

# Factors Influencing Mother To Child Transmission Of HIV Infection Among Low Income Communities Of Lusaka City – A Case Study Of Railway Health Centre In Lusaka District

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**Abstract**—The purpose of this study was to explore factors that are contributing to the failure in reducing or eliminating the mother to child HIV and AIDs infection among Low Income Communities of Lusaka City – a Case Study of Railway Health Centre in Lusaka District, despite Ministry of Health efforts to reduce the transmission rates. The problem statement looked at the concern that despite the efforts made by the Ministry of Health to reduce mother-to-child transmission of HIV, the numbers of children born with HIV infection continue to rise in the area of this study, and the records of mortality rates among babies being recorded from HIV- related also continue to rise.

*The research was conducted covering the catchment area of Railway Clinic of Lusaka with the focus on pregnant mothers regardless of their HIV status, post-natal mothers and mothers bringing children to the Under-five clinic. A case study applied a combination of qualitative and quantitative methods for the data collection using the Key Informant Interviews (KIIs), and a combination of self-administered questionnaire and non-self-administered questionnaire (for those who were not able to read and write), and the questionnaire was analysed using the SPSS, while the interviews were analysed by using the explanatory methods. The purposeful non-probability sampling was used.*

*The findings of the research on basic knowledge of HIV and AIDS can be seen to be increasing in most communities, but there is still insufficient knowledge of MTCT among mothers for PMTCT follow-up services, as some of the factors are the perceptions of HIV that encourage stigma and discrimination, with challenges including poor*

*monitoring of PMTCT services by healthcare workers leading to poor retention in care of infected mothers; other measures should include integrating ART services for mothers with maternal and child health services as another simple and highly effective way of retaining mothers in care after they have given birth. More resources*

*should be provided for information dissemination on the importance of PMTCT activities through the use of community participation and should be supported to improve understanding among the pregnant, post-delivery and breast-feeding mothers.*

**Keywords**—*HIV transmission, anti-retroviral therapy, Prevention of Mother to Child, Mother to Child Transmission, Breastfeeding, Stigma.)*

## CHAPTER ONE

### I. INTRODUCTION

The chapter has been provided as an introduction to the study. It contains the background of the study and the research problem that resulted into this study. It will highlight the objectives of the study together with the research questions, and assumptions made by the author. The study focused on the factors influencing mother to child transmission of HIV infection among Low Income Communities of Lusaka City using a Case Study of Railway Health Centre in Lusaka District.

### 1.1 Background to the study

Acquired Immune-Deficiency Syndrome (AIDS) is caused by the human immune-deficiency virus (HIV), which crossed from primates into humans [45]. HIV is a virus that damages the immune system. The immune system helps the body fight off infections. Untreated HIV infection kills CD4 cells, which are a type of immune cell called T cells [14]. Over time, as HIV kills more CD4 cells, the body is more likely to get various types of infections and cancers. A person with HIV whose CD4 count falls below 200 per cubic millimeter will be diagnosed with AIDS.

HIV is transmitted through bodily fluids that include: blood, semen, vaginal and rectal fluids and breast milk [15]. Mother-to-child transmission of HIV is the spread of HIV from a woman living with HIV to her child during pregnancy, childbirth (also called labour and delivery), or breastfeeding (through breast milk). Mother-to-child transmission of HIV is also called perinatal transmission of HIV. HIV is a virus that attacks cells in the immune system,

In 2017, just over half (52%) of the 1.8 million children living with HIV were receiving ART. Among those without access to effective treatment, 110,000 died due to AIDS-related illnesses (UNAIDS,2018). In 2017, roughly half the 180,000 children newly infected with HIV were infected during breastfeeding [38]. There are particular challenges in maintaining women living with HIV in care and on effective ART throughout the breastfeeding period, as well as reducing, detecting and managing new infections occurring among women while they are pregnant or breastfeeding. As a result, in some countries

more infant infections are now occurring during the postnatal period rather than pregnancy or labour [38].

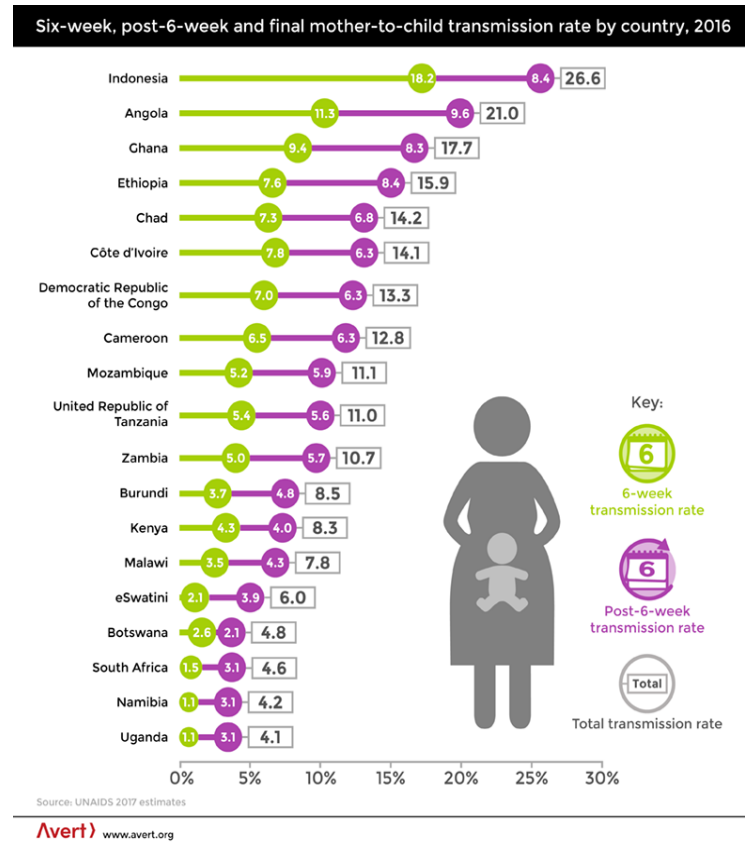


FIGURE 1: MOTHER TO CHILD TRANSMISSION RATE BY COUNTRY-2016 (SOURCE: [38]).

However, sub-Saharan Africa remains the region most affected by HIV/AIDS. The virus is now spreading rapidly in Asia and parts of Eastern Europe, and the mortality rate is increasing among the new born babies [45]. Child mortality is measured by the number of deaths in children under 5 per 1,000 live births and it is therefore a better measure of the impact of AIDS. Women cover about half of all people living with HIV and AIDS virus globally (WHO, 2019), and more than half (60%) in sub-Saharan Africa which includes Zambian communities and observed among the population around the catchment area of Railway Health Centres. Use of breast milk

substitutes has prevented 44 percent of infant infections and was associated with significantly improved HIV-1-free survival.

A certain study in Malawi, however, indicated that most transmission occurs in the early breastfeeding months [25], with an incidence per month of 0.7 percent at age 1 to 5 months, 0.6 percent at age 6 to 11 months, and 0.3 percent at age 12 to 17 months [45]. Infants who were breastfed in combination with receiving other supplementary foods were twice as likely to be infected at age 6 months than infants fed exclusively on breast milk or on formula [9]. HIV primarily affects those in their most productive years; about half of new infections are among those below the age 25 years [35]. Women, especially younger women, are biologically more susceptible to HIV virus infection. As a result, young women are twice more likely to become infected with HIV than their male counterparts globally.

### 1.2 Statement of the problem

Despite the efforts made by the Ministry of Health to reduce mother-to-child transmission of HIV, the numbers of the children born with HIV and AIDs are still being recorded especially from the low-income communities and some children are still dying from HIV-related cases. From the record at the antenatal bookings, it was observed that some mothers do not come to deliver or bring their babies to the under-five clinic facility for follow-up measures [35]. hence, the number of the transmissions need to be verified as to why it

is prevalent in order to help in bringing about information that will assist with interventions.

The figures of the recorded cases are as follows: from January to September 2019, of the 1083 antenatal registrations, 57 were discovered to be HIV positive, with 12 children recorded at the Under-five clinic to be with HIV infections. The numbers of most deliveries are not recorded by the clinic, making it difficult for the planning benefit of the treatment measures, and some of the mothers do not bring their children to the Under-five clinic until when they are sick. There has been inadequate research to bring out the factors leading to the increase in the mother to child transmission of HIV infection, despite interventions by Ministry of Health. Also, there are no obvious researched answers to the reasons behind this increase despite the interventions.

### 1.3 The aim of the research

The aim of this research is to establish why Mother to Child Transmission of HIV Infection is on the increase among the Low-Income Communities of Lusaka City despite Ministry of Health efforts to reduce the transmission rates, a case study of Railway Health Centre.

**Specific objective:** To allow effectiveness of PMTCT interventions on a well-functioning health system that recognize the importance of social, economic, cultural contexts that HIV positive pregnant women live in.

#### 1.4 Research objectives

- i. To establish the specific factors leading to the increase in the Mother-to-Child Transmission of HIV Infection, despite the efforts by MOH to reverse the trend in the study area.
- ii. To establish whether there are any challenges that MOH encounters in the implementation of the measures to reduce Mother to Child Transmission of HIV Infection in the study area,
- iii. To establish whether there are other measures that can be put in place to help address the problem in the study areas.

#### 1.5 Research questions

- i. What are the specific factors leading to the increase in the Mother to Child transmission of HIV infection?
- ii. What are some of the challenges that the Ministry of Health encounters in the implementation of measures to reduce Mother to Child Transmission of HIV infection?
- iii. Are there some other measures that can be put in place to help address the transmission of HIV infection from Mother to Child?

