4.3.3.4 Structure of the instrument**

The structured interview schedule consisted of five sections (see Annexure D):

- Section 1 dealt with the respondents' demographic data, including age, marital status, educational level, employment status and number of children.
- Section 2 dealt with the respondents' knowledge of HIV and prevention of mother-to-child transmission of HIV.
- Section 3 dealt with perceived threats to PMTCT utilisation, including the severity and susceptibility of HIV and if the respondents wanted to know their HIV status.
- Section 4 dealt with barriers to the utilisation of PMTCT services.
- Section 5 dealt with cues for action and self-efficacy.

### **4.4 MEASURES TO ENSURE RELIABILITY AND VALIDITY**

The validity of a study depends on the reliability and validity of the research instruments.

#### **4.4.1 Reliability**

Reliability of a measure denotes the consistency of measures obtained in the use of a particular instrument and is an indication of the extent of random error in the measurement method (Burns & Grove 2005:374; Polit & Beck 2008:452). The less variation the instrument produces in repeated measurement of an attribute, the higher the reliability. Reliability of a data-collection instrument refers to the consistency or dependability with which it measures an attribute (Polit & Beck 2008:764; Somekh & Lewin 2005:216). The quality and adequacy of an instrument determines its reliability (Polit & Beck 2004:416).

In this study, the researcher phrased the questions accurately and carefully to avoid ambiguity and asked no leading questions to obtain a desired answer. The respondents were informed of the purpose of the study and asked to be honest in their responses.

The three research assistants were trained in the purpose of the study and the instrument reviewed with them to ensure they understood the items and could interpret them appropriately. This was done in order to enhance the accuracy of their rating and classification.

The instrument was developed and pre-tested before use. The pre-test was conducted by using the developed structured interview schedule to interview ten pregnant women who did not participate in the actual study. The instrument was also reviewed by the study supervisor.

#### **4.4.2 Validity**

The validity of an instrument refers to the extent that it measures what it is intended to measure (Polit & Beck 2008:768). The validity of an instrument is a determination of the extent to which the instrument actually reflects the abstract construct being examined (Burns & Grove 2005:42). In other words, a valid instrument actually measures the concept it is supposed to measure accurately (Brink et al 2006:159; Polit & Beck 2008:457; Stommel & Wills 2004:222). Validity refers to “the extent to which an empirical measure adequately reflects the real meaning of the concept under consideration” (Mouton 2001:122).

In this study, validity was assured by using questions that had been used in similar studies in which the HBM was used (Chivonivoni 2006:24; De Paoli et al 2004:18). In addition, the instrument was submitted for evaluation and approval by the research supervisor before it was administered to the respondents in the study. The instrument was also given to three specialists in the field of community health for scrutiny and comment. Finally, a statistician was consulted on the final instrument and permission obtained to administer the instrument.

Validity entails both internal and external validity. *Internal validity* refers to the ability of the research tool to measure what it is supposed to measure while *external validity*

relates to the generalisability of the findings of a study to the whole population with that problem (Polit & Beck 2008:287).

#### **4.4.2.1 Internal validity**

In this study, the internal validity of the research design was confirmed by pre-testing the research instrument. The results of this study should be a true reflection of the respondents' knowledge and perceptions of PMTCT of HIV and not attributable to extraneous factors such as ambiguous language or lack of confidentiality. In addition, the researcher's supervisors reviewed the schedule to check for logical flow of the questions.

#### **4.4.2.2 External validity**

External validity is concerned with the extent to which study findings can be generalised beyond the sample that is used in a study (Burns & Grove 2005:736). External validity also refers to "the extent to which the findings of a study can be generalised to similar settings" (Brink et al 2006:119). To ensure external validity, the researcher minimised the Hawthorne effect, which is a threat to external validity. The Hawthorne effect occurs when the respondents of a study behave in a certain way because they are aware that they are involved in the study. When respondents are aware that they are involved in a study, they may give responses that they believe are socially acceptable but do not reflect their true experiences (Brink et al 2006:101). To minimise the Hawthorne effect in this study, the researcher explained the nature, purpose and significance of the study and assured the respondents that their identities were protected since their names were not written on the instrument. The respondents were asked to give honest responses and were informed that they would not be penalised because of their responses, which were anonymous and could not be linked to them as individuals.

#### **4.4.2.3 Content validity**

Content validity is an assessment of how well the instrument represents all the components of the variable to be measured (Brink et al 2006:160). The data-collection instrument is supposed to measure what it is expected to measure. The literature review undertaken by the researcher on factors affecting utilisation of PMTCT services also

ensured that necessary variables with regard to the phenomenon were included in the structured interview schedule.

In this study the data-collection instrument was critically reviewed by the research supervisors as well as experts in the field of study in order to ensure that the appropriate content had been included.

#### **4.4.2.4 Construct validity**

Construct validity measures the relationship between the instrument and the related theory (Brink et al 2006:162). Burns and Grove (2005:217) point out that examination of construct validity determines whether the instrument measures the theoretical construct it purports to measure. In this study, the structured interview schedule was based on extensive literature review and on the conceptual framework and its relevance to the variables in the study.

#### **4.4.2.5 Face validity**

Face validity refers to a subjective judgment about whether the research instrument appears to measure what it is supposed to measure or not (Burns & Grove 2005:737). The instrument has to appear to be a relevant measure of the attributes of interest to the study and to the respondents. The literature review also facilitated the interview guide design. In addition, the instrument was pre-tested and the researcher's supervisor provided guidance to ensure face validity.

#### **4.4.3 Pre-test**

A pre-test of the instrument refers to conducting a trial administration of the data-collection instrument to identify flaws or assess time requirement (Polit & Beck 2008:762). The exercise assists in the determination of whether there is a need to revise the format or presentation of the instrument with regard to sequence and wording of questions, and the need for additional instruction (Araoye 2003:69-70). Pre-testing the instrument also provides information that reveals to the researcher if there are any offensive, ambiguous or inadequately worded questions so that adjustments can be made where necessary (Polit & Beck 2004:328).

In this study, the instrument was developed and pre-tested before use. This was done by interviewing ten pregnant women who did not participate in the actual study. Minimal changes were made to ensure proper flow and to avoid repetition of questions. Special attention had also been given to the language, order of questions, and cultural sensitivities in the development of the instrument. Finally, the study supervisors also reviewed instrument to ensure reliability and validity.

## **4.5 ETHICAL CONSIDERATIONS**

All researchers need to adhere to a variety of ethical standards and measures to ensure that their research conforms to the highest required ethical standards. Ethics is a system of moral values that is concerned with the degree to which research procedures adhere to professional, legal and social obligations to the study respondents (Polit & Beck 2008:753).

According to Mouton (2001:238), the ethics of science concerns what is wrong and what is right in the conduct of research. Ethical considerations include the right to privacy including refusal to participate in the research, the right to anonymity and confidentiality, the right to full disclosure about the research and the right not to be harmed in any manner (Mouton 2001:243).

### **4.5.1 Permission to conduct the study**

Polit and Beck (2008:189) point out that because researchers may not always be totally objective in the procedures that they develop to protect the rights of the respondents, it is also necessary to subject the research methodology and the ethical measures to external review. The researcher submitted her research proposal and instrument to the Research Ethics Committee of the Department of Health Studies at the University of South Africa, the Anambra State government for approval and permission to undertake the study at Hospital A and the management of Hospital B.

#### **4.5.2 Protection of human rights**

*Human rights* are certain inalienable claims and demands that must be offered to individuals or groups if they are to maintain their freedom, dignity, integrity and self-respect. The human rights and principles that need to be respected in the conduct of research are *beneficence*, *respect* and *justice* (Burns & Grove 2005:196).

#### **4.5.3 Beneficence**

The principle of *beneficence* (i.e. the principle of doing good and refraining from doing harm) ensures that research respondents will not be exposed to any kind of undue harm or exploitation during the research process (Burns & Grove 2005:728). The researcher ensured that the respondents were not exposed to any harm as she sought permission from the relevant authorities and the respondents prior to commencement of the study and interview. The researcher explained the nature of the study, its purpose and potential benefits to the respondents and also assured them of confidentiality of the information they would provide. The respondents were informed that they were free to discontinue the interview at any time should they wish to do so (Polit & Beck 2006:88). The researcher constructed the interview schedule in such a way as to avoid any kind of undue intrusion into the respondents' privacy and ensured the interview was not unnecessarily prolonged to interfere with the respondents' other antenatal activities.

#### **4.5.4 Respect**

The right to self-determination is based on the principle of respect for individuals and their ability to control their own destiny. Respondents have a right to determine whether or not they will participate in a study without in any way being deceived or coerced. The respondents also have a right to full disclosure of all relevant information (Polit & Beck 2006:89). In this study, the researcher treated the respondents with proper respect and dignity. The respondents were told that they had the right to terminate the session or request clarification of any aspect that they did not understand.

#### **4.5.5 Privacy and confidentiality**

Privacy and confidentiality are based on the principle of respect. Privacy is the respect of an individual to determine the circumstances, time, and extent, and type of information that he or she will share or withhold from others (Polit & Beck 2006:91). In this study, the respondents' names were not written on the interview schedule to ensure anonymity and confidentiality. Mouton (2001:243), The researcher informed the respondents that participation was not compulsory and they had the option of opting out of the study without being penalised.

#### **4.5.6 The right to fair treatment**

The right to fair treatment is based on the principle of justice that states that people should be treated fairly and should receive what they deserve (Polit & Beck 2006:90). The researcher maintained this principle by selecting only those respondents who were available, met the selection criteria, and were willing and gave consent to participate. All the respondents were treated with due respect and the researcher ensured that their routine proceedings during antenatal visit were not affected.

#### **4.5.7 Right to informed consent**

In any research involving human beings, the respondents need to be fully informed about the nature and purpose of the study and be free to choose whether they wish to participate without any kind of coercion or deception on the part of the researcher (Burns & Grove 2005:193). This means that the respondents have adequate information regarding the research, are capable of comprehending the information and have the power of free choice enabling them to consent or decline to participate voluntarily (Polit & Beck 2008:176).

The researcher and her team were introduced to the pregnant women attending antenatal clinic by the health services manager in charge of the clinic. They were then asked to participate in the research after the purpose had been explained to them. The researcher explained that the findings would be of benefit to the health workers and other pregnant women and contribute to efforts to prevent mother-to-child transmission of HIV. They were allowed to give their verbal consent after the explanation and the

consent form was read to them before commencement of the interview since they were reluctant to sign any document.

The above ethical issues were taken into consideration to protect the respondents. In addition, the researcher presented the letters of authorisation to conduct the study to the managers of the antenatal clinics at the two selected health facilities to assure them that the study would not interfere with their daily routine in the clinic.

#### **4.6 DATA ANALYSIS**

Data analysis is conducted to reduce, organise and give meaning to data (Burns & Grove 2005:733).

The data from this study was analysed by a statistician using the Statistical Package for Social Sciences (SPSS) version 15 computer program to generate required tables, frequencies, cross-tabulations, establish the presence or absence of relationships and determine statistical differences in line with the objectives of the study. This helped to describe the population under study in terms of their characteristics, knowledge and perceptions of the severity of HIV/AIDS and its implications for transmission to their baby, and potential barriers to their utilisation of the PMTCT services.

#### **4.7 LIMITATIONS OF THE STUDY**

Limitations are restrictions or problems in a study that may decrease the generalisability of the findings and may be theoretical and methodological (Burns & Grove 2005:39).

The study was restricted to two hospitals only (one government administered hospital and one mission hospital) in Onitsha, Anambra State, Nigeria. Accordingly, the research findings may not be generalisable to HIV-positive pregnant women's utilisation of PMTCT services in other parts of Nigeria, or at other hospitals. In addition, the researcher identified the following limitations:

- The study was limited to a small sample. According to Polit and Beck (2004:291), smaller samples tend to produce less accurate estimates than larger ones. The

larger the sample, the smaller the sampling error. A large sample is therefore more representative of the population.

- The researcher used a convenience sample for the study. Convenience sampling is always accompanied by some potential for bias. Polit and Beck (2004:292) describe convenience sampling as “the weakest form of sampling” because it is the least likely to produce accurate and representative samples.
- The study was cross-sectional in nature, which meant that it took place at one point in time.

#### **4.8 CONCLUSION**

This chapter covered the research design and methodology, including the purpose and objectives of the study, population and sample, data collection and analysis, validity and reliability, and ethical considerations.

Chapter 5 discusses the data analysis and interpretation.

## CHAPTER 5

### Data analysis and interpretation

#### 5.1 INTRODUCTION

Chapter 4 discussed the research methodology. This chapter discusses the data analysis and interpretation and findings. The data was analysed and interpreted using tables, percentages and graphs. The findings are discussed with reference to the literature review.

The purpose of the study was to investigate and identify the factors that affect the utilisation of PMTCT of HIV services as well as propose measures to promote the utilisation of PMTCT services by HIV-positive pregnant women in Onitsha, Anambra State, Nigeria.

The objectives of the study were to:

- Investigate the perceptions of HIV-positive pregnant women regarding the utilisation of PMTCT services in Onitsha in the Anambra state, South East Nigeria.
- Identify factors that prevent HIV-positive pregnant women from returning to the health facility for follow-up and delivery in Onitsha in the Anambra state, South East Nigeria.
- Explore measures that would promote the utilisation of PMTCT services by HIV-positive pregnant women.

The researcher used a non-experimental, quantitative, explorative and descriptive research design to systematically gather information from antenatal attendees in the two selected health facilities in order to identify factors that prevent HIV-positive mothers from utilising the PMTCT services. The study was based on the HBM, which also guided the construction of a structured interview schedule.

Data was collected from pregnant women using a structured interview guide. The sample consisted of 102 pregnant women (51 from each facility). Data was gathered over two weeks on the antenatal days for registered women who met the key inclusion criterion (having been tested for HIV) held once a week in Hospital B and twice a week in Hospital A. A statistician analysed the data using the SPSS version 15.0 computer program and presented the results in frequencies and percentages.

## 5.2 DATA COLLECTION

The data was collected using a structured interview schedule that consisted of five sections:

- Section 1: Demographic profile
- Section 2: Knowledge of HIV and PMTCT of HIV
- Section 3: Perceived threat including the severity and susceptibility of HIV and desire to know their HIV status
- Section 4: Perceived barriers to the utilisation of PMTCT services
- Section 5: Cues for action and self-efficacy

The respondents were drawn from pregnant women attending antenatal clinics at the two selected health facilities where the study was conducted. A sample of 102 respondents that met the selection criteria was interviewed (see table 5.1).

**Table 5.1 Number of respondents from Hospital A and B**

	Site	Number	Percentage	Cumulative percentage
	A	51	50.0	50.0
	B	51	50.0	100.0
	<b>Total</b>	102	100.0	

The data was kept safely by the researcher and forwarded to the statistician for data cleaning, entry and analysis.

### 5.3 DATA ANALYSIS AND INTERPRETATION

The statistician analysed the data using the SPSS version 15 program to generate the required tables, frequencies and cross-tabulations, establish the presence or absence of relationships, and determine statistical differences in line with the objectives of the study. The data was analysed according to the sections and items of the structured interview schedule (see annexure D).

#### 5.3.1 Section 1: Demographic data

The demographic data covered the respondents' age, marital status, educational level, employment status and number of children.

##### 5.3.1.1 Item 1.1: Respondents' age

All the respondents (100%; N=102) answered this item. Of the respondents, 20.6% (n=21) were 20-24 years old; 36.3% (n=37) were 25-29 years old; 32.4% (n=33) were 30-34 years old, while 10.8% (n=11) were aged 35 years and above (see figure 5.1).

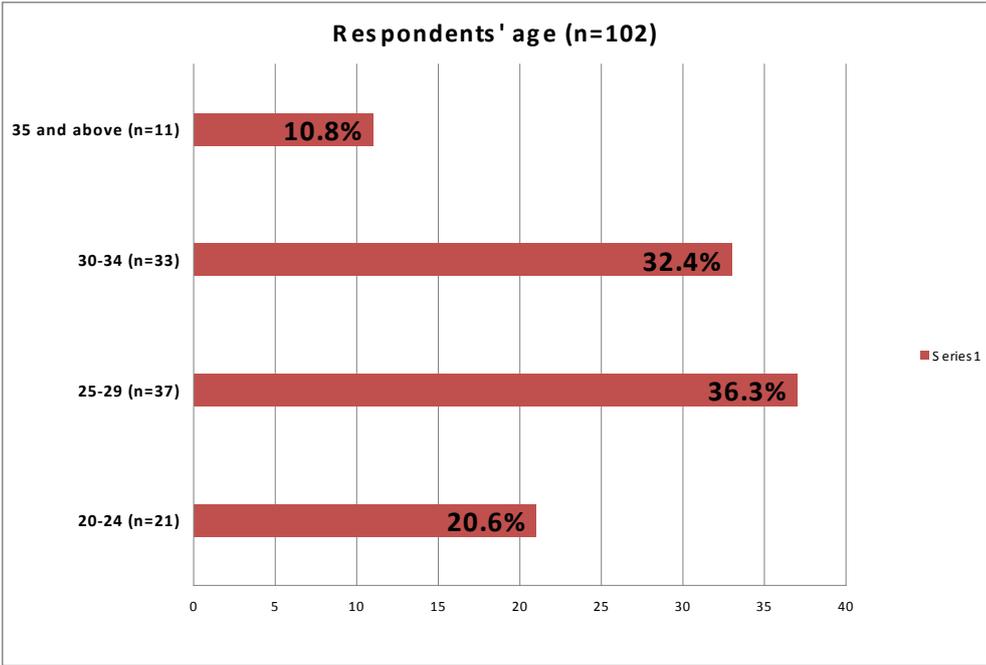


Figure 5.1 Respondents' age (N=102)

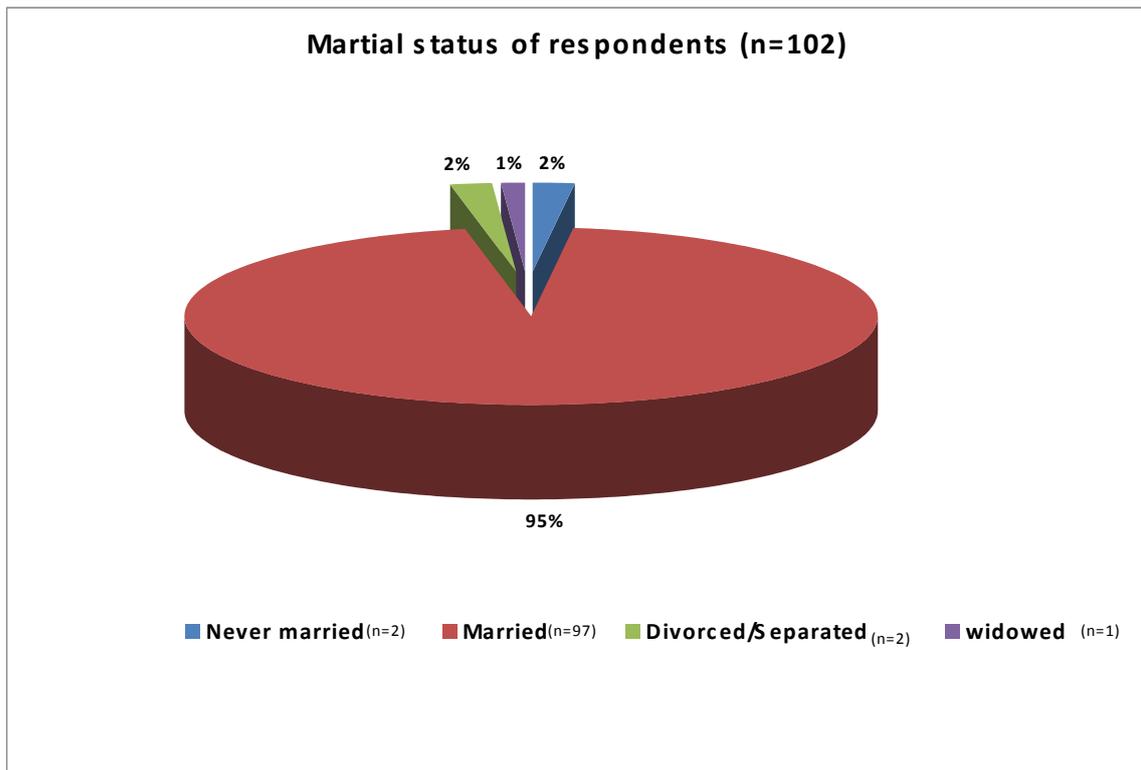
The findings indicated that the majority of the respondents (89.3%; n=91) were under 35 years old. Women aged between 20 and 49 years old are in the childbearing age and all the respondents were between these age ranges.

According to Eyakuze, Jones, Starrs and Sorkin (2008:33), an estimated 15.4 million out of 33.2 million women worldwide are living with HIV. The 2005 national sentinel survey in Nigeria (FMOH 2006a:24) revealed a national prevalence of 4.4%, with infection prevalence highest among women aged 25-29 (4.9%), followed by those aged 20-24 (4.7%), those aged 30-34 (4.2%), those aged 35-39 (3.4%) and those aged 40-49 years (3.9%). These statistics reflecting the high prevalence of HIV among pregnant women emphasise the necessity of equipping them with information regarding HIV/AIDS to enable them make informed decisions that will help in the PMTCT.

According to Karim-Sesay and Kimani (2006:146), HIV/AIDS has affected women from sub-Saharan Africa in disproportionate numbers more than anywhere else in the world. Women are vulnerable to HIV/AIDS infection as a result of powerful patriarchal influences that permeate women's lives leading to marginalization and disempowerment in social, cultural, and economic avenues.

#### **5.3.1.2 Item 1.2: Respondents' marital status**

The respondents were asked to indicate their marital status. Of the respondents, 2% (n=2) were never married, 95% (n=97) were married, 2% (n=2) were either divorced or separated, while 1% (n=1) was widowed (see figure 5.2).

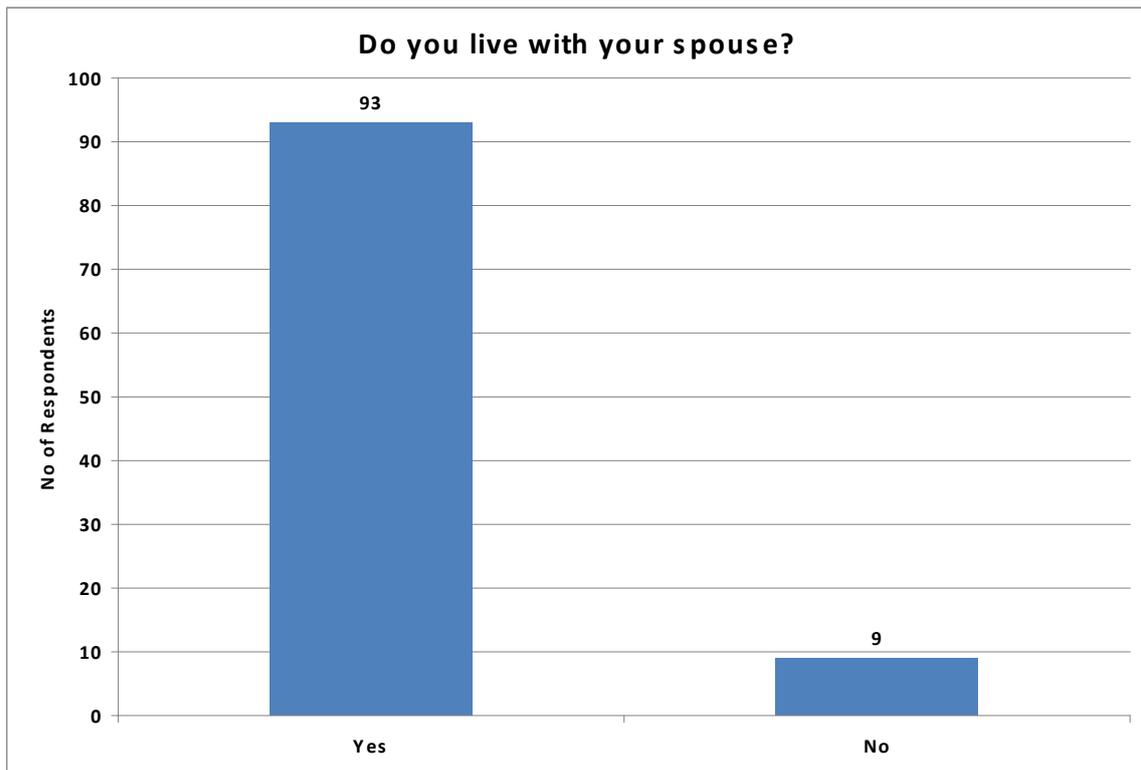


**Figure 5.2 Respondents' marital status (N=102)**

The findings indicated that the majority of the respondents were married and thus exposed to the risk of HIV infection if their partners/spouses were infected and they were having unprotected sex or if the partners/spouses had not disclosed their HIV status. For women in Nigeria, as in many settings, simply being married can contribute to the risk of contracting HIV (Smith 2007:997). HIV infection has been found to be transmissible within marriage thus putting the women in danger of acquiring infection. Wives are not allowed to refuse sex from their husband, or to use a condom, even if their husband is infected with HIV-1 (Buve et al 2002:2014). In addition, Olanrewaju et al (2007:[6] found marital status significantly associated with HIV status. Van Rensburg et al (2002:29) emphasise that “even when a woman wants to protect herself, she is confronted by an entrenched culture of male dominance that renders her powerless”. Women are not recognised and treated as men’s equals; they cannot make decisions even concerning their health (Jackson 2002:93).

**5.3.1.3 Item 1.3: Living with spouse/partner**

Of the respondents, 91.2% (n=93) were living with their spouses/partners while 8.8% (n=9) were not (see figure 5.3).



**Figure 5.3 Respondents living with their spouse/partner**

Since the majority of the respondents were married and lived with their spouses/partners, they could be positively or negatively influenced by them in decisions regarding PMTCT of HIV. They could also acquire infection during pregnancy since some men engage in extramarital relationships during the period that their wives/partners are pregnant (Onah, Ilobachie, Obi, Ezugwu & Eze 2002:21).

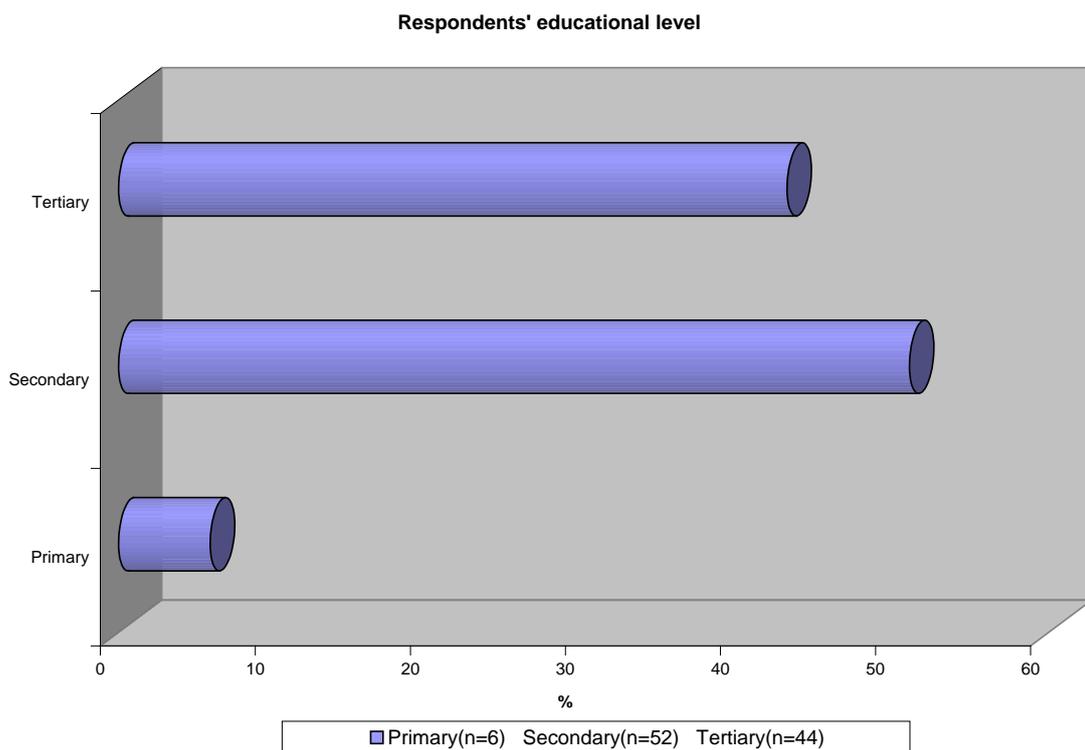
#### **5.3.1.4 Item 1.4: Reason for not living with spouse/partner**

The respondents (8.8%; n=9) who were not living with their spouses/partners gave the following reasons for this:

- Not married (2%; n=2)
- Divorced or separated (2%; n=2)
- Widowed (1%; n=1),
- Nature of their husband's occupation – a policeman on transfer in another city (2%; n=2)
- Inter-tribal crisis with husbands'/partners' village (2%; n=2).

