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**UPTAKE OF EARLY INFANT MEDICAL MALE CIRCUMCISION AS AN
HIV PREVENTION INTERVENTION IN LUSAKA DISTRICT.**

BY

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DECLARATION


I, Christopher Yisiwelo Phiri, hereby declare that this work is wholly original with no prior production or presentation of a like kind at this university or any other institution, as far as I am aware. Sincere acknowledgment has been made to all other information sources.

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Mr. Daniel Fwambo (supervisor)

DEDICATION

This work is dedicated to the cherished memory of my late father, Mr. Yisiwelo Phiri, whose unwavering belief in me and passionate desire for all his children to pursue higher education continue to inspire and guide my journey. In addition, I dedicate this work to my mother and the rest of my family, especially my siblings who look up to me, to inspire them that hard work and prayer can help anyone achieve their goals.

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LIST OF ACRONYMS

AIDS:	Acquired Immune Deficiency Syndrome
AOR:	Adjusted Odds Ratio
CI:	Confidence Interval
EIMC:	Early Infant Male Circumcision
FGDs:	Focus Group Discussions
HIV:	Human Immunodeficiency Virus
HCW:	Healthcare workers
IMC:	Infant Male Circumcision
MC:	Male Circumcision
MOH:	Ministry of Health
NGO:	Non-Governmental Organization
NMC:	Neonatal Male Circumcision
OR:	Odds Ratio
SEM:	Social Ecological Model
UNAIDS:	United Nations Program on HIV/AIDS.
USAID:	United States Agency for International Development
VMMC:	Voluntary medical male circumcision
WHO:	World Health Organization
ZDHS:	Zambia Demographic Health Survey
ZamStats:	Zambia Statistics Agency

ABSTRACT

Background: Globally, male circumcision has gained popularity as a tool for preventing HIV transmission. According to randomized controlled studies, adult medical male circumcision lowers the risk of HIV transmission in heterosexual males by about 60%. In line with the evidence from various studies on the effectiveness of male circumcision, the World Health Organization (WHO) and UNICEF (2016), endorsed Early Infant Male Circumcision (EIMC) for the prevention of HIV and Zambia is among 14 African nations speeding up the adoption of this intervention.

Methodology: The study utilized a concurrent mixed method design where both quantitative and qualitative methods were used. The study's quantitative sample size was 400 mothers while under qualitative, 3 Focus Group Discussions (FGDs) were conducted with mothers. Stata version 16 was used to analyze the study's quantitative data, while thematic analysis was employed to examine the qualitative data.

Results: The study identified three critical variables that influence Lusaka women's uptake of Early Infant Male Circumcision (EIMC): the partner's circumcision status, women's attitude towards EIMC, and knowledge on EIMC. Furthermore, the study showed that EIMC was more common among women from cultures where male circumcision was practiced. Key deterrents to EIMC uptake were highlighted by the qualitative part of the study as medical distrust, cultural practices around traditional male circumcision, and a lack of awareness that results in misconceptions and myths.

Conclusion: The study found that women knew very little about EIMC as an HIV preventive intervention; therefore, intentional policies should be implemented to promote EIMC awareness initiatives and break myths and misconceptions among mothers. It is also essential to acknowledge cultural variations in decision-making. Lastly, promoting male engagement is crucial, with a focus on the support that fathers and other male family members provide for EIMC.

Keywords: Early infant, male circumcision, uptake, cultural beliefs

CHAPTER 1: INTRODUCTION

1.1 Introduction

Global health concerns regarding the Human Immunodeficiency Virus (HIV) remain paramount, especially in Sub-Saharan Africa where it continues to disproportionately affect communities and put pressure on healthcare systems. Zambia has suffered significantly from the HIV epidemic, with Lusaka province being one of the worst-affected areas with an HIV prevalence rate of 15.1 % which is the second highest from Copperbelt province at 15.4 % (ZDHS, 2018). As a result of numerous studies demonstrating medical male circumcision's effectiveness in lowering heterosexual men's risk of HIV transmission, medical male circumcision has recently gained attention as a potential HIV prevention strategy (Bailey et al., 2007).

In order to prevent HIV, the World Health Organization (WHO) and UNICEF (2016), recommended early infant male circumcision (EIMC). In line with this recommendation, Zambia is one of the 14 African nations speeding up the implementation of medical voluntary infant male circumcision as an HIV preventive measure (Manhvu, 2011).

It has been discovered that populations, where male circumcision is practiced, have lower rates of HIV transmission. Three randomized clinical trial studies conducted in 2005–2006 supported this, showing that male circumcision substantially lowers the risk of HIV transmission from infected women to circumcised males (WHO/UNAIDS, 2007).

In a 2007 policy statement, one possible long-term tactic the World Health Organization (WHO) recommended for limiting the HIV pandemic in Africa was infant male circumcision. Compared to older boys and men being circumcised, it was said to be a "simple and less risky procedure" (Bailey et al, 2007).

The Ministry of Health and partners announced the National Programme on both baby and adult male circumcision in Zambia in 2009, along with a national male circumcision strategy and implementation plan 2010-2020. This strategy was created to provide all uninfected boys and men with voluntary access to high-quality, safe male circumcision in order to achieve the targeted national prevalence of 50% by 2020 (MOH, 2010).

UNICEF recommends EIMC as a long-term preventative measure to limit new infections, particularly in the neonatal period, even if the country's plan predominantly targets males between the ages of 13 and 39 (WHO/UNAIDS, 2009).

1.1.1 Background

According to ZamStats (2020), the overall HIV prevalence among adults aged 15-59 years in Zambia was estimated to be 11.1%. The report also noted that men aged 15 to 49 who had been circumcised (either traditionally or by medical professionals) had an HIV prevalence of 5.9%, while men who had not been circumcised had an HIV prevalence of 8.3%. On the other hand, 32 % of Zambian men aged 15-49 were circumcised, with Lusaka at 30.1 % and North Western was the highest at 78.2 %. The practice of male circumcision is widely accepted in Northwestern Province due to the fact that it is historically carried out on a large scale for cultural reasons. The majority of tribes in Northwestern province view circumcision as a sign of the end of childhood and the beginning of masculine status (Turner, 1967).

By 2025, the Ministry of Health expects to have circumcised 2.86 million males, or 95% of the male population aged 10-49, with a particular emphasis on those between the ages of 15 and 29. The Ministry's legacy goal number 6, to control the HIV epidemic, will be significantly advanced if this is accomplished (MOH, 2021).

Despite the claimed advantages of male circumcision, EIMC services are widely accepted but seldom used in sub-Saharan region, according to studies (Walters et al., 2010).

Between 2009 and 2010, a cross-sectional survey was conducted at two public clinics in Lusaka district, involving a non-probability sample of 1000 mothers with male infants. Following the survey, mothers were informed about the availability of neonatal male circumcision, and their use of the service was tracked. Forty-two percent of mothers stated they would certainly have their newborn males circumcised, and fifty-five percent said they would probably have them done, but only eleven percent of mothers truly took their babies for the procedure, according to the survey (Walters et al., in 2010).

In recent years, there has been a notable rise in the dissemination of health information about EIMC to pregnant women during their prenatal appointments in Lusaka District. Although health education on EIMC has been provided to the public, along with free services, the actual impact on the uptake of this service remains uncertain (Bailey et al., 2007). Consequently, there is a pressing necessity to carry out a study on EIMC to investigate elements that affect its uptake in Lusaka District.

1.1.1.1 Operational definitions

For this study, the following are the operational definitions of key terms and concepts.

- 1) Uptake: Mothers whose male infants were medically circumcised in a medical facility.
- 2) Early Infant: A baby within the age range of 0 to 60 days.
- 3) Male circumcision: a surgical procedure in which the foreskin, a flap of skin surrounding the tip of the penis in men, is removed.
- 4) Accessibility: Mothers may get to the EIMC facility with ease, and assistance is on hand.
- 5) Knowledge: How much do mothers know or understand about circumcision and HIV.
- 6) Attitude: The perception of EIMC held by the research participants.
- 7) Cultural beliefs: Mothers' views on EIMC services and its associated norms, attitudes, practices, and actions.

1.2 Statement of the problem

Despite the many campaigns that have been launched to educate and inform mothers about EIMC in Lusaka District, it is still unclear how widely this HIV prevention strategy is being used (Bailey et al., 2007). The factors influencing the acceptance and utilization of this intervention are not fully understood, despite efforts to spread awareness of the advantages of EIMC and offer free services. As a result, there is a sizeable knowledge gap regarding the barriers and facilitators that affect the uptake of EIMC in Lusaka District.

According to modelling studies, increasing circumcision in Sub-Saharan Africa would result in a 67% decrease in the prevailing rate of HIV (Bailey et al., 2007). Through various campaigns, the Ministry of Health and other Non-Governmental Organizations hope to increase the rate of male circumcision to 95% by the year 2025 (MOH, 2021). According to Bowa (2008), 10% of Zambian male infants are circumcised at birth.

The lack of clarity on the determinants affecting EIMC uptake hampers the effectiveness of HIV prevention efforts in the region. Targeted interventions cannot be created to increase uptake rates without a thorough understanding of the demographic, cultural, and social factors influencing parental decisions regarding EIMC. Designing evidence-based strategies that will enhance the utilization of EIMC as an efficient HIV prevention measure in Lusaka district and throughout Zambia requires an understanding of these factors.

Therefore, this research aimed to identify factors that influence the uptake of Early Infant Male Circumcision for HIV prevention among mothers of newborn infants in Lusaka district. The insights from this study can inform evidence-based interventions and policy recommendations to increase EIMC uptake and strengthen HIV prevention efforts.

1.3 Research objectives

1.3.1 Main objective

To identify factors that influence the uptake of Early Infant Male Circumcision for HIV prevention among mothers of newborn infants in Lusaka district.

1.3.2 Specific objectives

- 1) To determine the level of knowledge on Early Infant Male Circumcision among mothers.
- 2) To identify the demographic factors that influence the mothers' uptake of Early Infant Male Circumcision services for the prevention of HIV transmission.
- 3) To explore the cultural, social, and belief systems of mothers towards EIMC as a preventative measure against HIV transmission.

1.4 Research questions

- What is the overall level of knowledge among mothers regarding EIMC, including their understanding of its purpose and its association with HIV transmission?
- What are the social-demographic determinants that affect the uptake of EIMC by mothers?
- How do mothers' cultural, social, and belief systems affect their decision-making towards the uptake of EIMC as a preventative measure against HIV transmission?

1.5 Scope of the study

The study was conducted in Lusaka District at 3 purposefully selected health facilities which are Matero Level 1, Kanyama Level 1, and Chipata Level 1 Hospital. The 3 mentioned health facilities were chosen because they offer infant medical male circumcision services and are located in densely populated areas. The study utilized a mixed method design. The quantitative approach was used to identify factors influencing the uptake of EIMC among mothers of newborn infants. Additionally, this approach helped to measure the current EIMC uptake rates, and determine correlations, and generalize the findings. To acquire a deeper comprehension of how mothers' cultural, social, and belief systems affected their decision-making towards the uptake of EIMC as a preventative measure against HIV transmission, a qualitative approach was employed.

Numerous variables were examined in the study that had an impact on how EIMC is adopted in Lusaka District. These variables included the mother's socioeconomic status, age, educational attainment, cultural beliefs, knowledge of and awareness of EIMC, and socio-cultural background.

Last but not least, the research process incorporated ethical considerations such as informed consent, confidentiality, and protection of participants' rights. The study also abided by ethical standards and approvals from relevant research ethics committees were obtained.

1.6 Significance of the Study

Due to its negative effects on achieving the Sustainable Millennium Development Goals (SMDGs) and impeding economic growth, the high prevalence of HIV in Southern Africa has become a significant concern for governments in the region (Walters et al., 2010). Promoting Early Infant Male Circumcision (EIMC) services has emerged as a potential long-term HIV prevention strategy in response to this health issue, particularly in nations with low EIMC prevalence rates. As part of its Voluntary Medical Male Circumcision National Operational Plan (2021), Zambia adopted an ambitious goal with the intention of having 80% of newborn male babies circumcised within the first sixty days of their lives by 2025. This tactical approach aims to strengthen initiatives to contain the HIV epidemic and promote sustainable development in the area.