#### 1.6 Significance of the study

With the mothers' knowledge and understanding of the measures to follow in ensuring that HIV infection is not transmitted to their children, this will be of great benefit in leading to a healthy nation and high

productivity. Improvement in the health of children will help the parents to concentrate at the places of work instead of every time spending time worrying about the health of the infected child at home. Improving the general education level will help in diminishing HIV discrimination, as well as enhancing the ability of people of low socio-economic status to understand health information. The government will spend less on curative medicine and also it will allow it to concentrate on preventative measures like immunisations.

#### 1.7 Scope of the study.

The focus of the study is on the mothers attending antenatal, post-natal, under Five clinics, and will work on how to address the factors influencing mother to child transmission of HIV infection among Low Income Communities of Lusaka City – a Case Study of Railway Health Centre in Lusaka District. This will help to come up with measures that will help to mitigate the Mother to Child Infection transmission rates.

#### 1.8 Research Approach

The study will be undertaken using a case study from which data will be collected from those mothers attending the ante-natal and the post-delivery mothers' facility, as well as from the Under Five Clinic facility. This research is aimed at establishing why Mother to Child Transmission of HIV Infection is on the increase despite Ministry of Health efforts to reduce the transmission rates, especially among the low-

income communities surrounding the Railway health facility.

### **1.9 The structure of the report.**

The structure of the report will cover the following:

The chapter one focuses on the overview concept of the research topic with its introduction, the problem statement, research objectives, research questions, and the justification of the study.

Chapter two focuses on the collection of literature review from other published sources from books and journals, and other online publications

Chapter three discusses the theoretical and Conceptual framework underpinning existing theoretical perspectives to the challenges of HIV transmissions

Chapter four discusses the research methodology adopted in this study for obtaining data and analysing it, and presenting the data for drawing inferences and helping to arrive at valid conclusions and making recommendations.

Chapter Five has discussed the how the data the was collected and analysed

Finally, chapter six focused the discussion on the summary, implications, and recommendations

### **1.10 The key terms covered are as follows:**

Anti-Retroviral Therapy (ART); Breastfeeding; HIV transmission; Prevention of Mother to child Transmission (PMTCT); Stigma.

### **1.11 Chapter summary**

This Chapter has outlined the statement of the problem, background of the study, research

objectives and research questions for the study, and the significance of the study. The following chapter discusses the literature review as provided by other researches in previous undertakings. This chapter has explained the concepts and factors that are used in the dissertation.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

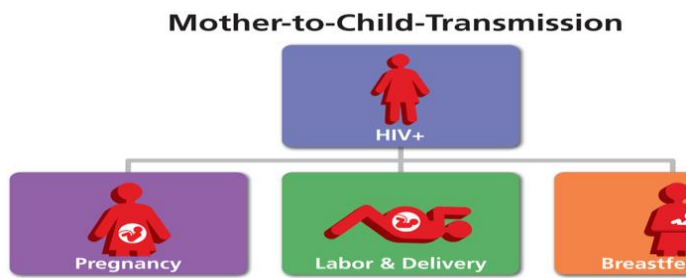
#### **2.1 Introduction**

After discussing the introduction of the research by addressing the research problem, the background of the study, the research objectives and questions, then literature review will follow to cover the secondary information related to previous studies that have been undertaken in relation to transmission of HIV infection from infected Mothers to their new born babies. This chapter also looks at the contributions other researchers have made towards addressing its effects, and what intervention attempts are being made to bring about elimination or reduction of the mother to child transmission before, during, and after birth. The chapter discusses the relationship between variables, whether the change in one variable causes a change in the other variables.

#### **2.2 Biological Mediators of Infectivity**

[15] stated in his study that transmission of HIV from an HIV-positive mother to her child do happen during pregnancy, labour, delivery or breastfeeding. This is called mother-to-child transmission. Untreated Sexually Transmitted

Infections (STIs) increase the risk of sexual HIV transmission several-fold (Institute of Medicine, 1997). Numerous epidemiological studies have supported the association of genital ulcers in general and of genital herpes (herpes simplex virus 2, or HSV-2) in particular with HIV infection [16].



**Figure 2.1 Mother to child transmission of HIV/AIDS: (source- Cates, 2004)**

According to the [40] report, in 2017, 35% of pregnant women in Nigeria received an HIV test, of those women diagnosed with HIV, just 30% were on ART, and 36,000 children became HIV positive. By comparison, in Cote d'Ivoire 92% of pregnant women received an HIV test in 2017, 70% of pregnant women diagnosed with HIV were on ART and 40% of infants received early infant diagnosis. Only 22% of pregnant women living with HIV received ART in the Middle East and North Africa in 2017. In 2015, nearly one third of pregnant women living with HIV passed the virus on to their infant, making it the region that has made the least amount of progress

## 2.3 Estimated HIV Transmission Risk per Exposure

Infection of HIV transmission predominantly occurs through three mechanisms: sexual transmission, exposure to infected blood or blood products, or perinatal transmission (including breastfeeding) [40]. HIV is found in all body fluids of an infected person, although in minimal quantities in sweat, tears, and saliva [40]. Exposure to blood or blood products carries the maximum risk of infection. However, sexual intercourse is the most common source of transmission: 75–85% of people are infected this way [45].

### 2.3.1 Sexual Transmission.

Worldwide, sexual intercourse is the predominant mode of transmission, accounting for approximately 80 percent of infections [2]. Sexual intercourse accounts for more than 90 percent of infections in Sub-Saharan Africa. Although many people who know they are infected reduce their risk behaviours, studies in developed countries suggest that a substantial percentage nevertheless continue to engage in unprotected sex. The risk of sexual transmission is determined by behaviours that influence the likelihood of exposure to an infected individual and by infection in the event of exposure.

### **2.3.2 Infectivity of HIV from sexual transmission**

The per contact infectivity of HIV from sexual transmission varies, depending on sexual activity. Anal intercourse carries a higher transmission probability than penile-vaginal intercourse, and male-to-female transmission is more likely than female-to-male transmission. Data on infectivity by transmission mode is shown in Table 1 above.

### **2.3.3 Vaginal infections**

Vaginal infections are also emerging as important risk factors for HIV. For example, infection with trichomonas increases the risk of HIV sero-conversion [6]. In addition, higher trichomonas rates have been detected in regions of Sub-Saharan Africa that have higher HIV rates, and investigators working throughout Sub-Saharan Africa report similar results, with odds ratios from 1.5 to 56.8 (source). In addition, studies have shown an increased risk of HIV acquisition in patients who have bacterial vaginosis (source).

### **2.3.4 Blood Transfusion**

The probability of becoming infected through an HIV-contaminated transfusion is estimated at more than 90 percent [37], and the amount of HIV in a single contaminated blood transfusion is so large that individuals infected in this manner may rapidly develop AIDS. Currently, between 5 to 10 per cent of HIV infections worldwide are transmitted through the transfusion of contaminated blood products (WHO, 2002a).

Setting up and maintaining a safe blood supply virtually eliminates HIV transmission through blood transfusions.

### **2.3.5 Perinatal Transmission.**

Perinatal HIV transmission includes both vertical transmission where the mother to child transmission occurs during gestation with the rates ranging from 13% to 48% and transmission during breastfeeding [4]. Vertical Transmission: Perhaps the most compelling evidence of the significance of viral load and transmission risk has been documented with respect to Mother to Child Transmission (MTCT) [26]. Maternal viral load, as quantified by RNA polymerase chain reaction, is associated with increased risk in each mode of vertical transmission. A recent randomized clinical trial in Kenya found that maternal plasma HIV Ribonucleic acid (RNA) levels were higher than 43,000 copies per millilitre which were associated with a fourfold increase in vertical transmission.

### **2.3.6 Transmission through breastfeeding**

Transmission is likely associated with an elevated viral load in the breast milk, which in turn is associated with maternal plasma viral load and CD4 T cell levels. However, it has been noticed that infants who are breastfed in combination with receiving other supplementary foods are twice as likely to be infected at age 6 months as infants who are fed exclusively on breast milk or on formula [9].

Decisions about breastfeeding are further complicated by recent data indicating possible increased mortality among breastfeeding mothers [25] and by the stigma associated with not breastfeeding in countries where abstaining from breastfeeding is tantamount to disclosing a woman's HIV status. In contrast, in high-income countries, the health community recommends complete avoidance of breastfeeding for HIV-infected mothers to prevent postnatal effects resulting in mother to child transmission. Prolonged breastfeeding more than doubles the likelihood of MTCT. Evidence indicates that mixed feeding (breast milk and formula or other substances) has a higher risk of transmission than exclusive breastfeeding [9]. Mothers should be counselled on the superiority of early weaning over mixed feeding. However, there is scanty data on the cost-effectiveness of feeding substitution.

#### **2.4 The risk of sexual transmission**

The risk of sexual transmission is also strongly correlated with the plasma level of viruses in the infected individual; thus, infectivity varies over the natural progression of the disease. Individuals are most infectious subsequent to infection and again during the late stage of the disease. Antiretroviral therapy significantly reduces the level of virus infection, often to the point that standard tests cannot detect HIV in the patient's blood [5].

#### **2.4.1 Combination antiretroviral therapy**

Recent reduction in the price of the drugs for the combination of antiretroviral therapy in developing countries from US\$15,000 per year to less than US\$150 in some countries has prompted numerous developing countries to introduce antiretroviral therapy through the public sector [23]. Hence, the administration of a short course of Nevirapine to mothers during labour and to new-borns post-partum reduces the risk of Mother-to-Child transmission (MTCT) by as much as 47 per cent [40].

A large, randomised study in Mozambique found infant HIV point-of-care tests significantly improved retention in care and ART initiation (WHO, 2019). The study found that, whereas all of the results gained through point-of-care testing were made available at the health facility, 19% of the results from tests gained through standard lab testing failed to be returned to the facility. Similarly, 99.5% of point-of-care results were provided to the infant's caregiver, compared to 65% of the standard test results [40].