### 5.3.1.5 Item 1.5: Respondents' educational level

The respondents were asked to indicate their educational level and all (100%; N=102) answered the question. Of the respondents, 5.9% (n=6) had attained primary education; 51% (n=52) had attained secondary education, while 43.1% (n=44) had obtained tertiary education (see figure 5.4). The majority of the respondents (94%; n=96) had obtained secondary and tertiary education. No respondents had no education.



**Figure 5.4 Respondents' educational level**

The national HIV/AIDS and reproductive health survey (FMOH 2006b:16) revealed that 54.9% of the respondents in south-east Nigeria in which the study site is also located, had attained secondary education (see chapter 1, figure 1.1). According Okonkwo et al (2007:255), most of the women (70.4%) in their study had attained secondary school education.

Education can empower pregnant women to understand issues related to HIV/AIDS and enable them to make informed decisions regarding knowing their HIV status as well as utilising services that will help to prevent mother-to-child transmission of HIV. Karim-Sesay and Kimani (2006:146) found that women in Kenya were more vulnerable to

HIV/AIDS when they were younger, had a low level of education, were from different ethnicities and from certain regions, and were unmarried and unemployed.

### 5.3.1.6 Item 1.6: Respondents' employment status

All the respondents (100%; N=102) answered this item. Of the respondents, 25% (n=26) were traders, 23.5% (n=24) were in permanent employment, 31.4% (n=32) were housewives, while 19.6% (n=20) were either students or unemployed (see figure 5.5).

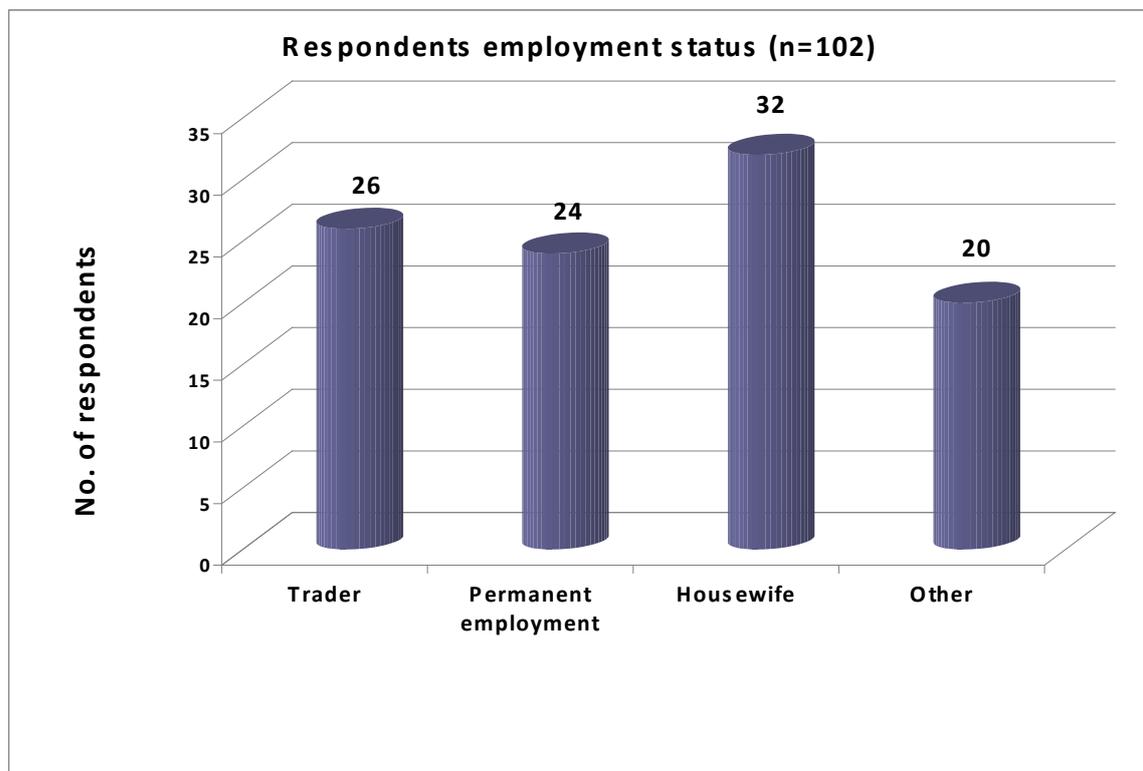


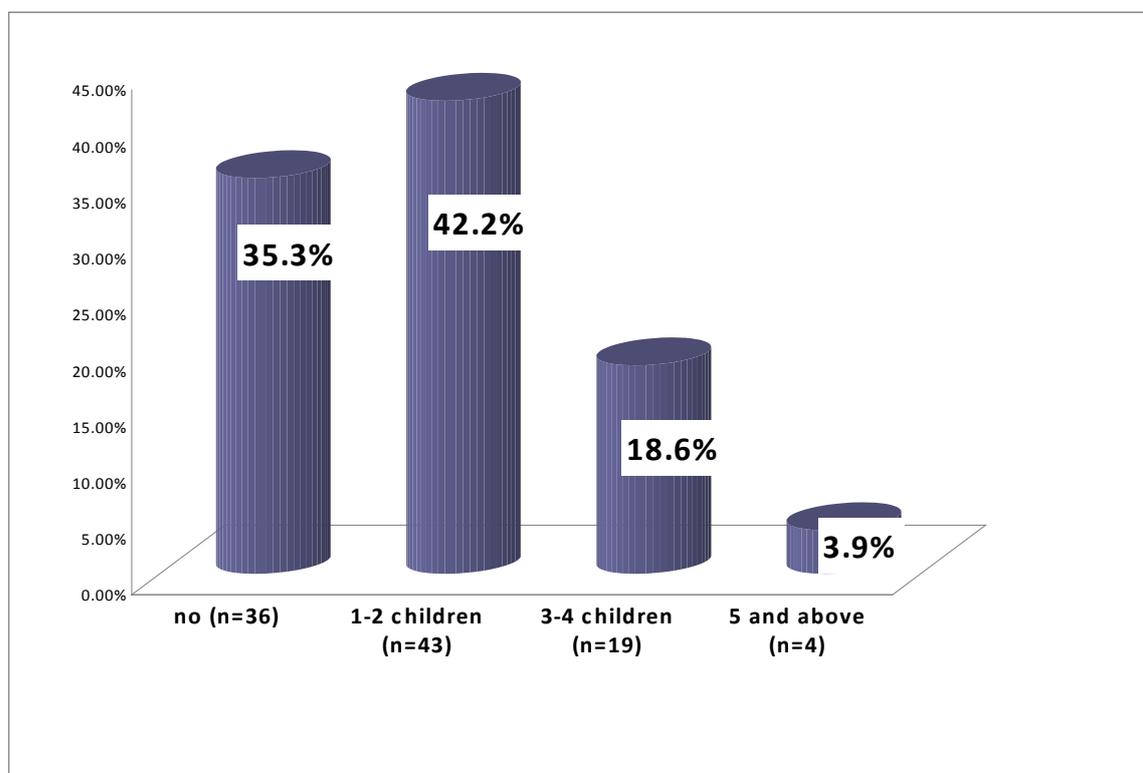
Figure 5.5 Respondents' employment status

Being employed provides resources which help a woman to be financially independent and thus able to meet some of her obligations in terms of transportation to attend antenatal clinic. In South Africa, however, Peltzer et al (2006:56) found a high level of unemployment (84.5%). Only 14% of the South African population were full-time, part-time or self-employed while 1.5% were students. Chivonivoni (2006:79) also found a high unemployment level (70%) among respondents in Zimbabwe. Cichock (2007:1), cite that women are economically dependent on men. Because men are their only source of income, women feel they must obey their husband's wishes in order to

maintain the relationship and for those who have no source of income at all, prostitution is their means of making a living.

### 5.3.1.7 Item 1.7: Respondents' number of living children

All the respondents (100%; N=102) answered this item. Of the respondents, 35.3% (n=36) had no previous pregnancies and were pregnant for the first time; 42.2% (n=43) had 1-2 children; 18.6% (n=19) had 3-4 children, while 3.9% (n=4) had 5 children or more (see figure 5.6).



**Figure 5.6 Respondents' number of living children**

As the life expectancy for HIV-infected persons improves with the availability of anti-retroviral drugs and positive living, a considerable proportion of HIV-positive women and men desire to have children (Mantell, Smit & Stein 2009:367). Wanting to have children is a legitimate desire of men and women in Africa, irrespective of their religious beliefs, to give meaning to life; it is the social norm and this desire cannot be suppressed by HIV infection (Chama, Morrumpa & Gashau 2007:814). In Nigeria, married couples are expected to bear children as family members usually express concern if babies do not come after a period of time in a marriage. The recent greater availability of PMTCT services in the country has increased the desire of HIV-positive married women to have

babies of their own since they hope the interventions will reduce the possibility of their having an HIV-positive baby.

The PlusNews (2010:2) reports that for many women, pregnancy is a time of anticipation and celebration, but for those living HIV-positively it can be frustrating when their status – and not their pregnancy – takes centre stage. Being pregnant and HIV-positive often comes with its own brand of stigma. Furthermore, PlusNews reports that a study among HIV-positive women in the USA, released at the International AIDS Conference in Mexico in 2008, found that about half the respondents thought HIV-positive women could have children if they received appropriate care. But roughly the same number said they felt society strongly discouraged them from doing so, revealing what researchers said was a dichotomy between the women's views about their bodies and society's perceptions.

The PlusNews (2010:[1]) states that in South Africa, there are almost 300,000 pregnancies per year involved HIV-positive mums-to-be, according to the antenatal survey of 2007. With numbers like these, it might be surprising that many women think that they are the only HIV-positive pregnant women at the clinics. This is because of misconceptions about HIV and pregnancy. Regarding being HIV and pregnant, one respondent stated, "Some people don't have information and they talk out of the blue, just to talk," she said. "Sometimes I feel like I could punch them because they talk and they don't know - they just criticise HIV. Yes, HIV ... has killed people, but it's manageable."

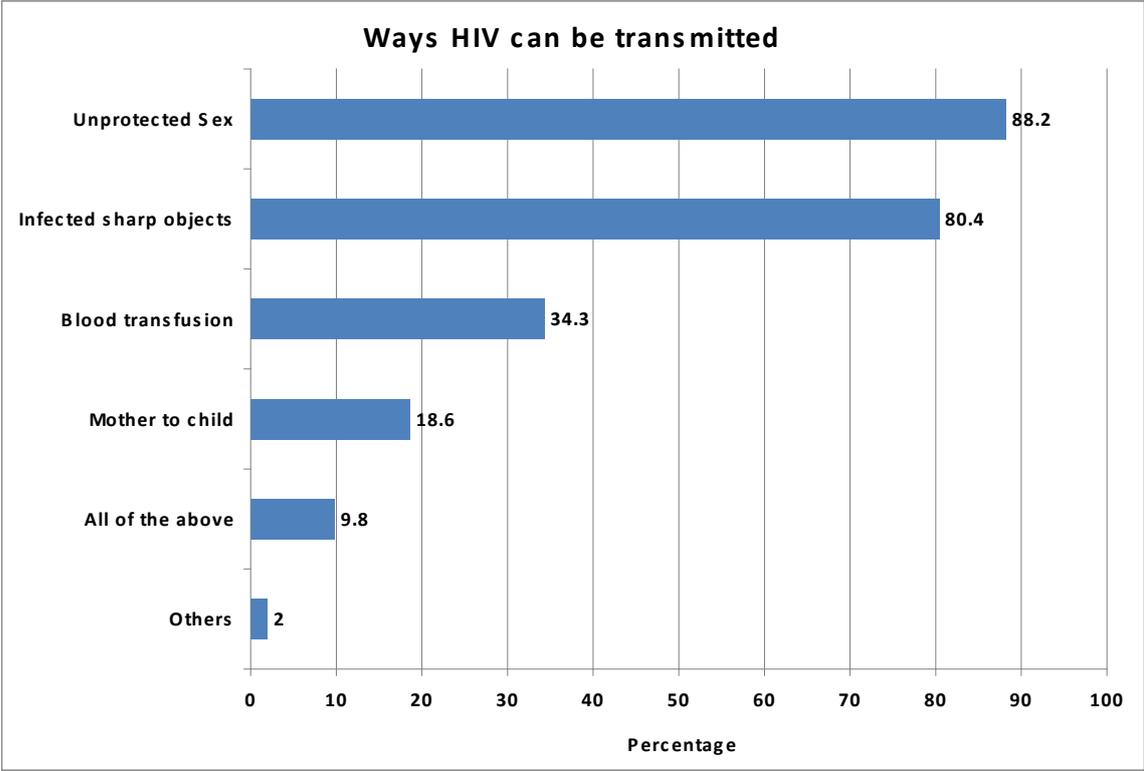
### **5.3.2 Section 2: Knowledge of HIV and PMTCT of HIV**

This section of the structured interview schedule examined the respondents' knowledge of HIV transmission and mother-to-child transmission.

#### **5.3.2.1 Item 2.1: Ways HIV can be transmitted**

The respondents were asked about the different ways that HIV can be transmitted without providing them with the options listed on the structured interview schedule. Of the respondents, 88.2% (n=90) indicated unprotected sexual intercourse with an infected partner; 34.3% (n=35) indicated blood transfusion; 80.4% (n=82) indicated the use of infected sharp skin-piercing instruments (needles), while 18.6% (n=19) indicated

from infected mother to child. Only 9.8% (10) of the respondents could list all the ways that HIV can be transmitted (see figure 5.7).



**Figure 5.7 Ways HIV can be transmitted**

\*This was a multiple-choice response; hence percentages do not add up to 100%.

The findings reveal a knowledge gap among the respondents in terms of awareness of all the modes of transmission of HIV. The FMOH (2006b:45) found that 91.2% mentioned sexual intercourse as a mode of transmission, while 85.1% mentioned infected sharps whereas only 23% knew all the major modes of transmission. The lower level of knowledge of all the modes of transmission in this study compared to that of the national HIV/AIDS and reproductive health survey may be due to the fact that all the options were not read out to the respondents.

Bauni, Garimoi, Maharaj, Mushingeh, Neema, Ngirwamungu and Riwa (2010:[2]) point out that many myths and false beliefs regarding the transmission and treatment of AIDS remain. For example, that AIDS can be cured by sleeping with a child under 10 years. Moreover, rural men believed that traditional healers could cure the disease.

Bauni et al (2010: [2]) found that the participants were generally well informed about the causes and prevention of HIV, although some sexually active men suggested that HIV could be caused by medication. For the treatment of HIV, unlike women, men said that they would feel more comfortable visiting traditional healers than hospitals or clinics, and complained about the negative attitude of service providers in clinics. In addition, while most people knew that HIV and other STDs could be prevented by the use of condoms, the participants said that many people did not use them. Some men even blamed traditional healers for the spread of HIV through the use of unsterilized instruments and through sex with female clients. Male circumcision was mentioned as a method of avoiding HIV.

### **5.3.2.2 Item 2.2: Heard about mother-to-child transmission of HIV**

The respondents were asked specifically if they had heard about mother-to-child transmission. Of the respondents, 92.2% (n=94) said they had heard about it before even though only 18.6% (n=19) mentioned this when they were asked about ways that HIV can be transmitted (see section 5.2.2.1 item 2.1).

This could indicate that more emphasis is laid on sexual intercourse as a mode of transmission compared to this particular mode of transmission which has serious implications for mother-to-child transmission of HIV among pregnant women. Ekanem and Gbadegesin (2004:91) found that although the majority of women (89.9%) had good knowledge of the modes of transmission, knowledge of specific aspects of prevention of mother-to-child transmission was nevertheless poor.

Adeneye, Mafe, Adeneye, Salami, Brieger, Titloye, Adewole and Agomo (2006:273) found that mother-to-child transmission of HIV is responsible for more than 90% of the cases of HIV infection in infants and children in sub-Saharan Africa. In addition, there is scant accurate information on the knowledge and perceptions of HIV/AIDS among women attending antenatal clinics in Nigeria. Adeneye et al (2006:274) found that approximately 90% of the women had heard of HIV/AIDS, but only about 27% knew HIV could be transmitted from mother to child. Of those, almost 94% believed in the reality of HIV disease, while the majority (64%) believed they were not at risk of HIV infection, and a slightly greater proportion (70%) did not understand the benefits of voluntary HIV counselling and testing (VCT). Nonetheless, almost 90% of the respondents were willing to know their status following health education about VCT. Those that were older,

attending public hospitals, and with a higher level of education had more knowledge and better perceptions about HIV. The results suggest an urgent need for public health education on HIV/AIDS and the benefits of VCT to control MTCT, particularly targeting young women and those with little or no education (Adeneye et al 2006:279).

### **5.3.2.3 Item 2.3: Where first heard about mother-to-child transmission of HIV**

Of the respondents, 93.1% (n=95) answered this item and 6.9% (n=7) did not. The respondents were asked the source from where they first heard about mother-to-transmission of HIV (see table 5.2). Of the respondents, 64.7% (n=66) indicated from health workers; 7.8% (n=8) said from television; 6.9% (n=7) indicated from other sources not specified, 5.9% (n=6) said from family/friends, 3.9% (n=4) said from the radio; 2% (n=2) said newspapers and magazines, and 2% (n=2) said from religious leaders (see table 5.2).

**Table 5.2 Sources from where respondents first heard about mother-to-child transmission of HIV**

<b>Source of information</b>	<b>Frequency</b>	<b>Percentage</b>
Health workers	66	64.7
Television	8	7.8
Others	7	6.9
Family, friends	6	5.9
Radio	4	3.9
Newspapers and magazines	2	2.0
Religious leaders	2	2.0
Total	95	93.1
No response	7	6.9
Grand total	102	100

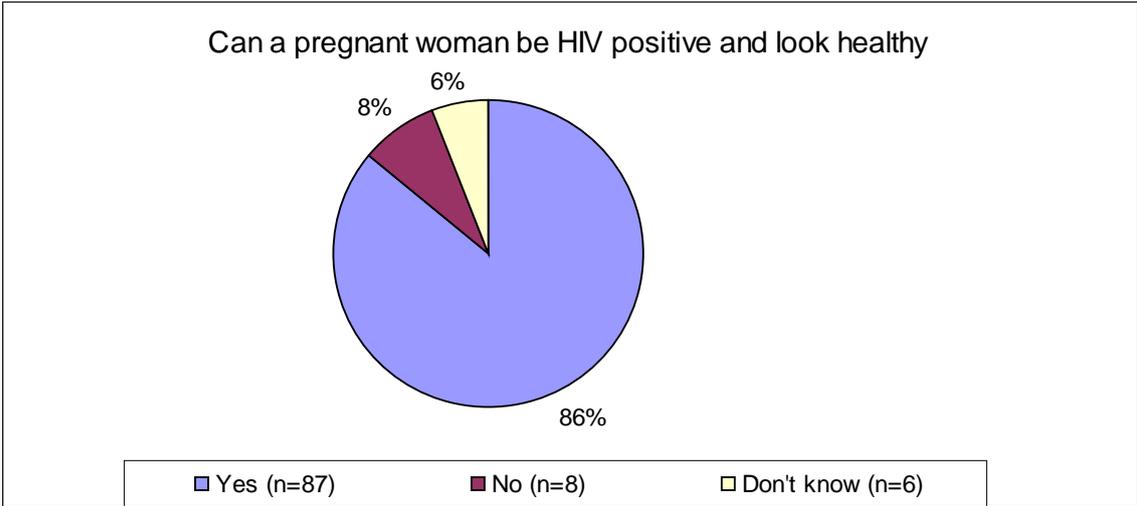
The respondents' most common source of information about MTCT of HIV, then, was from health workers, television, other sources and family/friends. Health workers in the antenatal clinics offering PMTCT services undergo training before the commencement of services in their facilities and as such are a good channel for providing information on HIV/AIDS to pregnant women during antenatal visits.

This concurred with Bastien, Leshabari and Klepp's (2009:213) finding in Tanzania that the majority indicated medical personnel, the radio and parents as sources of information, followed by the mass media. Irrespective of age, the participants ranked friends, parents and medical staff as preferred communicators of sexual and reproductive health information.

In the Nyanza Provincial Hospital, Kenya, Moth et al (2005:244) found that 52.4% of clients received PMTCT information at the health facility without prior knowledge about the intervention. According to Kominami et al (2007:289), 68.4% of their respondents obtained information about MTCT from the antenatal clinic. Similarly, Iliyasu et al (2006:1920) found that 69% of respondents received antenatal care in their last pregnancy thus may have obtained information about HIV/AIDS from antenatal clinics.

**5.3.2.4 Item 2.4: Can a pregnant woman be HIV positive and look healthy?**

The majority of the respondents (99%; n=101) answered this item. Of the respondents, 86% (n=87) indicated that an HIV-positive pregnant woman can look healthy, 8% (n=8) answered “No”, revealing that they were not aware of this fact, and 6% (n=6) did not know (see figure 5.8).

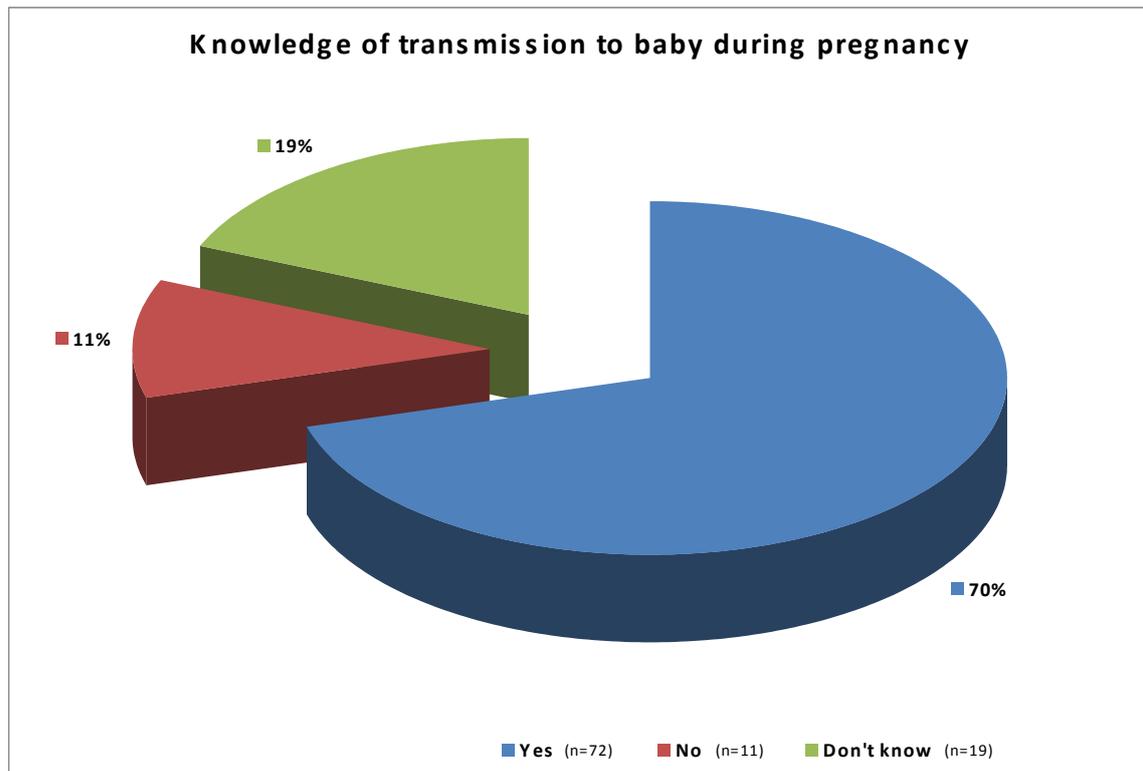


**Figure 5.8 Respondents' perceptions of pregnancy, HIV and health**

Okonkwo et al (2007:252) found that 90.8% of women knew that someone could be HIV positive and look healthy. The FMOH (2006b:52) found that 70% of the respondents stated that a healthy-looking person could be HIV positive. This indicated a knowledge gap that could lead to exposure to HIV infection. Someone can feel and look healthy for many years but still be infected, and can also transmit the virus other people (Centres for Diseases Control 2008:2). This gap informs the need for health workers to educate and emphasise this to pregnant women during antenatal health talks.

### 5.3.2.5 Item 2.5: Transmission of HIV to baby during pregnancy

All the respondents (100%; N=102) answered this item. Of the respondents, 70% (n=72) knew that a pregnant woman can transmit HIV to her baby during pregnancy, 11% (n=11) answered “No”, revealing they did not know, while 19% (n=19) did not know (see figure 5.9).



**Figure 5.9 Respondents' knowledge of transmission to baby during pregnancy**

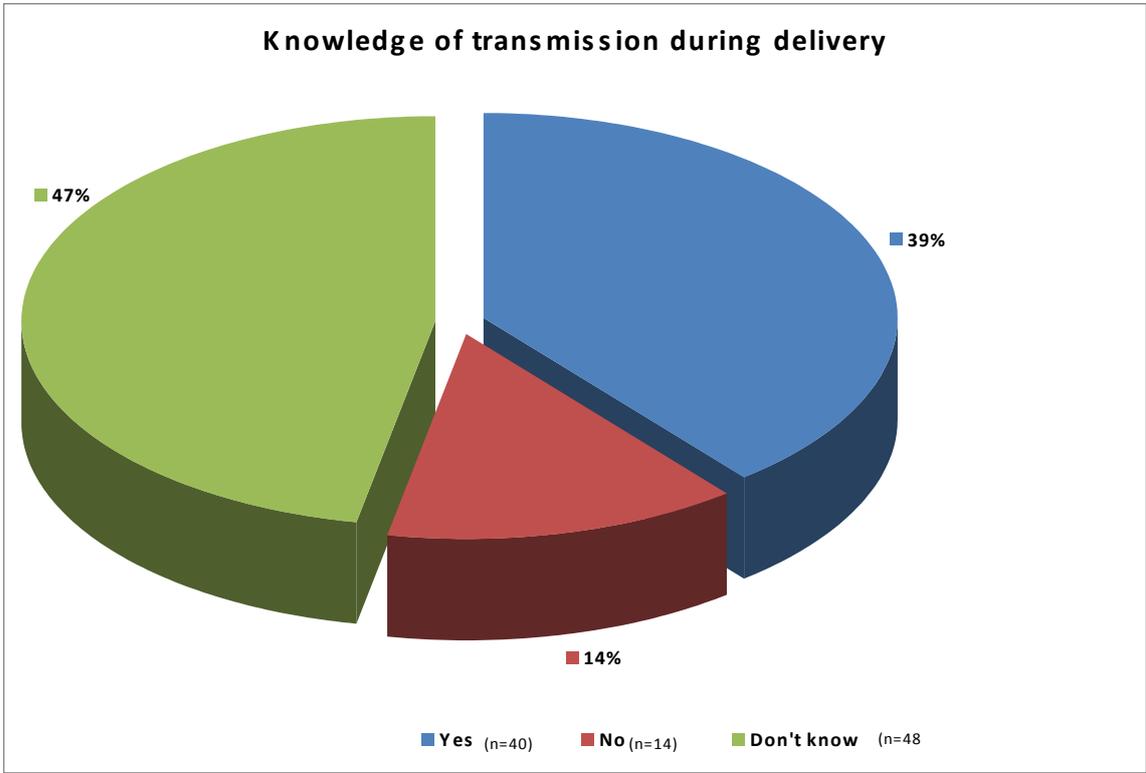
This reveals a knowledge gap among some of the respondents on this mode of MTCT. There is a 5% to 10% possibility of transmission to the baby from an HIV-positive mother during pregnancy (Department of Health Studies 2006:30).

These findings concur with the UNAIDS (2010:1) statement that health systems need to be strengthened so that interventions to prevent MTCT of HIV infection, including the use of antiretroviral drugs, can be safely and effectively implemented. Moreover, HIV testing in pregnancy has benefits in terms of prevention and care for mother and child. Nevertheless, to avoid or minimize negative consequences, testing must be voluntary and confidential and accompanied by quality counselling. Timely administration of antiretroviral drugs to the HIV-diagnosed pregnant woman and her newborn significantly

reduces the risk of mother-to-child HIV transmission. HIV-positive mothers should also be provided with access to ART for the protection of their own health.

**5.3.2.6 Item 2.6: Transmission of HIV to baby during delivery**

All the respondents (100%; N=102) answered this item. Of the respondents, 39% (n=40) indicated that a pregnant woman can transmit HIV to her baby during delivery; 14% (n=14) indicated that she could not, while 47% (n=48) said they did not know (see figure 5.10).