Understanding the potential pitfalls of EIMC uptake within the Zambian healthcare setting is essential in ensuring the scaling up of EIMC services in Zambia. The practice of EIMC in Zambia is not well documented, aside from a few isolated studies. Instead, male circumcision for adult

males has been the focus of the majority of studies on the topic. The knowledge base already available on circumcision in Zambia will be expanded by this study. The Ministry of Health and other program implementers will find the study's findings useful in boosting male circumcision policies and promoting health for the EIMC programs, as the latter is believed to be the least complex and most economical method of performing male circumcision. The findings of this study are also expected to motivate women to utilize EIMC services and to support Zambia's national EIMC program expansion.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

HIV/AIDS has had a devastating effect on society worldwide, causing significant death tolls and societal upheaval. This crisis is not limited by geography or demographics, demonstrating how widespread the virus is. The most effective way to combat HIV/AIDS's widespread effects and stop its spread is through prevention. The need to stop new infections and safeguard future generations grows more crucial amidst ongoing difficulties. One of the strategies is to support male circumcision, which slows the transmission of HIV. At Orange Farm in South Africa, Bailey et al (2007) carried out randomized trial studies. According to their findings, only 20 out of 1,545 men who had undergone circumcision developed HIV, but 49 out of 1,582 men in the control group who had postponed circumcision did (Auvert et al., 2005). The possibility that male circumcision might prevent HIV was brought to light by these data. UNICEF and WHO (2007) stated that EIMC is a reliable and effective method of lowering the incidence of HIV infections. Because it is performed before a child reaches sexual maturity, EIMC provides an unparalleled opportunity for early prevention compared to adult male circumcision. This timing coincides with the reality that adults who have not undergone circumcision have a far increased risk of acquiring HIV.

2.2 Uptake of EIMC

The adoption of EIMC is an argumentative topic on a global scale. According to Bailey et al (2007), the majority of parents feel that having their child circumcised at a young age is required of them, which makes them unwilling to have their sons circumcised.

Neonatal male circumcision was carried out as a routine procedure in nations like Canada, the United States of America (USA), and New Zealand, as long as the child's guardians gave their consent. Currently, the trend is waning due to both the strong public opinion and the results of studies on the advantages of routine circumcision, which came up with conflicting results (Bailey, 2012).

A London study by Weiss et al (2010) found that following EIMC, a few problems might arise. The study found that problems were more common in children whose circumcisions were performed under less-than-sterile circumstances or by untrained medical professionals. Parents' willingness to bring their male infants to clinics for circumcision may be impacted by this. The

complications of EIMC should be discussed with parents during the 12 counseling sessions in order to help them accept giving their children to be circumcised and to encourage the use of the service (Bowa, 2011).

According to Kalichman (2010), increasing the availability of male circumcision procedures might halt the HIV epidemic in Africa. Studies in the Sub-Saharan region show that only a tiny fraction of parents who consent to have their children circumcised really follow through on the procedure (Walters et al., 2010). This suggests that even if the majority of parents would want to circumcise their sons, there are some obstacles in their way.

Studies conducted in Sub-Saharan region have shown that although most parents there believe that their children should be circumcised, very few of them actually send their male infants there (Walters et al, 2010). Because of this, there are some barriers to infant circumcision, despite the fact that the majority of parents are in favor of it.

In a different study on the factors that influence parents' preferences for EIMC, Marisa et al (2016) looked at a sample of 613 mothers and fathers and 430 baby boys at 16 health centers in Western Kenya. The majority of them (59%) preferred EIMC. Only 29% of parents chose to have their male infants circumcised on the scheduled circumcision day. Their hesitation to take their male children for circumcision was attributed to pain, a lack of close facilities to conduct the service, and a lack of information about EIMC.

Mahvu et al (2014) conducted a study in Zimbabwe on the acceptability of Neonatal Male Circumcision (NMC) as an HIV prevention measure. The study found that men who were already living with HIV were more receptive to the service and agreed to have their child circumcised as a preventive measure against HIV acquisition in the future. Parents would enhance utilization of the EIMC services, according to Mavhu's 2012 report on the same study carried out in 2011, if the hurdles to the service were appropriately addressed and fathers were explicitly targeted in the health awareness campaigns.

Locally, A non-probability sample of 1000 mothers of newborn infants participated in a cross-sectional study on the acceptability of neonatal male circumcision (NMC) at two public clinics in Lusaka district. Mothers who completed the survey were notified that NMC was an option, and their utilization of the procedure was monitored. Even while 42% of mothers stated they would

certainly have their male infants circumcised and 55% said they would probably do so, only 11% of women truly brought their babies for the procedure (Walters et al, 2010).

2.3 Theoretical Framework

The Social Ecological Model (SEM) is a useful theoretical framework for comprehending the variables affecting the uptake of Early Infant Medical Male Circumcision (EIMC) as an HIV prevention intervention in Lusaka District. The SEM, which was created by Bronfenbrenner (1979), acknowledges that people are embedded within a variety of levels of influence, from personal traits to societal structures. This framework offers a thorough framework for examining the intricate interplay of factors influencing EIMC uptake.

2.3.1 Microsystem (Individual Level)

At this level, individual mothers' traits and experiences have a direct impact on EIMC uptake at the microsystem level. This includes demographic elements like age, education, income, and cultural beliefs. Additionally, individual decisions regarding circumcision are influenced by knowledge and awareness of EIMC, perceptions of its advantages and disadvantages, and prior experiences with healthcare services (Ajzen, 1991).

2.3.2 Mesosystem (Interpersonal Level)

The mesosystem emphasizes how different microsystems interact with one another. Here, the influence of friends, family, and medical professionals is crucial. However, the fathers' influence on EIMC decision-making is the most significant (Bailey et al., 2010). An individual's attitude toward EIMC may be influenced by peer discussions, community norms, and family support. Mothers' decisions are significantly influenced by the communication, counseling, and guidance given by healthcare providers regarding the procedure (DiClemente et al., 2008).

2.3.3 Exosystem (Community and Institutional Level)

Extrinsic factors that indirectly influence EIMC uptake are represented by the exosystem. Circumcision perceptions can be influenced by cultural norms, religious principles, and local customs. The accessibility, availability, and policies of the healthcare system regarding EIMC services, as well as societal attitudes toward healthcare, all play significant roles in influencing EIMC uptake (Pulerwitz et al., 2014).

2.3.4 Macrosystem (Societal Level)

The macrosystem accounts for broader societal influences on the adoption of EIMC. Government policies, healthcare infrastructure, and socioeconomic disparities all have an impact on the overall healthcare system, which includes EIMC services. According to Sambisa et al (2014), societal norms regarding masculinity, wellness, and HIV prevention also affect the uptake of EIMC. The societal level also covers the cultural practices and how they influence MC. For instance, the Lunda and Luvale tribes of Zambia's Northwestern province practice MC on a large scale as part of their cultural tradition which symbolizes a rite of passage from childhood to adulthood (Bailey et al, 2007).

2.3.5 Chronosystem (Time Dimension)

The chronosystem recognizes that factors affecting the uptake of EIMC can alter over time. The decision-making process can be impacted by changing cultural norms, improvements in healthcare services, changes in public awareness campaigns, and adjustments to policies (Babalola and Kaler, 2015).

2.4 Conceptual Framework

Bailey et al (2014) identified several issues that could impact the uptake of early infant male circumcision. He discussed these issues using both a descriptive and an analytical approach. Some of the analysis is provided below.

2.4.1 Knowledge

In a knowledge study conducted in Zimbabwe, 240 participants participated in FGDs, and three extra key informants were interviewed. The findings indicated that EIMC knowledge was generally lacking. The findings further reviewed that EIMC acceptability was high among participants from the majority of ethnic groups despite low knowledge (WHO-UNAIDS, 2007).

Mothers can choose EIMC Service with ease if they are sufficiently informed about it and its advantages. The least amount of physical risk is involved when male circumcision is performed on a baby. Healthcare professionals have a duty to counsel mothers who are offered or request EIMC, outlining all the benefits and drawbacks. This includes explaining that male circumcision is an irreversible procedure and that a child does not receive any protection from HIV until they engage in sexual activity (Walters, 2008).

Nonetheless, given the evidence that the procedure has fewer medical complications when carried out at a young age, some mothers may decide, in the child's best interests, to have their male child undergo the procedure (UNAIDS, 2006).

2.4.2 Cultural and Religious Beliefs

Circumcision is still performed today for a variety of reasons and these range from medical requirements to cultural and religious requirements (Mahvu et al., 2012). Abraham, the Jewish patriarch, was the first to perform the holy ritual of traditional circumcision, and every subsequent generation of Jews has carried on the practice (Wallerstein, 1985).

The Lundas and Luvalas tribes of Zambia's North Western Province are among those who perform male circumcision at a large scale. As a rite of passage from childhood to adulthood, male circumcision (MC) is practiced by them as a part of their cultural tradition (Bailey et al, 2007).

Research was carried out in Zimbabwe to evaluate the options available to a few customarily circumcising tribes, such as the Chewa, Remba, Venda, and, Xhosa regarding EIMC services. These organizations did not oppose EIMC. That being said, they felt that having a member of their own tribe who is also circumcised would be a better choice to perform the procedure (UNAIDS, 2004).

In a study conducted in Zimbabwe, elder males belonging to the Shangaan community—the majority culturally circumcising community—strongly opposed Early Infant Medical Male Circumcision (EIMC) for two main reasons. First and foremost, they stressed that circumcision is a necessary part of a complete "rites of passage" ceremony and should not be performed alone. The second point they made was that mothers would have to be present for the circumcision procedure since they would be the ones caring for the wound. It is frowned upon in Shangaan culture for women to see and tend to the wound from circumcision (WHO/UNAIDS, 2007).

In several East and Southern African cultures where circumcision is customary, trends toward medical male circumcision have been noted, according to WHO/UNAIDS (2004). This suggests that there is a willingness to use services offered through the formal health system and that such services are not in conflict with the culture. The use of medical services for traditional male circumcision, however, is evidently still unaccepted in other traditionally circumcising

communities because of the deep-rooted cultural beliefs that circumcision must be carried out as a rite of passage from infancy to maturity throughout adolescence.

2.4.3 Decision Making

Bailey et al (2010) conducted three randomized trial studies in Western Kenya to investigate how parents made decisions about whether to use EIMC. The study found that fathers are the ones who make the majority of EIMC decisions and that mothers who were married to circumcised husbands had no trouble making the decision to have their infants circumcised in comparison to those whose husbands were not circumcised.

Plank et al (2009) conducted a study on the acceptability of EIMC for HIV prevention in Botswana. Questionnaires were given to 60 mothers of newborn boys, and 92% of the mothers said they would have their newborn boys circumcised if the service was available in the clinical setting, primarily to avoid future HIV infection.

2.4.4 Accessibility

In a review of studies from sub-Saharan Africa, Westercamp and Bailey (2007) identified fear, pain, a person's culture and religion, the cost of the procedure, and the possibility of complications following the procedure as factors that affect access to early infant male circumcision. According to Westercamp and Bailey, the perception of the procedure's safety plays a major role in how accessible EIMC is. The parents' perception that the medical staff performing the services were incompetent, the distance between the health centers offering the services, and, most importantly, the attitude of the medical staff toward early infant male circumcision were the other reasons they gave.

2.4.5 Disease-Related Factors

According to Morris (2007), the United States Medical Establishment has traditionally supported male circumcision as a preventative measure for a variety of pathologies, such as lower risks of penile cancer, urinary tract infections, sexually transmitted diseases, and even cervical cancer in sexual partners. Due to this, routine newborn circumcision became advocated. But recently, this idea has generated a lot of debate, with detractors questioning the true scope of the benefits that have been substantiated.

2.4.6 Partner circumcision status

Studies have shown time and again that mothers' perceptions towards the uptake of early infant male circumcision can be influenced by the fathers' circumcision status. Marisa et al (2016) studied the decision-making processes of parents and the variations in traits between parents in western Kenya who accepted and rejected EIMC services. Five (5) government hospitals participated in this case-control study. Parents who declined EIMC services were the controls, while mothers and fathers who accepted their son's circumcision were the cases. A total of 627 mothers and 493 fathers participated. The study's findings revealed that, according to multivariable logistic regression modeling, one of the factors associated with EIMC uptake was the father's circumcision status. Mothers with circumcised husbands were 2.3 times more likely to have their male infants circumcised than those whose husbands (partners) were not circumcised (AOR= 2.30, P< 0.001).

The study concluded that fathers have a significant role in EIMC decision-making. For the best possible scale-up of EIMC services, fathers as well as mothers should be the focus. Male circumcision at any age is highly acceptable to both men and women, so programs offering services for circumcision should include services for males of all ages.