It has also been noticed as stated in a report by World Health Organisation, "Not knowing one's HIV status acts as a barrier to PMTCT services. The point at which women are tested for HIV has an impact on their journey through PMTCT, should they test positive". For example, a study of pregnant women living with HIV from Cameroon, Cote d'Ivoire, South Africa, and Zambia found women who were diagnosed with HIV before their pregnancy were more likely to

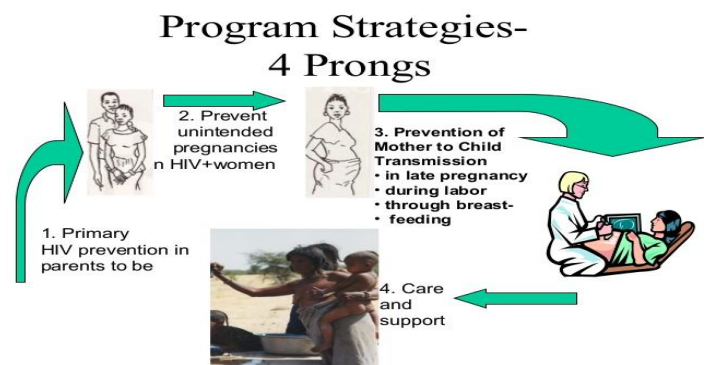


adhere to PMTCT treatment than women who tested positive during pregnancy [40].

### 2.4.2 Resistance and viral failure

However, from the available data, the suggestion is that short-term successes may be at the expense of resistance and viral failure once treatment is introduced after delivery. Modelers commissioned by the World Health Organization (WHO) and the Joint United Nations Programme on HIV and AIDS [38] determined that existing interventions could prevent 63 per cent of all infections which are projected to occur. Notably, the 2018 Super-Fast-Track targets for reducing new paediatric HIV infections to 40 000 was not achieved.

With the study undertaken in 2016 and reported in 2019 (WHO, 2019), among the 23 priority countries, in 2016, it was noticed that the treatment coverage among children of 60% from the global population in Botswana, Kenya, Namibia and eSwatini is low. Because of a lack of treatment, 110,000 children were reported to have died due to AIDS-related illnesses in 2017. It has also been reported that, Infants and young children who acquire HIV have a high risk of illness and death [40]. Among those who are infected during pregnancy and/or labour, this risk is exceptionally high, with a peak between three to four months of age. Half of infants with HIV infection are also likely to die before their second birthday if they do not receive treatment.



**Figure 2: Preventative measures for the mother to child transmission (source- Cates, 2004)**

### 2.5 Lack of Rigorous Evaluations

In addition to poor coverage of key interventions, perhaps the greatest challenge to effective global control is the lack of reliable evidence to guide the selection of interventions for specific areas or populations (Cates, 2004). There are simply not enough resources to do everything everywhere; choices must be made and priorities set. In the HIV/AIDS field, this information deficit is especially pronounced with respect to HIV prevention in general and prevention which is implemented on a population level in particular. Currently, the allocation of resources for HIV/AIDS prevention is seldom evidence-based, primarily because of lack of data on both the effectiveness and the cost of interventions.

### 2.6 Preventing Mother-to-Child Transmission: Antiretroviral Therapy or Contraception?

The differential effect of contraceptive delivery versus antiretroviral therapy in preventing HIV can be shown by comparing the provision of effective contraception and of Nevirapine to a

population of 1,000 HIV-infected women. In the absence of an intervention, approximately 150 infants would be infected with HIV during delivery (Cates, 2004). If Nevirapine were available, the number of infected infants would be reduced to 82 (the expected 47 per cent decline).

If effective contraceptive services were available, this number would be reduced to 49. If both strategies were adopted, the number of infected infants would be further reduced to 25. The greatest difference between providing antiretroviral therapy and providing contraception is the number of infants orphaned in the future because their mothers die of HIV infection. All the three models come to this conclusion [31].

### **2.6.1 Health care during your pregnancy**

Without any sort of treatment or care, the chance of a woman with HIV and AIDS passing it on to her baby is between 35% and 40%. With the right treatment and care, this risk can be much reduced [31]. For women who have been diagnosed and who receive the right advice, treatment and care, the risk is below 1%. For women who are on effective HIV treatment and who have an undetectable viral load when their baby is born, risk of transmission to their baby is 0.1%, or one in a thousand. Firstly, children born from infected mothers have, in the absence of intervention, about a 30% chance of being infected.

Prevention of mother-to-child transmission greatly reduces this, but those who are infected

have poor life expectancy. A systematic review of studies on PMTCT in Cameroon, Côte d'Ivoire, Ethiopia, Kenya, Lesotho, Malawi, Rwanda, South Africa, Tanzania, Uganda, Zambia, Zimbabwe found HIV-related stigma impeded access to ARVs for mothers living with HIV. Similarly, research from Johannesburg, South Africa found that, while the effect of stigma on retention of women at any given stage along the cascade can be relatively small, the cumulative effect can be large [38].

### **2.6.2 Reducing the risk of passing HIV on to your baby**

Ante-natal testing for HIV (for women not yet diagnosed), early diagnosis, and taking HIV treatment, all help to reduce the risk of a woman passing HIV on to her baby. There are two ways in which HIV treatment reduces the risk of passing HIV on to your baby [31]. Firstly, HIV treatment reduces viral load so that the baby is exposed to less of the virus while in the womb and during birth. Secondly, some anti-HIV drugs can also cross the placenta and enter the baby's body where they can prevent the virus from taking hold.

This is also why new-born babies whose mothers are HIV positive are given a short course of anti-HIV drugs (this is called infant post-exposure prophylaxis, or infant PEP) after they have been born [31]. For example In 2010, South Africa Africa started implementing a programme to prevent HIV transmission from mother-to-child (PMTCT) interventions modified to include

routine HIV testing and counselling for all pregnant women, and maternal triple antiretroviral therapy (ART) for pregnant women with CD4 cell count  $\leq 350$  cells/ $\mu\text{l}$ , or dual therapy from 14 weeks for those with  $\leq 350$  cells/ $\mu\text{l}$ , and postnatal infant prophylaxis for 6 weeks in non-breastfeeding infants or throughout the breastfeeding period [18].

### 2.7 Factors likely to increase the risk of passing on HIV to the baby

A number of factors can increase the risk of passing on HIV to the baby. These include the following [1]:

- a) Having an HIV-related illness, such as an opportunistic infection like pneumocystis pneumonia,
- b) Having a high HIV viral load,
- c) Having a sexually transmitted infection [31]. You should have a sexual health screen if you are diagnosed with HIV when you are pregnant, or when you first become pregnant if you have already been diagnosed with HIV,
- d) Developing resistance to your HIV treatment through not taking it as prescribed,
- e) Abusing recreational drugs, particularly injected drugs, during pregnancy.

#### **During delivery:**

- a) Waters breaking four or more hours before delivery if you do not have an undetectable viral load (that is, your viral load is over 50 copies/ml),
- b) Having an untreated sexually transmitted infection when you give birth.

### 2.7.1 Other factors to increase the risk of passing on HIV to the baby

Other conditions, such as bacterial vaginosis, can also increase the risk of passing on HIV to the baby [1]:

- a) If you have a vaginal delivery (rather than a caesarean delivery) when you have a detectable viral load.
- b) If a mother delivers a premature baby [35]. After delivery: a) if a mother does breastfeed a baby.
  - c) To avoid passing HIV to the baby, it is safest to formula feed because breast milk can contain virus.
  - d) Help should be available with getting formula milk and feeding equipment.
  - e) Ask the healthcare team about this and how to protect the confidentiality if a friend or family member asks why a mother is not breastfeeding.

If a woman is diagnosed with HIV and AIDs when she is more than 28 weeks pregnant, she is usually advised to start HIV treatment straight away. If a woman is discovered to have a very high viral load (more than 100,000 copies/ml), she should likely be started on a treatment combination which contains three or four drugs, including Raltegravir (Isentress). This is because Raltegravir is very effective in reducing viral load quickly [35]. If a mother goes into labour prematurely (before the full term of pregnancy), a double dose of another drug, tenofovir disoproxil fumarate (Viread), may be added to the treatment combination. If a baby is born very prematurely, they may not be able to absorb

HIV treatment for the first few days after they are born.

## **2.8 Safety of treatment to prevent mother-to-baby transmission**

Women who are infected with HIV and AIDS virus whenever they come to the clinic are often advised to avoid taking medications during pregnancy (particularly during the first three months). This is because of the potential risk of drugs interfering with the development of the baby [35]. In the case of HIV treatment, however, the benefit of preventing HIV being passed on from a mother to her baby outweighs any potential risks from using HIV treatment. Many women have taken HIV treatment during pregnancy and have given birth to healthy HIV-negative babies. There is some evidence of a slightly increased risk of having a premature, or low birth-weight baby if the mother takes anti-HIV drugs during pregnancy. This is particularly the case if the mother takes a Protease Inhibitor, and if she is on treatment during the first three months of her pregnancy.

## **2.9 Factors affecting the HIV Transmission**

Factors affecting HIV transmission in developing countries are often due to the high cost of basic requirements, sustainability of family livelihoods, lack of safe water, inadequate health services, and inadequate child spacing among some families and by socio-cultural factors [9]. Prolonged breastfeeding of above two years more than doubles the likelihood of Mother to child

transmission [25]. There is evidence that mixed feeding (breast milk and formula or other food substances) has a higher risk of transmission than exclusive breastfeeding, so mothers should be counselled on the superiority of early weaning at about six months [35] as a cost-effective means of feeding substitution.