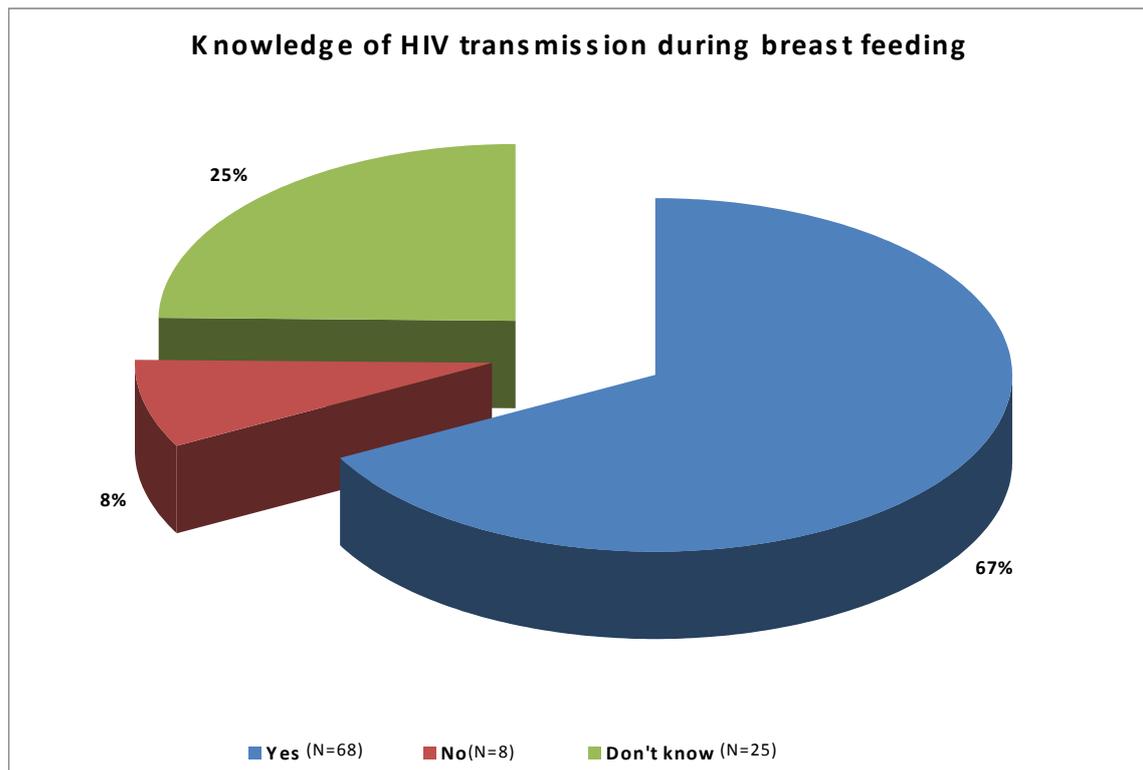


**Figure 5.10 Respondents' knowledge of transmission during delivery**

This reveals a knowledge gap among some of the respondents on this mode of MTCT. Ekanem and Gbadegesin (2004:91) found that the majority of women (89.9%) had a good knowledge of the modes of transmission, but poor knowledge of specific aspects of PMTCT. There is a 10% to 20% possibility of transmission to the baby from an HIV-positive mother during labour and delivery (Department of Health Studies 2006:30). Obstetrical factors that can facilitate transmission during delivery include vaginal delivery, prolonged rupture of the membrane for more than four hours and labour (FMOH 2007:3).

### 5.3.2.7 Item 2.7: Transmission of HIV to baby during breastfeeding

The majority of the respondents (99%; n=101) answered this item. Of the respondents, 67% (n=68) indicated that a pregnant woman can transmit HIV to her baby during breastfeeding, 8% (n=8) indicated that she could not, while 25% (n=25) said that they did not know (see figure 5.11).



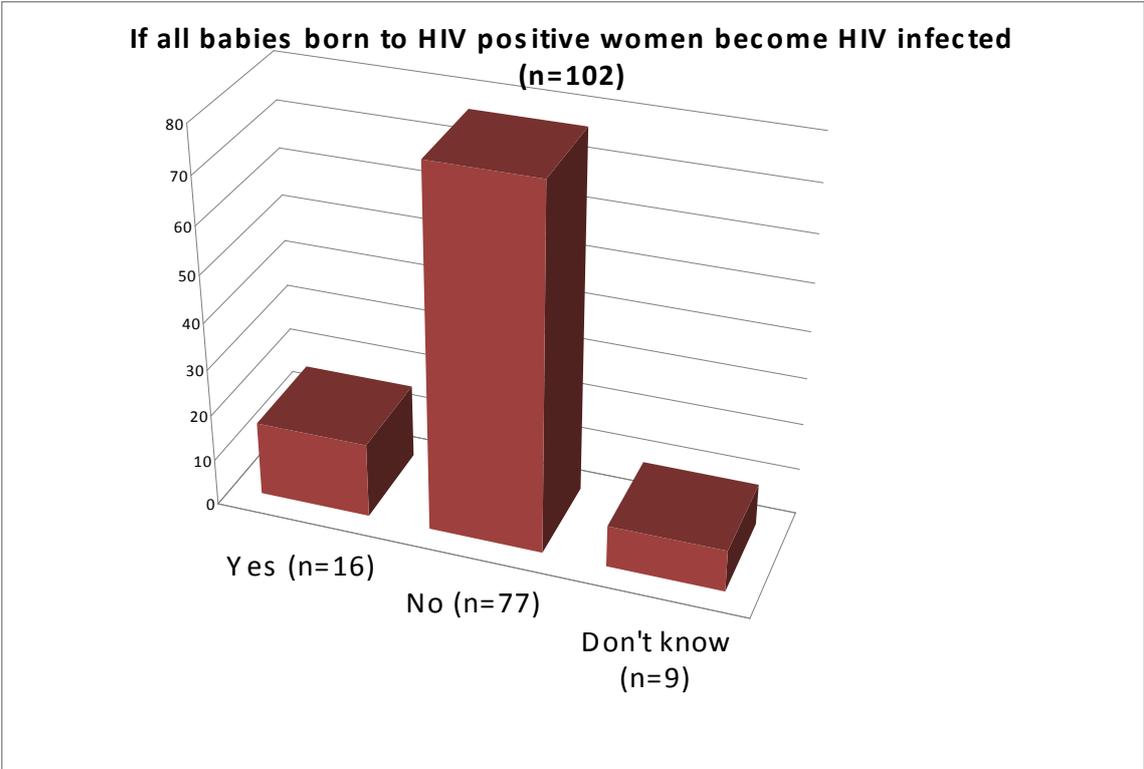
**Figure 5.11 Respondents' knowledge of HIV transmission during breastfeeding**

This study found a higher level of awareness of transmission of HIV to baby during breastfeeding than the FMOH's (2006b:51) survey, which was 64%. Ekanem and Gbadegesin (2004:91) revealed that 41.7% of their respondents were not aware of the association between breast milk and HIV transmission while Okonkwo et al (2007:255) found that 42.1% knew that HIV can be transmitted through breastfeeding. The higher level of awareness in this study could be due to information the women obtained from the antenatal clinics and may also be based on the areas the health workers emphasise during their health talks. The respondents were more aware of breastfeeding (67.3%) and pregnancy (70.6%) compared to labour and delivery (39.2%) as a mode of transmission of HIV from mother to child. There is a 10% to 20% possibility of transmission to the baby from an HIV-positive mother during breastfeeding (Department

of Health Studies 2006:30). Factors that can facilitate transmission through breastfeeding include mixed feeding and breast disease, such as mastitis and cracked nipples (FMOH 2007:3)

**5.3.2.8 Item 2.8: Babies born to HIV-positive women become HIV infected**

All the respondents (100%; 102) answered this item. Of the respondents, 15.7% (n=16) indicated that all babies born to HIV-positive women always become infected with HIV, 75.5% (n=77) said that not all babies born to HIV-positive women will become HIV infected while 8.8% (n=9) did not know (see figure 5.12).



**Figure 5.12 Respondents' views of babies' HIV infection**

Even though 75.5% (n=77) of the respondents knew that not all babies born to HIV-positive women will become infected, the knowledge gap emphasises that health workers should educate antenatal mothers on this. Mother-to-child transmission of HIV accounts for more than 90% of infections in children under the age of 15 years globally (Chama et al 2007:134; FMOH 2007:1; Kominami et al 2007:286). In the absence of specific interventions, the estimated rate of MTCT of HIV ranges from 15% to 25% in developed countries to between 35% and 45% in developing countries with prolonged breastfeeding (FMOH 2007:2; Kasenga et al 2007:646; Newell 2006:1). With

interventions, however, MTCT rates can be reduced to less than 2%, through effective VCT, access to antiretroviral therapy, safe delivery practices and the widespread availability of breast milk substitutes (FMOH 2007:2; Newell 2006:1-5).

Jones (2007:1) points out that many people including healthcare providers are misinformed about the risks of perinatal HIV transmission. Some people mistakenly believe that all babies born to HIV-positive women will be infected, or that HIV-positive women are too sick to have healthy pregnancies and give birth to healthy children. Moreover, many do not know that there are ways to greatly reduce the risk of MTCT. About 25% of children born to HIV-positive women who receive no treatment or interventions against perinatal HIV transmission become infected with HIV. This means that an average of 25 out of 100 babies, or 1 in 4, can pick up HIV from their mothers during pregnancy, birth, or afterward from breastfeeding. But perinatal HIV infection rates can drop to as low as 1% or 2% for babies whose mothers are able to use combination antiretroviral therapy during pregnancy, AZT or Nevirapine prophylaxis during labour and after birth, and choose the birth option that is safest, according to maternal viral load levels, for both mother and baby. Clearly, then, pregnant women need to be made aware of all the different modes of MTCT.

#### **5.3.2.9 Item 2.9: Ways a woman can prevent MTCT of HIV**

This was an open-ended question and the respondents indicated two main ways: taking anti-retroviral drugs and avoiding breastfeeding.

#### **5.3.2.10 Item 2.10: Awareness of interventions that can prevent MTCT of HIV**

The majority of the respondents (99%; n=101) answered this item. Of the respondents, 71.6% (n=73) indicated that there were interventions that can prevent MTCT of HIV, 17.6% (n=18) indicated that there were not, and 9.8% (n=10) did not know.

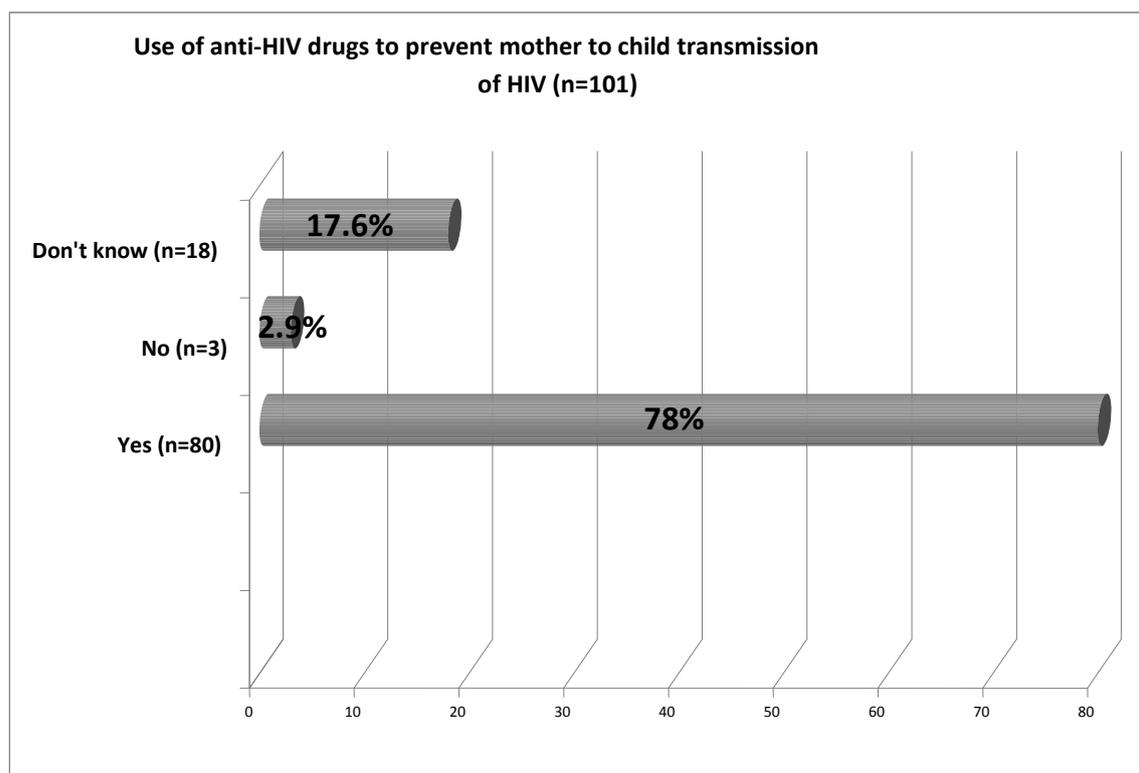
The findings revealed a knowledge gap which could be why some of the respondents were not utilising PMTCT services. Health workers at the antenatal clinics should educate mothers on the services that are offered with regard to PMTCT of HIV and also provide information of the benefits of the services in order to assist pregnant women to make informed decisions. According to Iliyasu et al (2006:1920), the antenatal clinic

provides an appropriate opportunity for educating women about HIV/AIDS and other health-related issues. However, the knowledge of health workers at these clinics will determine the quality of health care education provided to the community.

In Uganda, Harms, Schulze, Moneta, Baryomunsi and Poggensee (2005:258) found that 79% of health workers considered PMTCT possible. However, when asked how to prevent transmission, less than one-third of the interviewees could spontaneously name any measure. Even when given several options, one-third of the health workers were not aware of PMTCT by drugs. Only 38% of traditional birth attendants (TBAs) thought prevention of HIV in general was possible. Only two TBAs spontaneously mentioned drugs, and one mentioned avoidance of breastfeeding as a measure to reduce transmission. When probed, 50% of the TBAs considered avoidance of breastfeeding as a method to prevent transmission from mother to child. The TBAs recommended breastfeeding a child for at least 12 months, introducing solid nutrients at the age of six months and liquid nutrients at the age of three months.

#### ***5.3.2.11 Item 2.11: Use of anti-HIV drugs to prevent MTCT of HIV***

The majority of the respondents (99%; n=101) answered this item. Of the respondents, 78% (n=80) indicated the use of drugs could prevent MTCT of HIV; 2.9% (n=3) answered no drugs could be used to prevent MTCT, and 17.6% (n=18) did not know (see figure 5.13).



**Figure 5.13 Respondents' knowledge of anti-retroviral drugs to PMTCT of HIV**

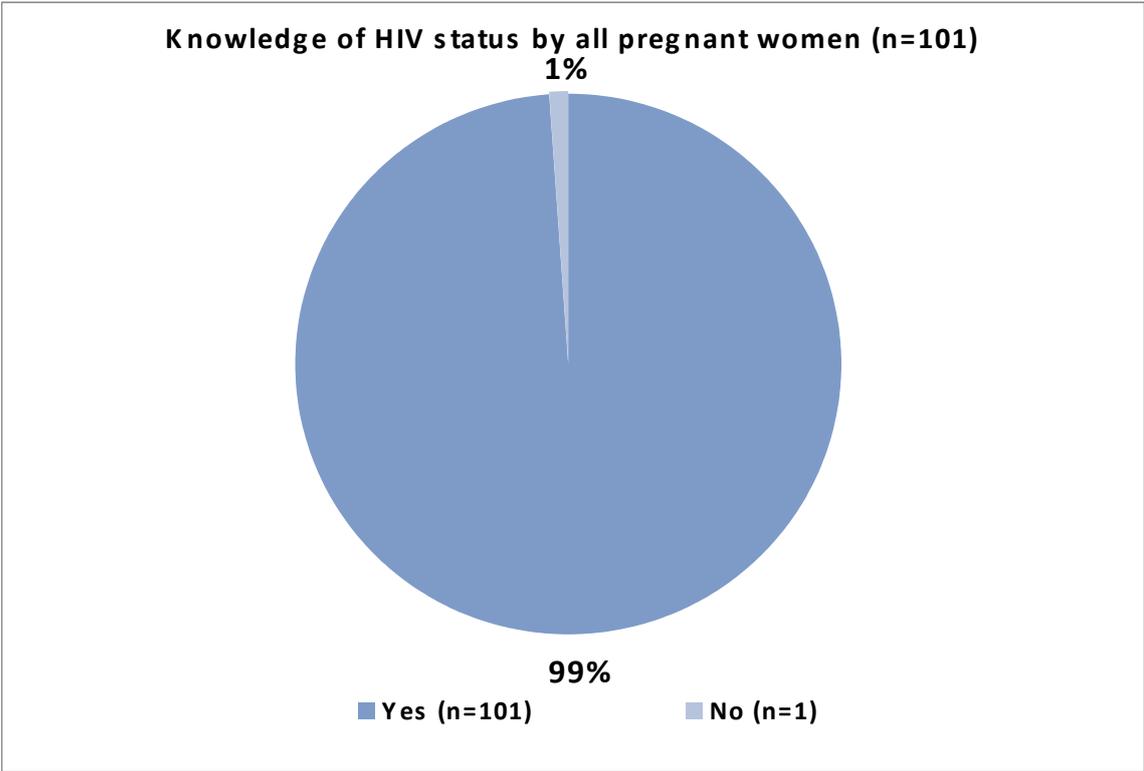
The findings indicate that the respondents had a good knowledge of the use of anti-HIV drugs to PMTCT. Okonkwo et al (2007:255) found that only 37% of the respondents knew that ART could be used. The Nigerian government supports the availability and provision of anti-retroviral drugs to HIV-positive mothers for PMTCT.

In Botswana, Shaffer, McConnell, Bolu, Mbori-Ngacha, Creek, Ntumy and Mazhani (2004:1) found that 37.4% of women attending antenatal clinics were HIV positive. Botswana introduced a national PMTCT programme in 2001 and an expanding ART programme in 2002. Both programmes are free. All women can access VCT, and antiretroviral prophylaxis for women and infants and infant formula are provided. However, although the majority (95%) of pregnant women attend antenatal clinics and deliver in health facilities, there has been a low uptake of PMTCT services. A government survey on factors influencing HIV test acceptance found that higher educational levels, greater knowledge of PMTCT, planned pregnancy, discussing HIV testing with others, and knowing others who had PMTCT or ART would promote utilisation. This highlights the success of and challenges to PMTCT programmes. There is an on-going need to evaluate programmes, operational research and

expanded PMTCT services for the maximum utilisation of the services and prevention of HIV infection.

**5.3.2.12 Item 2:12: Pregnant women’s knowledge of HIV status**

The majority of the respondents (99%; n=101) were of the opinion that all pregnant women should know their HIV status while only 1% (n=1) answered “No” revealing that she did not know the importance and benefits of pregnant knowing their HIV status (see figure 5.14).



**Figure 5.14 Respondents’ view on knowledge of HIV status by all pregnant women**

This result concurs with Ekanem and Gbadegesin’s (2004:91) findings in Lagos, Nigeria that 96.1% of the women were willing to undergo HIV testing in pregnancy, particularly if it would assist the preventing transmission of HIV to their babies. In Malawi, Manzi et al (2005:1242) found a 95% uptake of counselling and testing. Similarly, De Paoli et al (2004:420) found that almost all women in the focus groups stated that they would be willing to accept voluntary counselling and testing, which they considered a good initiative, and their acceptance was strongly motivated by the perception that it would reduce the risk of infecting their unborn child. Knowledge of one’s HIV status is the entry

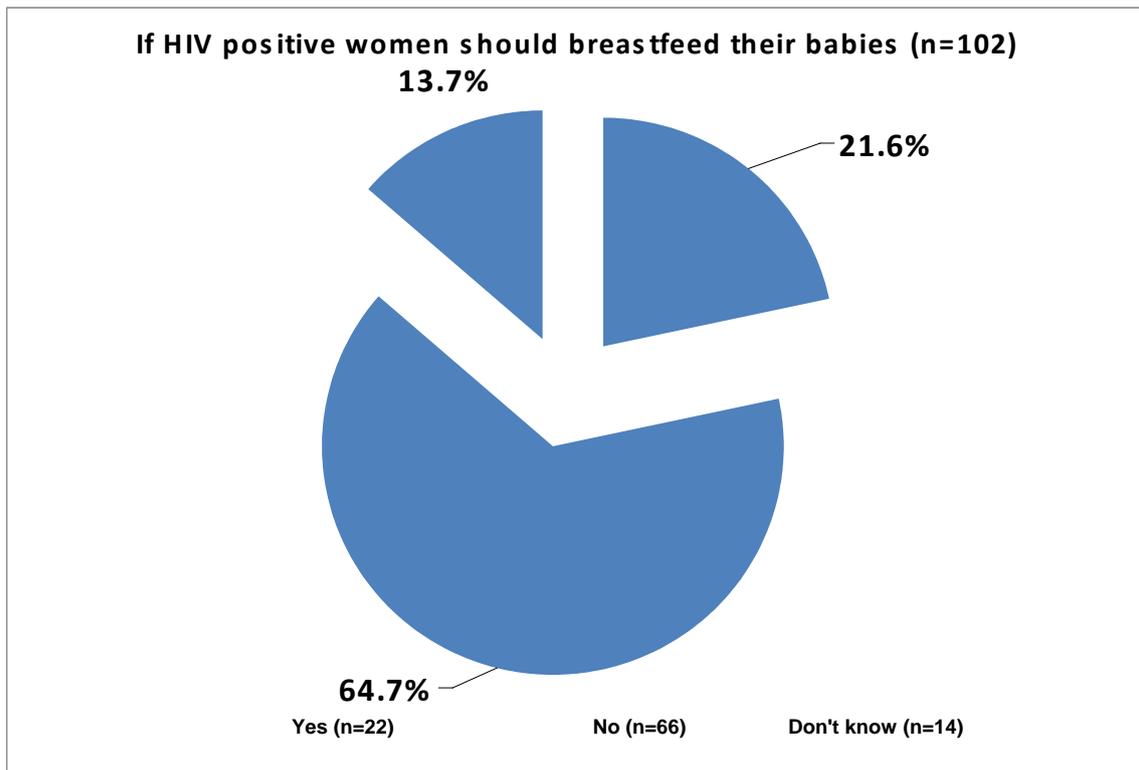
point for access to prevention, treatment, care and support services. For pregnant women to benefit from interventions aimed at PMTCT of HIV, they have to know their HIV status. This will enable those who test positive to access those services.

#### **5.3.2.13 Item 2.13: Reasons for wanting to know HIV status**

This was an open-ended question. The majority of the respondents (99%; n=101) said they wanted to know their HIV status in order to protect their baby from being infected. Children are cherished and every pregnant woman wants to have a healthy baby at term and will do whatever is necessary and available to ensure a live and healthy baby. Having a baby helps also to fulfil societal expectations (Ekanem & Gbadegesin 2004:91; Manzi et al 2005:1242; De Paoli et al 2004:420).

#### **5.3.2.14 Item 2.14: Breastfeeding by HIV-positive women**

All the respondents (100%; N=102) answered this item. Of the respondents, 64.7% (n=66) said that HIV-positive women should not breastfeed their babies; 21.6% (n=22) said that HIV-positive women should breastfeed their babies, and 13.7% (n=14) did not know (see figure 5.15).



**Figure 5.15 Respondents' perception of breastfeeding by HIV-positive women**

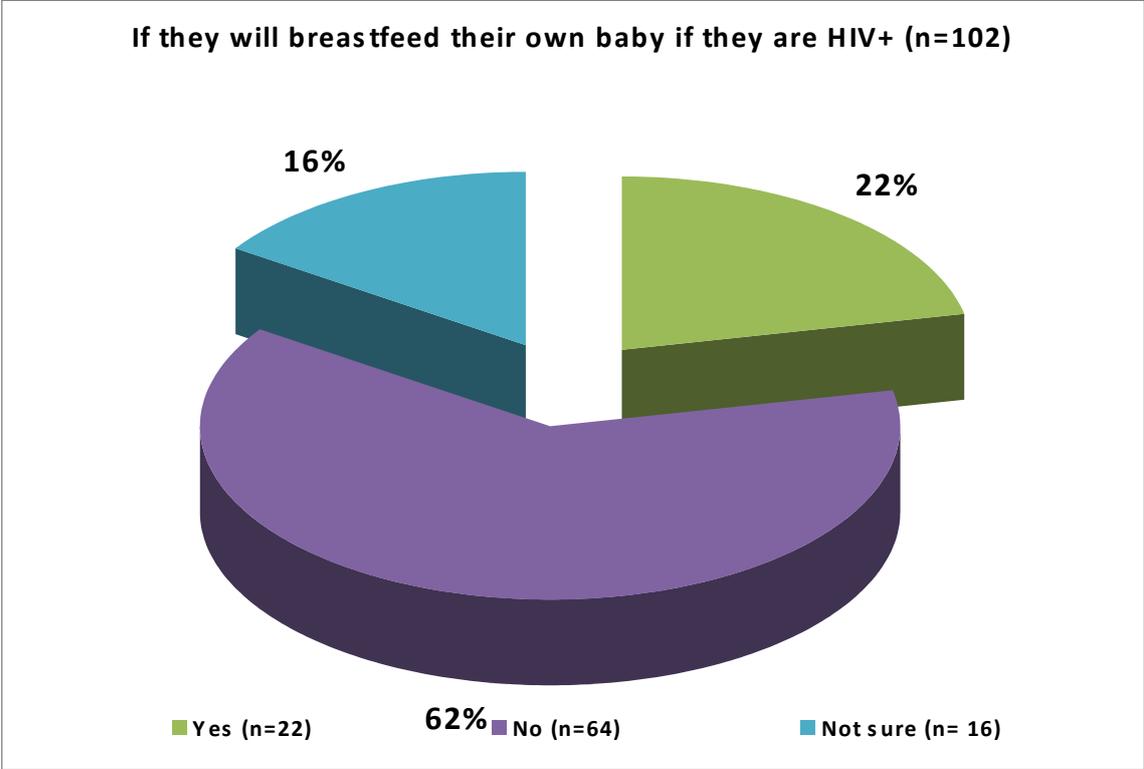
While it was recognised early in the AIDS epidemic that HIV-1 is transmitted via breast milk, the majority of women in areas with high HIV-1 prevalence elect to breastfeed their infants due to the stigma associated with not breastfeeding, the cost of alternative feeding methods and a lack of access to safe water (John-Stewart, Mbori-Ngacha, Ekpini, Janoff, Nkengasong, Read, Van de Perre & Newell 2004:196). The WHO (2004:16) recommends that infants should be exclusively breastfed for the first six months of life to achieve optimal growth, development and health. After six months, they should receive nutritionally adequate and safe complementary foods while breastfeeding continues up to 24 months or beyond. Given the need, however, to reduce the risk of HIV transmission to infants while also minimizing the risk of other causes of morbidity and mortality, HIV-positive mothers are recommended to avoid all breastfeeding and use replacement feeding when it is acceptable, feasible, affordable, sustainable and safe to do so (WHO 2004:16).

HIV-positive women living in places where clean water and consistent supplies of safe formulas are not available need to weigh the risks and benefits of breastfeeding their babies. If their children are at high risk for starvation, dehydration, and diarrhea

associated with unsafe formula-feeding, breastfeeding may be safer alternative even though it increases the risk of HIV transmission to the baby (Jones 2003:[4]).

**5.3.2.15 Item 2.15: Breastfeed own baby by HIV-positive women**

All the respondents (100%; N=102) answered this item. Of the respondents, 22% (n=22) said that they would breastfeed their babies even though they were HIV positive, 62% (n=64) would not breastfeed their babies, while 16% (n=16) did not know (see figure 5.16).



**Figure 5.16 Respondents’ perception of HIV-positive women breastfeeding**

This result differs from Ekanem and Gbadegesin’s (2004:91) and Okonkwo et al’s (2007:259) finding that the majority of the women would still prefer breastfeeding even if they were found to be HIV positive. Exclusive breastfeeding is promoted in Nigeria in an effort to reduce morbidity due to childhood diseases like diarrhoea. Communities in Nigeria have been designated “baby friendly” by national breastfeeding hospital initiative committees because of the practical support they offer to enable women to practise exclusive breastfeeding (Lehman & Farhquar 2007:194). However, Onah et al

(2008:278) found that the majority of HIV-positive women chose exclusive breast milk substitute for their babies. The women were given free infant feeding formula, which might account for why most of them opted for breast milk substitute (Onah et al 2008:278).

Bentley, Corneli, Piwoz, Moses, Nkhoma, Tohill, Ahmed, Adair, Jamieson and Van der Horst (2005:949) point out that periodic food insecurity and HIV compromise the nutritional status of Malawian mothers and their children. These conditions underscore the importance of providing maternal nutrition support to HIV-positive women during infant feeding, counselling or treatment, particularly in resource-constrained settings. HIV-positive mothers face many dilemmas when making decisions for themselves and their children. Avoidance of all breast-feeding by HIV-positive mothers is recommended when replacement feeding is affordable, feasible, acceptable, sustainable, and safe, but Bentley et al (2005:949) found these conditions lacking in Malawi.