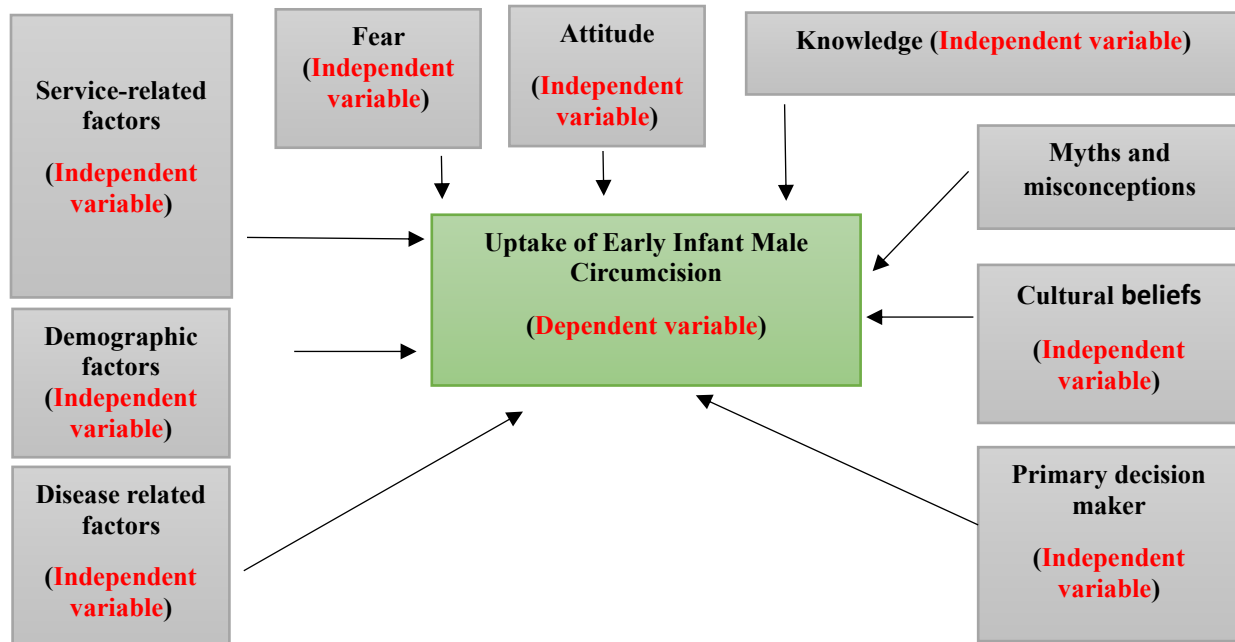


Figure 1: Graphical presentation of the conceptual framework model adapted from Bailey et al (2014).

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Study design

The study employed a concurrent mixed method design where both quantitative and qualitative methods were used. The concurrent mixed method guaranteed completion in the sense that it yielded a more thorough account of the factors influencing the uptake of early infant male circumcision for HIV prevention.

The quantitative approach was used to identify factors influencing the uptake of EIMC among mothers. Additionally, this approach also helped to measure the current EIMC uptake rates and determine the association between the dependent variable which is the uptake of EIMC services, and the various independent variables such as the age of the mother, marital status, level of education, culture, religion, occupation, circumcision status of the husband/partner, knowledge on EIMC and the number of male children a woman had. On the other hand, a qualitative approach was used to gain an in-depth understanding of how mothers' cultural, social, and belief systems affected their decision-making towards the uptake of EIMC as a preventative measure against HIV transmission.

3.2 Study site

The study was conducted in 3 health facilities in Lusaka district. The 3 health facilities were Matero Level 1 Hospital, Kanyama Level 1 Hospital, and Chipata Level 1 Hospital. These facilities were chosen because they are located in densely populated areas and provide EIMC services.

3.3 Study population

The study's quantitative approach focused on mothers of male infants who were 0 to 60 days (2 months) old attending children's clinics in the selected health facilities. On the other hand, the qualitative approach targeted mothers of male infants in the aforementioned health facilities who participated in the Focus Group Discussions (FGDs). Mothers in the reproductive age group (15-49) years old were selected in both approaches. According to the 2022 census of population and housing preliminary report by ZamStats (2022), the population of women in the reproductive age group (15-49 years) in Matero, Kanyama, and Chipata townships was 157,084, 257,692, and 229,195 respectively. The population of these townships is varied, with different cultural and

religious origins, and the 3 health facilities that were selected are positioned strategically within them. As a result, the study benefited from the diverse set of beliefs that resulted from the interaction of these distinct social contexts.

3.4 Sample size

The sample size for the quantitative data targeting mothers to male infants was calculated using the formula

$$n = \frac{z^2 p (1-p)}{e^2}$$

Where n - is the required sample size

z – is the Z-score corresponding to the desired level of confidence (for a 95% confidence level, Z=1.96)

p - is the proportion used in the estimation formula (in this situation, the p chosen was 0.5 (50%) since the researcher could not identify current studies with up-to-date information to offer a realistic estimate for the population proportion (p), therefore a conservative approach was employed).

e - is a measure of precision, that is the margin of error. In this study, the margin of error was set at 0.05.

The estimated sample size:

$$n = \frac{1.96^2 0.5 (1-0.5)}{0.05^2} = 384$$

~ 400

The calculated sample size (n) was 384. However, the final sample size was increased to **400**. This increase was warranted by the fact that a study's power typically rises as sample size does hence making the study have a better chance of detecting any significant effects if there are more participants. Therefore, the quantitative sample size of this study was **400** mothers to male infants.

The total population of women in the reproductive age group (15-49 years) for all the 3 townships was 643,971. Below is the proportional sample size for each health facility:

*Proportional Sample Size = (Township Population / Total Population) * Total Sample Size.*

Matero Level 1 Hospital = $(157,084/643,971) * 400 = 98$

Kanyama Level 1 Hospital = $(257,692/643,971) * 400 = 160$

Chipata level 1 Hospital = $(229,195/ 643,971) * 400 = 142$

For the qualitative data, the saturation principle, which is used to gauge the suitability of purposive samples was used to determine the sample size for the mothers who participated in the FGDs. A total number of 3 FGDs were conducted, 1 from each of the chosen health facilities. Each FGD had an average of 6 mothers.

3.5 Sampling techniques

The study's quantitative participants were chosen using a multistage sampling technique. In the first stage, 3 health facilities, the only ones offering EIMC services were purposefully chosen, and in the second stage, 400 mothers (98 from Matero, 160 from Kanyama, and 142 from Chipata Level 1 Hospital) were chosen using systematic sampling. This was done using the Kth interval technique which implied selecting every Kth mother on the queue attending the under-five clinic sessions until the desired number for each facility was reached. This method added an element of randomness while still covering a wide range of attendees and consequently enhanced the validity and generalizability of the findings.

For the qualitative data, a purposive sampling technique was used to select mothers to male infants attending postnatal healthcare services from the 3 selected health facilities. Six (6) mothers were selected from each facility and they participated in the focus group discussions.

3.6 Eligibility criteria

3.6.1 Inclusion criteria

- Mothers to male infants who were 0 to 60 days (2 months) old attending children's clinics in the selected health facilities were included on condition that they consented to participate in the study

3.6.2 Exclusion criteria

- Mothers with male infants above the age of 2 months were excluded because their babies did not qualify as being early infants as per the operational definition

3.7 Data collection

Quantitative data for this study was collected using a structured questionnaire which was administered to the mothers by the researcher. This was the case because not all mothers were able to read and write. On the other hand, qualitative data was gathered from mothers through Focus Group Discussions (FGDs) facilitated by the focus group discussion topic guide.

3.7.1 Pre-testing of data collection tools

The two (2) data collection tools were pre-tested before the actual data collection in order to check the level of consistency, accuracy, and ambiguity.

3.8 Data management and analysis

The collected quantitative data was entered into Excel and later exported to Stata version 16 for data analysis. Descriptive statistics such as frequencies were conducted. At the Bivariate level, the study examined demographic and socio-economic factors that influence the uptake of EIMC among Lusaka district women. Chi-Square test, univariate logistic regression, and other statistical analysis were conducted. Finally, a multivariate logistic regression analysis was used to control confounding variables in order to evaluate the overall variance caused by all the factors associated with EIMC uptake. The final model that best describes the variables associated with EIMC uptake was developed using a backward logistic elimination technique guided by the researcher.

On the other hand, qualitative data was manually analyzed using thematic analysis. The FGDs data came in the form of audio recordings and field notes. Following the field trips, the audio recordings of the discussion sessions were transcribed into a typewritten word document, which served as a consolidation of the notes. Every facility was given a letter from the alphabet, and the mothers in the FGDs were assigned numbers at random. To find the recurring themes in the data, the researcher became acquainted with it. Using different identifying codes, themes were created and

then extracted from the discussion notes. The different themes found in the notes were explained using quotes.

3.9 Study variables

3.9.1 Dependent variable

EIMC uptake was the dependent variable, and it was classified as Yes (child circumcised) or No (child not circumcised).

3.9.2 Independent variables

Some of the study's independent variables included Knowledge on EIMC and HIV, Age, Marital status, Religion, Highest level of education attained, Number of male children a woman had, Partner circumcision status, Attitude, Culture, and Accessibility

Table 1: An overview of scored independent variables for quantitative data

VARIABLES	MEASURES	THRESHOLD	QUESTION IDENTIFIERS
Explanatory variables			
Knowledge on EIMC and HIV	High	Score 4 to 7	Q9 to Q15
	Low	Score 0 to 3	
Attitude	Positive	Score 3 to 4	Q28 to Q31
	Negative	Score 0 to 2	
EIMC service accessibility	Very far	It takes the mother over 2 hours to get to the health facility	Q21
	Far	It takes the mother 1 to 2 hours to get to the health facility	
	Nearby	It takes the mother less than 1 hour to get to the health facility	
Outcome variable			
EIMC Uptake	Yes	Child circumcised	Q16

	No	Child not circumcised	
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Table 1 above shows that a scale of 0 to 7 was used to rate women's knowledge on EIMC and HIV; those who scored 0 to 3 were considered to have little knowledge or to be less informed, while those who scored 4 to 7 were considered to have strong knowledge (high knowledge levels). Additionally, women's attitudes regarding EIMC were rated from 0 to 4, with a total score of ≥ 3 indicating a positive attitude and a score of < 3 indicating a negative attitude. On the other hand, EIMC facilities that required more than 2 hours to walk were classified as very far, while those that took 1 to 2 hours to get were labeled as far. lastly, centers that only required 1 hour or less of walking were classified as nearby.

Table 2: Major themes identified from the FGDs

Categories	Themes	Sub-themes
Factors influencing the uptake of EIMC among mothers	Mothers' knowledge on EIMC	<ul style="list-style-type: none"> • Inaccurate information/ poor knowledge on EIMC • Misconceptions about EIMC • Timing of EIMC
Cultural perceptions	Cultural practices associated with traditional male circumcision	<ul style="list-style-type: none"> • Rite of passage • Cultural harmony
Societal influences on EIMC uptake	Societal facilitators of EIMC uptake	<ul style="list-style-type: none"> • Influence from peers and community practices • Cultural acceptance • Recommendations from healthcare workers • Partner's circumcision status
	Barriers to EIMC uptake due to societal influences	<ul style="list-style-type: none"> • Social expectations

		<ul style="list-style-type: none"> • Apprehension of stigma and social rejection • Medical distrust
Religious beliefs	Religious Factors Enhancing EIMC Uptake	<ul style="list-style-type: none"> • Congruence with religious teaching • Encouragement from religious leaders
	Religion-related obstacles to EIMC uptake	<ul style="list-style-type: none"> • Fear of religious disapproval • Religious disagreement or misunderstanding

3.10 Ethical considerations

Prior to study initiation, ethical approval was sought from the University of Lusaka School of Medicine and Health Sciences Research Ethics Committee. Additionally, a written authorization from the Lusaka District Health Office (LDHO) was acquired.

All participants were made aware of the study's objectives as well as their rights to decline to participate and to withdraw at any time during the study. They were also informed that their decision to participate in the study was not going to have an impact on the services they would receive. There was no discrimination in any way against study participants who chose not to take part. Participants were also reassured that no information relating to their identity would be recorded during data collection and reporting stages of the study, hence ensuring confidentiality. Before taking part in the study, each participant filled out an informed consent form. Participants were given information about the study and all potential risks associated with participation in order to respect their right to make an autonomous decision regarding participation. Lastly, participants in the study were informed in advance that they would not receive any direct benefits from it.