## **2.10 Gaps in the literature**

Despite the efforts made by the Ministry of Health to reduce the mother to child transmission of HIV, the numbers of children born with HIV infection continue to rise among Low Income Communities of Lusaka District surrounding the Railway Line Clinic. This then forms the basis of the study. High infant mortality is still a challenge among some low-income communities like the area chosen for this study. Contextual data is similarly critical for developing strategies to combat HIV and AIDS- related stigma and restrictive social and gender norms). Even where national efforts have succeeded in curbing the spread of the epidemic, as it is in Senegal and Uganda (Nuwagaba-Biribonwoha et al, 2007), evidence often does not clearly indicate the specific, well-defined, contextual features that account for success.

## **2.11 Chapter summary**

The chapter discussed the glaring deficits in HIV and AIDS research. Despite the glaring deficits in HIV and AIDS research, the magnitude and seriousness of the global pandemic calls for action in the absence of definitive data. The

chapter also discussed in some cases how the absence of data to guide program objectives and national strategies may not accurately reflect the priorities dictated by the particular epidemic profile, resulting in highly inefficient investments in HIV and AIDS prevention and care. This waste undoubtedly exacerbates funding shortfalls and results in unnecessary HIV infections and premature deaths. The next chapter looks at the conceptual and theoretical framework.

## **CHAPTER THREE**

### **CONCEPTUAL AND THEORETICAL FRAMEWORK**

#### **3.1 Introduction**

The chapter is to present a theoretical and conceptual framework which will be employed by this study. The theoretical and conceptual framework is based on the mother to child HIV virus infection transmission trying to find ways to investigate means of mitigating the transmission around existing theoretical perspectives. This will provide the framework for the research design and analysis. The theories and theoretical framework will serve as a foundation for developing information literacy instruction of the study. The identification of the theories is critical to the research for underpinning existing theoretical perspectives to the challenges of the transmissions and which has the potential to lead to more interesting and high-impact theories.

#### **3.2 Theoretical framework**

A theoretical framework of behaviour change will discuss the Anthropological Theory and the Social Influence theory. However, just as per different practices, not all of the knowledge, attitudes and behaviour elements are necessarily measured in the evaluation of the interventions [32] but may be supported for this study to be better able to effect change. The theories being discussed are based on principles derived from infectious disease epidemiology, behavioural and social theory incorporated into rigorous intervention designs and real-world practices that are relevant and appropriate in different settings.

##### **3.2.1 Anthropological Theory**

The theory discusses the prevention strategies which are likely to be most effective when they are carefully tailored to the nature and stage of the epidemic in a specific country or community [8]. The theory is also a focus with realisation that the contextual factors that may play a role in the success of interventions of the mother to Child HIV infection transmission of the virus should include the mothers in their status as women with the underlying mechanisms that may be common to all of them, the stigmatization within the community, and the presence of conflict and social upheaval should be mitigated. Together, the HIV/AIDS epidemic profile of transmissions and the context in which the epidemic occurs should suggest various prevention and control strategies. The techniques of extraction and management of the placenta can

also be a basis of HIV transmission [12]. The Socio-cultural Anthropology of Reproduction as a Theoretical Framework of Research on Mother-to-Child Transmission of HIV. This approach is relevant in the framework, for it involves the analysis of the symbolic aspects of practices surrounding the cutting of the umbilical cord, the expulsion of the afterbirth and the management of the placenta

### 3.2.2 Social Influence theory

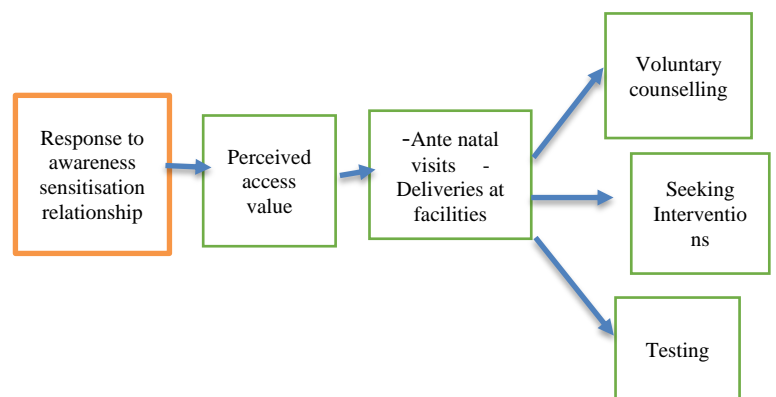
Social influence theory refers to the way in which individuals change their behaviour to meet the demands of a social environment. The central theme of social influence theory, as proposed by [43], is that an individual's attitudes, beliefs, and subsequent actions or behaviours are influenced by referent others through three processes: compliance, identification, and internalization. Social influence is seen to describe how the actions of others affect women's thoughts and actions towards PMTCT. [22] found that pregnant women did not disclose their HIV status to relatives for fear of stigma and discrimination.

Lastly, social undermining is the expression of negative affect or criticisms from others [10] that may hinder pregnant women's utilization of PMTCT. For the HIV and AIDS mother to child transmission and the attention that seems to take form in the community, it has been seen that the people want to conform by socialising, peer pressure, obedience, leadership, and persuasion

though influence. Typically, it is this social influence among infected pregnant mothers that brings about the conduct for responses to the expectations of the facility service. The same influence also alters their attitudes and behaviours in response to what they perceive others might do or think.

### 3.3 Conceptual framework

The variables measured included the independent variables for the awareness of HIV and AIDS with the focus on the intervention group versus the controls, while the dependent variable focused on the perceived value for the access to availability of voluntary counselling and testing of the pregnant mothers in the intervention group versus male controls; females in the intervention group versus female controls [44]. The other intervention variable is the focus on the number of pregnant mothers visiting health facilities to seek interventions and controls against HIV transmission.



**Figure 3.1: Conceptual Framework for the research (Source: [45]).**

The intervention variable focused on the interventions among the pregnant women who do attend health centres for delivery versus those more likely to attend health facilities for antenatal services [45]. The conceptual framework with the variables provided are relevant, this is because HIV transmission rates are several times higher for those who are unaware of their HIV positivity than for those who are aware [17], so this is modelled to the effects of increasing awareness via HIV counselling and testing and moving people from the higher to the lower transmission category. The independent variable is based on the willingness of the pregnant mothers to respond to the campaign at health centres based on the awareness sensitisation programmes and services made available at the health facility. The independent variable is measured based on awareness of a health product or service, especially amongst the pregnant and feeding mothers for the significance between interventions and controls.

### **3.4 Chapter Summary**

The chapter presented the theoretical and conceptual framework associated with the study based on past research on the transmission of HIV infections. It clarified the concept of information literacy and the importance of the knowledge and understanding of the research process. The theories are meant for recognising that it is crucial for explaining how HIV variables or concepts are related and why they are related. Research questions and objectives are also

matched to the study in the context of the theories designed to produce theoretical explanations. For this research, the qualitative and the quantitative approaches was used. The expectation is that participants' meanings and relationships have been made known through the data collection instruments of interviews and questionnaires. That will assist in developing a conceptual and theoretical framework that will contribute to the realisation of the research objectives.

## **CHAPTER FOUR**

### **RESEARCH METHODOLOGY**

#### **4.1 INTRODUCTION**

This chapter discusses in detail the research methodology that has been adopted in this study on the factors influencing mother to child transmission of HIV infection among low income Communities of Lusaka City – a case study of Railway Health Centre in Lusaka District. The method that has been adopted in this research was so carefully designed as to go well with the area of research. As the area of focus for the study is a low-income area where the members of the community engage in communal living, information is important in order to know the significant changes that have taken place after the implementation [30]. The research strategy, the sampling design, data collection methods, data processing and quality of the data are the focus of this chapter. The literature reviewed have assisted the researcher to focus on the type of research method that will be most suitable for this area of study.

## **4.2 Research design**

The research design refers to the overall strategy that is chosen for integrating the different components of the study in a coherent and logical way, thereby, ensuring effective addressing of the research problem. It constitutes the blueprint for the collection, measurement, and analysis of data [32]. The study is a cross-sectional research that uses a case study approach at the Railway health facility. This allows explanation of information to support the qualitative research by using interviews. The selection of this strategy was based on how the researcher was able to understand the background of the study, with a deep and passionate recognition of the importance of working with communities to improve health and wellness. Key Informant Interviews were also used apart from using a questionnaire.

## **4.3 The philosophical stance that is informing the research**

The study adopted both a qualitative and quantitative research design approach whereby data is collected using face to face structured interviews and the structured self-administered questionnaires [33]. This is to understand the theoretical framework in answering the research questions. This type of research approach supports an interpretive research paradigm, inductive approach of verifying the theory and a non-sampling purposeful technique. The qualitative and quantitative data collection methods [13] have been considered for this case study in order to integrate the research data,

clinical expertise, and patient preferences to individualize care and promote effective care decision-making. In the interview, the researcher talked to the Key Informants directly.

## **4.4 Target population**

According to [32], the target population is a complete list of all cases in the population of interest, from which the sample is taken. The population of interest was the ante natal and post-natal mothers visiting the health centre and those bringing their children for under-five clinics. The population was targeted because many of these children acquire the infection from their mothers during pregnancy, birth, or breastfeeding. Data was collected using the questionnaire (Barbour, 2008). The potential respondents expected are those from the lower-class communities within the catchment areas who come to the centre, with a focus on the 135 who have been through the antenatal, postnatal and Under-five clinics at the facility.