#### **5.3.2.16 Item 2.16: Reason for wanting to breastfeed**

The 21.6% of the respondents who said they would breastfeed their baby even though they were positive gave the following reasons:

- Breastfeeding is good and will prevent the baby catching different diseases.
- Because they were receiving medication and that would help to protect the baby.
- To avoid people suspecting their status.
- To keep the baby healthy because one cannot transmit the virus through breastfeeding.
- Because they would not feel happy and comfortable not breastfeeding the baby
- Due to the high cost of infant formula since free ones are not provided in the facilities.

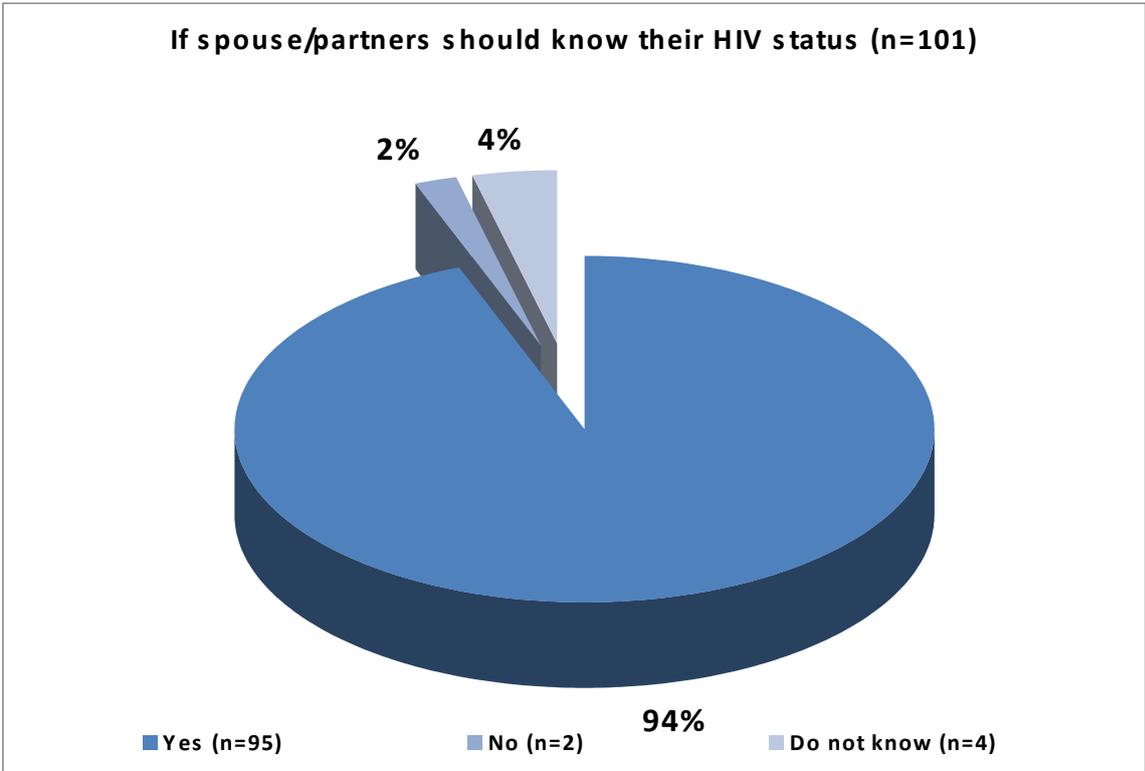
HIV-positive mothers are recommended to avoid all breastfeeding and use replacement feeding when it is acceptable, feasible, affordable, sustainable and safe to do so (WHO 2004:16).

It is therefore crucial that health workers at antenatal clinics and postnatal wards offer HIV-positive mothers infant feeding counselling to enable them to make informed

choices regarding how they will feed their babies based on their circumstances and resources (Bentley et al 2005:948)

**5.3.2.17 Item 2.17: If spouses/partners should know their HIV status**

The majority of the respondents (99%; n=101) answered this item. Of the respondents, 94% (n=95) said that spouses/partners of pregnant women should know their HIV status, 2% (n=2) answered that spouses/partners should not know their HIV status, while 4% (n=4) did not know (see figure 5.17).

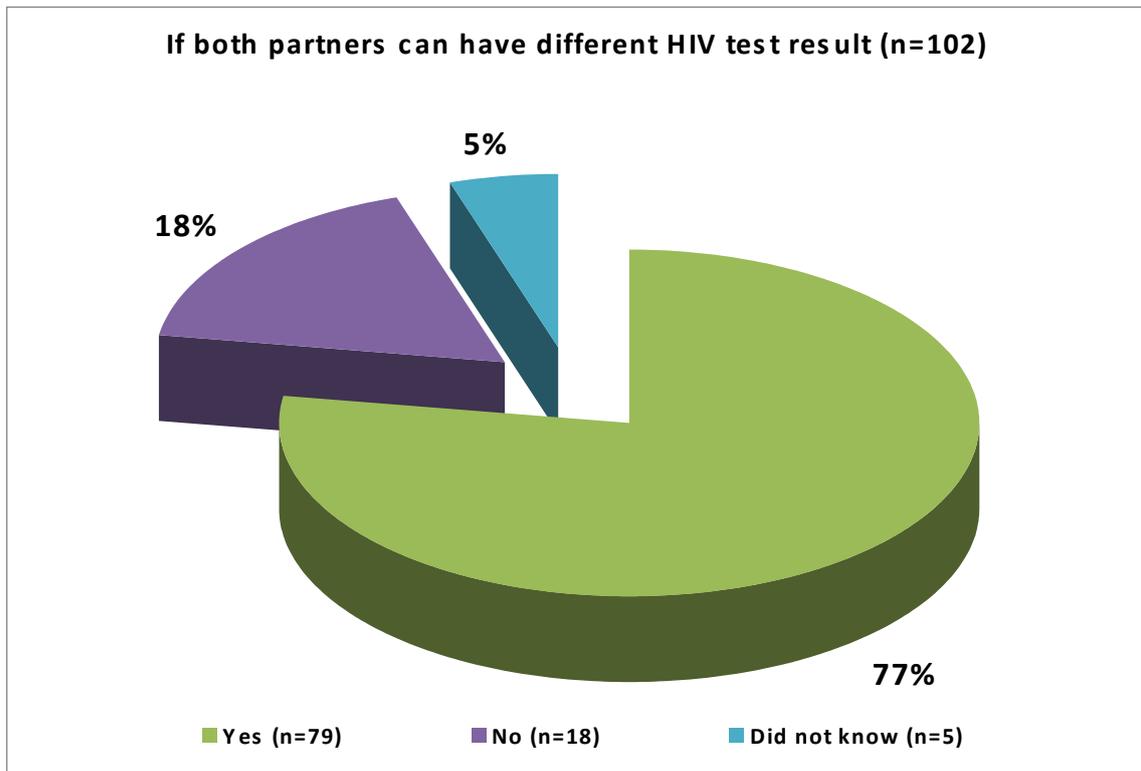


**Figure 5.17 Respondents' views on whether spouse/partner should know their HIV status**

Only 11.5% of males have ever tested for HIV (FMOH 2006b:78). Out of those that tested, the age group 25-39 were more likely to have had an HIV test than those in other age groups (FMOH 2006b:77). This could be as result of their being requested to do so when their wives attend antenatal clinic.

### 5.3.2.18 Item 2.18: If both partners can have different HIV test results

All the respondents (100%; N=102) answered this item. Of the respondents, 77% (n=79) said that both partners could have different HIV test results, 18% (n=18) said they could not, while 5% (n=5) did not know (see figure 5.18).



**Figure 5.18** Difference in diagnostic results for partners

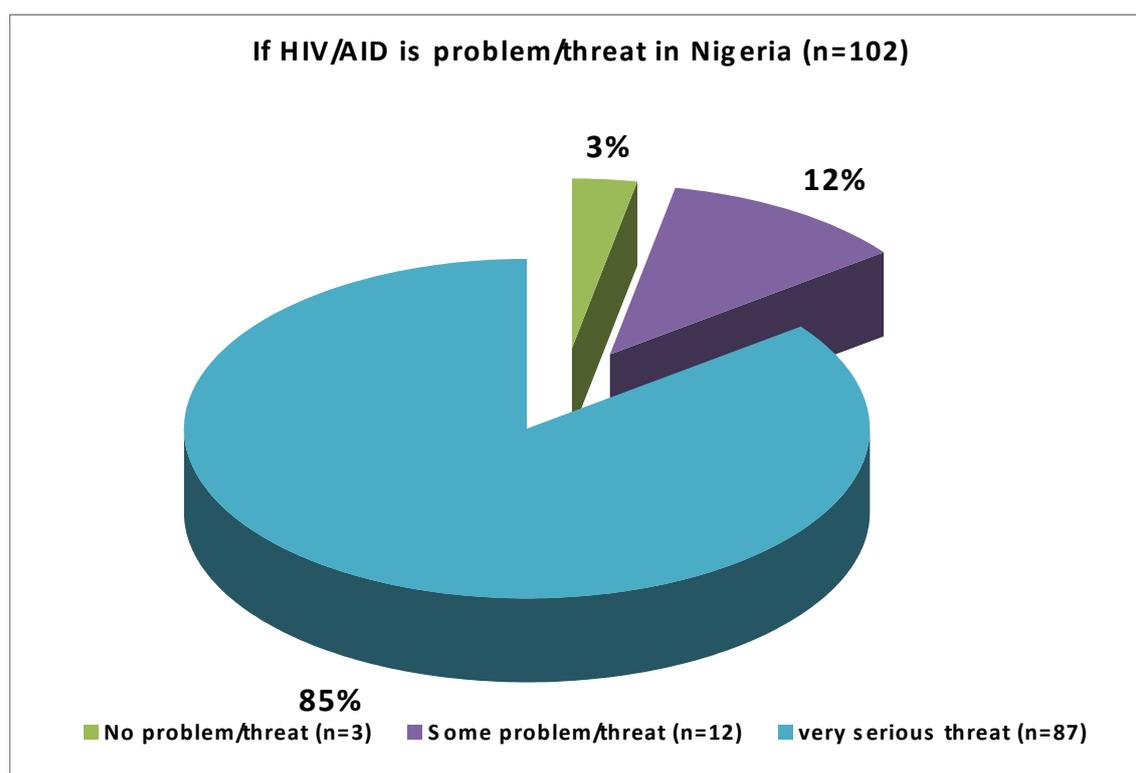
A high prevalence of sero-discordance has been found among heterosexual couples in Africa (Dunkle, Stephenson, Karita, Chomba, Kayitenkore, Vwalika, Greenberg & Allen 2008:2183; Sagay, Onakewhor, Galadanci & Emuveyan 2006:125). HIV infection in Nigeria remains largely through heterosexual transmission therefore VCT should be promoted and offered to partners of pregnant women (Nasidi & Harry 2006:20). They should also be counselled on the need to support the women in decision making regarding delivery and infant feeding options.

### 5.3.3 Section 3: Perceived threat – susceptibility and severity

This section discusses the findings and perceptions of the respondents with regard to their perceived threat of HIV/AIDS and how it affects utilisation of PMTCT services.

### 5.3.3.1 Item 3.1: HIV/AIDS as a problem/threat in Nigeria

All the respondents (100%; N=102) answered this item. Of the respondents, 85% (n=87) thought that HIV/AIDS was a very serious threat in Nigeria; 12% (n=12) thought it was something of a problem/threat, and 3% (n=3) thought that HIV/AIDS was not a problem/threat (see figure 5.19).



**Figure 5.19 Respondents' knowledge of problem/threat of HIV/AIDS in Nigeria**

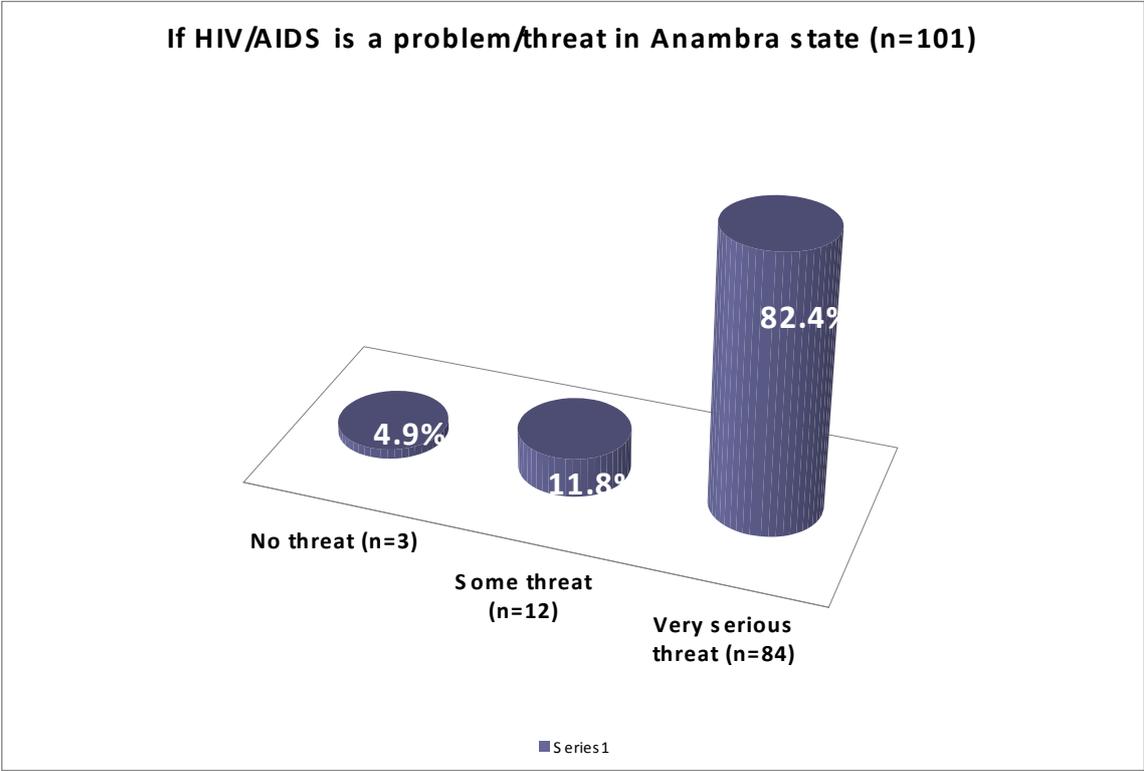
By 2005, the national HIV prevalence in Nigeria was 4.4% with variations across the different zones in the country and the highest prevalence of 10% in Benue State (FMOH 2006a:1). HIV/AIDS remains a serious threat to public health in Nigeria as young adults in the reproductive and productive age group (15-49 years) are mainly affected.

In Uganda, Kibombo, Neema and Ahmed (2005:169) found that people's view of their HIV risk rested with assessments based on current and past sexual behaviour, where more males than females who considered themselves to have no risk or a small risk of contracting HIV were actually at moderate or high risk in relation to unprotected sex. Correct assessment was positively associated with condom use. The perception of actual threat of personal vulnerability to contracting HIV leads to adopting protective behaviours. Knowledge of safe-sex behaviour and actual behaviour have little in

common and the fundamental barriers to behavioural change lie within the economic and socio-cultural context that shapes the sexual politics of youth. Kibombo et al (2005:168) also emphasise that while people were aware of their risk in having unprotected sexual intercourse, they failed to adopt risk reduction behaviour.

**5.3.3.2 Item 3.2: HIV/AIDS as a problem/threat in Anambra state**

The majority of the respondents (99%; n=101) answered this item. Of the respondents, 82.4% (n=84) thought that HIV/AIDS was a very serious in Anambra state, Nigeria; 11.8% (n=12) thought it was some problem/threat, and 4.9% (n=3) thought that HIV/AIDS was no problem/threat (see figure 5.20).



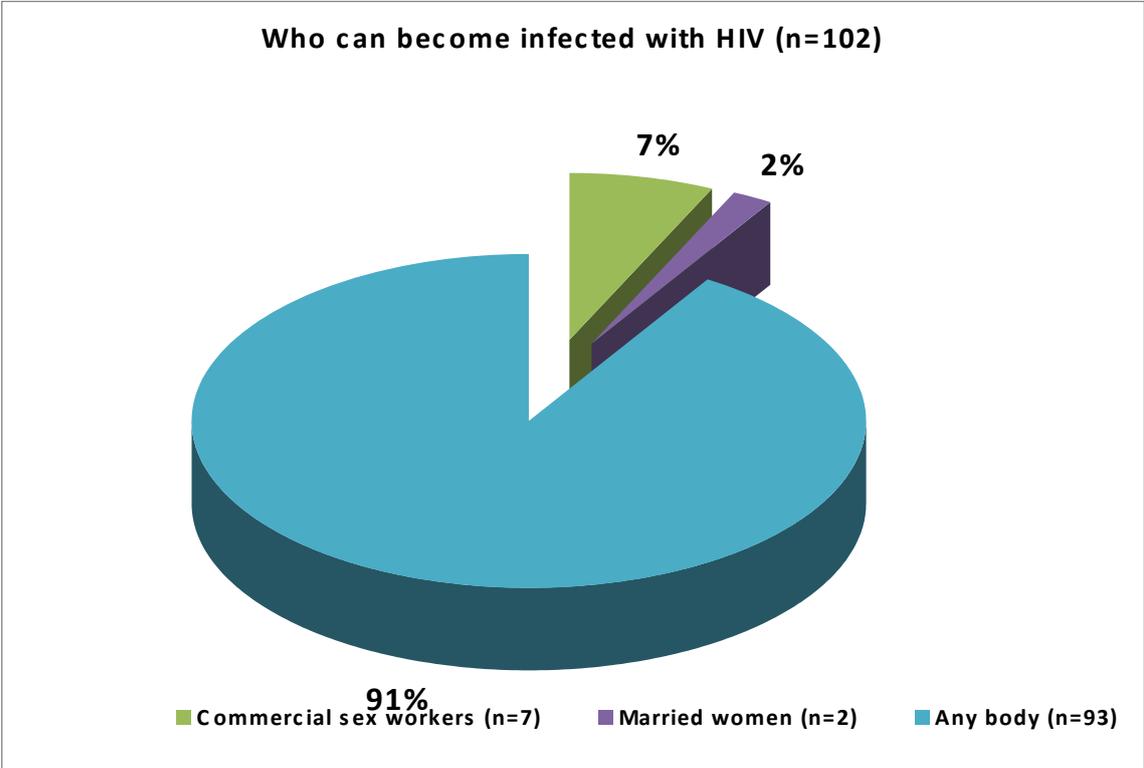
**Figure 5.20 Respondents’ perception of HIV/AIDS as a problem/threat in Anambra state, Nigeria**

The prevalence of HIV in Anambra state, Nigeria was 6% in 1999, 6.5% in 2001 and 4.2% in 2005 (FMOH 2006a:29). The Onitsha North area of Nigeria has been a sentinel site for research since 1991. Due to its commercial nature, mobility of the traders and dense population a significant number of people living with HIV/AIDS are to be expected in the town (FMOH 2006a:29). There are support groups for people living with HIV/AIDS

and the local community has actively been involved with the government in the campaign against HIV/AIDS thus giving a human face to the epidemic in the community. This might account for 82.4% of the respondents viewing HIV/AIDS as a very serious threat in the state.

**5.3.3.3 Item 3.3: Who can become infected with HIV?**

All the respondents (100%; N=102) answered this item. Of the respondents, 91% (n=93) maintained that anybody could become infected with HIV; 7% (n=7) indicated that commercial sex workers could become infected, and 2% (n=2) were of the opinion that married women could become infected (see figure 5.21).



**Figure 5.21 Respondents’ perceptions of who could be infected with HIV**

The respondents (91.2%) who indicated that anybody could become infected with HIV indicated a high level of awareness that no one is immune from becoming infected if exposed to the predisposing risk of infection.

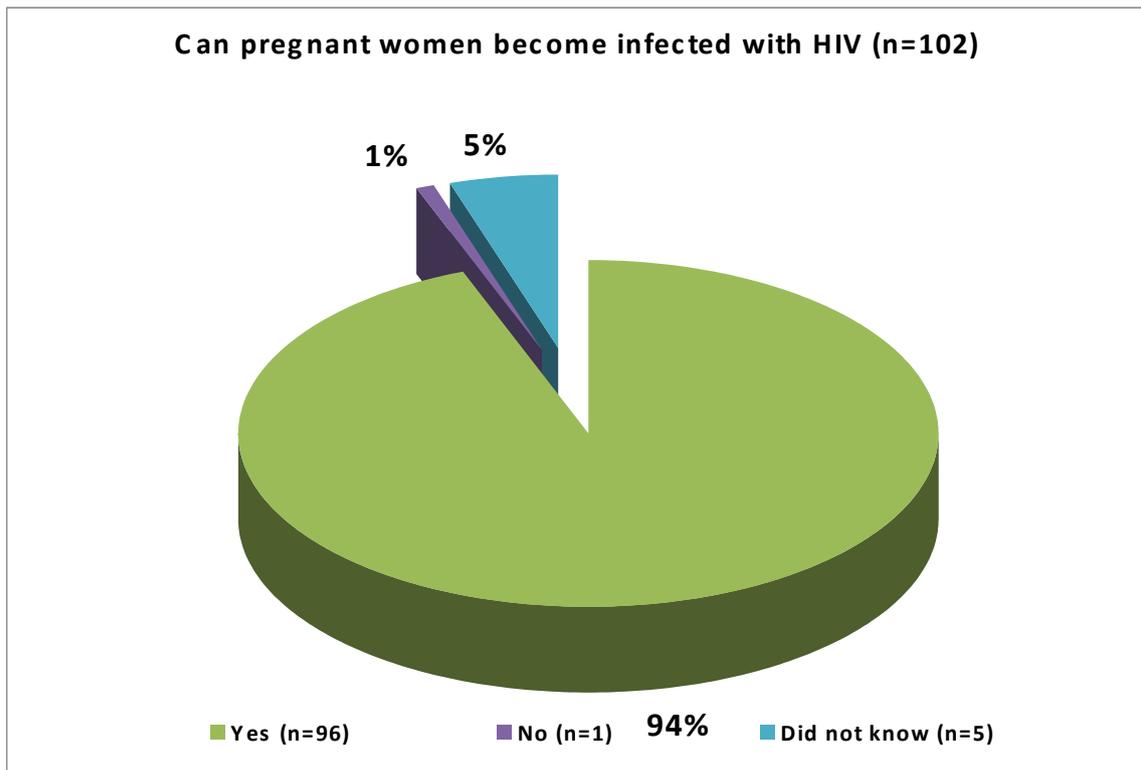
In India, Sudha, Vijjay and Lakshmi (2005: 307) found that 89.32% of males were aware of how HIV was spread compared to 71.39% of females. The gender difference in the awareness of HIV/AIDS could be attributed to the literacy rate. Since females in India

are less literate than males, they are more ignorant of the spread of the virus and thus of who may be infected. Approximately 88.35% of literates were aware of the way the infection is spread compared to the awareness of infection in 12.73% with a low level of literacy. These respondents had received their information from the television, radio, posters, workplaces, or through interpersonal communication. Therefore, to make persons with low-literacy rates more aware of the spread of the infection the focus should be on measures that require no formal education.

Different occupations have different awareness levels. Students had the highest level of awareness (97.62%), followed by people in service, business or skilled/unskilled work (83.62%), and finally housewives, cultivators, agricultural labourers, and industrial workers (69.89%). Students had been introduced to HIV/AIDS in the school curriculum, were the population exposed to mass media and interpersonal communication, and had access to various types of study material. Housewives, casual and agricultural labourers were either illiterate or had not been exposed to any information (Sudha et al 2005:309). This again stresses the importance of creating awareness among illiterates and labourers.

#### **5.3.3.4 Item 3.4: *Can pregnant women become infected with HIV?***

All the respondents (100%; N=102) answered this item. Of the respondents, 94% (n=96) said that pregnant women could become infected with HIV, 1% (n=1) said they could not, and 5% (n=5) did not know (see figure 5.22).

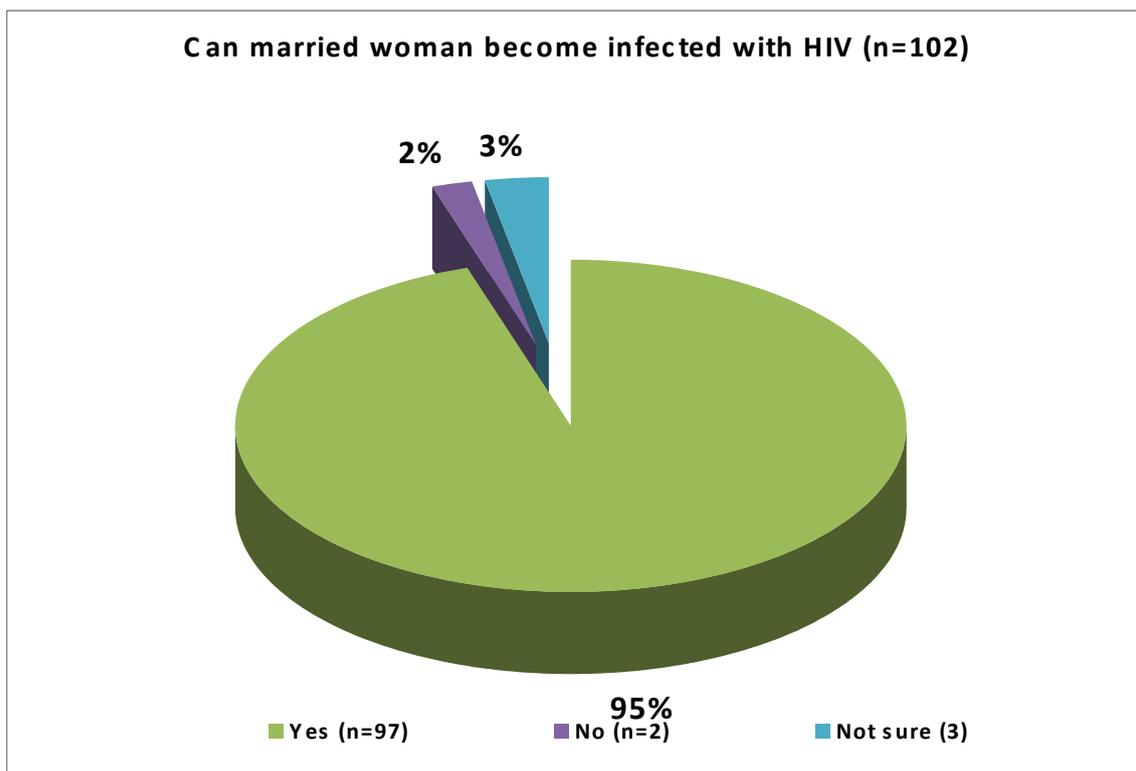


**Figure 5.22 Respondents' perceptions of pregnant women becoming infected with HIV**

This knowledge gap about pregnant women becoming infected with HIV informed the need for additional education to the women since pregnancy does not prevent a woman from having sex with her spouse/partner. This is even more important to explain to women since some men engage in extramarital sexual relationships while their wife is pregnant and may also be having sex with their pregnant wives thereby infecting them if they acquire the infection during that period. The FMOH (2006b:63-64) found that only 55.9% of men used condoms with non-marital partners, which increased generally with age and peaked to 68.2% for people aged 25-29 years.

**5.3.3.5 Item 3.5: Can married women become infected with HIV?**

All the respondents (100%; N=102) answered this item. Of the respondents, 95% (n=97) said that married women could become infected with HIV, 2% (n=2) said married women could not become infected, and 3% (n=3) did not know (see figure 5.23).