CHAPTER 4: PRESENTATION AND ANALYSIS OF QUANTITATIVE RESULTS

4.1 Introduction

This section focuses on the study's quantitative findings on objectives 1 and 2. Objective 1 aimed to determine the level of knowledge on EIMC and HIV among mothers, while objective 2 sought to pinpoint the social-demographic factors that affect the mothers' uptake of EIMC services for preventing the spread of HIV in Lusaka district. The quantitative part of the study targeted 400 women who were accessing healthcare services for their male infants in the 3 selected health facilities. The study's quantitative sample size distribution across the 3 facilities was 40% (160) of the sampled women were from Kanyama level 1 Hospital while 36% (142) and 24% (98) of the sampled women were from Chipata and Matero level 1 hospital respectively.

4.2 Analysis of data

Descriptive statistics were shown in the study as means and frequency distributions based on the kind of data. The study investigated, at the bivariate level, the social-demographic factors influencing Lusaka women's adoption of EIMC. Pearson's Chi-Square test was used to assess the impact of the relationship between the explanatory factors and the outcome of the study. The final model, which explained the uptake of EIMC, included all the factors that were statistically significant when looked at individually.

4.3 Presentation of the results

The order and sections of the questionnaire was followed when presenting the data for this study. To show the proportions of categories within each individual variable, frequency tables were used. Equally, to make the research results easy for readers to understand, the study's findings were summarized using bar graphs, pie charts, and tables.

4.3.1 The sample's social-demographic characteristics

This section contains information about the respondents' demographics.

Table 3: Social-demographic traits (n=400)

Factors	Participants n=400	Percentage (%)
Age group		
15-19	48	12
20-24	88	22
25-29	76	19
30-34	70	17.5
35-39	84	21
40-45	34	8.5
Mean age	29 years	
Marital status		
Single	81	20.2
Married	239	59.8
Divorced	60	15
Widowed	20	5
Religion		
Muslim	41	10.2
Christianity	291	72.8
Hinduism	53	13.3
Judaism	15	3.8
Occupation		
Business woman	50	12.4
House wife	179	44.8
Professional	66	16.5
Unemployed	80	20
Non-professional	25	6.3
Highest level of education		

No schooling	26	6.5
Primary	158	39.5
Secondary	180	45
Tertiary	36	9
Count of sons		
1 to 2	39	9.8
3 to 6	220	55
More than 6	141	35.2

Source: Field Data – 2024

Table 3 above displays the social-demographic traits of the participants sampled. Most of the people who participated, 88 (22%) were aged 20-24 years while the minority 34 (8.5%) were aged 40-45 years old. The ages of the people who took part in the study varied from 15 to 45 years old, and the average age of everyone involved was 29 years. More than half (59.8%) of the respondents were married while 81 (20.2%) respondents were single/never married. The study also found that the majority of the respondents 291 (72.8%) were Christians. Additionally, 179 (44.8%) of the study's respondents were housewives and less than half of the sampled population, 180 (45%) reported that they reached secondary school as their highest level of education while only 36 (9%) reached tertiary level. Lastly, over half (55%) of the participants reported having 3 to 6 young boys.

4.3.2 Level of knowledge on EIMC among mothers

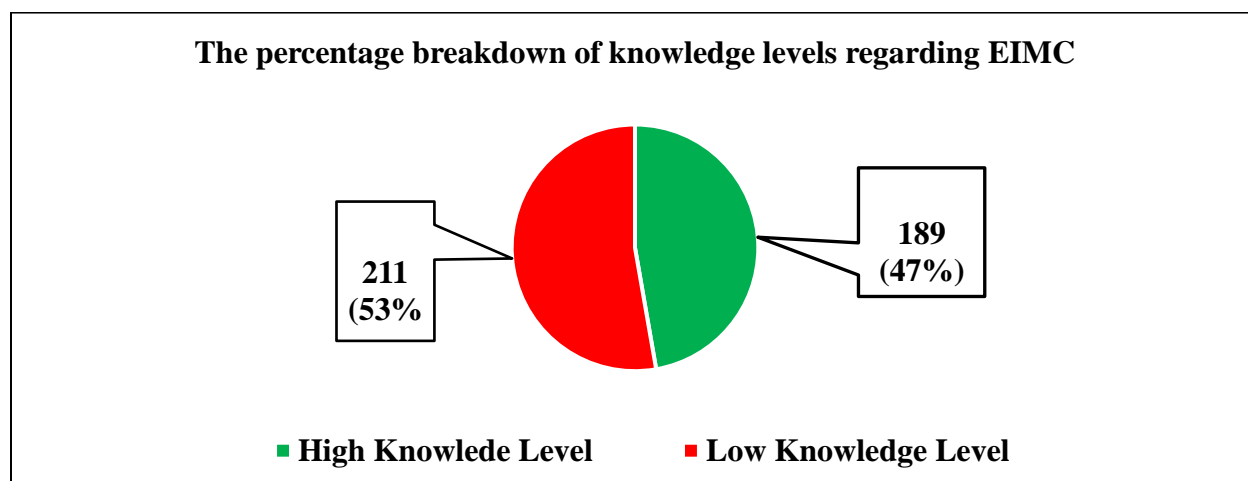
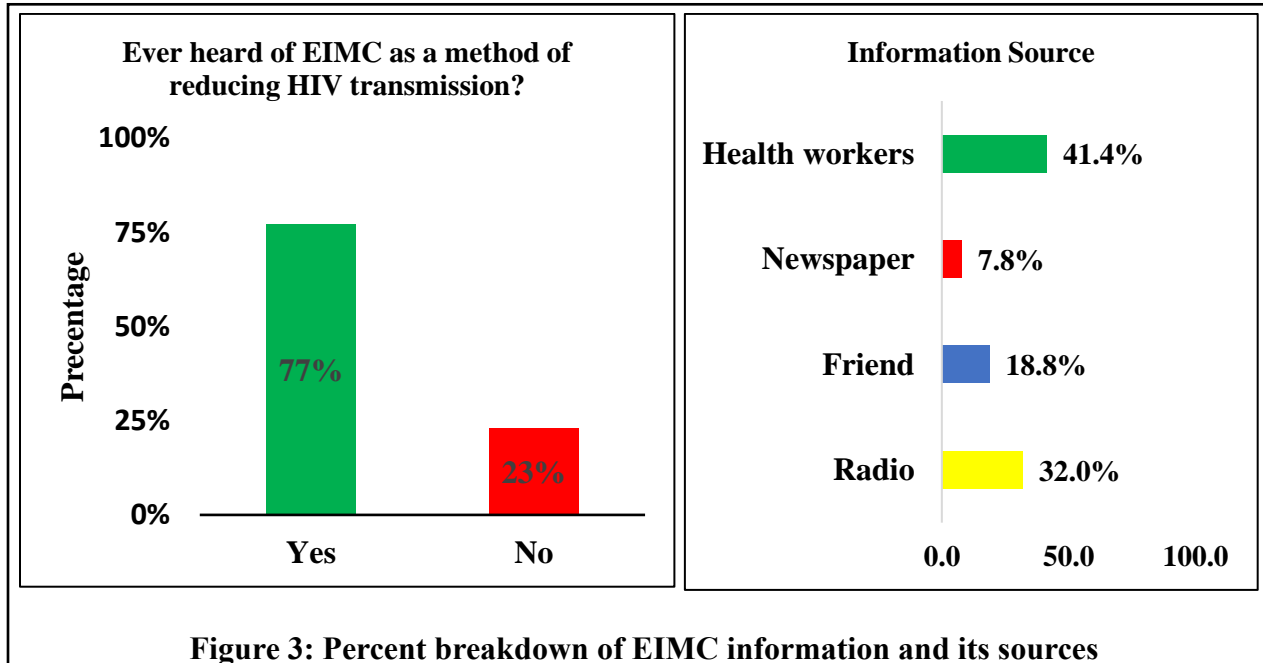


Figure 2: Percent distribution of EIMC knowledge levels among mothers (respondents)

The EIMC knowledge level of the women who took part in the study is summarized in Figure 2 above. While more than half, 53% of the women had low knowledge levels of EIMC, just under half (47%) of the people in the sample showed a high level of understanding.



The data presented in Figure 3 indicates that, of the 400 women in the sample, the majority (77%) were aware of EIMC as a method for decreasing HIV transmission when asked if they had received information about it. On the other hand, 23% of the respondents reported that they were not familiar with EIMC as a way to reduce HIV transmission.

Mothers who said they knew about EIMC as a way of lowering HIV transmission were later questioned about where they got this information. Figure 3 above illustrates that health workers were the primary source, accounting for 41.4%, followed by radio at 32%. Some women mentioned friends (18.8%) as their source of information and lastly, only 7.8% mentioned newspapers as their source of EIMC information.

4.3.3 Parents' attitudes toward EIMC as a means to prevent HIV transmission

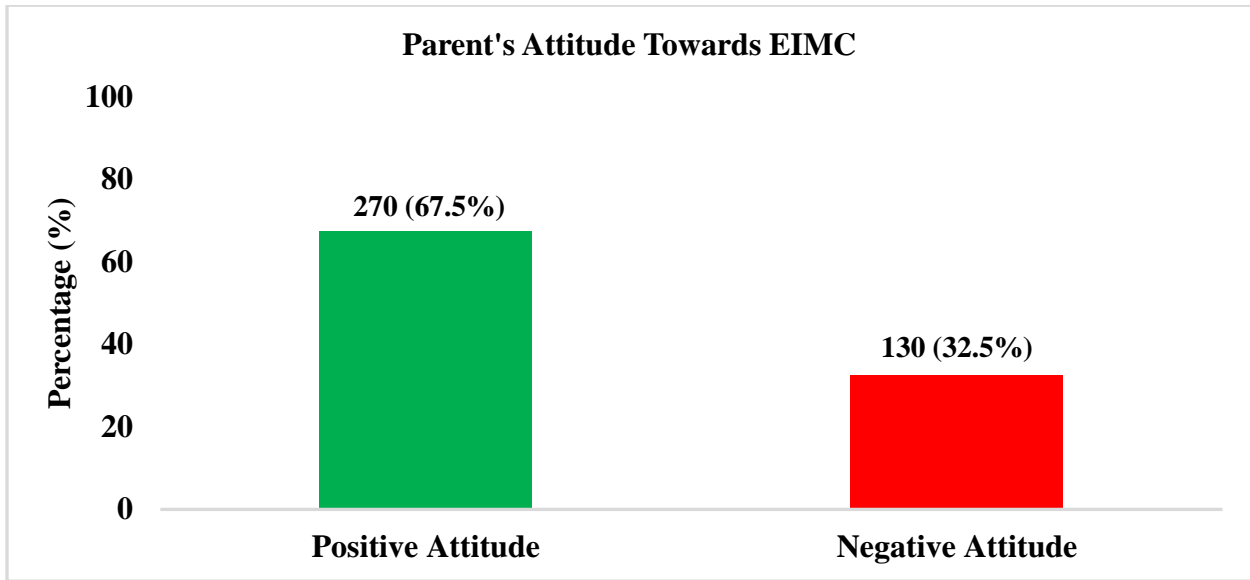


Figure 4: Percentage distribution of parent's attitudes towards EIMC

Figure 4 illustrates the distribution of women's sentiments regarding early infant male circumcision. As per the study's criteria, a favorable stance towards EIMC was determined by achieving a score of 3 to 4 points on the four (4) questions employed to evaluate attitude. According to Figure 4's graphical depiction, 67.5% of the study participants had a favorable opinion of EIMC, whereas 32.5% held a negative perspective of it.