For the interviews, the researcher considered 10 the Key Informant Interviews that included the health centre nursing in charge, HIV counsellors, Midwives and PMTCT coordinators, community health workers to investigate the factors influencing the transmission, challenges and sustainability of the PMTCT programme. The choice was based on their experience as health workers who had played key roles in the implementation of the prevention of mother-to-child HIV transmission services



#### 4.5 Sampling frame and the sample size

The non-probability sampling purposeful approach is to ensure that interviews are focused on research concerns. According to [32], non-probability sampling provides a range of alternative techniques to select samples based on subjective judgment. The sample size for the data to be collected using the delivery and collect questionnaire is based on population of the 1083 ante natal mothers who have been through the facility.

$$S = \frac{(t)^2 * p.q}{d^2} \div \left[ 1 + \left[ \frac{1}{N} \left( \frac{(t)^2 * p.q}{(d)^2} \right) - 1 \right] \right]$$

$$= \frac{(1.96)^2 * 0.5.0.5}{0.05^2} \div \left[ 1 + \left[ \frac{1}{135} \left( \frac{(1.96)^2 * 0.5.0.5}{(0.05)^2} \right) - 1 \right] \right] = 100$$

$$(t)^2 = 1.96, p.q = 0.5 \times 0.5, (d)^2 = 0.05, N = 135$$

**Table 4.1: Determining the sample size in a clinical trial: (Source: [19]).**

S = required sample size. t= desired confidence level, N= for population size; d= for degree of accuracy expressed as a proportion of (0.05); p and q=expressed as population proportion assumed to be .50 since this would provide the maximum sample size.

The population size (N) considered for the study was 135 taken from the number of the mothers who were visiting the health facility. The sample size was based on the calculation from the target population, and on HIV prevalence and coverage

of PMTCT and the estimates of transmission rates; and so, this but for this purposeful study, 100 respondents were considered from the questionnaire as sample size (S) to acquire 95% of confidence level with a margin of 5%.

As stated by Coakes & Ong (2010), a minimum of 100 subjects is acceptable even though sample sizes of 200+ are acceptable to ensure that biases are minimised to an acceptable level for the estimation of any type of structural equation modelling. The shortfall in the sample size is to be compensated by highly reliable and valid measures for the data collection models being the interviews. This was done and with consideration of the comparison with the study in South Africa where 1620 infants were needed to estimate MTCT and 768 infants were needed to estimate HIV infection or death with the indicated precision [18]. Hence, for the study a sample size of 100 for this purposeful sampling was used.

#### 4.6 Data collection instruments

According to [7] the method used for data collection depends on the type or kind of data required as well as previously set research design. This particular case study used a combination of Key Informant Interviews (KIIs) where the respondents were to be descriptive in their expressions, with the counsellors, PMTCT coordinators and midwives and other key obstetric informants were considered as the principal source of the information because of their contact with the patients, and a combination of self-

administered questionnaire and non-self-administered questionnaire (for those who were not able to read and write) to allow for the collection of standardized data from the population in a highly economical way, and also to allow for easy comparison of the quantitative data. There are two types of data, these are: primary and secondary data [32]. This research used the Key Informant Interviews from members of staff, and the questionnaire from mothers attending Ante-natal, post-natal clinic and those bringing their children to the Under-Five. All items in the questionnaire for the 100 respondents were scored on a 5-point Likert scale, where 5 = Strongly agree, 4= Agree, 3= Not sure, 2= Disagree, and 1 = Strongly Disagree.

#### **4.7 Method of data analysis**

The data obtained through key Informant interviews was analysed thematically and using direct quotes or words of the respondents as this offered a systematic yet flexible and accessible approach to analyse qualitative data. It was expected to provide an orderly and logical way to analyse qualitative data and analyse relationship to the research objectives using the analytical methods for the interviews. This research was carried out as a descriptive and narrative analysis of the information that was obtained from the interview [7]. Quantitative data from the questionnaire that only had closed ended questions was analyzed using SPSS and descriptive statistics. You also need to mention clearly that both quantitative and

qualitative methods of data analysis were applied so as to enhance on the credibility and reliability of the findings.

#### **4.8 Limitations of the study**

The limitation of the study is that the results may not be generalisable to a larger population due to perception differences, and some responses may not coincide with their responses for the fear of being stigmatised and this proved a bit of a challenge in the openness in the submissions. A further approach of the observations and focus group could be provided for descriptive and complete information sources that could be exhaustive.

A number of limitations were present in this study, though the researcher made every effort to ensure the integrity of the research. The validity of the conceptual framework may be limited by cross-sectional nature of the research design. Although the research has provided substantial information about factors influencing mother to child transmission of HIV infection among low income Communities of Lusaka City catchment area, the time and cost because of the vast of the catchment area is also a limitation, the findings are solely based on the samples of the questionnaire and interview. A further approach of the observations and focus group could have provided some descriptive and complete information sources that could be exhaustive.

#### **4.9 Reliability of the research**

According to [32], reliability is the extent to which the data collection techniques or analysis

procedures yield consistent findings, and assessed using Cronbach's alpha technique for the study using the internal consistency of Cronbach's coefficient alpha for data reliability, as PMTCT findings from the study are meant to provide a range of services to women and infants. These was meant to include preventing HIV infections among women of reproductive age, and providing women living with HIV with lifelong ART to maintain their health and prevent transmission during pregnancy, labour and breastfeeding [37]. The optimising of reliability was meant to go as far as possible towards ensuring that the findings are not simply the result of the preconceptions and expectations of a single researcher or participant or of the special and unique interaction between them, but would also emerge if the cases in question were analysed by a different researcher following the procedures described in the research report or if the same topic were investigated by different researchers.

#### **4.10 Validity of the research**

According to [7], validity means to focus on the integrity of the research findings, and this is in reference to the appropriateness of the measures used and accuracy of the analysis of the results, which is likely to be improved through reproductive, maternal and child health PMTCT services to be improved at primary levels. Validity is meant to assess the level of creditability that has been provided in the research [32]. The research is based on internal validity whose focus is on the likelihood of the apparent relationships of the PMTCT programme demonstration to the feasible interventions among

the mothers attending to antenatal and post-natal care services as well as those bringing the children for under five clinics, regardless of their HIV status. External validity is also meant to focus on the extent to which findings apply in new settings especially in real-life settings of the HIV and AIDS communities. With regard to results, reflection will enable the researcher consider which data extracts on PMTCT programme interventions among the mothers attending to antenatal and post-natal care services.

#### **4.11 Generalization of the research**

According to [32], research findings should be able to be extended to other surroundings. This means that the research findings should be able to be applied to the whole population. Because data was to be collected in a standard manner by using the structured questionnaire and the interviews, it was important to ensure that questions were expressed clearly so that they were understood in the same way by each participant [7]. This methodology required the use of non-probability sampling technique of purposeful study to ensure generalizability [28]. The process of mixing methods was largely to embed the qualitative study within the larger quantitative study, and as umbrella concept that embraces the strategies of theoretical and selective sampling [20].

#### **4.12 Ethical considerations**

Research involving people was designed and delivered ethically, particularly the responsibility of the researcher to protect the privacy of the individuals that participate in the study. This

## CHAPTER FIVE

### DATA ANALYSIS AND DISCUSSION

#### 5.1 Introduction

In Chapter four, research methodology and research designs were discussed in detail. The respondents' profiles along with sample characteristics, data screening, measurement model assessment and structural model fit are described in this chapter. The goals of this chapter are to: describe the sample demographics as well as characteristics of respondents, several practical issues, such as data entry are addressed before formal analysis. In addition, the estimates of reliability were obtained by correlating data collected from the questionnaire [32]. The collected sample in this study varied widely on personal and respondent's characteristics. The profile of a respondent is explored in this section as part of the assessment of the data. As this research used self-administered questionnaires the response errors were an issue, as the researcher had no control over how questionnaires were completed, hence the relevant data screening techniques such as descriptive statistics is discussed in this section.

#### SECTION A

#### 5.2 Analysis and Presentation of Data from the Questionnaire

A hundred (100) mothers attending to antenatal and post-natal care services as well as those bringing the children for under five clinics, regardless of their HIV status participated in the study. Table 5.1 below shows the questionnaires

privacy protection was extended to all people who participated in the study, regardless of age, religion, and race [11]. The researcher explained the purpose of the research to the respondents that it was for academic purpose only, before commencing the data collection, and applied the non-disclosure approach where the interviewee was not be required to disclose their identity during the interview [32].

The researcher ensured that the code of conduct of research was followed when dealing with the interviewee such as not recording or interviewing in the presence of other clients in order to protect privacy, and also that no recording was to be done without permission from the respondent. The rights and interests of the interviewees was of high interest to the researcher [7]. The other general ethical issue was that the research design did not subject the respondent to the risk of embarrassment, pain, harm or any other material disadvantage.

#### 4.13 Chapter Summary

Chapter four focused on the different methods of collecting data. It explained the different instruments that were used to collect and analyze data. It is a chapter that is focused on planning on how data collected is analysed. Chapter five will focus on the analysis of the data to measure the attitudes of the respondents from the questionnaires and the interviews.

returned and the rate of use. As shown in Table 5.1, about (100%) of the questionnaires were collected by the researcher from the participants, hence the researcher made use of hundred (100) sets of the questionnaire respondents representing 100% which was sufficient for the statistical analysis.

Study method	Questionnaire	Frequency	Percentage
Paper returned method	Returned	100	100%
	Unreturned	0	0%
Usable rate Useable and Non Defective Responses and Rejected	Usable rate		
	Useable and Non Defective Responses	100	100%
	Defective Response	0	0%
	and Rejected		

**Table 5.1: Usable and Unusable Rate of the Questionnaire**

**5.2.1 Data Screening**

The information was collected from the respondents among the pregnant, post- delivery and mothers bringing their children to under-five clinic to Railway Health Centre. This was because the capturing of the numbers is considered critical [27], and there was consideration in deciding on critical success factors of the outcome of the service provision at the health facility. The questionnaire for the research was either self-administered to individuals or had to help those who could not write in entering responses, but the respondents did not want to be associated in their responses to the results for fear of stigmatisation despite the assurance that the data would be purely for academic purpose and would be kept confidential (White, 2000), making the analysis formalised on

the basis of the institution. The researcher had no control on how the responses were provided, so the data screening and analysis has been done as per the statistics provided.