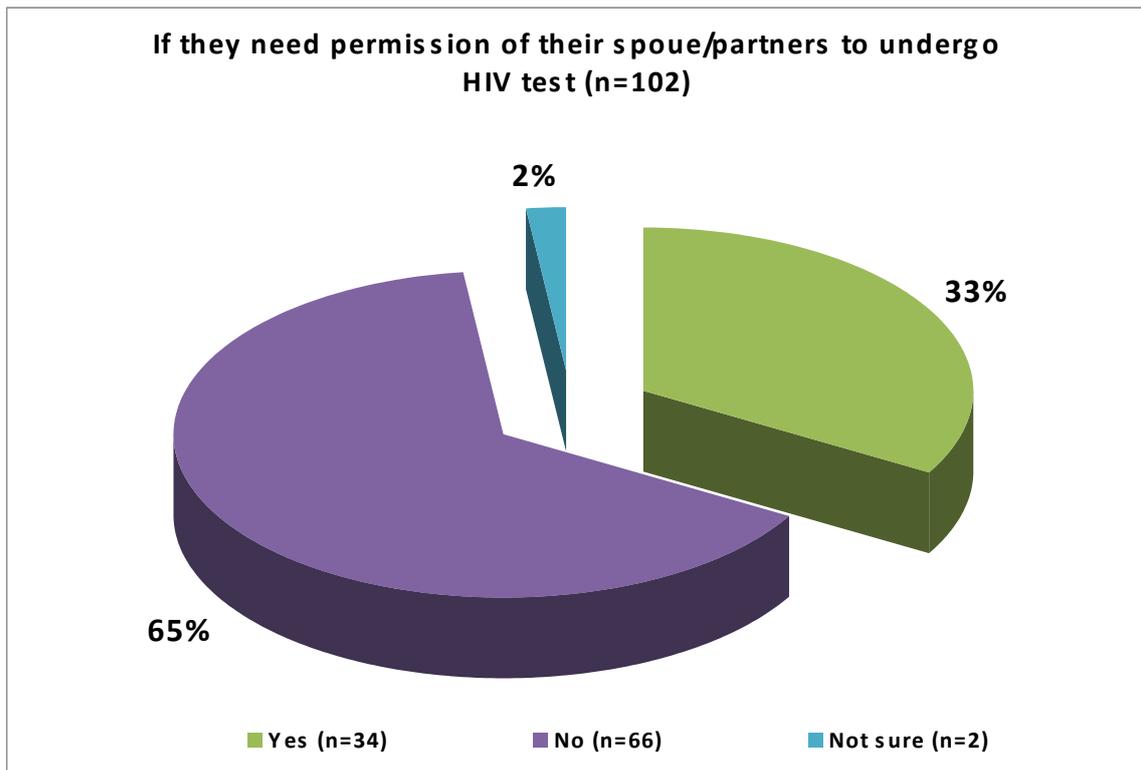
**Figure 5.23 Respondents' perceptions of married women becoming infected with HIV**

Married women have been known to have acquired HIV infection even in marriage (see 5.2.1.2 item 1.2). The HIV prevalence among married women was found to be 4.4% in the 2005 national HIV/syphilis sentinel study in Nigeria (FMOH 2006a:25).

The multi-site study in Mexico, Nigeria, Uganda, Vietnam and Papua New Guinea indicate that for most women around the world, marital sex represents their greatest risk for HIV infection. This responds to the well-documented epidemiological evidence that men's extramarital sex is a major element of HIV risk for married women, researchers found that prevention messages that associate infidelity with immorality simply are not compatible with different cultural views on marriage (Sippel 2007:1).

**5.3.3.6 Item 3.6: If they need their spouse's/partner's permission to undergo test**

All the respondents (100%; n=102) answered this item. Of the respondents, 65% (n=66) indicated that pregnant women did not need their spouse's/partner's permission to undergo the HIV test, 33% (n=34) said pregnant women needed their permission, and 2% (n=2) were not sure (see figure 5.24).



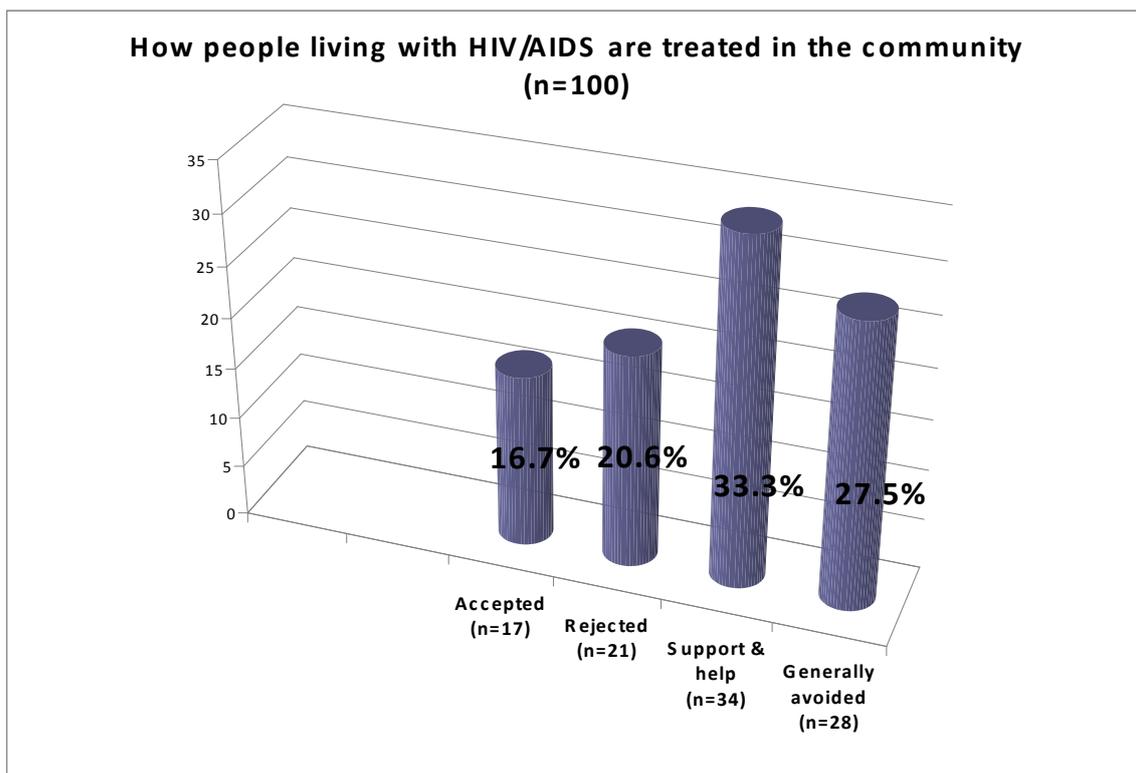
**Figure 5.24 Respondents' perception of need for spouse's/partner's permission to undergo test**

Okonkwo et al (2007:256) found that 82.9% said they did not need permission to undergo testing while 17.1% said they did need permission.

### 5.3.4 Section 4: Barriers to utilisation of PMTCT services

#### 5.3.4.1 Item 4.1: How people living with HIV/AIDS are treated in the community

The majority of the respondents (98%; n=100) answered this item. Of the respondents, 33.3% (n=34) said that people supported and helped them; 27.5% (n=28) said that people living with HIV/AIDS were generally avoided in the community; 20.6% (n=21) said they were rejected in the community, and 16.7% (n=17) said they were accepted in the community (see figure 5.25).



**Figure 5.25 Respondents' perception of treatment of HIV infected in the community**

Two major problems often faced by people living with HIV/AIDS in developing countries, including Nigeria, are stigma and discrimination. People fail to undergo testing due to fear of discrimination and stigma while some fail to disclose their status for the same reason. People would rather keep relatives who were infected with HIV/AIDS a family secret while they were willing to work in the same office as infected non-family members but would rather not share a meal with them or buy items from them if they were shop owners (FMOH 2006b:93). Okonkwo et al (2007:256) found that 69.2% of their respondents said that they would be discriminated against socially and/or culturally if they tested HIV positive. Although some of the respondents in this study indicated that people living with HIV/AIDS were accepted and supported in their community, the challenge of rejection and fear of being avoided was still widespread in the community.

HIV infection is widely stigmatised because of its association with behaviours considered socially unacceptable by many people, and people living with the virus are frequently subject to discrimination and human rights abuses (UNAIDS 2010:1). For example, many have been thrown out of jobs and homes, rejected by family and friends, and some have even been killed. Stigma and discrimination constitute one of the greatest barriers to dealing effectively with the epidemic. They discourage governments

from acknowledging or taking timely action against AIDS and deter individuals from finding out their HIV status. Furthermore, they inhibit those who know they are infected from sharing their diagnosis and taking action to protect others and from seeking treatment and care for themselves. A strong movement of people living with HIV that affords mutual support and a voice at local and national levels is particularly effective in tackling the stigma. Moreover, the presence of treatment makes the task easier, too, because where there is hope, people are less afraid of AIDS; they are more willing to be tested for HIV, to disclose their status, and to seek care, if necessary.

The International Centre for Research on Women (ICRW) (2002:1) states that HIV/AIDS-related stigma and resulting discriminatory acts create circumstances that fuel the spread of HIV. Fear of being identified with HIV prevents people from learning their sero status. In Botswana and Zambia, the ICRW (2002:1) found that stigma against HIV-positive people and fear of mistreatment prevented people from participating in VCT and PMTCT programmes. Stigma prevents individuals and communities from using HIV/AIDS services, whether programmes, home-based care, or other support services. Stigma and its resulting discrimination also intensify the pain and suffering of both the people living with HIV/AIDS and their families.

#### ***5.3.4.2 Item 4.2: Willingness to use services if near their home if they are HIV positive***

Of the respondents, 86% (n=88) indicated that they would not use the services if they were near their home.

#### ***5.3.4.3 Item 4.3: Reason for not wanting to do so***

The main reasons given for why they would not want to use services if they were near their home was fear of being recognised by someone in the health facility who might know them; concern over the health workers' breach of confidentiality thereby making their status known to other people who they may not previously have informed about it. According to Thorsen, Sundby and Martinson (2008:44), HIV-related stigmatisation is both a social phenomenon and process that results in a powerful and discrediting social label and affects the way the infected individuals are viewed and treated by others (enacted stigma), and how they view themselves (self-stigma).

#### 5.3.4.4 Item 4.4: If transportation cost will be a problem

All the respondents who indicated that they would not use the services near their home said that the cost of transportation would not be a problem (see section 5.2.4.2). This might mean that they would rather bear the cost than put themselves in a situation of being recognised and the news of their status spread thereby leading to stigmatisation.

#### 5.3.4.5 Item 4.5: Disclosure to spouse/partner if positive

The majority of the respondents (99%; n=101) answered this item. Of the respondents, 75% (n=78) said they would disclose their results to their spouse/partner if they were HIV positive, 9% (n=9) said they would not, and 16% (n=16) said they were not sure (see figure 5.26).

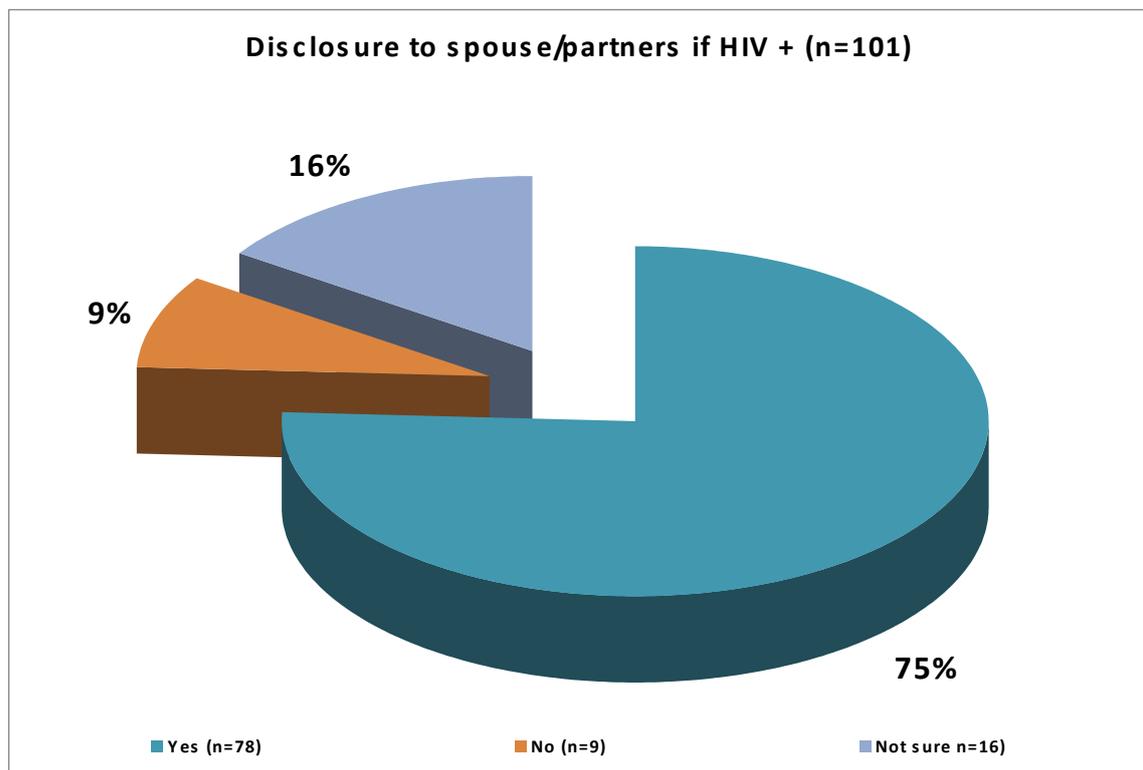


Figure 5.26 Respondents' disclosure to spouse/partner if HIV positive

The majority of the respondents of reproductive age (20-34) expressed more willingness to disclose their result to their partners, which was statistically significant with a p-value = 0.014.

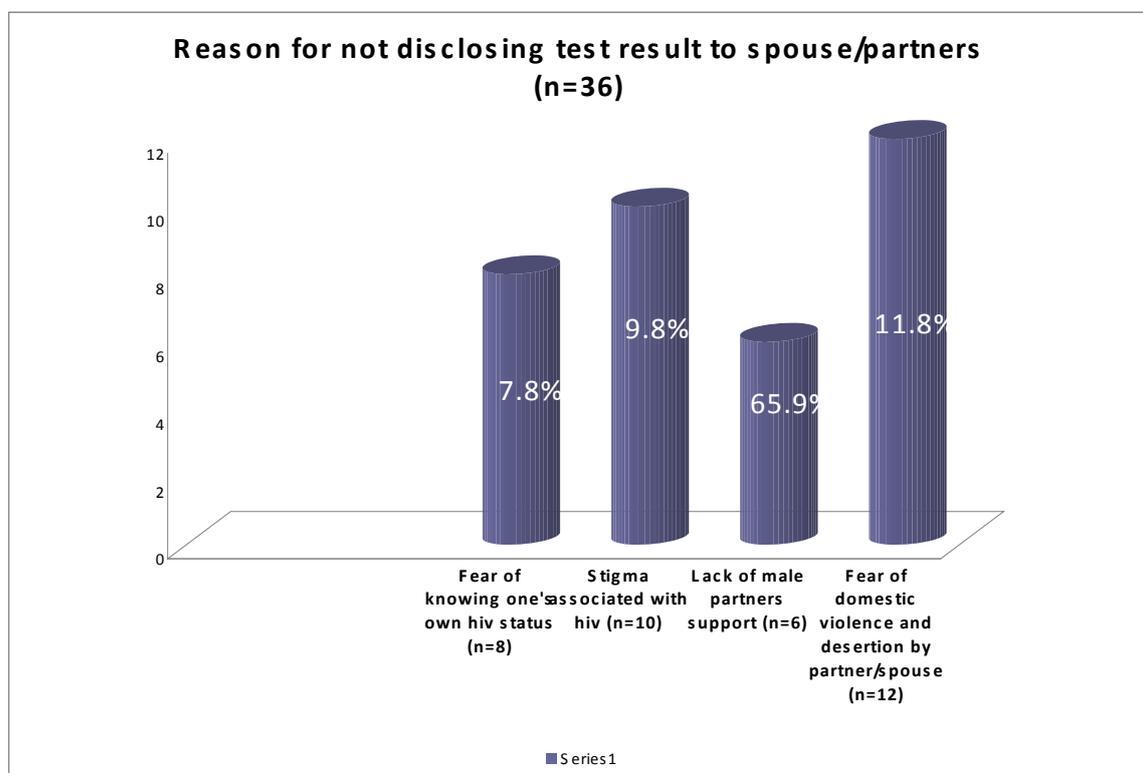
In Jos, Nigeria, Sagay, Musa, Ekwempu, Imade, Babalola, Daniyan, Malu, Idoko and Kanki (2006:119) found that 89% of the women disclosed their HIV status to their partners. Of these, 39.6% required the assistance of health workers while 59.4% did it by themselves. The partners' reactions were predominantly (86.9%) supportive. Expectation of economic, spiritual, emotional and social support was the major reason for disclosure (Akani & Erhabor.2006:87).

Stein, Freedberg, Sullivan, Savetsky, Levenson, Hingson and Samet (1998:235) report that 60% of the respondents disclosed their status to their partners while 40% did not. Nevertheless, practical and psychological difficulties of disclosure exist for sexually active individuals living with HIV. Decisions about disclosure of HIV status involve anxiety, stigma, and shame. Divulging to sexual partners may lead to isolation or even physical injury.

Wong, Van Rooyen, Modiba, Richter, Gray, McIntyre, Schetter and Coates (2009:215) maintain that although disclosing sensitive information like HIV status has potential risks, such as abandonment, physical violence, or feelings of shame, worry, fear, or rejection, there are also several important advantages to disclosure. Disclosure may enable HIV-positive individuals to gain access to appropriate treatment, motivate them to change risky behaviour patterns, and encourage their sexual partners to seek information and testing. Moreover, disclosure may increase opportunities to receive social support, which may help individuals cope and recover from physical illness, and attenuate depressive symptomology due to HIV-related physical symptoms. Wong et al (2009:215) found that most HIV-positive individuals (87%) disclosed their status to at least one person, but 13% reported that they had never disclosed their HIV status to anyone. Of those who disclosed, the majority (93%) disclosed to boy- or girlfriends, 77% to family members, 59% to spouses, and 58% to health care professionals. A total of 77 (36%) individuals did not disclose their HIV status to their sexual partners (if any) when they received their HIV diagnosis.

### 5.3.4.6 Item 4.6: Reasons for not disclosing test result to spouse/partner

Different options were provided for why the respondents would not want to disclose their results to their spouses/partners. Of the respondents, 11.8% (n=12) said their reason for not disclosing was fear of domestic violence and desertion by partner/spouse; 7.8% (n=8) indicated fear of knowing their own HIV status; 9.8% (n=10) indicated stigma associated with HIV/AIDS in the community; 5.9% (n=6) indicated lack of male partners' support, while 2.9% (n=3) said they were worried about the confidentiality of HIV testing and the test results (see figure 5.27).



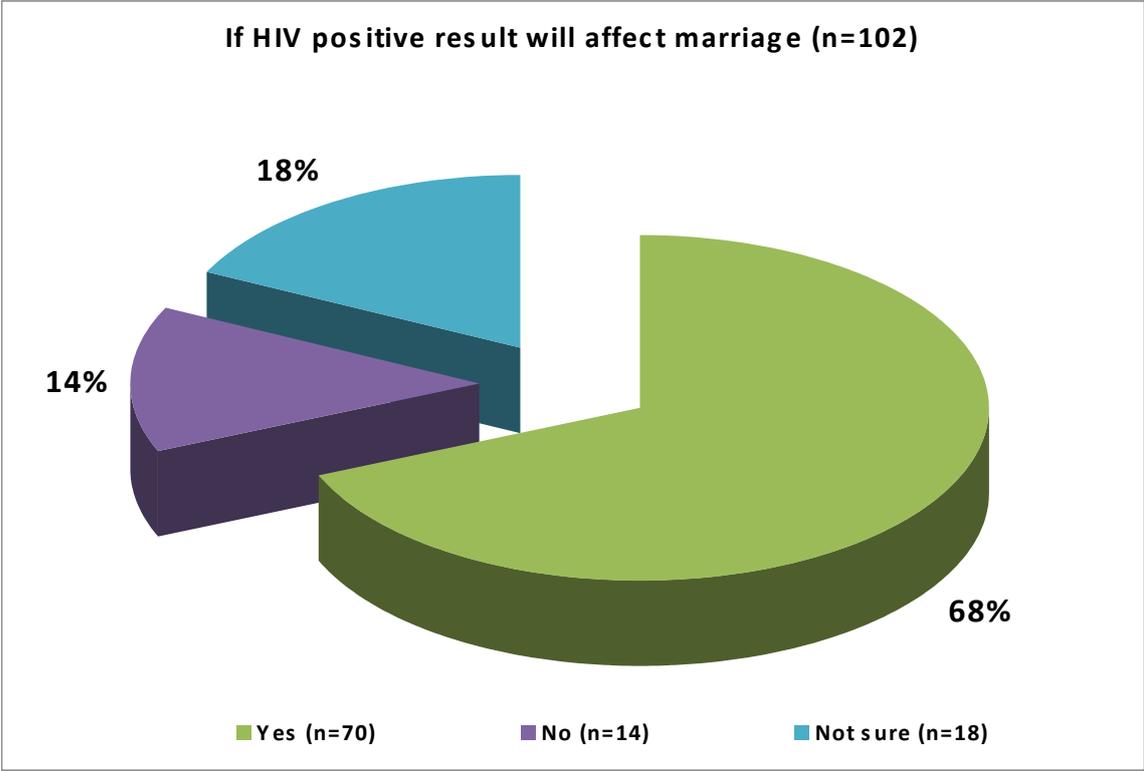
**Figure 5.27 Respondents' reasons for not disclosing test results to spouses/partners**

Barriers to HIV sero status disclosure included fear of stigmatisation, victimisation, fear of confidants spreading the news of their sero status and fear of accusation of infidelity and abandonment (Akani & Erhabor.2006:87; De Paoli et al 2004:419).

### 5.3.4.7 Item 4.7: If HIV-positive result will affect marriage

All the respondents (100%; N=102) answered this item. Of the respondents, 68% (n=70) said that being HIV positive would affect their marriage, 14% (n=14) said that

their HIV-positive result would not affect their marriage, while 18% (n=18) were not sure (see figure 5.28).



**Figure 5.28 Respondents’ perceptions of how HIV-positive result would affect marriage**

Okonkwo et al (2007:256) found that several women believed that testing positive for HIV could put significant strain on their marriage and possibly lead to divorce. The way community members reject and generally avoid people living with HIV/AIDS could be part of the reason why infected people may be reluctant disclose their HIV status (see section 5.2.4.1).

**5.3.4.8 Item 4.8: How it will affect the marriage**

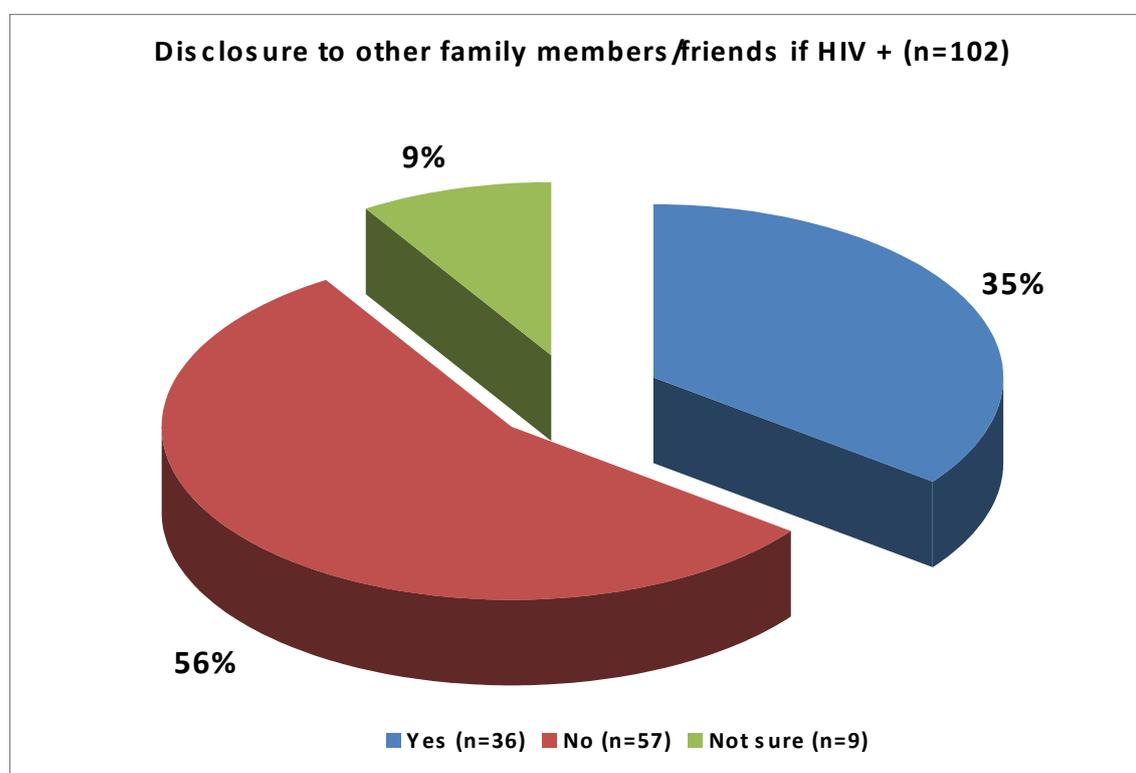
This was an open-ended question and multiple reasons were given by the respondents (see table 5.3).

**Table 5.3 How being HIV positive will affect the marriage**

Ways it will affect the marriage	Frequency
Divorce/separation	43
Accusation, particularly if result is discordant	18
Mistrust/misunderstanding	15
Domestic violence	10
Rejection by husband	4
No love and peace in the home	3
Lead to sexual depravation	3
Concern that baby may be infected	2
Lack of support	2
Concern they may not have more children	2
Husband may threaten to kill wife before anyone hears about it	1

**5.3.4.9 Item 4.9: Disclosure to other family members/friends if HIV positive**

All the respondents (100%; N=102) answered this item. Of the respondents, 56% (n=57) said they would not disclose their results to other family members/friends if they were HIV positive, 35% (n=36) said they would disclose their results, while 9% (n=9) were not sure (see figure 5.29).



**Figure .29 Respondents' disclosure to other family members/friends if HIV positive**

Although 75% (n=78) of the respondents (see section 5.2.4.2) said they would disclose their status to their spouses/partners, only 35% (n=36) said they would disclose their status to other family members.

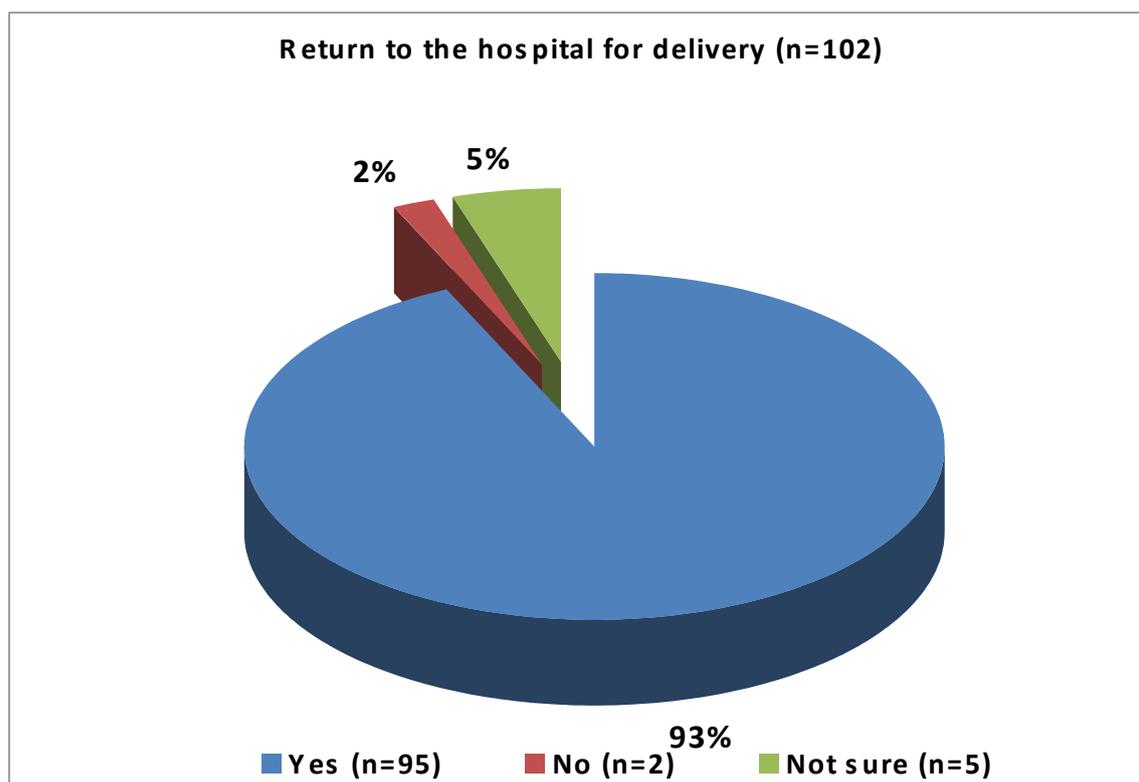
#### **5.3.4.10 Item 4.10: Reasons for not disclosing HIV status**

The respondents gave the following reasons for not wanting to disclose their status to family member/friends:

- To avoid stigma/discrimination
- Fear of news being spread around
- Their husband may be advised negatively and thus divorce them
- It is a confidential matter and it may not be kept secret and confidential
- Fear of being rejected
- Need to keep it a secret with their spouses
- The person may not help so no need to inform them
- To preserve their dignity and manage the situation on their own

#### **5.3.4.11 Item 4.11: Return to hospital for delivery**

All the respondents (100%; N=102) answered this question. Of the respondents, 93% (n=95) said they would return to the hospital for delivery; 2% (n=2) said they would not, and 5% (n=5) were not sure (see figure 5.30).