4.3.4 Uptake of EIMC services

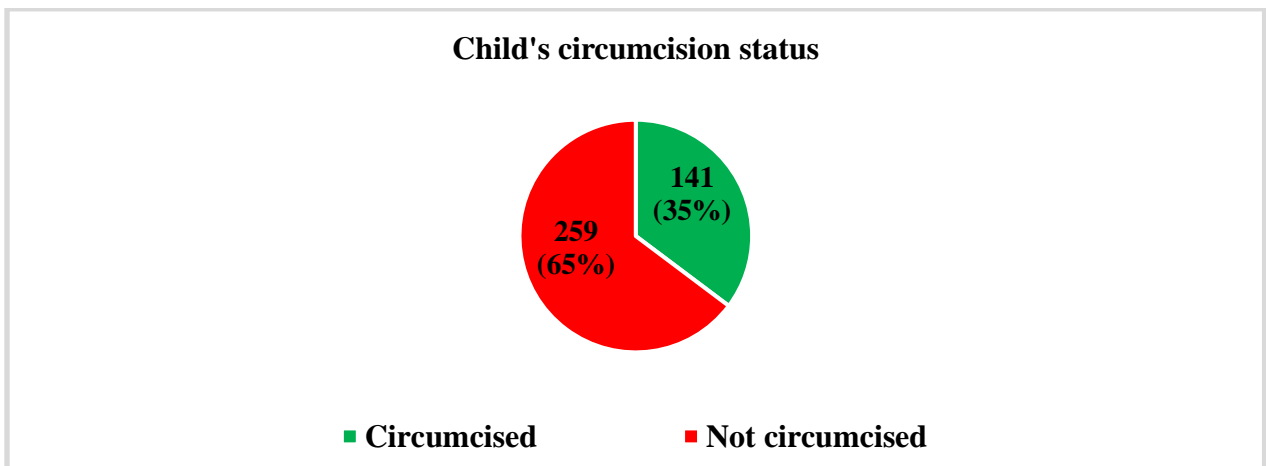


Figure 5: Percentage distribution of a child's circumcision status

To ascertain the utilization of EIMC facilities, participants were queried about the circumcision status of their male child. Figure 5 presents the percentage distribution of women whose recent male child underwent circumcision. Among the 400 women included in the sample, a majority 65% (259) reported that their child had not undergone circumcision, whereas only 35% (141) indicated that their male child had been circumcised.

4.3.5 Factors influencing parents' adoption of EIMC services to help prevent HIV transmission

Upon further examination, it was uncovered that several factors are linked with the uptake of EIMC. The outcomes outlined in table 4 below revealed a noteworthy correlation between a woman's age and EIMC uptake ($p < 0.001$). Moreover, the religious affiliation of a woman exhibited a significant association with EIMC uptake ($p = 0.001$). The attitude of women towards EIMC also proved to be associated to its uptake ($p = 0.013$). Furthermore, results showed that other social–demographic variables such as marital status, level of education, primary decision maker, and accessibility were not associated with the uptake of EIMC because their p-values (0.809, 0.653, 0.246 and 0.240 respectively) were not statistically significant. On the other hand, the utilization of EIMC was discovered to be correlated with the quantity of male offspring a woman had ($p < 0.001$). Furthermore, the circumcision status of the husband/partner exhibited a highly statistically significant association with EIMC services utilization ($p < 0.001$). Additional substantial association was identified amid a household's cultural practices regarding male circumcision and EIMC uptake ($p < 0.001$). Lastly, mother's knowledge on EIMC was also found to be associated with its uptake ($p = 0.001$).

Table 4: Factors associated with EIMC uptake

Factors	Uptake of EIMC		Chi-square
	Yes n (%)	No n (%)	P-value
Age group			
15-19	14 (29.2%)	34 (70.8%)	<0.001*
20-24	12 (13.6%)	76 (86.4%)	
25-29	20 (26.3%)	56 (73.7%)	
30-34	14 (20%)	56 (80%)	
35-39	63 (75%)	21 (25%)	

40-45	18 (52.9%)	16 (47.1%)	
Marital status			
Single	27 (33.3%)	54 (66.7%)	
Married	84 (35.2%)	155 (64.8%)	0.809
Divorced	21 (35%)	39 (65%)	
Widowed	9 (45%)	11 (55%)	
Religion			
Muslim	18 (43.9%)	23 (56.1%)	
Christian	87 (29.9%)	204 (70.1%)	0.001*
Hindu	30 (56.6%)	23 (43.4%)	
Jews	6 (40%)	8 (60%)	
Highest level of education			
No schooling	8 (30.8%)	18 (69.2%)	
Primary	55 (34.8%)	103 (65.2%)	0.653
Secondary	62 (34.4%)	118 (65.6%)	
Tertiary	16 (44.4%)	20 (55.6%)	
Number of male children			
1-2	8 (20.5%)	31 (79.5%)	<0.001*
3-6	120 (54.6%)	100 (45.4%)	
More than 6	13 (9.2%)	128 (90.8%)	
Husband/ partner circumcision status			
Circumcised	60 (72.3%)	23 (27.7%)	<0.001*
Not circumcised	58 (25.4%)	170 (74.6%)	
Don't know	23 (25.8%)	66 (74.2%)	
Attitude			
Positive	84 (31.1%)	186 (68.9%)	0.013*
Negative	57 (43.9%)	73 (56.1%)	
Decision maker			
Myself	35 (36.1%)	62 (63.9%)	

Husband/ partner	44 (39.6%)	67 (60.4%)	
Grandmother	24 (41.4%)	34 (58.6%)	0.246
Grandfather	4 (20%)	16 (80%)	
Both partners	34 (29.8%)	80 (70.2%)	
Culture – male circumcision practice			
Yes	98 (50%)	98 (50%)	<0.001*
No	43 (21.1%)	161 (78.9%)	
Accessibility			
< 1 Hour	68 (32.4%)	142 (67.6%)	
1-2 Hours	61 (40.4%)	90 (59.6%)	0.240
More than 2 hours	12 (30.8%)	27 (69.2%)	
Knowledge on EIMC			
High	83 (43.9%)	106 (56.1%)	0.001*
Low	58 (27.5%)	153 (72.5%)	

Source: Field Data – 2024 *P-value < 0.05

4.3.6 Unadjusted logistic regression of factors associated with the uptake of EIMC

The predictor variables for early infant male circumcision uptake are shown in Table 5 below. Every social and demographic factor that showed links to the adoption of EIMC was carefully taken into account. After that, each of these variables was carefully added to the univariate logistic regression analysis in order to examine how each one related to the binary outcome variable, EIMC uptake. This method helped to provide a thorough understanding of the factors influencing this specific health outcome by allowing the study to evaluate the effect of each individual predictor variable on the likelihood of EIMC uptake.

Table 5: Univariate logistic regression analysis of the predictors of EIMC uptake

Variables	(n=400)	Odds Ratio (OR) (95% CI)	P-value
Age group			
15-19	48	Reference	
20-24	88	0.383 (0.16-0.91)	0.031
25-29	76	0.867 (0.39-1.49)	0.729
30-34	70	0.607 (0.25-1.23)	0.252
35-39	84	7.286 (3.29-16.13)	<0.001*
40-45	34	2.732 (1.09-6.84)	0.032*
Religion			
Christian	291	Reference	
Muslim	41	3.058 (1.68-5.56)	<0.001*
Hinduism	53	1.84 (0.94-3.75)	0.074
Judaism	15	1.56 (0.54-4.53)	0.410
Husband/ partner circumcision status			
Circumcised	83	Reference	
Not circumcised	228	0.131 (0.07-0.23)	<0.001*
Don't know	89	0.134 (0.07-0.26)	<0.001*
Culture- MC practice			
No	204	Reference	
Yes	196	3.774 (2.42-5.80)	<0.001*
Number of male children			
1-2	39	Reference	
3-6	220	4.65 (2.05-10.57)	<0.001*
More than 6	141	0.39 (0.15-1.03)	0.150

Knowledge on EIMC

Low	211	Reference	
High	189	2.066 (1.36-3.13)	0.001*

Attitude

Positive	270	Reference	
Negative	130	0.578 (0.38-0.89)	0.013*

Source: Field Data – 2024 *P-value < 0.05

According to the results depicted in Table 5 above, women aged between 20 and 24, 25 and 29, and 30 to 34 years old had lower odds of having their male infants circumcised compared to those in the age group 15 to 19 years old. On the other hand, the odds of having male infants circumcised were high in women in the age groups of 35 to 39 and 40 to 45 years compared with those in the age group 15-19 years old (OR=7.286, 95% CI:3.29 to 16.13) and (OR=2.732, 95% CI: 1.09 to 6.84) respectively.

The findings also indicate that Muslim women had a three times higher likelihood of having their babies circumcised than Christian women (OR = 3.058, 95% CI: 1.68 to 5.56). Furthermore, compared to Christian women, women of Hinduism and Judaism had higher odds of having their babies circumcised, which indicated limited uptake of EIMC among women of the Christian faith (OR= 1.84, 95% CI:0.94 to 3.75) and (OR= 1.56, 95% CI: 0.54 to 4.53) respectively.

The odds of mothers having their babies circumcised were lower for those whose partners were not circumcised or had an unclear status regarding circumcision than for those whose husbands or partners had undergone circumcision (OR= 0.131, 95% CI: 0.07 to 0.23) and (OR= 0.134, 95% CI: 0.07 to 0.26), respectively.

Moreover, when compared to women from cultures where male circumcision was not customary, women from cultures where it was practiced were nearly four times as likely to have their infants circumcised (OR = 3.774, 95% CI: 2.42 to 5.80).

Women who had 3 to 6 male children had 4.7 times greater odds of having their male infant circumcised than those who had 1 to 2 male children (OR= 4.65, 95% CI: 2.05 to 10.57) and this relationship was statistically significant with $p < 0.001$.

Additionally, women with high knowledge levels on early infant male circumcision had 2 times greater likelihood of having their male infant circumcised in comparison to women with limited knowledge about EIMC (OR=2.066, 95% CI: 1.36 to 3.13). Lastly, Mothers who had a negative attitude towards EIMC were 0.578 times less inclined to have their male newborns circumcised compared to those who held a positive attitude (OR=0.578, 95% CI: 0.38 to 0.89, p=0.013).

Table 6: Multivariable logistic regression analysis of factors associated with EIMC uptake in Lusaka district

Predictor variable	Study sample (n=400)	Adjusted OR (AOR) AOR (95% CI)	P-value
Knowledge on EIMC			
Low	211	Reference	
High	189	10.097(3.18-32.02)	<0.001*
Husband/ partner circumcision status			
Not circumcised	228	Reference	
Circumcised	83	12.037 (6.00-24.13)	<0.001*
Don't know	89	4.50 (1.83-11.054)	0.001*
Attitude			
Positive	270	Reference	
Negative	130	0.04 (0.01-0.11)	<0.001*

Source: Field data – 2024 *P-value < 0.05

To grasp the collective influence of factors related to EIMC uptake and to reduce the influence of confounding variables, a multivariable logistic regression analysis was performed. Table 6 above presents the ultimate multivariable model that most accurately explains the factors associated with EIMC uptake. Following a thorough analysis and correction for the impact of extraneous variables, three (3) factors were identified as being associated with the uptake of EIMC. Women who had a high knowledge level on EIMC were 10 times more inclined to have their male infants circumcised than those with low knowledge on EIMC (AOR 10.097, 95% CI: 3.18-32.02) and this was statistically significant with p <0.001.

Women who were uncertain about whether their husbands or partners were circumcised were 4.5 times more inclined to choose circumcision for their male babies compared to those whose husbands or partners were not circumcised (AOR 4.50, 95% CI:1.83-11.054, p=0.001). Furthermore, women with circumcised husbands or partners had 12-fold greater odds of having their infant sons circumcised compared to women whose husbands or partners were not circumcised (AOR 12.037, 95% CI: 6.00-24.13, p <0.001). Finally, women who had a negative attitude towards EIMC were 0.04 times less inclined to have their infant sons circumcised compared to those who had a positive attitude (AOR 0.04, 95% CI: 0.01-0.11, p <0.001).

CHAPTER 5: PRESENTATION AND ANALYSIS OF QUALITATIVE RESULTS

5.1 Introduction

The findings from the FGDs on how mothers' cultural, social, and belief systems affect their decision-making towards the uptake of EIMC as a preventative measure against HIV transmission are outlined below. 3 FGDs were conducted, 1 from each of the chosen health facilities. Each FGD had an average of 6 mothers participating and the range of their ages was 18 to 44 years old. After applying thematic analysis to examine the qualitative data, the following themes and sub-themes came to light.

5.2 Factors influencing the uptake of EIMC among mothers

The uptake of EIMC by mothers is influenced by several factors. The majority of these factors included knowledge of and comprehension of the advantages of EIMC as well as influences from culture, society, and beliefs. The following are the factors that affect how widely EIMC is used as an HIV prevention intervention.

5.3 Mothers' Knowledge on EIMC

Inaccurate Information about EIMC

The majority of women during the focus group discussions acknowledged ever heard of EIMC and the most reliable source of information was from healthcare workers which they got during the antenatal visits and the postnatal sessions. However, despite the massive awareness, mothers showed little or poor knowledge about the medical aspects of EIMC and this affected their decisions to either adopt it or not. Decision-making in healthcare requires accurate and adequate information. Some women expressed that their unfavorable opinion stemmed from their ignorance of EIMC. The women who refused EIMC had misconceptions about the procedure because healthcare workers only provided them with limited information about it. Many times, these women regarded their friends as valuable sources of knowledge. Several participants were unaware of the procedure. When probed what EIMC procedure involved, they were ignorant to the precise location and amount of skin removal. When asked what EIMC is, one mother stated the following;

My understanding of early infant male circumcision procedure is that it is the removal of the skin on the penis of the baby and this procedure is done

by the doctor. I, however, do not know much about its medical benefits, I just see some mothers taking their male infants for EIMC (Mother of four, 31 years old., FGD 1).