**5.2.2 Reliability of a scale**

One of the main issues concerning the scale’s internal consistency is Cronbach’s Alpha coefficient which is expected to be above 0.7. As stated by Pallant (2010), citing De Vellis, (2003), with fewer than ten items, it is common to find quite low Cronbach values.

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.965	.963	13

**Table 5.2: Reliability Statistics**

For this research, the internal reliability is as from the questionnaire covering the area of focus on the Factors influencing mother to child transmission of HIV infection among Low income Communities of Lusaka City – a case study of Railway Health Centre in Lusaka District, and was assessed using Cronbach’s alpha technique. The scale has produced an alpha of 0.965 which is highly acceptable for the attitude scale and it is appropriate, suggesting very good internal consistency and reliability for the scale with the sample, as the recommendation for the minimum size is 100-150 individuals in the data/variable distribution. The following:

Scale Statistics			
Mean	Variance	Std. Deviation	N of Items
45.30	136.051	11.664	13

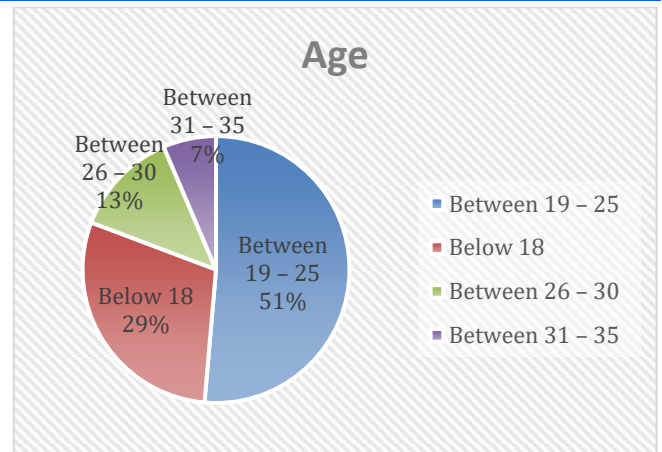
**Table 5.3: Scale of Statistics**

The study has provided mean inter-item correlation in the scale statistics: mean=45.30, variance of 136.051, and with the deviation of 11.554 for the 13 items giving strong relationships among the items. The Bartlett test of the sphericity is significant and that the Kaiser – Meyer-Olkin measure of sampling adequacy is far greater than .6 well above the acceptable level of .5 [7].

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.890
Bartlett's Test of Sphericity	Approx. Chi-Square	1950.956
	Df	78
	Sig.	.000

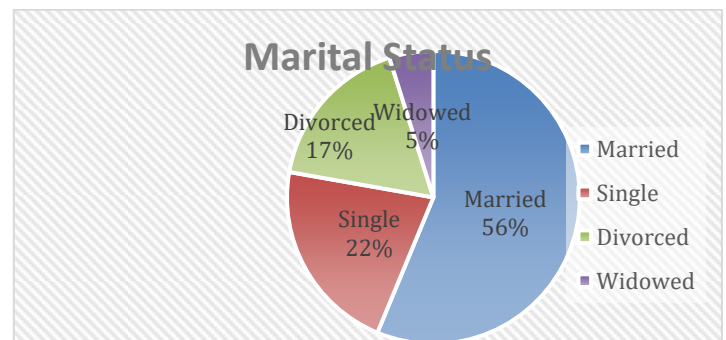
**Table 5.4: KMO and Bartlett's Test**

The SPSS was used for data screening and transformation in the measuring of attitudes, using the five-point Likert scale response format 5- strongly agree, 4- agree, 3= not sure, 2= disagree, and 1 = strongly disagree, from the analysis of the questionnaire, and has also been used to determine the chance of variation around the population mean, and that the sample mean was not significantly different from the presumed population [7].



**Table 5.5: Age Range of Respondents**

Figure 5.5 indicates that most of the respondents to the questionnaire were between 19 and 25 years old covering 51%, followed by age below 18 years with 29%, then between 26 to 30 years with 13%, and then 31 to 35 years with 7%. This is an indication of the need to focus attention as per provided numbers.



**Table 5.6: Marital status of Respondents**

Figure 5.6 indicates that most of the respondents to the questionnaire were of married status with 56 %, followed by the singles with 22%, the divorced with 17% and then the widowed with 5%. The higher numbers among the married as indication requiring spouse support during the PMTC programs.

### 5.2.2.1 Adequacy of health services to support women of reproductive age

As shown from the figure below, it has been observed that out of the 100 respondents, 10 women strongly disagreed with the point adequacy of health services to support women of reproductive age adequate in case of HIV infection, 23 disagreed, 65 not sure, 2 agreed and 0 strongly agreed.

Response		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagreed	10	10.0	10.0	10.0
	Disagreed	23	23.0	23.0	33.0
	Not Sure	65	65.0	65.0	98.0
	Agreed	2	2.0	2.0	100.0
	Total	100	100.0	100.0	

**Table 5.7: Adequacy of health services to support women of reproductive age adequate in case of HIV infection**

### 5.2.2.2 Awareness to stop HIV transmission to either the unborn or born infants.

As shown from the Table below, it has been observed that out of the 100 respondents, 4 women strongly disagreed with the adequacy of the awareness being provided at health centres that it helps to stop HIV from being transmitted to either the unborn or born infants 31 disagreed, 27 not sure, 21 agreed, and 17 strongly agreed.

Responses		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagreed	4	4.0	4.0	4.0
	Disagreed	31	31.0	31.0	35.0
	Not Sure	27	27.0	27.0	62.0
	Agreed	21	21.0	21.0	83.0
	Strongly agreed	17	17.0	17.0	100.0
	Total	100	100.0	100.0	

**Table 5.8: Whether awareness being provided at health centres helps to stop HIV from being transmitted to either the unborn or born infants**

### 5.2.2.3 Development of a baby concern as a reason for not taking a test.

As shown in the figure below, it has been observed that out of the 100 respondents, 3 women strongly disagreed with the point that taking of the ARV during pregnancy for the mothers concerned with the development of the baby could be a reason for not taking a test, 5 disagreed, 29 not sure, 39 agreed and 15 strongly agreed.

Response		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagreed	3	3.0	3.0	Valid
	Disagreed	14	14.0	14.0	
	Not Sure	29	29.0	29.0	
	Agreed	39	39.0	39.0	
	Strongly agreed	15	15.0	15.0	

**Table 5.9: Whether taking of the ARV during pregnancy for the mothers concerned with the development of the baby is a reason for not taking a test**

### 5.2.2.4 decision to continue taking the the anti-HIV drugs during pregnancy

As shown from the Table below, it has been observed that out of the 100 respondents, 6 women strongly disagreed with the notion that if found positive and start taking HIV treatment, can keep taking the same anti-HIV drugs during your pregnancy, 27 disagreed, 32 not sure, 27 agreed, and 8 strongly agreed.

Response		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagreed	6	6.0	6.0	6%
	Disagreed	27	27.0	27.0	33%
	Not Sure	32	32.0	32.0	65%
	Agreed	27	27.0	27.0	92
	Strongly agreed	8	8.0	8.0	100%

**Table 5.10: Whether if found positive and start taking HIV treatment, a pregnant mother can decide to continue taking the anti-HIV drugs**

### 5.2.2.5 Stigmatization of HIV infected mothers in your community.

As shown from the Table below, it has been observed that out of the 100 respondents, 3 women strongly disagreed with the notion of knowing HIV status, if discovered to be positive will make a pregnant mother to feel highly stigmatized in your community 11 disagreed, 36 not sure, 33 agreed, and 17 strongly.

Response		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagreed	3	3.0	3.0	3.0
	Disagreed	11	11.0	11.0	14.0
	Not Sure	36	36.0	36.0	50.0
	Agreed	33	33.0	33.0	83.0
	Strongly agreed	17	17.0	17.0	100.0
	Total	100	100.0	100.0	

**Table 5.11: Whether knowing HIV status, if discovered to be positive will make a pregnant mother to feel highly stigmatized in your community.**

### 5.2.2.6 PMTCT programmes after delivery as a Challenge

As shown from the Table below, it has been observed that out of the 100 respondents, 4 women strongly disagreed that as a pregnant mother if found HIV positive could find it a challenge to be on the PMTCT programmes after delivery, 14 disagreed, 9 not sure, 35 agreed, and 38 strongly agreed.

Response		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagreed	4	4.0	4.0	3.0
	Disagreed	14	14.0	14.0	14.0
	Not Sure	9	9.0	9.0	50.0
	Agreed	35	35.0	35.0	83.0
	Strongly agreed	38	38.0	38.0	100.0
	Total	100	100.0	100.0	

**Table 5.12: Whether a pregnant mother if found HIV positive could find it a challenge to be on the PMTCT programmes after delivery.**



**5.2.2.7 Likelihood of exposed infants on ART to die from an AIDS-related illness**

As shown in the Table below, it has been observed that out of the 100 respondents, 4 women strongly disagreed that HIV-exposed infants if given ART within the first 12 weeks of life 75% are less likely to die from an AIDS-related illness, 13 disagreed, 19 not sure, 41 agreed, and 23 strongly agreed.

Response		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagreed	4	4.0	4.0	4.0
	Disagreed	13	13.0	13.0	17.0
	Not Sure	19	19.0	19.0	36.0
	Agreed	41	41.0	41.0	77.0
	Strongly agreed	23	23.0	23.0	100.0
	Total	100	100.0	100.0	

**Table 5.13: Whether HIV-exposed infant given ART within the first 12 weeks of life 75% are less likely to die from an AIDS-related illness.**

**5.2.2.8 Whether an HIV pregnant mother could safely keep a pregnancy.**

As shown in the Table below, Test, it has been observed that out of the 100 respondents, 7 women strongly disagreed that the HIV pregnant mother could not safely keep a pregnancy, 25 also disagreed, 27 not sure, 25 agreed, and 16 strongly agreed.