**Figure 5.30 Respondents' return to the hospital for delivery**

Although a high percentage of the respondents in this study indicated that they would return to the hospital for delivery, the FMOH (2006b:102) reported that only 43% of the respondents in their survey were attended by skilled attendants. In Calabar, Nigeria, Etifit and Samson-Akpan (2008:52) found that 35% of the respondents preferred churches, 28% preferred traditional birth attendants, 26.8% had their babies in the health facility where they registered for antenatal clinic, and 10.8% preferred private clinics. It could be said that the increase in desire to come to the health facilities for delivery could be due to the fact that the study was conducted in an urban setting and the majority of the respondents were educated up to secondary level because education and location had been found to influence where women went for delivery (FMOH 2006b:102).

#### **5.3.4.12 Item 4.12: Reasons for not wanting to come back**

The respondents who said they would not come to the health facility for delivery gave no reason for not wanting to come back (see section 5.2.4.11).

#### **5.3.4.13 Item 4.13: Reasons why some HIV positive women do not return for delivery**

This was an open-ended question and various reasons were given for why HIV-positive women did not return to the facility for delivery:

- Shame (n=42)
- Fear of how they would be treated (n=23)
- Fear that their status would be disclosed to others (n=22)
- Health workers' attitude and reaction towards HIV-positive women (n=9)
- Ignorance (n=9)
- Stigma attached to HIV/AIDS (n=8)
- Fear of being poisoned with dangerous drugs in the hospital (n=1)

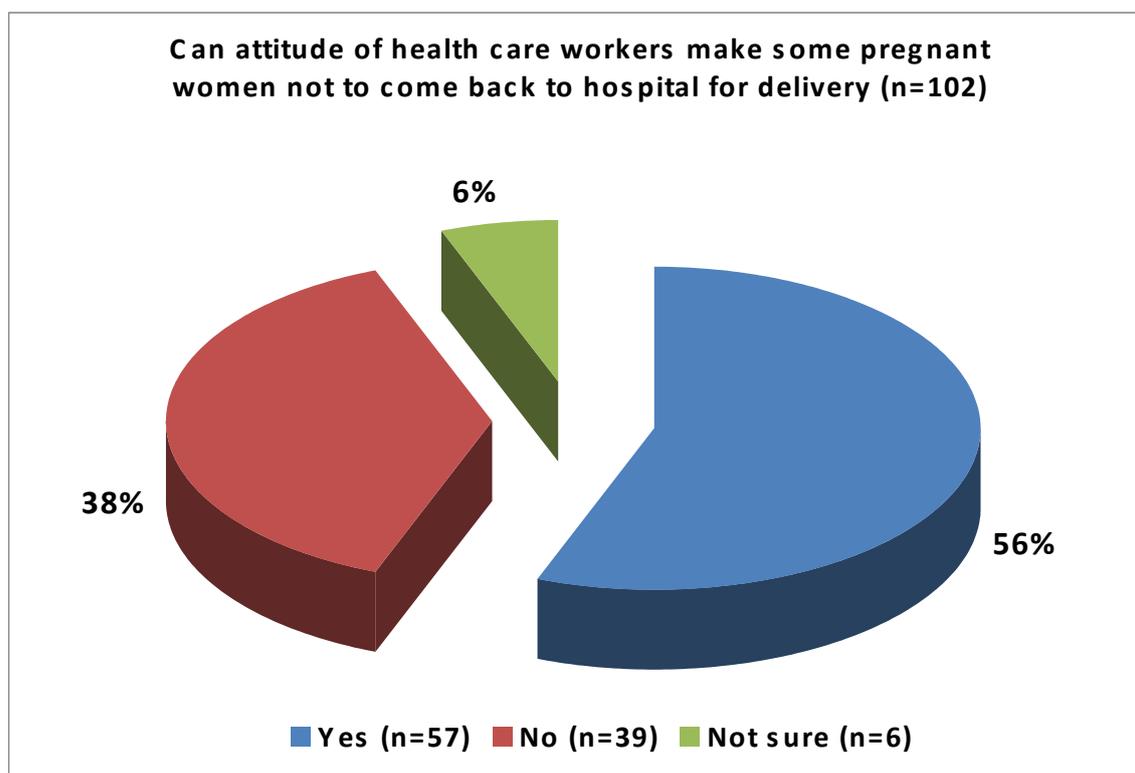
#### **5.3.4.14 Item 4.14: Where they go to deliver**

This was an open-ended question and various places were given:

- Private hospitals where testing was not conducted (n=19)
- Maternity homes (n=19)
- At home (n=14)
- Other hospitals where their status was not known (n=13)
- Traditional birth attendants (n=8)
- Spiritual houses/churches (n=3)
- Chemist/unqualified doctors (n=3)

#### **5.3.4.15 Item 4.15: Can health care workers' attitude make some pregnant women not come back to hospital for delivery**

All the respondents (100%; N=102) answered this item. Of the respondents, 56% (n=57) said that health care workers' attitudes could make some pregnant women not come back to hospital for delivery, 38% said the attitudes would not, while 6% (n=6) said they were not sure (see figure 5.31).



**Figure 5.31 Respondents' perceptions of effect of health care workers' attitude on pregnant women's return to hospital for delivery**

Health care providers' poor attitudes were associated with reasons for under-utilisation of health centres by pregnant women (Etifit & Samson-Akpan 2008:53; Kebaabetswe 2007:355). Some clients maintained that health workers' attitudes affected their desire to come back for future services (Moth et al 2005:247; Painter et al 2004:544). In Swaziland, Shabangu (2006:23) found that HIV-positive women are concerned that nurses assigned to work them are not well trained to understand the women's situation as they women require support (emotional and moral) because they do not get it even at home. The negative attitude of the health workers informs the need for continuing education for them to enable them play the crucial role of providing support and care to HIV positive women so that they will feel comfortable using the services with fear of discrimination and stigma.

#### **5.3.4.16 Item 4.16: Some negative attitudes of health workers**

This was an open-ended question and some of the negative attitudes included:

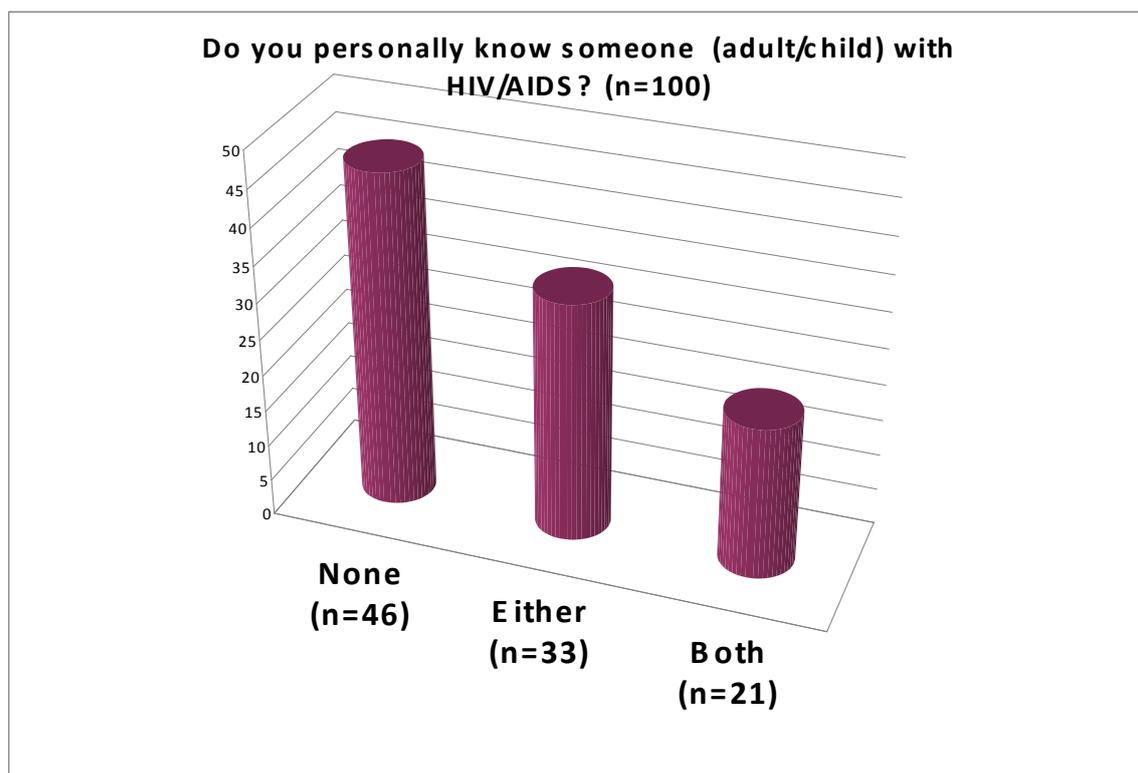
- Ignoring patients when they called them while in labour
- Speaking rudely and in a degrading manner to the patients

- Delaying performing vaginal examination on patient, asking the nurse that eventually did it if she was wearing gloves and telling her that they were sorry for her.

### 5.3.5 Section 5: Cue to action and self-efficacy

#### 5.3.5.1 Item 5.1: Do you personally know someone (adult/child) with HIV/AIDS?

The majority of the respondents (98%; n=100) answered this item. Of the respondents, 45.1% (n=46) said they personally knew someone with HIV/AIDS, 32.4% (n=33) said they did not personally know someone with HIV/AIDS, while 20.6% (n=21) said they personally knew both adults/children with HIV/AIDS (see figure 32).



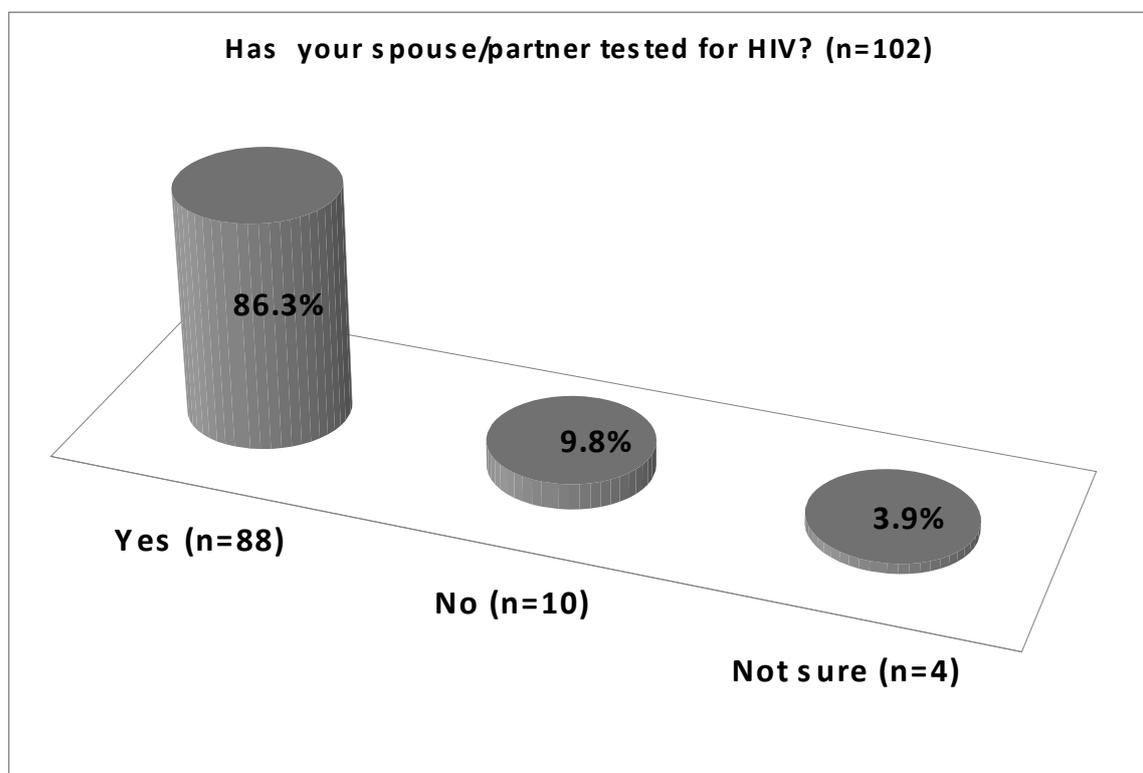
**Figure 5.32 Respondents' personal knowledge of someone (adult/child) with HIV/AIDS**

The FMOH (2006b:42) found that about 21% of the respondents indicated that they had seen someone with HIV or knew someone who died of AIDS with a higher level (34%) in the southeast. Knowledge of someone with HIV helps to raise consciousness about the reality of the disease among individuals and also motivates them to seek information

and services that will protect them or prevent them from acquiring or transmitting the virus.

### 5.3.5.2 Item 5.2: Has your spouse/partner tested for HIV?

All the respondents (100%; N=102) answered this item. Of the respondents, 86.3% (n=88) said that their spouses/partners had been tested for HIV; 9.8% (n=10) said their spouses/partners had not been tested for HIV, and 3.9% (n=4) said they were not sure (see figure 5.33).

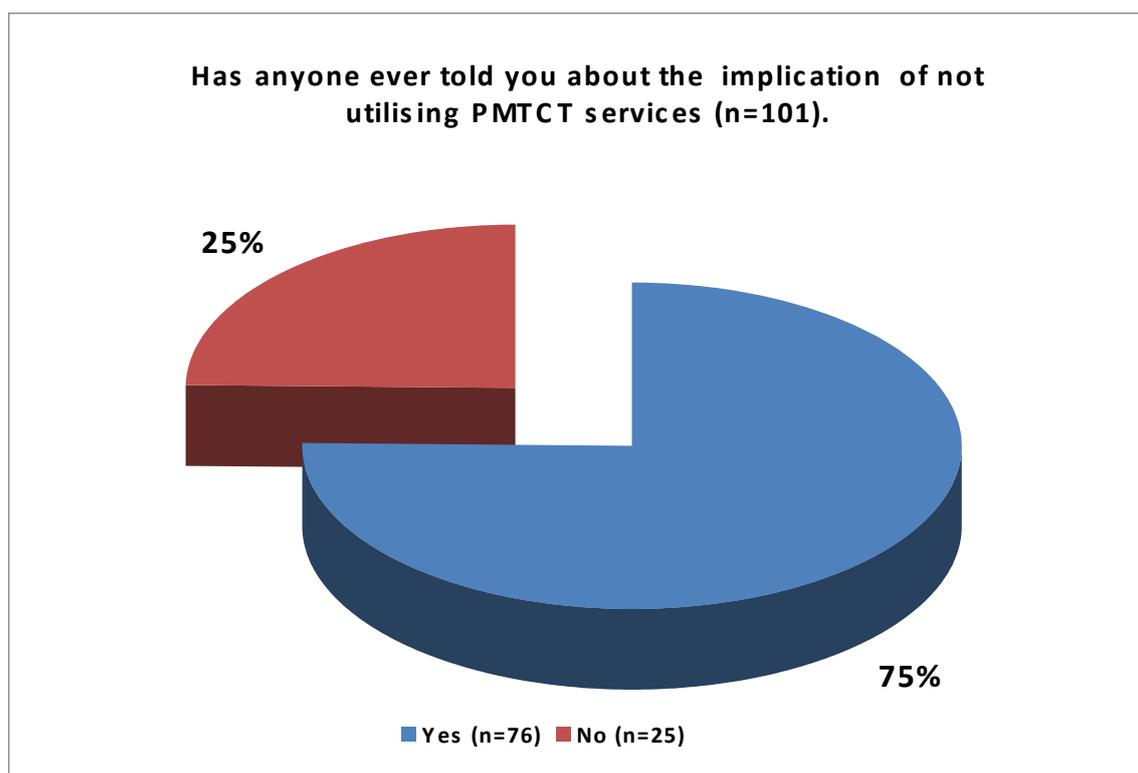


**Figure 5.33 Respondents' spouses/partners tested for HIV**

Pregnant mothers' spouses/partners are required to undergo HIV testing as part of the package of care for pregnant women in antenatal clinics and this could account for the high percentage that had been tested. The importance of spouses/partners cannot be overemphasised as their co-operation and support is needed for HIV-positive pregnant women's choices. The issue of sero-discordance is another important reason why partners/spouses should be tested so that the negative partner/spouse can be protected from becoming infected.

**5.3.5.3 Item 5.3: Has anyone ever told you about the implications of not utilising PMTCT services?**

The majority of the respondents (99%; n=101) answered this item. Of the respondents, 74.5% (n=76) said that someone had told them about the implications of not utilising PMTCT services, 24.5% (n=25) said no one had ever told them (see figure 5.34).

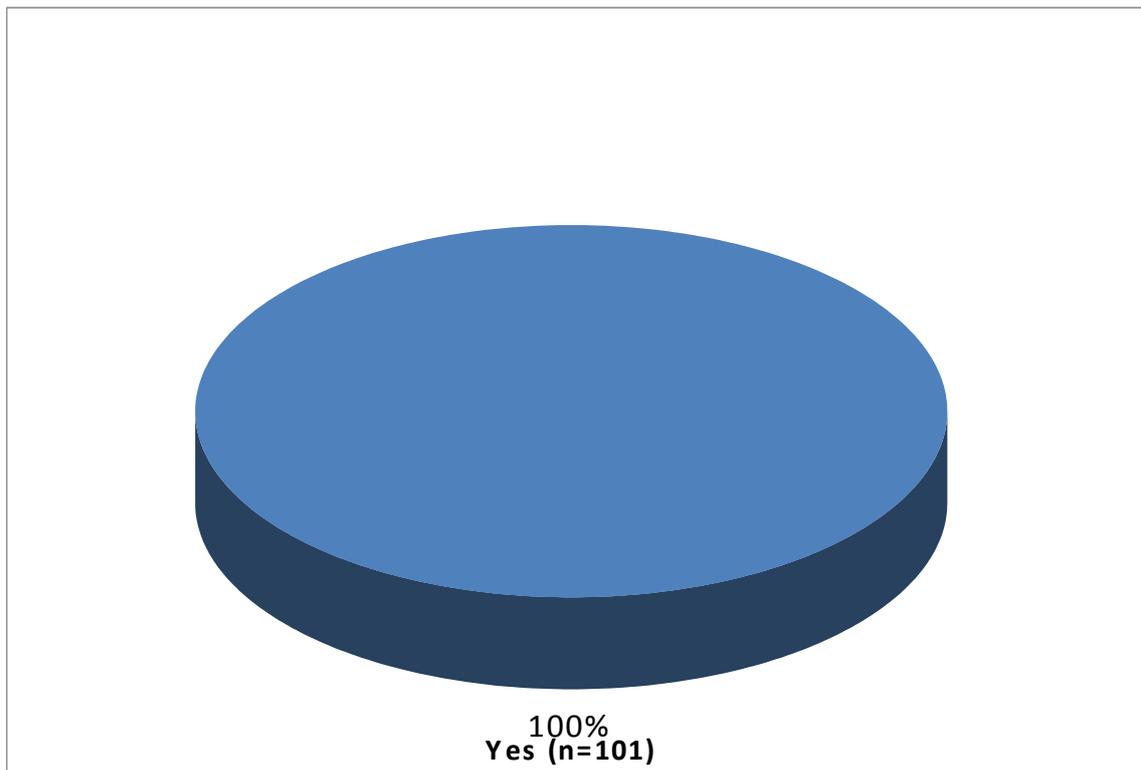


**Figure 5.34 Respondents' informed about implications of not utilising PMTCT services**

Explaining the benefits of PMTCT of HIV is crucial as it will assist pregnant mothers to appreciate the importance of protecting their babies from becoming infected through the choices that they make during pregnancy, birth and regarding infant feeding.

**5.3.5.4 Item 5.4: Return to hospital for follow-up/postnatal visit**

The majority of the respondents (99%; n=101) answered this item and said they would return to hospital for follow-up/postnatal visits (see figure 5.35).



**Figure 5.35 Respondents' return to hospital for follow-up/postnatal visit**

A lower finding of 40.6% was found in the national health and reproductive health survey regarding proportion of pregnant women that returned for postnatal care (FMOH 2006b:103). The national demographic and health survey had found that 71.3% of women do not receive postnatal check up (National Population Commission 2003:126). The 100% of respondents that said they will return for postnatal visit is contrary what has been found in other studies and there gives a wrong impression of what the reality is. Experience from the health facility reveals a low return for postnatal visit. It may therefore mean that respondents only answered in the affirmative to please the researcher. Follow-up/postnatal visit for women and their babies especially for HIV-positive women will offer opportunity to provide them and their babies with necessary care.

#### **5.3.5.5 Item 5.5: Reasons for not returning**

Since the respondents said they would come back for follow-up/postnatal visits no reasons were given.

### **5.3.5.6 Item 5.6: Any additional information shared**

The respondents generally wanted to know more about PMTCT transmission and asked that the government sustain efforts in assisting HIV-positive mothers to ensure that their babies are protected from becoming infected.

### **5.3.5.7 Item 5.7: Suggested ways to help more HIV-positive women use PMTCT services in the health facility**

The respondents were asked to suggest ways to help more HIV-positive women utilise PMTCT services in the facilities. Their suggestions included:

- Increase awareness about HIV/AIDS and the programme using different channels and through churches as well as multiple channels of communication at grass roots level (n=19).
- Health education on HIV/AIDS at every antenatal visit beyond the one given on the day the women come for their antenatal care registration (n=25).
- Provision of additional education and counselling on the benefits of PMTCT to HIV-positive mothers in order to promote better understanding about the disease (n=46).
- More friendly attitude by health care workers (n=15).
- Employ and train more health care workers to work in the antenatal clinic (n=10).
- Encourage adherence to medication and other instructions by health workers (n=22).
- Provide more CD4 machines and train relevant staff to use them since patients have to sleep overnight at the hospital to get it done due to staff shortages (n=6).
- Provision of free infant formula for those who did not want to breastfeed their babies (n=5).
- Reduce stigma and discrimination towards people living with HIV/AIDS (n=10).

## **5.4 CONCLUSION**

This chapter discussed the data analysis and interpretation of the findings with reference to the literature review. The results were presented in tables and figures.

Chapter 6 concludes the study, briefly discusses its limitations, and makes recommendations for practice and further research.

## **CHAPTER 6**

### **Findings, limitations and recommendations**

#### **6.1 INTRODUCTION**

Chapter 5 discussed the data analysis and interpretation and results with reference to the literature review in order to put it in the context of the reviewed literature. The purpose of the study was to investigate and identify the factors that affect the utilisation of PMTCT of HIV services as well as propose measures to promote utilisation of the services by HIV-positive pregnant women in Onitsha, Anambra State, Nigeria.

Mother-to-child transmission of HIV is responsible for more than 90% of infections among children under the age of 15. Despite available and effective interventions that can help to reduce the rate of transmission, not all HIV-positive women use the services. In order to gain a better understanding of the issues, the researcher used the HBM as a theoretical model to gain insight into the phenomenon under study.

This chapter discusses the findings and limitations of the study and makes recommendations for practice and further research.

#### **6.2 FINDINGS**

The findings from the study are discussed according to the sections in the structured interview guide.

##### **6.2.1 Respondents' demographic profile**

Demographic variables such as age and level of education have an influence on the perceived individual threat of an illness such as HIV/AIDS. The majority of the respondents (89.3%; n=91) were under 35 years old; 95% (n=97) were married, and 91.2% (n=93) lived with their spouses/partners. Of the respondents, 94% (n=96) had achieved secondary and tertiary education, and 48.5% (n=50) were either engaged in trading or in permanent employment. Of the respondents, 35.3% (n=36) were pregnant

for the first time, 42.2% (n=43) had 1-2 children, and 3.9% (n=4) had 5 or more children. Most of the respondents were of child-bearing age and at risk of becoming infected. Being married also exposes women to the risk of acquiring HIV infection. In addition, HIV-positive women's desire to have a baby in order to fulfil societal expectations puts the baby at risk of becoming infected by the mother during pregnancy, labour/delivery and through breastfeeding.

### **6.2.2 Respondents' knowledge of HIV and PMTCT of HIV**

In the context of the HBM, knowledge has an influence on risk perception as it enables an individual to recognise the risk of an illness and thus take steps to adopt healthy behaviour to prevent illness or infection. The majority of the respondents were knowledgeable about HIV transmission through unprotected sexual intercourse (88.2%, n=90), use of infected sharps (needles) (80.4%, n=82) and blood transfusion (34.3%; n=35) while only 18.6% (n=19) knew about MTCT. Only 9.8% (n=10) of the respondents could list all the ways that HIV could be transmitted. The respondents were also aware of the different ways that a pregnant woman could transmit HIV to her baby: during pregnancy (70.6%), during labour/delivery (39.2%) and through breastfeeding (66.7%). This finding indicated that gaps still existed in the respondents' knowledge regarding MTCT of HIV therefore on-going education should be provided to pregnant women during antenatal visits, emphasising all aspects and explaining the implications of transmission at each stage. This is with regard to prolonged labour, early membrane rupture, and performing an episiotomy, since their knowledge of transmission during labour/delivery was much lower than the other ways.

Only 18.6% of the respondents mentioned MTCT as a means of transmission, but when asked specifically whether they had heard about it, 92.2% indicated that they had. In the context of the HBM, access to information equips individuals with knowledge to take measures to prevent an illness. Among the respondents, 64.7% (n=66) stated that they first heard about MTCT from the health workers. Other sources of information included television, radio, and family/friends. The findings about the respondents' source of information confirmed the significant role that health workers play in disseminating information about HIV and MTCT. A significant number of the respondents were aware of interventions available to reduce MTCT with 78% indicating the use of anti-retroviral drugs as one of the interventions.

The majority of the respondents (99%; n=101) were of the opinion that all pregnant women should know their HIV status and the reason for this was essentially to protect their babies from becoming infected with HIV. The majority of the respondents (93.1%) said spouses/partners of pregnant women should know their HIV status. Of the respondents, 77% were aware that both partners could have different results.

Of the respondents, 64.7% (n=66) said that HIV-positive women should not breastfeed their babies; 21.6% (n=22) said that HIV-positive women should breastfeed their babies, and 13.7% (n=14) did not know (see figure 5.15). However, 22% (n=22) of the respondents said that they would breastfeed their babies even though they were HIV positive for the following reasons:

- Breastfeeding is good and will prevent the baby catching different diseases.
- Because they were receiving medication and that would help to protect the baby.
- To avoid people suspecting their status.
- To keep the baby healthy because one cannot transmit the virus through breastfeeding.
- Because they would not feel happy and comfortable not breastfeeding the baby
- The high cost of infant formula since free ones are not provided at the facilities.

### **6.2.3 Respondents' perceived threat including the severity and susceptibility of HIV and if they wanted to know their HIV status**

Individuals' perception of the severity of a disease can prompt them to take the necessary action to adopt behaviour that will protect or prevent them from acquiring and in this case transmitting the infection to their baby. The study found that the majority of the respondents (85.3%; n=87) regarded HIV/AIDS as a very serious threat in Nigeria while the minority (11.8%; n=12) viewed it as some threat/problem.

The HBM emphasises that perceived threat of HIV infection refers to how seriously individuals view the consequences of HIV/AIDS both from a social and medical perspective. This study therefore underscores the importance of on-going awareness about HIV/AIDS in general through different media (television, radio, community groups and newspapers). In addition, continued campaigns and education on HIV/AIDS should

be provided to women of child-bearing age and those attending antenatal clinics so that they are made aware of the benefits of interventions such as VCT and PMTCT.

Of the respondents, 82.4% (n=84) perceived HIV/AIDS as a very serious threat in Anambra State where the study was conducted. The prevalence of HIV in the state is more than the national prevalence. This perception of the respondents of the seriousness of the disease corroborates the previous one and further underscores the need for awareness and education of the general public about the disease. Particular attention should also be given to the education of women of child-bearing age and pregnant women who if HIV positive may transmit the virus to their baby if they do not take advantage of the interventions available to reduce the rate of MTCT.

In the context of the HBM, perceived susceptibility refers to an individual's perception that a health problem (HIV) is personally relevant or that a diagnosis is accurate. An HIV-positive pregnant woman has a risk of passing the virus to her baby in the womb or during childbirth, or during the postnatal period through breastfeeding. Of the respondents, 91.2% (n=93) were aware that anyone could become infected with HIV while 6.9% (n=7) indicated that commercial sex workers got infected. This clearly indicated a degree of ignorance among some of the respondents. However, 95.1% (n=97) were aware that pregnant and married women could become infected with HIV thus indicating that being married did not protect individuals from acquiring the infection. This could possibly account for why they expressed willingness to know their HIV status with 64.7% (n=66) stating that they did not need their spouses'/partners' permission to undergo the test. The reason given for their willingness to undergo testing was to make sure that they accessed possible interventions that would save their baby from becoming HIV infected.

#### **6.2.4 Respondents' perceived barriers to the utilisation of PMTCT services**

The HBM addresses individual perceptions as barriers that would prevent them from adopting the new action that would be beneficial to them. The respondents were asked about how people living with HIV/AIDS were treated in the community in order to gain an insight into the possible reasons why some infected women did not access PMTCT services. Of the respondents, 20.6% (n=21) said they were rejected while 27.5% (n=28) said they were generally avoided. In addition, 55.9% (n=57) said health care workers'

attitude was also a barrier to HIV-positive pregnant women's return to the hospital for delivery.