Furthermore, the majority of participants from communities where circumcision is not commonly practiced did not know about the benefits of male circumcision (MC), which include decreased risk of heterosexual HIV transmission, prevention of penile problems, and promotion of hygiene, among other benefits. One mother shared that they do not fully know and understand the benefits of circumcising a baby boy;

We have heard that [MC] is practiced by the Luvalas of Northwestern Province, the Chewas of Eastern Province, and other immigrants, but we are unsure of their motivations (Mother of two, age 28., FGD 2).

Misconceptions about EIMC

Many myths and misconceptions about early infant medical male circumcision (EIMC) were found to have their roots in a lack of knowledge about the procedure; as a result, most women were discouraged from adopting infant male circumcision for their children. Mothers frequently disclosed a deep-seated fear associated with the belief that their infants would suffer serious pain and harm as a result of EIMC. This fear became the main obstacle, affecting mothers' choices and keeping them from thinking about or choosing circumcision. When probed how misconceptions affected their decision-making regarding uptake of EIMC, one mother explained the following;

The thought of the baby being in pain terrified me. Because I didn't want him to suffer for the alleged medical benefits of circumcision, I decided against having him circumcised because I felt it was a cruel thing to do to such a small child (Mother of two, age 23., FGD 2).

Mothers who were considering EIMC expressed a great deal of uncertainty and reluctance because they were afraid of the possible consequences, which included bleeding, infections, and long-term health problems. Another woman stated that;

I have heard of babies getting infections or bleeding profusely after circumcision. It made me concerned about the risks, and I didn't want to risk my baby's life (Mother of three, age 33., FGD 1).

According to the findings generated from the FGDs, compared to women who had adequate knowledge on EIMC, women who lacked or had insufficient knowledge on EIMC were hesitant to have their male infants circumcised because they were unsure of the procedure's potential consequences.

5.3.1 Timing of EIMC

Although many participants were open to the idea of circumcising their sons, they disagreed about the best age for the procedure. When asked about the ideal time for EIMC, most participants said that it ought to happen 3 to 6 months after delivery. Most participants believed that there would be an intolerable risk of surgical error because of the infant penis's fragility in the first postpartum period.

Furthermore, because a boy becomes sexually active during adolescence, some women contended, that this is a good time for medical male circumcision. However, some believed that medical circumcision was best performed when the child was still young in order to protect him before he made his sexual debut. This was especially true because it can be difficult for a son to talk to his mother about starting sexual activity and, as a result, when he should consider getting circumcised. Those who thought medical circumcision was a good idea when they were younger usually thought it was best to do it within the first six months to a year of a baby's life. It was believed that having a son circumcised at a young age would allow for the procedure to be completed before the boy becomes aware of the difficulties and pain. One of the mothers had this to say concerning the timing of EIMC;

When this child gets older (referring to her male baby in her hands), just like my brothers, they won't go for MC, so you can't take them and you can't make them go against their will. On the other hand, you can take action now while they are still babies, just to save their lives from contracting HIV when they grow older and become sexually active (Mother of five, age 40., FGD 3).

5.4 Cultural perceptions

Cultural practices associated with traditional male circumcision

Mothers had diverse views on how cultural practices impact their perception of EIMC. Cultural beliefs vary amongst different ethnic groups. A portion of these beliefs have been inherited by subsequent generations and the adoption of health services, such as the EIMC, has been impacted by these perceptions.

Through the FGDs, it was learned that culture can serve as a catalyst for EIMC adoption as well as a deterrent. In places where male circumcision is a common practice, such as Zambia's North-Western Province, individuals might be more open to early infant male circumcision because it aligns with their cultural norms. Simultaneously, they might decide against having their children circumcised because they prefer for them to take part in the customary ceremony as a way to mark the transition from childhood to adulthood.

Rite of passage

Women's views on early infant male circumcision could be shaped by the cultural practice of traditional MC. A substantial number of the FGD participants expressed their belief that EIMC contradicts their values and beliefs regarding traditional male circumcision. After probing how culture influences women's decisions regarding EIMC uptake, one woman explained the following;

We cannot simply decide to have our child circumcised when we wake up in the morning; what about our culture? In our culture, boys are sent to the mountain to be circumcised. All this is simply because circumcising a boy shows that he has now grown, that is our culture and we respect it hence circumcising infants is not encouraged, actually it is a taboo (Mother of four, age 36., FGD 1).

The quote above demonstrated how the cultural practice of traditional male circumcision forms the basis for the opinions of certain women regarding male circumcision. Another woman expressed a similar need for cultural expression and mentioned that her son would soon be attending initiation school;

My son will soon be attending initiation school at his uncle's village, and I continue to believe that there is nothing wrong with following the traditional methods of doing things (referring to the rite of passage) (Mother of 2, age 28., FGD 1).

The women who refused EIMC reaffirmed their support for and acceptance of traditional male circumcision and explained how EIMC changed many social values and customs. Another woman stated that her boys had traditional male circumcision rather than EIMC because her grandmother had cautioned her against thoughtlessly adopting these new interventions. One woman during the FGDs warned her fellow women by stating the following;

To be clear, our people should exercise caution and refrain from blindly adhering to new ideas [EIMC]; they attempt to remove culture from everything. We also should not be pressured to follow in the footsteps of others (Mother of five, age 35., FDG 3).

Cultural Harmony

Conversely, women belonging to other tribes that practice circumcision, like the Chewas, Nsengas, and Ngonis of the Eastern Province, mentioned that circumcision is not a more significant rite of passage in their culture. Their tribal background made embracing EIMC simple for them, and the fact that it takes place in a hospital gave them additional assurance in the process.

I prefer EIMC over having my son circumcised traditionally because it is safe and the medical equipment used by the doctors is safer and cleaner than what is used in my village. As the times change, mothers must adapt as well, adopting new behaviors that will benefit their children as they grow older (Mother of 2, age 27., FDG 2).

5.5 Societal influences on the uptake of EIMC

The study's findings showed that supportive peer and cultural endorsements, as well as healthcare provider endorsements, act as facilitators in creating a supportive environment for EIMC uptake in mothers. On the other hand, barriers such as cultural taboos, fear of societal stigma, and gender-related expectations surfaced, contributing to the intricacy of maternal decision-making.

5.5.1 Societal facilitators of EIMC uptake

Some major social drivers of the adoption of EIMC are explained by the subsequent sub-themes:

Influence from peers and community practices

One strong motivator for mothers thinking about EIMC turned out to be the influence of peers and community practices. The process was seen as culturally appropriate because of the sense of normalization and acceptance that came from peers sharing decisions and experiences. Observing other mothers make the decision to use EIMC cultivated a community awareness that affected personal choices. A mother narrated;

Many mothers in my group decided to send their sons for EIMC. We discuss it frequently as friends, and witnessing their happiness affected my choice hence I also took my baby boy for infant circumcision. It seemed typical of our community (Mother of 3, age 28., FDG 1).

Cultural acceptance

Cultural acceptance was reported to be another facilitator to the uptake of EIMC among mothers. When it came to making decisions about Early Infant Medical Male Circumcision (EIMC), mothers who reported cultural endorsement said that societal norms and expectations helped. These mothers adopted circumcision because of the favorable social perception of the procedure.

Recommendations from healthcare providers

Mothers also cited healthcare provider recommendations as influential in facilitating EIMC uptake. Trust in healthcare professionals and their advice was critical in shaping positive attitudes toward the procedure. When probed further on how healthcare workers shape mothers' decision-making regarding the uptake of EIMC, one mother explained the following;

When our doctor explained the health benefits of EIMC, we felt more at ease with our decision. Knowing that healthcare professionals endorsed EIMC gave us confidence in our decision to have our baby boy undergo infant circumcision (Mother of 4, age 39., FDG 3).

Partner's circumcision status

Based on the results of this research, whether or not the partner was circumcised played a crucial role in a mother's decision to opt for EIMC. Some mothers whose male infants underwent EIMC procedures stated that the fact that the father was also circumcised and that they received all the necessary support and encouragement from them made the decision-making much easier. This was evidenced by the following quote from one of the mothers;

I was inspired to have EIMC performed on my baby boy because his father (my husband) encouraged me to do so. My husband is also circumcised, so I am guessing that is why he wanted our son circumcised. According to what he (the husband) told me, male circumcision is beneficial because it aids in the maintenance of male organ (penis) hygiene (Mother of 3, age 35., FDG 2).

5.5.2 Barriers to EIMC uptake due to Societal Influences

Mothers stated that the obstacles they faced included cultural taboos and false information. There was reluctance and uncertainty regarding the cultural suitability of EIMC due to deep-rooted myths and beliefs in the community. One mother narrated;

Some of our community's elders think that circumcision upsets the natural balance. It is frowned upon in the culture. It is difficult to choose what is best for my child because of the contradicting information (Mother of 2, age 19., FDG 2).

Social expectations

Social expectations and gender stereotypes were also cited by mothers as obstacles to the adoption of EIMC. Mothers' views of what is considered culturally acceptable are influenced by societal norms that assign boys and girls different roles. One mother added;

People in our community seem to believe that only girls require protection. There is less acceptance of male circumcision, especially for babies. Challenging these expectations is difficult, even if it is for our son's well-being (Mother of 5, age 35., FDG 3).

Apprehension of stigma and social rejection

The fear of social disapproval and stigma among mothers was also revealed as a significant challenge during the judgment process. It served as a deterrent because of the fear of social disapproval for selecting EIMC. One woman shared;

Mothers who circumcise their babies have reportedly faced criticism within our communities hence this was not something I wanted to deal with. My hesitation to take my son for EIMC was caused by my fear of social rejection (Mother of 3, age 29., FDG 3).

Medical mistrust

Distrust for the public health system was another barrier women cited during the FGDs. Women's hearing, seeing, and sharing of historical issues led to perceptions of mistrust. A mother narrated how this mistrust negatively impacted her decision to have her baby undergo infant male circumcision;

My mother mentioned that nothing has changed despite what I have heard from other people about how they were treated as women in these public hospitals. Hence, I am wondering, how can you pay attention to and believe what these nurses and doctors say that EIMC has health benefits? The answer is no (Mother of 4, age 33., FDG 2).

Another mother also added;

I once witnessed women giving birth while on the queue and others delivering on their own because nurses are rude. So, what if you bring an infant who has circumcision issues? I am scared hence I cannot allow my baby to undergo EIMC (Mother of 2, age 23., FDG 1).

5.6 Religious Beliefs

When it came to EIMC decision-making, the study found that mothers' choices were greatly influenced by their religious beliefs, which constituted a complex and influential factor. The process became more complex due to the interplay between faith and healthcare decisions since religious teachings have the potential to both support and hinder the adoption of EIMC. A sense of

purpose and cultural significance were instilled in some mothers by the religious leaders' encouragement and the alignment of circumcision with their doctrines. Other mothers' experiences, on the other hand, were marked by strong obstacles such as religious opposition, misunderstandings, and the fear of being condemned by their own religious communities. The complexity of the relationship between faith and healthcare decision-making was highlighted by this duality, underscoring the need for a thorough comprehension of the ways in which religious convictions influence women's adoption of EIMC.

5.6.1 Religious factors enhancing EIMC uptake

The sub-themes listed below contribute to the acceptance of EIMC within the framework of religious beliefs among the participants (mothers).

Congruence with religious teachings

Mothers who reported that their religious teachings and EIMC aligned shared insights about how their faith facilitated their decision-making. Mothers indicated that they were persuaded to embrace EIMC for their infants by the perceived meaningfulness and cultural significance of the connection between religious doctrine and circumcision. When probed how religion influenced their decision-making regarding the uptake of EIMC, one woman shared the following;

Circumcision is considered a sign of purity in our religion. It is consistent with our religious beliefs and something we hold dear. Therefore, our decision to choose EIMC was based on our faith (Mother of 2, age 24., FDG 2).

Encouragement from religious leaders

Mothers who reported feeling encouraged by religious leaders indicated that they were a major influence in the decision to have their male infants undergo EIMC. The procedure's perceptions and decisions were significantly shaped by the impact of religious authorities. One mother narrated the following;

As a Christian Catholic, I recall that once, during a sermon, our priest stressed the advantages of circumcision for health. I felt confident enough

to move forward with EIMC for my child because I knew that my religious leader was in favor of it (Mother of 3, age 31., FDG 3).