Response		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagreed	7	7.0	7.0	7.0
	Disagreed	25	25.0	25.0	32.0
	Not Sure	27	27.0	27.0	59.0
	Agreed	25	25.0	25.0	84.0
	Strongly agreed	16	16.0	16.0	100.0
	Total	100	100.0	100.0	

**Table 5.14 Whether an HIV pregnant mother could safely keep a pregnancy.**

**5.2.2.9 Repeat the test in three months for HIV exposed**

As shown in the Table below, it has been observed that out of the 100 respondents, 3 women disagreed to the point that as a mother when suspects that she suspects to have been exposed to HIV but tested negative in a home test, could repeat the test in three months, 0 disagreed, 22 not sure, 49 agreed, and 26 strongly agreed

Response		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagreed	3	3.0	3.0	3.0
	Not Sure	22	22.0	22.0	25.0
	Agreed	49	49.0	49.0	74.0
	Strongly agreed	26	26.0	26.0	100.0
	Total	100	100.0	100.0	

**Table 5.15: Whether as a mother when suspects to have been exposed to HIV but tested negative in a home test, could repeat the test in three months.**

### 5.2.2.10 Under-nourishment, diarrhoea, pneumonia as the causes of HIV exposed babies

As shown from the figure below, it has been observed that out of the 100 respondents, 7 women strongly disagreed that most children born to HIV-positive mothers and raised on formula do not die of AIDS but of under-nourishment, 30 disagreed, 21 not sure, 25 agreed, and 17 strongly agreed.

Response		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagreed	7	7.0	7.0	7.0
	Not Sure	30	30.0	30.0	37.0
	Agreed	21	21.0	21.0	58.0
	Strongly agreed	25	25.0	25.0	83.0
	Total	17	17.0	17.0	100.0

**Table 5.16: Whether most children born to HIV-positive mothers and raised on formula do not die of AIDS but of under-nourishment, diarrhoea, pneumonia and other causes not related to HIV.**

### 5.2.2.11 breastfeeding as optimal development of antibodies to protect deadly illnesses

As shown from the figure below, it has been observed that out of the 100 respondents, 3 women strongly disagreed that the awareness of breastfeeding not only provides babies with the nutrients they need for optimal development, but also gives babies the antibodies they need to protect them against some of these common but deadly illnesses, 8 disagreed, 28 not sure, 41 agreed, and 20 strongly agreed.

Response		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagreed	3	3.0	3.0	3.0
	Not Sure	8	8.0	8.0	11.0
	Agreed	28	28.0	28.0	39.0
	Strongly agreed	41	41.0	41.0	80.0
	Total	20	20.0	20.0	100.0

**Table 5.17: Awareness of breastfeeding providing nutrients to babies for optimal development and antibodies to protect them against some of these common but deadly illnesses.**

### 5.2.2.12 Reduction of HIV transmission through exclusive breastfeeding and ARVs

As shown from the figure below, it has been observed that out of the 100 respondents, 4 women strongly disagreed that combination of exclusive breastfeeding and the use of antiretroviral treatment significantly can reduce the risk of transmitting HIV to babies through breastfeeding, 12 disagreed, 10 not sure, 26 agreed, and 48 strongly agreed.

Response		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagreed	4	4.0	4.0	4.0
	Not Sure	12	12.0	12.0	16.0
	Agreed	10	10.0	10.0	26.0
	Strongly agreed	26	26.0	26.0	52.0
	Total	48	48.0	48.0	100.0

**Table 5.18: Whether combination of exclusive breastfeeding and the use of antiretroviral treatment significantly reduces the risk of transmitting HIV to babies through breastfeeding.**

### **5.2.2.13 The feeling of discrimination by the medical staff putting on double gloves**

As shown from the figure below, it has been observed that out of the 100 respondents, 4 women strongly disagreed that extra gloves or bleach by the service providers make the mothers discriminated making them to avoid going to hospitals and accessing PMTCT services, 7 disagreed, 14 not sure, 40 agreed, and 40 strongly agreed.

However, overall questionnaire results indicated that good communication with clients at the health centre is the most important solution. The questionnaire was designed to identify a number of gaps between what the health service planned for and provided, and the service that clients anticipated and received. The results showed that Mother to Child Transmission of HIV infection problems could be generated due to misunderstanding and lack of communication.

However, as stated by the respondents in the questionnaire, this situation can be avoided if the awareness could account for adequate service to women of reproductive age across the community.

## **SECTION B:**

### **5.3 Analysis and Presentation of Data from the Key Informant Interviews (KIIs) as per objectives in the study.**

The researcher conducted the structured interviews with the respondents which were lasting approximately 30 minutes for each

respondent to allow the researcher to gather more information and to ensure accuracy of data from the respondents. In the interviews, the researcher considered 10 key informants that included the health centre nursing in charge, HIV counsellors, Midwives and PMTCT coordinators, community health workers to investigate the factors influencing the transmission, challenges and sustainability of the PMTCT programme. The choice was based on their experience as health workers who had played key roles in the implementation of the prevention of mother-to-child HIV transmission services.

Some of them were interviewed on the factors influencing mother to child transmission of HIV infection among low income Communities of Lusaka City of Railway Health Centre in Lusaka District; challenges that MOH encounters in the implementation of the measures to reduce Mother to Child Transmission of HIV Infection in the study area and measures that can be put in place to help address the problem in the study areas.

#### **5.3.1 Effectiveness of PMTCT interventions on a well- functioning health system**

This section of the in-depth interview with the focus on to the specific objective was used to get the views on the informants' appreciation of the effectiveness of PMTCT interventions on a well-functioning health system that recognize the importance of social, economic, cultural contexts that HIV positive pregnant women live in. Even though most of the informants were aware that an

HIV-positive mother can transmit HIV to her baby. However, some of the informants still lacked full knowledge and understanding of how a mother can transmit HIV to her child after birth as expressions of opinions from some informants were presented.

For example, one respondent had this to say: “If a mother is not on medication for a long time she can infect the child, not through breastfeeding, breast milk is healthy, they say it protect against diseases, maybe through a cut”. Other participants at the clinics, however, demonstrated knowledge about MTCT of HIV infection. For example, one informant had this to say: “It can be transmitted to the baby through breastfeeding if the mother is HIV positive and if the mother is not on treatment”. So, it was stated by respondents that, “it is essential for institutional and community-based comprehensive health education programs on the importance of skilled birth attendance, postpartum care and maternal and infant PMTCT interventions.” As the knowledgeable informants will provide the necessary help at Individual-level factors (poor knowledge of pregnant women, lower level of maternal education, and psychological issues) and community level factors (stigma and fear of disclosure) are the common barriers for poor uptake of PMTCT service.

### **5.3.1 factors influencing mother to child transmission of HIV infection among low income Communities.**

During the interviews, one of the respondents said, “some mothers find it as a shameful thing to be diagnosed with HIV, and said women find it difficult to state how they got it. Even if the husband is responsible, the people will conclude it is the woman’s fault. To avoid trouble, most women do not give birth in the hospital where their status is known so that relatives will not become suspicious when they give special medication (ART) to the mother and baby shortly after birth”. So, people do whatever is necessary to prevent others from knowing their status because of stigma. So, because of that mothers do not accurately report or document HIV status or ARV adherence practices for fear of stigma after disclosure.

One of the respondents intimated in the discussion that, “rules clearly state that we must initiate follow up and aggressively so, but unfortunately, many HIV positive women run away from giving birth in the hospital because they don’t want anyone to know they are HIV positive, especially their relatives who will accompany them into the labour room”. One of the respondents attributed it to cultural practices, the nature of the women’s work (for example, others are marketeers, or house maids), low socioeconomic status and frequent change of their addresses, which makes follow up very tedious).

The respondent went on to say, “some women are very cooperative when it comes to testing for HIV and being put on ART, but stigmatizing attitudes also manifest within the hospital setting where some clients do complain about health workers who are not enthusiastic about handling deliveries for women who are known to be HIV positive for fear of accidental infection and most nurses shy away from dealing with such patients”.

Key informants thought that the programme's sustainability depended on maintaining staff morale and numbers, on improving services and providing more resources, particularly antiretroviral therapy for the HIV-positive women and their families. All but two key informants made positive opening statements about the running of the programme, and expressed relative satisfaction at its performance. They regarded the PMTCT programme as necessary and successful and they were proud to provide the services. They described the PMTCT programme as having been grafted onto existing antenatal services and had aroused positive interest in the recipient communities. They thought that the PMTCT programme do demonstrate feasible interventions.

### **5.3.3 Some of the challenges facing the PMTCT programme.**

When the informants were asked about the challenges in implementing the PMTCT programme. The respondents mentioned some challenges in four areas including the clients, the

staff, the infrastructure and current healthcare as follows: “One of the challenges about the clients was where some women do choose not to have an HIV test. There are also times when some women avoid the counsellors at the clinic. Sometimes, some women who accept HIV testing do not wait for their results, and at times some of the women who are identified as HIV-positive refuse antiretroviral prophylaxis. This problem appears particularly to be with women who are tested late in the pregnancy, without time to cope with their HIV status. The other challenge is on the follow-up of HIV-positive women, as some women attend the antenatal clinic once and then vanish without a trace. Others do not deliver in the PMTCT hospitals and so miss the antiviral prophylaxis and modified intrapartum postnatal care. Those who could have had a normal vaginal delivery sometimes do not see the need to return to the PMTCT hospitals for postnatal services.”

Some of the key informants considered the issue of women disclosing their HIV status to their partners as being particularly difficult. They saw this as compounded by a lack of male partner involvement in PMTCT activities at all sites. They also reported non-disclosure of the HIV status to the partner as creating serious problems in family planning. One of the informants gave an example of where some women spoke of a few instances where one partner had started antiretroviral therapy without informing the other. They were concerned that women who had not disclosed their HIV status to their partners would

be more likely to get lost to follow-up, as they preferred not to be traced into their community.