Proximity of services to their homes was also a barrier since they would not want anyone who knew them and worked at the facility to find out about their HIV status. They would rather attend antenatal clinic at a facility far away from their home and did not consider cost of transportation a barrier that would prevent them from going to access services in a different environment where no one was likely to know them.

Regarding disclosure of HIV status to spouse/partner, 74% (n=78) of the respondents said they would disclose their status. Of those that said they would not, their reasons were concern for domestic violence and desertion, lack of co-operation/support from their partners and worry about the confidentiality of their test results. Even the respondents 74% (n=78) who were willing to disclose their status to their spouses/partners, (68.8%; n=70) said it would affect their marriage as it might lead to divorce and the marriage might not be the same as before the test result was known. As for disclosure to other family members/friends, 55.9% (n=57) of the respondents said they would not and only 35.3% (n=36) said they would do so. The reason given for not wanting to do so was fear of their spreading the news to other people and the subsequent negative reactions and stigma that would ensue.

The above concerns should be recognised and addressed by the health care workers and the pregnant women. At the same time, the benefits of PMTCT services should be emphasised through on-going awareness and education in the community so that negative attitudes towards people living with HIV/AIDS by health workers in particular and the general public can eventually be changed.

### **6.2.5 Cues for action and self-efficacy**

In the context of the HBM, cues to action are strategies that activate "readiness" and may be events, either bodily, people, or environmental, that motivate people to take action. Reminders such as knowledge of someone with HIV or a woman who is HIV positive and has an HIV-negative baby can encourage a pregnant woman to take action to ensure that she prevents her baby from becoming infected with HIV. In the context of the HBM, efficacy or efficaciousness is the ability to produce an intended result and self-

efficacy refers to confidence in one's ability to take action. In this study, it meant the ability of the HIV-positive pregnant woman to successfully undertake all interventions that will help her to prevent MTCT of HIV.

Of the respondents, 45.1% (n=46) personally knew someone with HIV/AIDS while 20.6% (n=21) knew both adults/children with HIV/AIDS. Knowing someone with HIV helped raise consciousness about the reality of the disease among the respondents and motivated them to seek information about PMTCT services. The need to ensure a healthy baby that is not infected could also account for 86.3% (n=88) of the respondents' spouses/partners having been tested. In addition, the health workers require the partners to be tested as part of the package of care for pregnant women in antenatal clinics.

Of the respondents, 74.5% (n=76) indicated that pregnant women are also given information about the implications of not utilising PMTCT services. Explaining the benefits of the interventions is crucial in encouraging pregnant women to access services through informed decision making. The importance of on-going education and awareness about HIV/AIDS and the need to return for follow-up/postnatal visits at every antenatal clinic visit cannot be overemphasized. Even though all the respondents said they would return for postnatal visit, experience has shown that most do not thereby missing the opportunity for further care, especially for the HIV-positive clients.

The respondents were asked to suggest ways to help more HIV-positive pregnant women to use PMTCT services. The respondents' suggestions include:

- Employ and train more health care workers to work in the antenatal clinic.
- More friendly attitude by health care workers.
- Health education on HIV/AIDS at every antenatal visit beyond the one given on the day the women come for their antenatal care registration.
- Provide more cluster of differentiation<sup>4</sup> machine and train relevant staff to use it since patients have to sleep overnight at the hospital to get it done due to shortage of manpower.
- Provision of free infant formula for those who do not want to breastfeed their babies.

- More awareness campaign about HIV/AIDS in the churches as well as using multiple channel of communication at grassroot level.
- Reducing stigma and discrimination towards people living with HIV/AIDS.

### **6.3 LIMITATIONS**

The study was conducted at two major health facilities (one public and one mission) providing PMTCT services in Onitsha, Anambra State therefore the findings cannot be generalised. There are over one hundred health facilities (comprising health care centres, private hospitals and nursing homes) in Onitsha, most of which do not provide PMTCT services. In addition, Onitsha is an urban centre and the findings may differ from what may be obtained in a rural setting. The study also involved only 102 respondents whose background, educational level, and knowledge of HIV/AIDS may differ from those of others attending other facilities in the Onitsha or a rural setting.

Despite the limitations, the study provides valuable information that could help in improving services to prevent MTCT of HIV in the Anambra State and beyond.

### **6.4 RECOMMENDATIONS**

Based the findings, the researcher makes the following recommendations for practice and further research.

#### **6.4.1 Knowledge of HIV transmission and PMTCT**

The researcher recommends that on-going health talks should be provided to pregnant women attending antenatal clinics beyond what they are told the day they come for booking in the health facility. Regular talks on the topic will increase understanding of the issues and help the mothers to comprehend and appreciate the implications of not using the services, especially for those who are HIV positive. All aspects of transmission from mother-to-child should be emphasised during the health talks to promote a better understanding of PMTCT.

Since the health workers were listed as a major source of the respondents' information regarding PMTCT, they should also be exposed to regular training programmes to up-

date their own knowledge and skills in HIV/AIDS counselling, infant feeding counselling and PMTCT to enable them to effectively educate the pregnant women.

#### **6.4.2 Barriers to utilising PMTCT services**

The researcher recommends that health care workers should be friendlier towards their HIV-positive clients, ensure that confidentiality is not broken and that the women are given all the necessary support to enable them use the services. Health care workers should make an effort to improve male involvement to encourage their support of their HIV-positive wives/partners. Health care workers should also talk to HIV-positive women to find out their challenges and work with them on options that will enable them cope with the situation so that they obtain the optimal benefit from the services available.

Educational campaigns should be continued at all levels to create more awareness of HIV/AIDS, promote understanding about the disease in order to reduce stigma and discrimination as well as support for those who are infected. HIV counselling and testing should be promoted and the benefits of PMTCT services underscored.

HIV-positive mothers who have HIV-negative babies should be invited to counsel newly identified HIV-positive mothers to give them hope and support them. HIV-positive women should also be linked to existing support groups of people living with HIV/AIDS, where available, so that they can share experiences with other infected people to enable them cope better with their disease.

#### **6.4.3 Further research**

Further research should be conducted on the following topics:

- Barriers to utilisation of PMTCT services in other settings, especially rural communities
- Knowledge and attitude of health workers involved in the delivery of PMTCT services at antenatal clinics, and labour and postnatal wards.
- Reasons why HIV-positive pregnant women choose to go elsewhere to deliver rather than where they registered for antenatal services.

## **6.5 CONCLUSION**

Mother-to-child transmission of HIV remains the major means by which children under the age of 15 years are infected with HIV. There are interventions available in Nigeria to support pregnant women to know their HIV status which is an entry point for accessing PMTCT services.

The findings emphasised the importance of on-going awareness of HIV/AIDS during antenatal visits. The findings should be of significant assistance to policy makers, health care workers and others involved in the struggle against HIV/AIDS.

## BIBLIOGRAPHY

Abraham, C, Norman, P & Connor, M. 2000. *Understanding and changing health behaviour from health beliefs to self-regulation*. Harward: Psychology Press.

Adejuyigbe, EA, Fasuba, OB & Onayade, AA. 2004. Sociodemographic characteristics of HIV-positive mother-child pairs in Ile-Ife, Nigeria. *AIDS Care*, 16(3):275-282.

Adeneye, AK, Mafe, MA, Adeneye, AA, Salami, KK, Brieger, WR, Titiloye, MA, Adewole, TA & Agomo, PU. 2006. Knowledge and perception of HIV/AIDS among pregnant women attending antenatal clinics in Ogun State, Nigeria. *African Journal of AIDS Research*, 5(3):272-279.

Adewole, IF, Oluwole, O & Sagay, AS. 2006. *Prevention of Mother-to-Child transmission of HIV: The Nigerian PMTCT Programme in AIDS in Nigeria in AIDS in Nigeria: a nation on the threshold*. Cambridge, MA: Harvard Center for Population Development Studies: London: Harvard University Press,

Akani, CI and Erhabor, O. 2006. Rate, pattern and barriers of HIV serostatus disclosure in a resource-limited setting in the Niger delta of Nigeria. *Tropical Doctor*, 36(2):87-89.

Anambra State Action Committee on AIDS (ANSACA). 2007. *Anambra State HIV/AIDS Strategic Plan 2007-2011: Anambra State, Nigeria*. Awka: Anambra State Action Committee on AIDS.

Andresen, E, Rollins, NC, Sturm, AW, Conana, N & Greiner, T. 2007. Bacterial contamination and over dilution of commercial infant formula prepared by HIV-infected mothers in a prevention of mother-to-child transmission programme, South Africa. *Journal of Tropical Pediatrics*, 53(6):409.

Araoye, MO. 2003. *Research methodology with statistics for health and social sciences*. Ilorin: Nathadex Publishers.

Asamoah-Odei, E, Garcia Calleja, JM & Boerma, JT. 2004. HIV prevalence and trends in sub-Saharan Africa: no decline and large sub-regional differences. *Lancet*, 364:35-40.

Babbie, E. 2007. *The practice of social research*. 11<sup>th</sup> edition. Belmont: Wadsworth

Babbie, E & Mouton, J. 2001. *The practice of social research*. Cape Town: Oxford University Press.

*Baillière's Nurses' Dictionary*. 2005. 24<sup>th</sup> edition. London: Saunders.

Bajunirwe, F & Muzoora, M. 2005. Barriers to the implementation of programs for the prevention of mother-to-child transmission of HIV: a cross-sectional survey in rural and urban Uganda. *AIDS Research Therapy*, 2(10). doi: 10.1186/1742-6405-2-10.

Bandura, A. 1977. Self-efficacy: toward a unifying theory of behavioural change. *Psychological Reviews*, 84(2):191-215.

Barré-Sinoussi, F, Chermann, JC, Rey, F, Nugeyre, MT, Chamaret, S, Gruest, J, Dauguet, C, Axler-Blin, C, Vézinet-Brun, F, Rouzioux, C, Rozenbaum, W & Montagnier, L. 1983. Isolation of a T-lymphotropic retrovirus from a patient at risk for acquired immune deficiency syndrome (AIDS). *Science*, 220:868-871.

Basset, MT. 2002. Ensuring a public health impact of programs to reduce HIV transmission from mothers to infants: the place of voluntary counselling and testing. *American Journal of Public Health*, 92:347-351.

Bastien, S, Leshabari, MT & Klepp, K-I. 2009. Exposure to information and communication about HIV/AIDS and perceived credibility of information sources among young people in northern Tanzania. *African Journal of AIDS Research*, 8(2):213-222.

Bauni, EK, Garimoi, CO, Maharaj, P, Mushingeh, ACS, Neema, S, Ngriwamungu, E & Riwa, P. 2010. People's perception of HIV/STD risk and unwanted pregnancy. From: [http://www.reproline.jhu.edu/english/6read/6issues/6progress/prog48\\_d.htm](http://www.reproline.jhu.edu/english/6read/6issues/6progress/prog48_d.htm) (Accessed 18 February 2010).

Beaudoin, C. 2009. *HIV/AIDS prevention in Sub-Saharan Africa: a multilevel analysis of message frames and their predictors*. Paper presented at the annual meeting of the International Communication Association, Sheraton, New York, 2009-02-05. From: <http://www.allacademic.com/meta/p13651> (Accessed 19 August 2009).

Becker, MH. 1974. The Health Belief Model and personal health behaviour. *Health Education Monographs*, 2(4):324-473.

Bentley, ME, Corneli, AL, Piwoz, E, Moses, A, Nkhoma, J, Tohill, BC, Ahmed, Y, Adair, L, Jamieson, DJ & Van der Horst, C. 2005. Perceptions of the role of

maternal nutrition in HIV-positive breastfeeding women in Malawi. *Journal of Nutrition*, 135:945-949.

Bergh, ZC & Theron, AL. 1999. *Psychology in the work context*. Halfway House: Thompson.

Berkley, S. 1991. Parenteral transmission of HIV in Africa. *AIDS*, 5(supplementary 1):S87-92.

Bolu, O, Anand, A, Swartzendruber, A, Hladik, W, Marum, LH, Sheikh, AA, Woldu, A, Ismail, S, Mahomva, A, Greby S & Sabin K. 2007. Utility of antenatal HIV surveillance data to evaluate prevention of mother to child HIV transmission programmes in resource-limited settings. *American Journal of Obstetrics and Gynaecology*, Supplement to September 2007:S17-S25.

Bond, V, Chase, E & Aggleton, P. 2002. Stigma, HIV/AIDS and prevention of mother-to-child transmission in Zambia. *Evaluation program planning*, 25:347-56.

Brink, H, Van der Walt, C & Van Rensburg, G. 2006. *Fundamentals of research methodology for health care professionals*. 2<sup>nd</sup> edition. Cape Town: Juta.

Burns, N & Grove, SK. 2005. *The practice of nursing research: conduct, critique and utilization*. 5<sup>th</sup> edition. St. Louis, Missouri: Elsevier Saunders.

Buskens, I, Jaffe, A & Mkhathshwa, H. 2007. Infant feeding practices: realities and mind sets of mother in Southern Africa. *AIDS Care*, 19(9):1101-1109.

Buve, A, Bishikwabo-Nsarhaza, K & Mutangadura, G. 2002. The spread and effect of HIV-1 in sub-Saharan Africa. *Lancet*, 359:2011-17.

Campbell, JL. 2004. Patients' perceptions of medical urgency: does deprivation matter? *Family Practice*, 16(1):28-32.

Centres for Diseases Control and Prevention. 1981. Pneumocystis pneumonia-Los Angeles. *Morbidity Mortality Weekly Report*, 30(21):250-252.

Centres for Diseases Control and Prevention. 1981. Kaposi's sarcoma and Pneumocystis pneumonia among homosexual men-New York City and California. *Morbidity Mortality Weekly Report*, 30(21):305-308.

Centres for Diseases Control and Prevention. 2008. Basic information. From: <http://www.cdc.gov/hiv/topics/basic/print/index.htm> (Accessed 5 January 2010).

Chama, C, Gashau, W & Oguche, S. 2007. The value of highly active antiretroviral therapy in the prevention of mother-to-child transmission of HIV. *Journal of Obstetrics and Gynaecology*, 27(2):134-137.

Chama, C, Morrumpa, J & Gashau, W. 2007. Sex and reproduction among HIV infected people in Maiduguri, Nigeria. *Journal of Obstetrics and Gynaecology*, 27(8):812-815.

Chandisarewa, W, Stranix-Chibanda, L, Chirapa, E, Miller, A, Simoyi, M, Mahomva, A, Maldonado, Y & Shetty, AK. 2007. Routine antenatal HIV testing ("opt-out" approach) to prevent mother-to-child transmission in urban Zimbabwe. *Bulletin of World Health Organization*, 85(11):843-850.

Chivonivoni, C. 2006. *Antenatal mothers' practices for preventing mother-to-child HIV transmission*. Pretoria: University of South Africa.

Cichoki, M. 2007. HIV around the world – South Africa: what group's are at highest risk? From: [http://aids.about.com/od/clinicaltrials/safrica\\_2.htm](http://aids.about.com/od/clinicaltrials/safrica_2.htm) (Accessed 18 February 2010).

Clumeck, N, Mascart-Lemone, F, De Maubeuge, J, Brenez, D & Marcelis, L. 1983. Acquired immune deficiency syndrome in black Africans. *Lancet*, 1:642.

Coetzee, D, Hilderbrand, K, Boulle, A, Draper, B, Abdullah, F & Goemaere, E. 2005. Effectiveness of the first district-wide programme for the prevention of mother-to-child transmission of HIV in South Africa. *Bulletin of World Health Organization*, 83(7):489-494.

Collins, B. 2009. *Collins social studies atlas for Nigeria*. London: HarperCollins Publishers.

Collins, CC & Benedict, J. 2006. Evaluation of a community-based health promotion program for the elderly: lessons from Seniors **CAN**. *American Journal of Health Promotion*, 21(1):45-8.

Collins, L & Toure, A. 2004. For girls and women it is not as simple as ABC. *Sexual Health Exchange*, 3(4):1-5.

Cookfair, JM. 1991. *Nursing process and practice in the community*. St Louis: Mosby.

Coutsoudis, A, Pillay, K, Spooner, E, Tsai, WY & Coovadia, HM. 2001. Method of feeding and transmission of HIV-1 from mothers to children by 15 months of age: prospective cohort study from Durban, South Africa. *AIDS*, 15:379-87.

Dabis, F, Ekouevi, DK, Rouet, F, Bequet, L, Viho, I, Horo, A, Fassinou, P, Toure, H, Welfens-Ekra, C & Leroy, V. 2003. Effectiveness of a short course of zidovudine, Lamivudine and peripartum nevirapine to prevent HIV-1 mother-to-child transmission. The ANRS 1201 DITRAME plus trial, Abidjan, Cote d'Ivoire. *Antiviral Therapy 8 Supplementary 1*:abstract no. 219.

Dabis, F & Ekpini, ER. 2002. HIV-1/AIDS and maternal and child health in Africa. *Lancet*, 359(9323):2097–2104.

De Cook, KM, Marum, E & Mbori-Ngacha, D. 2003. A serostatus-based approach to HIV/AIDS prevention and care in Africa. *Lancet*, 362(938):1847-1849.

Dennill, K, King, L & Swanepoel, T. 1999. *Aspects of primary health care*. Johannesburg: Thompson.

De Paoli, MM, Manongi, R & Klepp, KI. 2004. Factors influencing acceptability of voluntary counselling and HIV-testing among pregnant women in Northern Tanzania. *AIDS Care*,16(4):411-25.

Department of Health Studies. 2006. *Mother to child transmission of HIV*. Tutorial letter:MTCHIVY/101/2006. Pretoria: University of South Africa.

Dunkle, KL, Stephenson, R, Karita, E, Chomba, E, Kayitenkore, K, Vwalika, C, Greenberg, L & Allen, S. 2008. New heterosexually transmitted HIV infections in married or cohabiting couples in urban Zambia and Rwanda: an analysis of survey and clinical data. *Lancet*, 371:2183:91.

Edelman, CL & Mandle, CL. 1995. *Health promotion throughout the life span*. St Louis: Mosby.

Edelman, CL & Mandle, CL. 2006. *Health promotion throughout the life span*. 6<sup>th</sup> edition. St Louis: Mosby.

Eisen, M, Zellman, GL & McAlister AL. 1992. A Health Belief Model-Social Learning theory approach to adolescents' fertility control: findings from a controlled field trial. *Health Education Quarterly*, 19(2):249-262.

Ekanem, EE & Gbadegesin, A. 2004. Voluntary counselling and testing (VCT) for human immunodeficiency virus: a study on acceptability by Nigerian women attending antenatal clinics. *African Journal of Reproductive Health*, 8(2):91-100.

Etifit, RE & Samson-Akpan, PE. 2008. Utilization of antenatal and delivery services by pregnant women in Calabar Municipality, Cross River State, Nigeria. *Nigerian Journal of Nursing*, volume 1:49-58.

Eyakuze, C, Jones, DA, Starrs, AM & Sorkin, N. 2008. From PMTCT to a more comprehensive AIDS response for women: A much-needed shift. *Developing World Bioethics*, volume 8(1):33-42.

Family Health International. 1996. *Behaviour change – a summary of four major theories*. Arlington: Family Health International

Family Health International, Nigeria. 2002. Anambra State, Nigeria: *Report of in-depth assessment of HIV/AIDS situation*. Lagos: Family Health International.

Facui, AS. 2008. 25 years of HIV. *Nature*, 453:289-290.

Federal Government of Nigeria. 2003. National Policy on HIV/AIDS. Abuja: Federal Government Press.

Federal Ministry of Health, Nigeria. 2005. *Draft Report on evaluation of the prevention of mother-to-child transmission of HIV pilot programme in Nigeria*. Abuja: Federal Ministry of Health.

Federal Ministry of Education, Nigeria. 2006. *National Education sector HIV/AIDS strategic plan 2006-2010*. Abuja: Federal Ministry of Education.

Federal Ministry of Health, Nigeria. 2006a. *The 2005 national HIV seroprevalence sentinel survey among pregnant women attending antenatal clinics in Nigeria: Technical report*. April 2006. Abuja: Federal Ministry of Health.

Federal Ministry of Health, Nigeria. 2006b. *National HIV/AIDS and Reproductive Health Survey, 2005*. Abuja: Federal Ministry of Health.

Federal Ministry of Health, Nigeria. 2006c. *National clinical service protocol for obstetric and neonatal care*. Abuja: Federal Ministry of Health.

Federal Ministry of Health, Nigeria. 2007. *National guidelines on prevention of mother-to-child transmission of HIV*. Abuja: Federal Ministry of Health

FHI see Family Health International.

FMOH see Federal Ministry of Health.

Fransman, V. 2007. Extending support for PMTCT. *Nursing Update* (South Africa), 31(10):39

Fraser, DM, Cooper, MA & Nolte, AGW. 2006. *Myles textbook for midwives*. African edition. London: Churchill Livingstone.

Gallo, RC, Sarin, PS, Gelmann, EP, Robert-Guroff, M, Richardson, E, Kalyanaraman, VS, Mann, D, Sidhu, GD, Stahl, RE, Zolla-Pazner, S, Leibowitch, J & Popovic, M. 1983. Isolation of human T-cell leukemia virus in acquired immune deficiency syndrome (AIDS). *Science*, 220:865-867.

General Hospital, Onitsha, Anambra State, Nigeria. 2007/2008. *Monthly hospital records (unpublished)*. Onitsha: General Hospital.

Glanz, K., Rimer, B.K. & Lewis, F.M. 2002. *Health behavior and health education. theory, research and practice*. San Fransisco: Wiley.

Gray, RH, Li, X, Kigozi, G, Serwadda, D, Wabwire-Mangen, HB, Nalugoda, F, Kiddugavu, M, Sewankambo, N, Reynolds, SJ & Wawer, MJ. 2005. Increased risk of incident of HIV during pregnancy in Rakai, Uganda: a prospective study. *Lancet*, 366:1182-1188.

Guay, LA, Musoke, P, Fleming, T, Bagenda, D, Allen, M, Nakabiito, C, Sherman, J, Bakaki, P, Ducar, C, Deseyve, M, Emel, L, Mirochnick, M, Fowler, MG, Mofenson, L, Miotti, P, Dransfield. K, Bray, D, Mmiro, F & Jackson, JB. 1999. Intrapartum and neonatal single-dose nevirapine compared with zidovudine for prevention of mother-to-child transmission of HIV-1 in Kampala, Uganda: HIVNET 012 randomised trial. *Lancet*, 354(9181):795-802.

Habicht, JP, Da Vanzo, J & Butz, W. 1986. Does breastfeeding save lives or are apparent benefits due to biases? *American Journal of Epidemiology*, 123:279-289.

Habicht, JP, Da Vanzo, J & Butz, WP. 1988. Mother's milk and sewage: their interactive effects on infant mortality. *Pediatrics*, 81:456-461.

Harms, G, Schulze, K, Moneta, I, Baryomunsi, C, Mebzi, P & Poggensee, G. 2005. Mother-to-child transmission of HIV and its prevention: awareness and knowledge in Uganda and Tanzania. *Journal of Social Aspects of HIV/AIDS*, volume 2(2):258-266.

Harrison, JA, Mullen, PD & Green, LW. 1992. A Meta-analysis of studies of the Health Belief Model. *Health Education Research*, 7:107-116.

Hochbaum, GM. 1956. Why people seek diagnostic X-rays. *Health Education Research*, 7:107-116.

Iliyasu, Z, Abubakar, IS, Kabir, M & Aliyu, MH. 2006. Knowledge of HIV/AIDS and attitude towards voluntary counselling and testing among adults. *Journal of the National Medical Association*, 98(2):1917-1922.

International Centre for Research on Women (ICRW). 2002. Addressing HIV-related stigma and resulting discrimination in Africa: A three-country study in Ethiopia, Tanzania and Zambia. *Information bulletin*. International Centre for Research on Women: Washington, DC.

Jackson, H. 2002. *AIDS, Africa continent in crisis*. Harare: Southern Africa HIV/AIDS Information Dissemination Service.

Janz, NK & Becker, MH. 1984. The Health Belief Model: a decade later. *Health Education and Behavior*, 11:1-47.

John-Stewart G, Mbori-Ngacha D, Ekpini R, Janoff, EN, Nkengasong, J, Read, JS, Van de Perre, P & Newell, ML. 2004. Breast-feeding and transmission of HIV-1. *Journal of acquired immune deficiency syndrome*. 35(2):196–202.

Joint United Nations Programme on HIV/AIDS/World Health Organization 2007. *AIDS epidemic update*. Geneva: Joint United Nations Programme on HIV/AIDS/ World Health Organization.

Joint United Nations Programme on HIV/AIDS 2008. *Prevention of mother-to-child transmission of HIV*. Geneva: Joint United Nations Programme on HIV/AIDS. From:

<http://www.unaids.org/en/PolicyAndPractice/Prevention/PMTCT/default.asp>

(Accessed on 9 July 2009).

Joint United Nations Programme on HIV/AIDS. 2010. Stigma and discrimination. From:

<http://www.unaids.org/en/PolicyAndPractice/StigmaDiscrim/default.asp>

(Accessed 18 February 2010).

Jones, L. 2003. Perinatal HIV transmission and birth options for HIV-positive mothers. From: <http://www.thebody.com/content/treat/art907.html> (Accessed on 18 February 2010).

Kagaayi, J, Gray, RH, Brahmbhatt, H, Kigozi, G, Nalugoda, F, Wabwire-Mangen, F, Serwadda, D, Sewankambo, N, Ddungu, V, Ssebagala, D, Sekasanvu, J, Kigozi, G, Makumbi, F, Kiwanuka, N, Lutalo, T, Reynolds, SJ & Wawer, MJ. 2008. Survival of infants born to HIV positive mothers, by feeding modality, in Rakai, Uganda. *PLoS ONE* 3(12):e3877. (Accessed 4 July 2009).

Kakimoto, K, Kanal, K, Mukoyama, Y, Chheng, TV, Chou, TL & Sedtha, C. 2007. Influence of the involvement of partners in the mother class with voluntary confidential counselling and testing acceptance for prevention of mother-to-child transmission of HIV programme in Cambodia. *AIDS Care*, 19(3):381-384.

Kasenga, F, Hurtig, AK & Emmelin, M. 2007. Home deliveries: Implications for adherence to nevirapine in a PMTCT programme in rural Malawi. *AIDS Care*, 19(5):646-652.

Kebaabetswe, PM. 2007. Barriers to participation in the prevention of mother-to-child HIV transmission program in Gaborone, Botswana a qualitative approach. *AIDS Care*, 19 (3):355-360.

Kerlinger, FN & Lee, HB. 2002. *Foundations of behavioural research*. 4<sup>th</sup> edition. Fort Worth, Tx: Harcourt.

Kibombo, R, Neema, S & Ahmed, FH. 2007. Perceptions of risk of HIV infection among adolescents in Uganda: Are they related to sexual behaviour? *Africa Reproductive Health*, 11(3):168-181.

Kominami, M, Kawata, K, Ali, M, Meena, H & Ushijima, H. 2007. Factors determining prenatal HIV testing for prevention of mother to child transmission in Dar Es Salaam, Tanzania. *Paediatrics International*, 49:286-292.

Lehman, DA and Farquhar, C. 2007. Biological mechanisms of vertical human immuno-deficiency virus (HIV-1) transmission. *Reviews in medical virology*, 17:381-403.

Leroy, V, Karon, JM, Alioum, A, Ekpini, ER, Meda, N, Greenberg, AE, Msellati, P, Hudgens, M, Dabis, F & Wiktor, SZ. 2002. Twenty-four months efficacy of a maternal short-course zidovudine regimen to prevent mother-to-child transmission of HIV-1 in West Africa. *AIDS*, 16(4):631– 41.

Leshabari, SC, Blystad, A & Moland, KM. 2007. Difficult choices: infant feeding experiences of HIV-positive mother in northern Tanzania. *SAHARA J*:

*Journal of social aspects of HIV/AIDS Research Alliance/SAHARA, Human Sciences Research Council [SAHARA], 4(1):544-55.*

Lindsay, E. 2001. Fact sheet on HIV/AIDS for nurses and midwives. *Supplement to the African Journal of Nursing and Midwifery*:3(i):101-109

Lollis, CM, Johnson, EH & Antoni, HM. 1997. The efficacy of the Health Belief Model for predicting condom usage and risky sexual practices in university students. *AIDS Education and Prevention*, 9(6):551-563.

Maiman, LA, Becker, AM & Kirscht, JP. 1977. Scales for measuring Health Belief Model dimensions: a test of predictive value, internal consistency and relationships among beliefs. *Health Education Monographs*, 5:215-230.

Mandell, GL, Bennett, JE & Dolin, R. 2005. *Mandell, Douglas & Bennett's Principles and Practice of Infectious Diseases*. 6<sup>th</sup> ed. Philadelphia: Elsevier.

Mantell, JE, Smit, JA & Stein, ZA. 2009. The right to choose parenthood among HIV-infected women and men. *Journal of Public Health Policy*, 30(4): 367-78.