5.6.2 Religion-related obstacles to the uptake of EIMC

The following sub-themes explain the impediments to the adoption of EIMC in the realm of religious beliefs held by the participants (mothers);

Fear of religious disapproval

Mothers who were afraid of religious condemnation highlighted a major barrier in deciding on EIMC. Uncertainties that having a baby circumcised would be seen as going against accepted beliefs or practices in their church or religious community were the source of this fear. During the Focus Group Discussions (FGDs), a mother disclosed how her religious convictions influenced her decision to not take up the service (EIMC);

I was worried that people in our religious group (church) would think less of us for circumcising our child. We are afraid to deviate from what our faith views as the standard (Mother of 5, age 44., FDG 2).

Religious disagreement or misunderstanding

The majority of mothers who shared their stories of encounters with religious resistance or misunderstanding pointed out a major obstacle in the course of choosing EIMC. The belief that EIMC went against the religious teachings or beliefs of their faith group was the root of this barrier. When probed further on how religion negatively affected their EIMC decision-making, one of the mothers had this to say;

I think conflicting opinions exist within our church regarding circumcision. My husband and I were hesitant to take our son for EIMC because some people think it contradicts our religious beliefs. When there is no outward agreement in our faith, it is very confusing hence we find ourselves in between (Mother of 3, age 34., FDG 1).

In summary, findings from the FGDs with mothers revealed that religion had a twofold effect on the adoption of EIMC, serving as both a barrier and a facilitator. Encouragement from religious

leaders, and positive alignment with religious teachings all helped to make acceptance easier. It also highlighted the intricate relationship between faith and healthcare decision-making. On the other hand, religious opposition or misinterpretation, fear of condemnation, and cultural-religious divergence acted as barriers. Promoting educated decisions in line with personal religious beliefs requires addressing these subtleties.

CHAPTER 6: DISCUSSION OF FINDINGS

6.1 Introduction

The themes and sub-themes from the qualitative data as well as the quantitative data results have led to the identification of the parts presented in this chapter. The following are the factors influencing the uptake of EIMC among mothers;

6.2 Mother's knowledge on EIMC

Knowledge is a fundamental component of public health interventions, influencing people's decisions and perspectives. This is especially valid in the context of one of the most important HIV prevention interventions, early infant male circumcision (EIMC). Mothers are the primary decision-makers when it comes to infant health, so their awareness and understanding are crucial to the effectiveness of EIMC, which is positioned as a preventative measure against HIV transmission. Considering the information provided in the section on quantitative outcomes, 77% of the participants acknowledged having heard of EIMC at some point. But compared to the majority, 53% (211) of the mothers, who had low knowledge on EIMC as a prophylactic against HIV transmission, under half, 47% (189) of the mothers had excellent knowledge on EIMC. This demonstrates explicitly the low general level of EIMC knowledge among women. In addition, at multivariable logistics regression, women who had a high knowledge level on EIMC were tenfold more inclined to circumcise their male infants compared to those with limited understanding of EIMC (AOR 10.097, 95% CI: 3.18-32.02) and this was statistically significant with $p < 0.001$.

The qualitative findings also demonstrated that mothers' decisions to adopt or not adopt EIMC were influenced by their understanding or ignorance of the medical aspects of the program. In addition to not knowing about the procedure, a number of FGD participants were also ignorant of the medical advantages of EIMC, which include promoting good hygiene, preventing penile problems, and lowering the risk of heterosexual HIV transmission. Few mothers were aware of these advantages and cited them as the justification for adopting EIMC for their male infants.

Similarly, in Zimbabwe, as part of a study on EIMC knowledge, FGDs involving 240 participants, supplemented by interviews with 3 key informants took place. The findings revealed a general lack of EIMC knowledge. Many participants, especially women were unaware of the process. When

questioned, they revealed they were unsure of the exact location and amount of skin that is cut from the baby's penis. The results further showed that, among participants from most ethnic groups, EIMC acceptance was high despite minimal knowledge of it (WHO-UNAIDS, 2007).

6.3 Circumcision status of partners

This study demonstrated how the father's circumcision status can influence EIMC uptake in either a positive or negative way. The results of this study showed that over half, 57% (228) of the respondents' spouses were not circumcised and this was detrimental to the adoption of EIMC. Furthermore, the study reviewed that mothers with circumcised husbands or partners were 12 times more inclined to have their male infants circumcised than women whose spouses or partners were not circumcised (AOR 12.037, 95% CI: 6.00-24.13, $p < 0.001$).

Along with the quantitative results, the study's qualitative findings indicated that mothers were more inclined to select EIMC if their spouses had undergone circumcision. This tendency resulted from the supportive role that their partners who had undergone circumcision played in helping these mothers feel more comfortable and at ease during the decision-making process.

Similarly, one of the challenges to EIMC, according to a qualitative study on EIMC for HIV prevention in Swaziland, was fathers or spouses. The study's findings demonstrated a strong link between mothers' decisions to circumcise their male infants and the circumcision status of their partners. Compared to mothers whose partners were not circumcised, most mothers who agreed to have their baby boys circumcised had partners who were also circumcised. This correlation emphasized how fathers have a significant impact on how decisions about infant circumcision are made. The results of the study further indicated that fathers' status as circumcised individuals have a significant impact on the decisions made by mothers, underscoring the significance of including fathers in conversations and educational programs concerning EIMC (Jarrett et al., 2014).

In line with the results of this study, another study by Marisa et al (2016) examined how parents make decisions and the characteristics that differentiate parents in western Kenya who accept and reject EIMC services. Multivariable logistic regression modeling of the study's data showed that mothers whose husbands had undergone circumcision had 2.3-fold greater odds of circumcising their male babies compared to mothers whose husbands or partners had not undergone the procedure (AOR= 2.30, $P < 0.001$).

6.4 Attitude of women towards EIMC

Understanding the complexities of EIMC, a preventive health measure, requires examining women's attitudes toward it. Given their role as primary caregivers and important decision-makers regarding family health, women have a big say in whether or not EIMC is accepted and used. Mothers' attitudes toward EIMC services can influence their use either positively or negatively. According to this research, mothers who felt positively about EIMC were more inclined to have their children circumcised than mothers who felt negatively about it. Community norms and family support, according to the Social Ecological Model's interpersonal level (mesosystem), play a serious role in determining people's choices. The theory goes on to claim that a person's attitude affects their intentions, whether they are good or negative, to participate in particular acts (DiClemente et al., 2008). Compared to 32.5% (130) of women who expressed a negative attitude about EIMC, 67% (270) of women had a favorable attitude. The study further reviewed a multivariable logistic regression model that women who had a negative attitude towards EIMC were 0.04 times less probable to have their male newborns circumcised in comparison to those who had a positive stance (AOR 0.04, 95% CI: 0.01-0.11, $p < 0.001$) implying that mothers who were receptive of EIMC were more inclined to get their male newborns circumcised.

Additionally, qualitative findings also showed that mothers' decisions to adopt or not adopt EIMC were influenced by their attitudes toward it. Mothers who participated in the FGDs also revealed that peer discussions, community norms, and family support can all have an impact on a mother's attitude toward EIMC. Several mothers who chose to have their male babies undergo EIMC stated that individuals in their social circles had an impact on them.

Similarly, a Swaziland study found positive family attitudes toward EIMC, though this was especially true after getting supplementary information on EIMC (Jarrett et al., 2014). Because of data constraints, it was not possible to conduct a thorough trend analysis to assess Lusaka women's attitudes generally regarding early infant medical male circumcision (EIMC). However, it is speculated that the increased media campaigns on male circumcision by the Ministry of Health (MOH) and other non-governmental organizations (NGOs) may be largely responsible for the optimistic attitude found in this study. The positive attitude toward EIMC that the study

participants displayed may have been greatly influenced by these coordinated efforts to raise awareness and disseminate information.

In line with the results of this study, another study carried out in South Africa looked at how attitudes affected the uptake of EIMC in a community-based context. The study discovered a significant relationship between the likelihood that parents will choose to have their male infants undergo EIMC and their attitudes toward circumcision. In particular, parents who were pro-circumcision and frequently saw it as a preventative measure against specific health risks were more probable to select the procedure for their newborn male children. Nevertheless, even in areas where EIMC was widely available, parents with unfavorable attitudes toward circumcision, which was usually caused by a lack of knowledge about this preventative measure, myths, misconceptions, and cultural or religious beliefs, were less likely to see it as a good option for their infants (Palmer et al., 2023).

Another study conducted in Zimbabwe found that nearly two out of every five parents there said they would probably circumcise their baby boy if EIMC was provided at no cost (Sgaier et al., 2017).

6.5 Cultural Beliefs

Cultural beliefs are a significant factor that impact health practices and decision-making processes because they are deeply embedded in society. The study's quantitative results section demonstrated that, at the univariate logistic regression level, participants from cultures that practiced male circumcision had an almost four-fold higher chance of having their male children circumcised in comparison to women from cultures that did not (OR = 3.774, 95% CI: 2.42 to 5.80). This demonstrates the significant influence culture has on people's decision-making.

Beyond the numbers, results from focus group discussions indicated that culture had a twofold impact on the uptake of EIMC, suggesting that it was both an enabler and an impediment. Mothers who opted for EIMC for their male infants claimed that their four fathers had also undergone the procedure, albeit inside more conservative circles, and that they did so because it was culturally appropriate. Unfortunately, some mothers from tribes where male circumcision is considered a rite of passage from childhood to adulthood said that they were unable to have their male infants

undergo EIMC because, according to their culture, a male child must undergo male circumcision when he reaches adulthood.

These findings are consistent with other studies which have shown that culture is one of the most important factors influencing the uptake of EIMC among women. Another study conducted in Zimbabwe found that cultures that did not consider male circumcision did not adopt EIMC. Some parents mentioned that adopting EIMC was inappropriate since male circumcision and EIMC had never been practiced in their lineage. The study further reviewed that because their spouses had not received the circumcision, several women declined to have their male children undergo the procedure (Webster M, 2014). In another Zimbabwean study, tribes that had historically circumcised, such as the Chewa, Venda, Remba, and Xhosa did not object to EIMC services. They did, however, state that if a member of their tribe had undergone circumcision, that person should administer the surgery (WHO/UNAIDS, 2004).

Early infant male circumcision may be rejected by families from unconventional circumcising ethnicities because they think it is a custom unique to Muslims and certain tribes in Zambia's northwestern province. Some people believe that EIMC is forbidden in their spouse's or their own traditions. Conversely, if parents believe that EIMC is a universal practice, they may be in favor of it. Therefore, for male circumcision services to be effectively implemented in these communities, healthcare workers must engage stakeholders such as community leaders in discussions and conduct sensitization campaigns.

CHAPTER 7: CONCLUSION AND RECOMMENDATIONS

7.1 Conclusion

In summary, the study has identified and analyzed the factors influencing the uptake of EIMC for HIV prevention among mothers of newborn infants in Lusaka district. The study identified three key factors which are; the partner's circumcision status, knowledge on EIMC, and women's attitude towards EIMC as the main variables influencing the uptake of EIMC for HIV prevention among women in Lusaka. Furthermore, the research revealed that women belonging to cultural groups where male circumcision was customary showed a higher tendency to opt for circumcision for their male infants, in contrast to women from cultures where male circumcision was not practiced. Additionally, the study's qualitative results section identified three main themes that deter Lusaka mothers from adopting EIMC: medical mistrust, cultural customs surrounding traditional male circumcision, and a lack of knowledge about EIMC that leads to myths and misconceptions.

The majority of the study's findings were consistent with other studies on the variables influencing the adoption of early infant male circumcision.

Therefore, as a preventive measure against HIV, policies should intensify campaigns of sensitization on EIMC to address the misinformation that women share. Additionally, the significance of cultural variations in the decision-making process needs to be acknowledged. The promotion of male participation in decision-making processes is also critically needed, with a focus on the role that fathers and other male family members play in supporting EIMC.

7.2 Study limitations

This study's limited generalizability is one of its main shortcomings. As the research was conducted in Lusaka district, a particular urban setting, and because rural and other urban contexts may vary, the findings might not be broadly applicable. An additional constraint pertains to cultural diversity. Given the cultural diversity of Lusaka district, it is possible that some cultural beliefs and practices related to EIMC were left out of the study. Finally, another limitation of this study is socio-economic variability. The socio-economic backgrounds of people living in urban areas tend to be diverse, so the study's findings might not accurately reflect their experiences.