However, there are various challenges facing the PMTCT program that includes non-consent for HIV testing, non-disclosure of HIV status, management of infant feeding, lack of definitive early infant diagnosis and shortages of staff, space and resources for more effective implementation. This study has highlighted the need to strengthen follow-up services of HIV-positive women especially with regard to support for HIV-positive women's choice of infant feeding and family planning services. The success of the programme depend on local leadership and continued funding.

#### **5.3.4 the measures to reduce Mother to Child Transmission of HIV Infection in the low-income communities**

The informants presented their observations that family planning is one of the most important PMTCT measures. Stating that women living with HIV should be supported to plan when they should have children, as this will help to reduce the number of children being born with HIV. The other noted observation that was stated is that HIV positive women are also at greater risk of dying from pregnancy-related complications than women who are not living with HIV.

The other notable measure is that women need to be supported more to adhere to ART during breastfeeding as a growing priority for PMTCT programmes. This is because it is

common for women to gradually stop taking ARV drugs after giving birth, which not only compromises their health but also puts their infant at an increased risk of acquiring HIV during breastfeeding.

The other measure was to consider integrating ART services for mothers with maternal and child health services as a simple and highly effective way of retaining mothers in care after they have given birth. For example, a study from South Africa found the integration of postnatal HIV treatment services into maternal, neonatal and child health services markedly improved treatment outcomes. In addition, 'mentor mothers' are playing important roles in helping retain mothers in care and supporting strong adherence to treatment, especially after they have given birth. An evaluation in nine districts of eastern and central Uganda found facilities using the mentoring model had stronger retention in HIV care and higher uptake of early infant diagnosis compared with other services. The psychosocial wellbeing of the mothers receiving mentoring support was also better.

#### **5.4 Discussion of the findings from the research**

The section is to discuss the findings based on the specific objective and the general objectives for the topic on "Factors influencing mother to child transmission of HIV infection among Low Income Communities of Lusaka City – a Case Study of Railway Health Centre in Lusaka

District” has been to allow effectiveness of PMTCT interventions on a well- functioning health system that recognises the importance of social, economic, cultural contexts that HIV positive pregnant women live in. The expectation from the objective should be the rapid expansion of point-of-care early infant diagnosis which must become a key focus, particularly after the scale-up programmes now being carried out have provided the evidence-base needed for effective implementation (UNAIDS, 2017).

**Research objective 1: To establish the specific factors leading to the increase in the Mother to Child Transmission of HIV Infection.**

The objective 1: “To establish the specific factors leading to the increase in the Mother to Child Transmission of HIV Infection, despite the efforts by MOH to reverse the trend in the study area”. But as from the questionnaires and interviews, some of the factors are the perceptions of HIV that encourage stigma and discrimination at both local and national levels, lapses within the health. Discrimination and other human rights violations may occur in health care settings, barring people from accessing health services or enjoying quality health care and limiting access to HIV testing, treatment and other HIV services system causing inadequate monitoring and referral [37].

In addition, poverty among the low-income members of the community also further undermines the programme of replacement feeding and often women could not afford the hygienic preparation of infant formula feeds,

women tend to breast-feed for long periods, thereby increasing the risk of mixed feeding.

**Research objective 2: To establish challenges that MOH encounters in the implementation Measures to reduce Mother to Child Transmission of HIV Infection in the study area**

The objective: “To establish whether there are any challenges that MOH encounters in the implementation of these Measures to reduce Mother to Child Transmission of HIV Infection in the study area”. Some of the challenges that the MOH encounters as noted in the study with regards to the sustaining of the PMTCT program includes non-consent for HIV testing, non-disclosure of HIV status management of infant feeding, as Knowledge of HIV status is vital in order for pregnant to women access the appropriate treatment and care for themselves and their infants [3], any non-disclosure will limit the provision of the service required, lack of definitive early infant diagnosis and shortages in staff, space and resources like travelling costs for home visits by the medical staff for more effective implementation.

**Research objective 3: To establish the measures that can be put in place to help address the problem in the study areas**

Addressing research objective 4; “To establish whether there are other measures that can be put in place to help address the problem in the study areas”. A key personal barrier is coping with an HIV diagnosis and the need to initiate lifelong

ART by the HIV positive pregnant/breast-feeding women. As in some cases, the women do not receive adequate counselling about the importance of ART initiation and its side effects. As stated from the world Health Organisation report (WHO, 2018) without treatment, if a pregnant woman is living with HIV the likelihood of the virus passing from mother-to-child is 15% to 45%". However, antiretroviral treatment (ART) and other interventions can reduce this risk to below 5%. Non-adherence to ART is another key challenge faced by these women. With effective interventions during the periods of pregnancy, labour, delivery and breastfeeding which involve antiretroviral treatment for the mother and a short course of antiretroviral drugs for the baby can help with the achievement of Ministry of Health effort.

### 5.5 Chapter Summary

Data analysis from the outcomes has revealed a number of significant findings. The sample details from the questionnaire responses were collected, and the measurement instruments for the study using the internal consistency of Cronbach's coefficient alpha for data reliability, and with the other presented findings have provided assessment methods for research from the questionnaire and Key Informant Interviews. The reliability of Cronbach's alpha of .965 and the significance of 0.000 from the SPSS analysis was taken and considered significant for the study. Other satisfactory results of the internal consistency assessment of research constructs from the 100 respondents were established.

The analysis based on the objectives of establishing the specific factors leading to the increase in the Mother to Child Transmission of HIV Infection, establishing challenges that MOH encounters in the implementation Measures to reduce Mother to Child Transmission of HIV Infection in the study area, and establishing the measures that can be put in place to help address the problem in the study area for addressing the topic "factors that do influence the mother to child transmission of HIV infection, especially among Low income Communities of Lusaka City has been addressed.

## CHAPTER SIX

### CONCLUSIONS AND RECOMMENDATIONS

#### 6.1

#### Introduction

This chapter for the study on factors influencing mother to child transmission of HIV infection among low income Communities of Lusaka City is based on the realistic and appropriate data analysed from the questionnaires and interviews at the Railway Health Centre in Lusaka District. This study was designed to fill such a gap in the literature with the expected results to provide empirical evidence for reducing HIV infection transmission between the infected mothers and their children that could reduce the mortality rate. The construct estimates of the Cronbach's alpha of 0.965 analysed from the questionnaire using SPSS is highly acceptable in the study. The means and the standard deviations which were evaluated on the constructs with the consolidated



questionnaire as a whole, demonstrated good acceptable reliability.

**Reliability Statistics**

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.965	.963	13

**6.2 Contributions to the research**

The research has contributed to the existing literature on factors influencing mother to child transmission of HIV infection among low income Communities of Lusaka City with regard to the literature of both the independent and dependent variables, by developing a framework that helps researchers gain a better insight into the factors influencing mother to child transmission of HIV infection among low income Communities of Lusaka City built for achieving perceived value. The study has also provided an examination of the reliability and the measurement of instruments for the contribution to the study using the SPSS.

**6.3 Conclusion**

This summary for the dissertation has given a conclusion of the investigation from the constructs on factors influencing mother to child transmission of HIV infection among low income Communities of Lusaka City – a Case Study of Railway Health Centre in Lusaka District. To increase in the response rate among the respondents, data was collected by physically

distributing paper questionnaires and collecting their responses. Of the 100 targeted stakeholders who participated in the research, 100 respondents completed the questionnaire giving a 100% response rate.

To answer the basic research questions and achieve the research objectives, this study developed a basic conceptual model, and a framework for conceptual insight. The research has provided explanatory benefit from the data collected and from the theories analysed. With the mentioned limitations, this study has been provided for the enhanced literature and a demonstration of literature to allow for the establishment of causes leading to factors influencing mother to child transmission of HIV infection among low income Communities of Lusaka City. The results of this study should be considered as a progression to encourage future research not only for the health fraternity at the health facility but also the intended recipient, mothers attending the services at the facility.

**6.4 Recommendations of the study.**

Based on the findings as well as the Researcher’s personal analysis, the following are the recommendations:

- Lack of adequate understanding and knowledge of how HIV and AIDs is transmitted to the children during pregnancy, labour and breastfeeding. Even though basic knowledge of HIV and AIDS can be seen to be increasing

in most communities, there is still insufficient knowledge of MTCT among mothers for PMTCT follow-up services. Educational and sensitisation programmes need to be developed or strengthened on health risks.

- Inadequate resources for information dissemination on the importance of PMTCT activities through the use of community participation should be supported to improve understanding among the pregnant, post-delivery and breast-feeding mothers. People need to know more about PMTCT activities and the danger of MTCT.
- As some mothers living with HIV are lost to follow-up when they change healthcare providers, better data systems are also needed to enable women to be provided with appropriate services after transferring.
- More effective counselling and preparation of women testing positive for HIV while pregnant is needed before they start ART to improve adherence levels after they have given birth.
- It should also be noted, that to reduce stigma among mothers, men should be invited to use voluntary HTC services, offering PMTCT services at sites other than ANC ones (such as workplaces), as most men are afraid of knowing

one's HIV status making them less likely to be involved in PMTCT.

- family planning should as well be considered is another important measure to the PMTCT.
- Consideration of integrating ART services for mothers with maternal and child health services as another simple and highly effective way of retaining mothers in care after they have given birth.

### 6.5 Recommendations for the future study

The recommendations for this research are based on the findings revealed from the views provided by the participants in the questionnaire and interviews. Future research could consider larger sample sizes for mothers within the catchment area of the health facility as a key variable. This may examine some of the constructs that are not included in this research. For example, the relationship between the working mothers' understanding and the housewives that may require new measuring instruments better in the HIV and AIDS mother to child infection transmission context. For some infected mothers who after delivery bring their children to the facility, it is also worth noting that specific measures have to be taken to ensure that the newly-born do not contract the infection.

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