Manzi, M, Zachariah, R, Teck, R, Buhendwa, L, Kazima, J, Bakali, E, Firmenich, P & Humblet, P. 2005. High acceptability of voluntary counselling and HIV-testing but unacceptable loss to follow up in a prevention of mother-to-child HIV transmission programme in rural Malawi: scaling up requires a different way of acting. *Tropical Medicine and International Health*, 10(12):1242-1250.

Mattson, M. 1999. Toward a reconceptualization of communication: cues to action in the Health Belief Model. HIV test counselling. *Communication Monographs*, 66:240-265.

Medley, A, Garcia-Moreno, C, McGill, S & Maman, S. 2004. Rates, barriers and outcomes of HIV positive disclosure among women in developing countries: implications for prevention of mother-to-child transmission programmes. *Bulletin of World Health Organization*, 82:299-307.

Merywen, W. 2004. *Improving counseling and testing services in Nigeria: Lessons learned*. Arlington: Family Health International.

Miyazaki, M. Epidemiological characteristics of human immuno-deficiency virus type-2 infection in Africa. 1995. *International Journal STD/AIDS*, 6(2):75-80.

Moth, IA, Ayayo, AB & Kasaje, DO. 2005. Assessment of utilisation of PMTCT services at Nyanza Provincial hospital, Kenya. *SAHARA J: Journal of Social*

*Aspects of HIV/AIDS Research Alliance/SAHARA, Human Sciences Research Council [SAHARA], 2(2):244-250.*

Moodley, D, Moodly, J, Coodavia, H, Gray, G, McIntyre, J, Hofmyer, J, Nikodem, C, Hall, D, Gigliotti, M, Robinson, P, Boshoff, L & Sullivan, JL. 2003. For the South African Intrapartum Nevirapine Trial (SAINT) Investigators. A multicenter randomized controlled trial of nevirapine versus a combination of zidovudine and lamivudine to reduce intrapartum and early postpartum mother-to-child transmission of human immunodeficiency virus type 1. *Journal of Infectious Diseases*, 187:725-735.

Mouton, J. 2001. *How to succeed in your Master's and Doctoral studies: a South Africa guide and resource book*. Pretoria: Van Schaik.

Msellati, P, Hingst, G, Kaba, F, Viho, I, Welfferns-Ekra, C & Dabis, F. 2001. Operational issues in preventing mother-to-child transmission of HIV in Abidjan, Cote d'Ivoire, 1998-99. *Bulletin of World Health Organization*, 79:641-7.

Mudokwenyu-Rawdon, C. 2001. *Factors influencing pregnancy outcome in high-risk patients*. Unpublished doctoral thesis. Pretoria: University of South Africa.

Mullen, PD, Hersey, J & Iverson, DC. 1987. Health behaviour models compared. *Social Science and Medicine*, 24:973-981.

Nasidi, A & Harry, TO. 2006. *The epidemiology of HIV/AIDS in Nigeria in AIDS in Nigeria: a nation on the threshold*. Cambridge, MA: Harvard Center for Population Development Studies: London: Harvard University Press,

National Action Committee on AIDS. 2005. *HIV/AIDS National strategic framework for action 2005-2009*. Abuja: National Action Committee on AIDS.

National Action Committee on AIDS. 2004. *National HIV/AIDS behaviour change communication, 5-year strategy 2004-2008*. Abuja: National Action Committee on AIDS.

National Action Committee on AIDS. 2007. *HIV/AIDS Nigeria National Response Information Management System (NNRIMS) Operational Plan 2007-2010*. Abuja: National Action Committee on AIDS.

NACA see National Action Committee on AIDS.

National Cancer Institute. 2005. *Theory at a glance. a guide for health promotion practice*. 2<sup>nd</sup> edition. Washington: United States Department of Health & Human Services.

National Population Commission (NPC) [Nigeria] and ORC Macro. 2004. *Nigeria Demographic and Health Survey 2003*. Calverton, Maryland: National Population Commission & ORC Macro.

Newell, ML. 2003. Reducing childhood mortality in poor countries. *Transactions of the Royal Society of Tropical Medicine & Hygiene*,97: 22-24.

Newell, ML. 2004. *HIV transmission through breastfeeding*. Geneva: World Health Organisation.

Newell, ML, Coovadia, H, Cortina-Borja, M, Rollins, N, Gaillard, P & Dabis, F. 2004. Mortality of infected and uninfected infants born to HIV-infected mothers in Africa: a pooled analysis. Ghent International AIDS Society (IAS) working Group on HIV in Women and Children. *Lancet*, 364(9441):1236-1243.

Newell, ML. 2006. Current issues in the prevention of mother-to-child transmission of HIV-1 infection. *Transactions of the Royal Society of Tropical Medicine & Hygiene*,100:1-5.

Nies, MA & McEwen, M. 2007. *Community health nursing: promoting the health of the population*. 4<sup>th</sup> edition. St Louis: Elsevier Saunders.

Nuwaha, F, Kabatesi, D, Muganwa, M & Whalem, CC. 2002. Factors influencing acceptability of voluntary counselling and testing for HIV in Bushenyi district of Uganda. *East African Medical Journal*, 79:626-32.

Olanrewaju, AM, Fatusi, AO, FA, Akintunde, AE, Ibrahim, B & Fakunde, I. 2007. HIV voluntary counselling and testing of pregnant women in primary health care centre in Ilesa, Nigeria. *Internet Journal of Third World Medicine*, 6(1). From:

[http://www.ispub.com/journal/the\\_internet\\_journal\\_of\\_third\\_world\\_medicine/volume\\_6\\_number\\_1\\_29/article/hiv\\_voluntary\\_counseling\\_and\\_testing\\_of\\_pregnant\\_women\\_in\\_primary\\_health\\_care\\_centres\\_in\\_ilesa\\_nigeria.html](http://www.ispub.com/journal/the_internet_journal_of_third_world_medicine/volume_6_number_1_29/article/hiv_voluntary_counseling_and_testing_of_pregnant_women_in_primary_health_care_centres_in_ilesa_nigeria.html)

(Accessed 12 July 2009)

Okonkwo, KC, Reich, K, Alabi, AI, Umeike, N & Nachman, SA. 2007. An evaluation of awareness: Attitudes and Beliefs of Pregnant Nigerian, women toward voluntary counselling and testing for HIV. *AIDS Patient Care and STDs*, 21(4):252-260.

Onah, HE, Obi, SN, Agbata, TA & Oguanuo TC. 2007. Pregnancy outcome in HIV-positive women in Enugu, Nigeria. *Journal of Obstetrics and Gynaecology*, 27(3):271-274.

Onah, HE, Ibeziako, N, Nkwo, PO, Obi, SN & Okonkwo, TO. 2008. Voluntary counselling and testing uptake, nevirapine use and infant feeding options at the University of Nigeria Teaching Hospital, Enugu, Nigeria. *Journal of Obstetrics and Gynaecology*, 28(3):278-279.

Onah, HE, Ilobachie, GC, Obi, SN, Ezugwu, F & Eze, J. 2002. Nigerian male sexual activity during pregnancy. *International Journal of Gynaecology and Obstetrics*, 76(2):219-223.

*Oxford Advanced Learner's Dictionary of Current English*. 7<sup>th</sup> edition. Oxford: Oxford University Press.

Painter, TM, Diaby, KL, Maita, DM, Lin, LS, Sibilly, TS, Kouassi, MK, Ekpini, ER, Roels, TH & Wiktor, SZ. 2004. Women's reasons for not participating in follow up visits before starting short course antiretroviral prophylaxis for prevention of mother to child transmission of HIV: qualitative interview study. *British Medical Journal*, 329:543. From: <http://www.bmj.com/cgi/content/full/329/7465/543> (Accessed 13 July 2009).

Peltzer, K, Mosala, T, Shisana, O & Nqeteko, A. 2006. Utilisation of delivery services in the context of prevention of HIV from mother-to-child in a rural community, South Africa. *Curationis*, 29(1):54-61.

Petrovici, DA & Ritson, C. 2006. Factors influencing consumer dietary health preventative behaviours. *BioMed Central Public Health*, 6:222.

PlusNews. 2010. Southern Africa: HIV pregnancy, stigma and ignorance. From: <http://www.plusnews.org/Report.aspx?ReportId=82567> (Accessed 18 February 2010).

Polit, DF & Beck, CT. 2004. *Nursing research, principles and methods*. 7<sup>th</sup> edition. Philadelphia: Lippincott, Williams & Wilkins.

Polit, DF & Beck, CT. 2008. *Nursing research: generating and assessing evidence for nursing practice*. 8<sup>th</sup> edition. Philadelphia: Lippincott.

Quinn, TC, Mann, JM, Curran, JW & Piot, P. 1986. AIDS in Africa: an epidemiologic paradigm. *Science*, 234:955-63.

Rio, CD & Curran, JW. 2005. *Mandell, Douglas & Bennett's principles and practice of infectious diseases*. 6<sup>th</sup> edition. Philadelphia: Elsevier.

Robinson, SF, Bielowicz, MK, Rodgers, AS, Wong, WW & Konzelman, KL. 2008. Designing a bone health and soy focus group discussion guide based on the Health Belief Model. *Journal of Extension*, 46(1) From: <http://www.ioe.org/ioe/2008february/rb3.php>. (Accessed 6 November 2009).

Roden, J. 2004. Revisiting the Health Belief Model: nurses applying it to young families and their health promotion needs. *Nursing and Health Sciences*, 6:1-10.

Rollins, N, Meda, N, Becquet, R, Coutoudis, A, Humphrey, J, Jeffery, B, Kanshana, S, Kuhn, L, Leroy, V, Mbori-Ngacha, D, McIntyre, J & Newell, ML. 2004. Preventing postnatal transmission of HIV-1 through breast-feeding: modifying infant feeding practices. *Journal of Acquired Immune Deficiency Syndrome*, 35:188-195.

Rosenstock, IM. 1974. Historical origins of the Health Belief Model. *Health Education Monographs*, 2(4):328-335.

Rosenstock, IM, Strecher, VJ & Becker, MH. 1994. *Preventing AIDS: theories and models of behavioural change*. New York: Springer.

Sagay AS, Musa J, Ekwempu CC, Imade GE, Babalola A, Daniyan G, Malu N, Idoko JA & Kanki P. 2006. Partner disclosure of HIV status among HIV positive mothers in Northern Nigeria. *African Journal for Medicine and Medical Sciences*, 35 supplementary:119-23.

Sagay, AS, Onakewhor, J, Galadanci, H & Emuveyan, EE. 2006. HIV status of partners of HIV positive pregnant women in different regions of Nigeria: matters arising. *African Journal of Medicine and Medical Sciences*, 35:125-29.

Saks, M & Allsop, J. 2007. *Researching health: qualitative, quantitative and mixed modes*. London: Sage.

Salazar, MK. 1991. Comparison of four behavioral theories: a literature review. *American Association of Occupational Health Nursing*, 39(3):128-135.

Sarker, M, Sanou, A, Snow, R, Ganame, J & Gondos, A. 2007. Determinants of HIV counselling and testing participation in a prevention of mother-to-child transmission programme in rural Burkina Faso. *Tropical Medicine and International Health*, 12(12):1481-1483.

Shaffer, N, Chuachoowong, R, Mock, PA, Bhadrakom, C, Siriwasin, W, Young, NL, Chotpitayasunondh, T, Chearskul, S, Roongpisuthipong, A, Chinayon, P, Karon, J, Mastro, TD & Simonds, RJ. 1999. Short-course Zidovudine for perinatal HIV-1 transmission in Bangkok, Thailand: a randomized controlled trial. Bangkok Collaborative Perinatal HIV Transmission Study Group. *Lancet*, 6;353(9155):773-80. From: <http://www.ncbi.nlm.nih.gov/pubmed/10459957> (Accessed 10 July 2009).

Shaffer, N, McConnell, M, Bolu, O, Mbori-Ngacha, D, Creek, T, Ntumy, R & Mazhani, L. 2004. Prevention of mother-to-child HIV transmission internationally (1). United States National Center for Infectious Diseases: Washington, DC.

Shabangu, P. 2006. Perceptions of HIV positive Swazi women on childbearing. XVI International AIDS Conference – Toronto.

Shears, KH. 2002. Gender stereotypes compromise sexual health. *Network: Family Health International*, 21(4):12-18.

Sint, TT, Dabis, F, Kamenga, C, Shaffer, N & de Zoysa, IF. 2005. Should nevirapine be used to prevent mother-to-child transmission of HIV among women of unknown serostatus? *Bulletin of World Health Organization*, 83(3):161-240

Sippel, S. 2007. The fidelity fallacy: The link between HIV infection and marriage. From: <http://www.americanprogress.org/issues/2007/08/fide;ity.html> (Accessed 18 February 2010).

Smith, DJ. 2007. Modern marriage, men's extramarital sex, and HIV risk in Southeastern, Nigeria. *American Journal of Public Health*, 97(6):997-1005.

St. Charles Borromeo Hospital, Onitsha, Anambra State, Nigeria 2007/2008. *Monthly hospital records (unpublished)*. Onitsha: St Charles Borromeo Hospital.

Standhope, M & Lancaster, JB. 2000. *Community and public health nursing*. 5<sup>th</sup> edition. St Louis: Mosby.

Stein, MD, Freedberg, KA, Sullivan, LM, Savetsky, J, Levenson, SM, Hingson, R & Samet, JH. 1998. Sexual Ethics: Disclosure of HIV-positive status to partners. *Archives of Internal Medicine*, Volume 158(3):253-257.

Strecher, VJ & Rosenstock, IM. 1997. The Health Belief Model. In *Health behavior and health education: theory, research and practice*, eds. K Glanz, FM Lewis & BK Rimer. San Francisco: Jossey-Bass.

Stringer, EM, Sinkala, M, Stringer, JS, Mzyece, E, Makuka, I, Goldenberg, RL, Kwape, P, Chilufya, M & Vermund, SH. 2003. Prevention of mother-to-child transmission of HIV in Africa: successes and challenges in scaling-up a nevirapine based program in Lusaka, Zambia. *AIDS*, 17:1377-82.

Stommel, M & Wills, CE. 2004. *Clinical research. Concepts and principles for advanced practice nurses*. Philadelphia: Lippincott, Williams & Wilkins.

Somekh, B & Lewin, C. 2005. *Research methods in the social sciences*. London: Sage.

Sudha, RT, Vijay, DT & Lakshmi, V. 2005. Awareness, attitudes and beliefs of the general public towards HIV/AIDS in Hyderabad, a capital city from South India. *Indian Journal of Medical Sciences*, volume 59(7):307-316.

Tabi, MM & Frimpong, S. 2003. HIV infection of women in African countries. *International Nursing Review*, 50(4):242-250.

Temmerman, M, Ndinya-Achola, J, Ambani, J & Piot, P. 1995. The right not to know HIV test results. *Lancet* 345(8955):969-70.

The Petra Study Team. 2002. Efficacy of short-course regimens of zidovudine and lamivudine in preventing early and late transmission of HIV-1 from mother-to-child in Tanzania, South Africa and Uganda: a randomised double-blind, placebo controlled trial. *Lancet*, 359 (9313):1178–1186.

Thorsen, VC, Sundby, J & Martinson, F. 2008. Potential initiators of HIV-related stigmatization: ethical and programmatic challenges for prevention of mother-to-child transmission programs. *Developing world bioethics*, volume 8(1):43-50.

Utulu, SN & Lawoyin, TO. 2007. Epidemiological features of HIV infection among pregnant women in Makurdi, Benue State, Nigeria. *Journal of Biosocial Science*, 39 (3):397-408.

Van Rensburg, D, Friedman, I, Ngwena, G, Pelser, A, Steyn, F, Booyens, F & Adendoff, E. 2002. *The dynamics of AIDS in South Africa in Strengthening local government and civic response to the HIV/AIDS epidemic in South Africa*. Centre for Health Systems Research and Development. Pretoria: Government Printers.

Wong, LH, Van Rooyen, H, Modiba, P, Richter, L, Gray, G, McIntyre, JA, Schetter, CD & Coates, T. 2009. Test and Tell: Correlates and consequences of testing and disclosure of HIV status in South Africa (HPTN 043 Project Accept). *Journal of Acquired Immunodeficiency Syndrome*, 50(2):215-222.

World Health Organization and Joint United Nations National Programme on HIV/AIDS. 1998. *HIV in pregnancy: a review*. Geneva: World Health Organization/ Joint United Nations Programme on HIV/AIDS.

World Health Organization. 2000. *Facts sheets on HIV/AIDS for nurses and midwives*. Geneva: World Health Organization.

World Health Organization. 2000. WHO Collaborative Study Team on the role of breast-feeding on the prevention of infant mortality. Effect of breast-feeding on infant and child mortality due to infectious disease in less developed countries: a pooled analysis. *Lancet*, 355(9212):451-455.

World Health Organization. 2001. *Health Research Methodology: a guide for training in research methods*. 2<sup>nd</sup> Edition. Geneva: World Health Organization.

World Health Organization, 2004. *HIV transmission through breast feeding: a review of available evidence*. Geneva: World Health Organization.

World Health Organization. 2006. WHO HIV and Infant feeding technical consultation consensus statement. Geneva:WHO/UNAIDS. From: [http://www.who.int/child\\_adolescent\\_health/documents/pdfs/who\\_hiv\\_infant\\_feeding\\_technical\\_consultation.pdf](http://www.who.int/child_adolescent_health/documents/pdfs/who_hiv_infant_feeding_technical_consultation.pdf) (Accessed 8 November 2009).

World Health Organization, United Nations Children's Fund & Joint United Nations Programme on HIV/AIDS. 2007. *Towards universal access: scaling up priority HIV/AIDS interventions in the health sector: progress report 2007*. Geneva: World Health Organization.

World Health Organization. 2009. Definition of Terms. From: <http://www.wpro.who.int/NR/rdonlyres/45B45060-A38E-496F-B2C1-BD2DC6C04C52/0/44Definitionofterms2009.pdf>. (Accessed 7 November 2009).

Zulu, E, Ezech, AC & Nii-Amoo Doodoo, F. 2000. *Slum residence and sexual outcomes: early findings of causal linkages in Nairobi, Kenya (working paper no 17)*. Nairobi: African Population and Health Research Centre.

# **ANNEXURE A**

## **UNISA Clearance Certificate**

**UNIVERSITY OF SOUTH AFRICA**  
**Health Studies Research & Ethics Committee**  
**(HSREC)**  
**Faculty of Humanities and Social Sciences**  
**CLEARANCE CERTIFICATE**

Date of meeting: 14 March 2008

St No: 3578-973-5

Project Title: An investigation into the factors affecting the utilization of mother to child transmission services by immune-deficiency virus positive woman in Onitsha, Anambra state, Nigeria

Researcher: Nnamdi-Okagbue, Rosemary (Mrs)

Supervisor/Promoter: Prof SP Hattingh

Joint Supervisor/Joint Promoter: Dr. Tanya Heyns

Department of Health Studies

Degree: Masters Dissertation

**DECISION OF COMMITTEE**

Approved

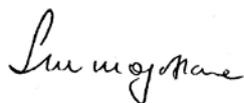
Conditionally Approved

Date:



**Prof TR Mavundla**

**RESEARCH COORDINATOR: DEPARTMENT OF HEALTH STUDIES**



**Prof SM Mogotlane**

**ACADEMIC CHAIRPERSON: DEPARTMENT OF HEALTH STUDIES**

**PLEASE QUOTE THE PROJECT NUMBER IN ALL ENQUIRES**

# **ANNEXURE B**

## **PERMISSION FROM THE HEALTH FACILITIES**

# **ANNEXURE C**

## **CONSENT TO PARTICIPATE IN RESEARCH (INFORMED CONSENT)**

## **Consent to participate in the research**

Dear respondent,

My name is Rosemary Nnamdi-Okagbue. I am pursuing a Masters degree in Public Health with the University of South Africa. I am conducting a study entitled “An investigation into factors affecting utilisation of prevention of mother-to-child transmission services by human immuno-deficiency virus positive women in Onitsha, Anambra State, Nigeria”.

The purpose of the study is to investigate and identify the factors that affect utilisation of prevention mother-to-child transmission of HIV services as well as propose measures that will promote utilisation of the services.

I will appreciate if you answer the questions as genuinely as possible. The information generated from this study will be treated with confidentiality. The results and publication will be done in such a way to protect the identity of respondents.

Your participation in this study is on a voluntary basis and you are free to withdraw at any stage should you wish to do so. You are also free to ask any questions for clarification during the interview.

Thank you for consenting to participate in the study.

Rosemary Nnamdi-Okagbue  
Mobile number: 0803-787-7676

# **ANNEXURE D**

## **DATA COLLECTION INSTRUMENT**

## STRUCTURED INTERVIEW GUIDE

Please answer the questions as honestly as you can. No individual names are required since the information you are give is strictly confidential. Remember you can decide to terminate the session without any penalty.

Participant no: .....

Date: .....

### SECTION 1: SOCIAL DEMOGRAPHIC CHARACTERISTICS

Please I will first ask you some questions about yourself.

No	Question	Options (choose one)
1.1	Age	Years 1. 15 -19 ( ) 2. 20 –24 ( ) 3. 25 - 29 ( ) 4. 30 - 34 ( ) 5. 35 and above ( )
1.2	Marital Status	1.Never Married ( ) 2.Married ( ) 3. Divorced/Separate ( ) 4. Widowed ( )
1.3	Do you live with your spouse/partner	1. Yes ( ) 2. No ( )
1.4	If No, give reasons	..... .....
1.5	Educational level	1.No education ( ) 2.Primary ( ) 3.Secondary ( ) 4.Tertiary ( )
1.6	Employment Status	1.Trader ( ) 2. Permanent Employment ( ) 3. Housewife ( ) 4 Other (include)
1.7	Number of living children	1. 0 ( ) 2. 1 – 2 ( ) 3. 3 – 4 ( ) 4. 5 + ( )

## SECTION 2: KNOWLEDGE OF HIV AND PREVENTION OF MOTHER-TO-CHILD TRANSMISSION OF HIV

No	Question	Option
2.1	Which ways can HIV be transmitted	Unprotected sexual intercourse With an infected partner ( )
		Blood transfusion ( )
		Use of infected sharp skin piercing instruments ( )
		Infected mother-to-child ( )
		Other (indicate): ..... ..... .....
		All of the above ( )
2.2	Have you heard about mother-to-child transmission of HIV?	1. Yes ( ) 2. No ( ) 3. Don't know ( )
2.3	Where did you first hear about mother-to-child transmission of HIV?	1. Newspapers and magazines ( ) 2. Radio ( ) 3. TV ( ) 4. Billboards ( ) 5. Brochures, posters and other printed materials 6. Health workers ( ) 7. Family, friends ( ) 8. Religious leaders ( ) 9. Other (please explain) ..... ..... .....
2.4	Can a pregnant woman be HIV positive and look healthy?	1. Yes ( ) 2. No ( ) 3. Don't know ( )
2.5	Can a pregnant woman transmit HIV to her baby during pregnancy?	1. Yes ( ) 2. No ( ) 3. Don't know ( )
2.6	Can a pregnant woman transmit HIV to her baby during delivery?	1. Yes ( ) 2. No ( ) 3. Don't know ( )
2.7	Can a pregnant woman transmit HIV to her baby during breastfeeding?	1. Yes ( ) 2. No ( ) 3. Don't know ( )
2.8	All babies born to HIV positive women always become infected with HIV	1. Yes ( ) 2. No ( ) 3. Don't know ( )
2.9	How can a woman prevent mother-to-child transmission of HIV?	..... ..... ..... .....

2.10	Are you aware of any intervention that can prevent mother-to-child transmission of HIV?	1. Yes ( ) 2. No ( ) 3. Don't know ( )
2.11	Does the use of anti HIV drugs prevent mother-to-child transmission of HIV?	1. Yes ( ) 2. No ( ) 3. Don't know ( )
2.12	In your opinion, do you think that all pregnant women should know their HIV status?	1. Yes ( ) 2. No ( ) 3. Don't know ( )
2.13	If No, what are your reasons?	..... ..... ..... .....
2.14	Do you think HIV positive women should breastfeed their babies?	1. Yes ( ) 2. No ( ) 3. Don't know ( )
2.15	Will you breastfeed your baby if you are HIV positive?	1. Yes ( ) 2. No ( ) 3. Not sure ( )
2.16	If yes, give reasons	----- ----- -----
2.17	Should spouse/partners of all pregnant women be tested for HIV?	1. Yes ( ) 2. No ( ) 3. Don't know ( )
2.18	Can a husband and wife have two different HIV test results?	1. Yes ( ) 2. No ( ) 3. Don't know ( )

### SECTION 3: PERCIEVED THREAT - SEVERITY/SUSPECTIBILITY

No	Question	Option
3.1	Do you think that HIV/AIDS is a problem/threat in Nigeria?	1. No threat ( ) 2. Some threat ( ) 3. Very serious threat ( )
3.2	Do you think that HIV/AIDS is a problem/threat in Anambra State?	1. No threat ( ) 2. Some threat ( ) 3. Very serious threat ( )
3.3	In your opinion, who can become infected with HIV?	1. Commercial sex workers ( ) 2. Only single women ( ) 3. Married women ( ) 4. Anybody ( )
3.4	Can pregnant women become infected with HIV?	1.Yes ( ) 2.No ( ) 3.Not sure ( )
3.5	Can married women become infected with HIV?	1.Yes ( ) 2.No ( ) 3.Not sure ( )
3.6	If Yes, do they need the permission of their spouse/partner to undergo the test?	1.Yes ( ) 2.No ( ) 3.Not sure ( )

**SECTION 4: BARRIERS TO UTILISATION TO PREVENTION OF MOTHER-TO-CHILD TRANSMISSION SERVICES**

No	Question	Option
4.1	In your community, how are people living with HIV/AIDS treated?	1. Accepted 2. Rejected 3. People support and help them 4. Generally avoided Other (explain) .....
4.2	If HIV positive would you use the prevention of mother-to-child transmission services if it is near your home?	1.Yes ( ) 2.No ( )
4.3	If No, give reasons	
4.4	Do you think that cost of transportation will be an issue?	1.Yes ( ) 2.No ( )
4.5	If you are HIV positive will you disclose your result to your partner?	1.Yes ( ) 2.No ( ) 3.Not sure ( )
4.6	What are the reasons why you will not disclose your test result	Fear of knowing one's own HIV status
		Stigma associated with HIV/AIDS in the community ( )
		Denial of a positive diagnosis ( )
		Suspicion of HIV status if one is not breastfeeding ( )
		Lack of male partners' support ( )
		Negative attitude of health workers ( )
		Belief that they could not transmit HIV to their unborn babies ( )
		Fear of domestic violence and desertion by partner ( )
		Worry about confidentiality of HIV testing and the results ( )
		Peer influence ( )
Inadequate knowledge of the benefits of the programme ( )		
Other (please indicate): .....		
.....		
.....		
4.7	Do you think being HIV positive will affect your marriage?	1.Yes ( ) 2. No ( ) 3. Not sure ( )
4.8	If Yes, how?	..... ..... .....

		..... .....
4.9	Would you disclose your result to other family members/friends?	1. Yes ( ) 2. No ( ) 3. Not sure ( )
4.10	If No, give reasons	..... ..... ..... .....
4.11	If you are HIV positive will you come back to this hospital to deliver your baby?	1.Yes ( ) 2.No ( ) 3.Not sure ( )
4.12	If No, give reasons	..... ..... .....
4.13	In your opinion, what are some of the reasons why some HIV positive women do not come back to the hospital for delivery?	..... ..... ..... .....
4.14	Do you have any idea where they go to deliver their babies?	..... ..... ..... .....
4.15	Can the attitude of the health care workers make some pregnant women not to come back to hospital for delivery?	1.Yes ( ) 2.No ( ) 3.Not sure ( )
4.16	If Yes, what are some of the attitudes?	

**SECTION 5: CUE FOR ACTION AND SELF EFFICACY.**

No	Question	Option
5.1	Do you personally know someone (adult or child) with HIV/AIDS?	1. None ( ) 2. Either ( ) 3. Both ( )
5.2	Have your spouse/partner been tested or HIV?	1. Yes ( ) 2. No ( ) 3. Not sure ( )
5.3	Has someone ever told you about the implications of not utilising prevention of mother-to-child transmission services?	1. Yes ( ) 2. No ( )
5.4	After delivery would you come back to the hospital for follow-up/postnatal?	1. Yes ( ) 2. No ( ) 3. Not sure ( )
5.5	If No, give reasons	..... ..... ..... ..... ..... ..... ..... .....
5.6	Do you have any additional information you may want to share with me concerning PMTCT?	..... ..... ..... ..... ..... ..... ..... .....
5.7	Can you suggest ways to help more HIV	..... ..... .....

	positive women to use the prevention of mother-to-child transmission services in the health facility	..... ..... ..... ..... .....
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**THANK YOU FOR TAKING TIME TO BE PART OF  
THIS STUDY**