7.3 Recommendations

In light of this study, it is recommended that:

- Strategies for raising awareness of EIMC services should be reinforced. Mothers worry a lot about how the EIMC procedure will affect their male newborns. Thus, during sensitization, the focus should be on the advantages of EIMC, such as the prevention of the spread of HIV, reduced pain, and faster healing.
- The government, through the Ministry of Health and Lusaka District Health Office (LDHO) in particular must work with religious and community leaders to gain their support for EIMC. They must seek their participation in educational campaigns to address religious and cultural concerns related to EIMC.
- Encouraging men to participate in decision-making is crucial, and fathers and other male family members play a significant role in supporting EIMC. To do this, targeted outreach must be carried out to get men talking about the advantages and safety of EIMC.

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APPENDICES

APPENDIX 1: CONSENT FORM

Hello there,

I hope this message finds you well. I am currently pursuing my master's degree at the University of Lusaka, focusing on Public Health within the School of Postgraduate Studies. As part of my research, I am delving into the topic of "Uptake of Early Infant Male Circumcision as an HIV Prevention Intervention in Lusaka District."

My aim is to understand the various factors that influence the acceptance of Early Infant Male Circumcision Services in our district. By gathering this information, I hope to provide valuable insights that can guide stakeholders in implementing measures to encourage mothers to consider this intervention for their children.

I want to assure you that any information you provide will be handled with utmost confidentiality and used solely for academic purposes. If you feel uncomfortable participating at any point, please feel free to withdraw from the study.

Your cooperation in this endeavor would be immensely appreciated. Thank you for considering being a part of this important research.

Participant's name (print)

Participant's Signature

Date

.....

.....

.....

APPENDIX 2: STRUCTURED QUESTIONNAIRE



School of Postgraduate Studies

TOPIC: UPTAKE OF EARLY INFANT MEDICAL MALE CIRCUMCISION AS AN HIV PREVENTION INTERVENTION IN LUSAKA DISTRICT.

S/N:

Site Name:

Name of Researcher:

Date:

SECTION A: DEMOGRAPHIC DATA

FOR OFFICIAL USE

1. Your age on your most recent birthday.....

2. Ethnic background (province that you identify with)?.....

3. Marital status

(a) Single []

(b) Married []

(c) Divorced []

(d) Widowed []

4. Religion

(a) Muslim []

(b) Christian []

(c) Hindu []

(d) Jews []

5. Is EIMC practiced in your religion?

(a) Yes []

(b) No []

(c) Don't know []

6. Highest level of education

(a) No schooling []

(b) Primary []

(c) Secondary []

(d) Tertiary []

7. What is your occupation?

- (a) Business woman []
- (b) Housewife []
- (c) Professional []
- (d) Unemployed []
- (e) Non-professionals []

8. How many male children do you have?

- (a) 1-2 []
- (b) 3-6 []
- (c) More than 6 []

SECTION B: KNOWLEDGE ON CIRCUMCISION AND HIV PREVENTION

9. Have you ever heard of EIMC as a means of reducing HIV transmission?

- (a) Yes []
- (b) No []

10. If yes, where?

- (a) Radio []
- (b) Friend []
- (c) Newspaper []
- (d) Health workers []

11. Based on the information received, what is EIMC?

- (a) Removing the foreskin of the penis on a male infant []
- (b) Cutting of the penis []
- (c) Removing the whole manhood []
- (d) I don't know []

12. What are the possible complications of EIMC?

- (a) Bleeding []
- (b) Inability to have sexual satisfaction []
- (c) Infertility []
- (d) Impotence []
- (e) Don't know []

13. What is the relationship between EIMC and Prevention of HIV?

- (a) A circumcised male infant can never contract HIV. []
- (b) EIMC reduces risks of contracting HIV in future. []
- (c) There is no relationship. []
- (d) EIMC cures HIV. []
- (e) Don't know []

14. What is HIV?

- (a) Diarrhoea []
- (b) Malaria []
- (c) A Virus that causes AIDS []
- (d) A disease []

15. To the best of your knowledge, what ways do you think HIV may be transmitted?

- (a) Coughing []
- (b) Handshake []
- (c) Contact with infected bodily fluids []
- (d) Sharing the same bathroom []

SECTION C: UPTAKE OF EIMC

16. Is your child circumcised?

- (a) Yes []
- (b) No []

17. If your answer to Q16 is yes, what was the reason?

- (a) Cultural []
- (b) Religion []
- (c) Medical reasons []
- (d) HIV Prevention []
- (e) Influence from others []

18. If your answer to Q16 is no, why didn't you take your male infant for EIMC?

- (a) Fear of pain []
- (b) Did not have enough information on EIMC []
- (c) Child too young []
- (d) Cosmetic purposes []
- (e) Partner refused []

19. Who was the primary decision maker as to whether or not to circumcise your son?

- (a) Myself []
- (b) Husband/partner []
- (c) Grandmother []
- (d) Grandfather []
- (e) Both (a and b) []

20. Who made the ultimate decision for your child to either be circumcised or not?

- (a) Myself []
- (b) Husband/partner []
- (c) Grandparents []
- (d) Guardian []
- (e) Both (a and b) []

21. How far is the health facility from your home?

(a) Takes less than one hour to reach the facility []

(b) Takes one to two hours to reach the facility []

(c) Takes more than two hours to reach the facility []

22. Circumcision status of the husband/partner

(a) Circumcised []

(b) Not Circumcised []

(c) I don't know []

SECTION D: CULTURAL BELIEFS

23. Is male circumcision practiced in your culture?

(a) Yes []

(b) No []

24. On a scale of 1 to 5, do you think it is culturally right to practice male circumcision?

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

25. For what reasons should circumcision be done?

(a) Rituals []

(b) Hygiene []

(c) Sexual satisfaction []

(d) Rite of passage from childhood to adulthood []

(e) Other (please specify)

26. Who do you think should perform EIMC?

(a) Doctor []

(b) Traditional leader []

(c) Somebody of the same culture []

(d) Other trained health professionals []

27. On a scale of 1 to 5, culturally, should women be allowed to take care of the circumcised wounds?

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

SECTION E: ATTITUDE TOWARDS EIMC

28. How do you feel about the practice of circumcising infants?

- (a) Good []
- (b) Bad []
- (c) Don't know []

29. What is the best age at which to circumcise a male infant?

- (a) First 6 weeks to 3 months of life []
- (b) From 6 months to one year []
- (c) Between one year to ten years []
- (d) Above ten years []

30. In your opinion, do you think EIMC should be compulsory for all male infants in Zambia in the prevention of HIV/AIDS?

- (a) Yes []
- (b) No []

31. If your answer to Q 30 is no, give reasons

- (a) Infant too young []
- (b) Religion does not allow []
- (c) Follow culture as a rite of passage from childhood to adulthood []
- (d) Procedure not safe []
- (e) Parents should be able to choose []

Thank you for your participation!

APPENDIX 3: FOCUS GROUP DISCUSSION TOOL

Discussion Points

1. Knowledge and Awareness:

- What reliable and trustworthy sources of information about EIMC do you use?
- How knowledgeable do you feel about the health and medical aspects of EIMC, and how does this affect the way you make decisions?

2. Perceptions and Traditions:

- How do cultural and traditional beliefs influence your decisions regarding EIMC for your male infant?
- Can you share any specific cultural practices or beliefs related to circumcision that you consider when making this decision?

3. Social Norms and Peer Influence:

- How much do social norms within your community or social circle affect your views on EIMC?
- Have you ever discussed EIMC with friends, family, or community members, and did these conversations influence your perspective?

4. Religious Perspectives:

- How has your religion, if any, influenced the way you feel about EIMC?
- Have religious organizations or leaders offered advice or direction on EIMC?

Thank you for your participation!

APPENDIX 4: ETHICAL CLEARANCE



SCHOOL OF MEDICINE AND HEALTH SCIENCES LEOPARDS HILL CAMPUS

Plot No. 37413, Off Alick Nkhata Mass Media. P. O Box 36711, Lusaka.
Phone: +260211258505, 258409 Fax +260211233409; Cell +260976075850,961917862,
E-mail:unilus@zamnet.zm,ictar@zamnet.zm

SCHOOL OF MEDICINE AND HEALTH SCIENCES RESEARCH ETHICS COMMITTEE

Ref no: FWA00033228-00211/23

Date: 10th November 2023

**STUDENT NAME: PHIRI CHRISTOPHER YISIWELO; STUDENT NUMBER:
MPH22113016**

**UPTAKE OF EARLY INFANT MEDICAL MALE CIRCUMCISION AS AN HIV
PREVENTION INTERVENTION IN LUSAKA DISTRICT**

The above research was submitted to the research ethics committee for review. The study has no major ethical problems and is approved subject to the following:

1. The study cannot be changed without express permission of the UNILUS research ethics committee.
2. Approval from the necessary authority should be sought.

Congratulations and the committee wishes you success in your work.



Prof Kasonde Bowa
MSc(Glasgow),M.Med(UNZA),FRCS(Glasgow),FACS,FCS,DPH(LSTMH),MPH(UCL)
Chairman- UNILUS REC
Professor of Urology and Consultant Urologist
Executive Dean
University of Lusaka and University Teaching Hospital
School of Medicine and Health Sciences.

**APPENDIX 5: NATIONAL HEALTH RESEARCH AUTHORITY CERTIFICATE OF
REGISTRATION**



APPENDIX 6: NATIONAL HEALTH RESEARCH AUTHORITY (NHRA)_AUTHORITY TO CONDUCT A STUDY



NATIONAL HEALTH RESEARCH AUTHORITY

Lot No. 18961/M, off Kasama Road, Chalala, P.O. Box 30075, LUSAKA

Tell: +260211 250309 | Email: znrhasec@nhra.org.zm | www.nhra.org.zm

Ref No: NHRA0002/19/12/2023

Date: 19th December, 2023

The Principal Investigator,
Christopher Yisiwelo Phiri,
University of Lusaka,
School of Public Health,
Lusaka, Zambia.

Dear Mr Phiri,

Re: Request for Authority to Conduct Research

The National Health Research Authority is in receipt of your request for authority to conduct research titled **“Uptake of Early Infant Medical Male Circumcision as an HIV Prevention Intervention in Lusaka District.”**

I wish to inform you that following submission of your request to the Authority, our review of the same and in view of the ethical clearance, this study has been **approved** on condition that:

1. The relevant Provincial and District Medical Officers where the study is being conducted are fully appraised;
2. Progress updates are provided to NHRA bi-annually from the date of commencement of the study;
3. The final study report is cleared by the NHRA before any publication or dissemination within or outside the country;
4. After clearance for publication or dissemination by the NHRA, the final study report is shared with all relevant Provincial and District Directors of Health where the study was being conducted, University leadership, and all key respondents.

Yours sincerely,

Prof Victor Chalwe
Acting Director/Chief Executive Officer
National Health Research Authority

**APPENDIX 7: MINISTRY OF HEALTH- AUTHORITY TO CONDUCT RESEARCH IN
LUSAKA DISTRICT**

All correspondences should be
addressed to the District Health
Director

Tel: +260-211-235554
Fax: +260-211-236429



REPUBLIC OF ZAMBIA

MINISTRY OF HEALTH

In reply please quote:

No.

LUSAKA DISTRICT HEALTH OFFICE
P.O. BOX 50827
LUSAKA

28th December, 2023.

The Principal Investigator
Christopher Yisiwelo Phiri
University of Lusaka
School of Public Health
Lusaka


RE: AUTHORITY TO CONDUCT RESEARCH IN LUSAKA DISTRICT

We are in receipt of your letter over the above subject.

Please be informed that Lusaka District Health Office has no objection for you to conduct research entitled, **“Uptake of Early Infant Medical Male Circumcision as an HIV Prevention Intervention in Lusaka District.”**

Kindly ensure that your findings are shared with the health facility and District Health Office on soft copy to yihemba@gmail.com, hendrixlubasi1@gmail.com, wchikopela@gmail.com and mablenachimata@gmail.com and that while research is going on, operations must continue with no interruption. Furthermore work hand in hand with the Planner, Clinical care Specialist, Public Health Specialist, Medical Superintendent, Labour ward In-charge and HIV Focal Point Person as you conduct your research and support them with accreditation.

By copy of this letter, the Public Health Specialist and Medical Superintendent are kindly requested to facilitate accordingly.


Dr. Astridah Yihemba Kona Maseka
Director Health Service
LUSAKA DISTRICT HEALTH OFFICE

C.C: Medical Superintendents – All Sub Districts
C.C: Public Health Specialists – All SubDistricts