

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

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DECLARATION

I, **Peggy Kamanga Simwenda** hereby declare that this dissertation represents my own work and has not been presented either wholly or partially for a Degree at the University of Zambia or any other University. I further declare that all the sources I have cited have been indicated and acknowledged using complete references

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CERTIFICATE OF APPROVAL

The University of Zambia, School of Public Health approves this dissertation by **Peggy Kamanga Simwenda** in partial fulfilment of the requirement for the award of Master of Science of Public Health in Health Promotion at the University of Zambia, School of Public Health.

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ABSTRACT

The World Health Organisation (WHO) and the United Nations Children's Fund (UNICEF), 2016 recommended early infant male circumcision EIMC for prevention of HIV. Ministry of Health and other Non-Governmental organisations (NGO) such as CIDRZ are determined to reach male circumcision prevalence of 50% and uptake of 80% by the year 2020 through campaigns that help develop circumcision in the country. In Zambia, the national level of uptake of infant's male circumcision is at 10% while in Chongwe District uptake is at 12%. Despite parents being sensitised about the importance and benefits of EIMC, uptake is still low. Using a cross sectional study design with a quantitative approach, a sample size of 352 women was used to identify factors that influence parents' uptake of Early Infant Male Circumcision for HIV prevention among parents of new born infants in Chongwe District of Zambia.

Results showed that slightly less than half (44.5%) of the sampled population had high knowledge levels on EIMC while 55.5% of the women had low knowledge levels. With regards to attitude towards EIMC, 64.5% of the sampled women had a positive attitude towards early infant male circumcision while only 34.5% had negative attitude. Slightly more than half (53.7%) of the women did not have their children circumcised while only 46.3 % were circumcised. Findings further suggested a significant relationship between EIMC uptake and the following variables; religious affiliation ($p=0.020$), number of male children a woman has ($p=0.017$), husband/partners circumcision status ($p<0.001$), attitude ($p=0.015$) and culture on male circumcision ($p<0.001$).

Taking all factors into consideration and adjusting for possible confounding, three factors were found to be associated with EIMC uptake. Women with partners that were not circumcised were less likely to have their infants circumcised compared to women who had their partners circumcised (OR 0.10; 95% CI: 0.05 to 0.22). Women from cultures that practiced male circumcision were more than two and half times more likely to have their infants circumcised compared to women from cultures that did not practice male circumcision (OR = 2.8; 95% CI: 1.65 to 5.00). Finally, women with a positive attitude towards EIMC had high odds of having their infants circumcised compared to women who had a negative attitude (OR = 2.7; 95% CI: 1.52 to 4.96).

The study further shows that culture plays a critical role in influencing EIMC uptake in Chongwe District. Therefore, there is need to engage key traditional leaders in the mobilization process in order to increase uptake of EIMC in the district. Finally, the study established that women have low knowledge levels on EIMC.

Key Words: Uptake, early infant male circumcision, male circumcision and male circumcision.

DEDICATION

This Dissertation is dedicated to my husband Dr. Brown Kamanga, my three sons Winthu, Azirwa and Wenani for their dedicated support, understanding, financial and encouragement throughout my study period.

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LIST OF ACRONYMS

AIDS:	Acquired Immune Deficiency Syndrome
CDMO:	Chongwe District Medical Office
CIDIRZ:	Centre for Infectious Diseases and Research in Zambia
CSO:	Central Statistical Office
EIMC:	Early Infant Male Circumcision
HIV:	Human Immune Deficiency Virus
IMC:	Infant Male Circumcision
MC:	Male Circumcision
MOH:	Ministry of Health
NGO:	Non-Governmental Organization
NMC:	Neonatal Male Circumcision
UNAIDS:	United Nations Program on HIV/AIDS.
USAID:	United States Agency for International Development
UTH:	University Teaching Hospital
WHO:	World Health Organization
ZDHS:	Zambia Demographic Health Survey

CHAPTER ONE: INTRODUCTION

1.1 Introduction

The World Health Organisation (WHO) and the United Nations Children's Fund (UNICEF), 2016 recommended Early Infant Male Circumcision (EIMC) for prevention of HIV. As a result a lot more studies in qualitative approach were done in countries like Zimbabwe, Kenya and Zambia.

In Africa 14 countries currently accelerating roll out of medical voluntary Infant Male Circumcision including Zambia (Manhvu, 2016).

The high HIV rate has been attributed to non-adherence to preventive measures put in place, such as condom use, abstinence, being faithful to one sexual partner and Prevention of Mother to Child Transmission (PMCT) of HIV (WHO, 2010). As a result of the high prevalence rates of HIV infection in sub-Saharan Africa, with the complementary high increase of costs for treatment of HIV/AIDS, there was a call for other new preventive measures such as Male Circumcision United Nations Program on HIV/AIDS (UNAIDS, 2010).

The prevalence of HIV transmission has been found to be lower in those populations where male circumcision is practiced; this was confirmed through three randomized clinical trial studies concluded in 2005-2006, which showed that male circumcision reduces HIV transmission by 60% from infected women to circumcised men (USAID, 2007).

World Health Organisations (WHO) issued a policy statement in 2007, which recommended infant male circumcision as a potential long-term approach for limiting the HIV pandemic in Africa. It was described as a "simple and less risky procedure" than circumcision of older boys and men (Bailey et al, 2007).

In Zambia, the Ministry of health and partners in 2009 launched the National Programme on both infant and adult male circumcision and a national male circumcision strategy and implementation plan 2010-2020. This plan was intended to make accessible on a voluntary basis high-quality safe male circumcision to all uninfected boys and men in order to achieve the targeted national prevalence of 50% by 2020. Several countries scaling up adult medical male circumcision for HIV prevention intend to introduce early infant male circumcision (Marisa et al, 2016).

1.1.1 Background information

HIV prevalence in Zambia is at 14.3% and only 17% of men are circumcised (UNAIDS, 2010). The strategies specifically aimed at increasing the number of health facilities providing safe male circumcision services through a well-defined package, increasing the skills and quality of service providers and increasing informed demand for the service through health promotion interventions (MOH, 2009).

Despite the stated benefits, studies conducted in sub-Saharan Africa have reported high acceptability and low uptake of Early Infant Male Circumcision services (EIMC) (Walters et al, 2007). A study that was conducted in Zambia by Society for Family Health in 2006, to estimate the uptake levels from different provinces revealed that there was a higher uptake rate in North Western province of 85% and the lowest rate was in Lusaka province of about 48%.

Male circumcision was done on new born aged 12 hours to 60 days of life at University Teaching Hospital (UTH) and some health centres in Lusaka province including Chongwe District that falls under Lusaka province. This project Early Infant Male Circumcision was funded by Centre for infectious Diseases Research in Zambia (CIDRZ).A cross-section survey was conducted involving a convenient sample of 1000 mothers with new-born boys at two public clinics in the district, between 2009 and 2010. This survey, which was conducted by CIDRZ, revealed that 42% of the mothers said that they definitely planned to have their male children circumcised, and 55% said they would probably have their new-born circumcised, but only 11% of the mothers ultimately brought their new-borns for circumcision (Walters et al, 2011).

There is increased provision of health education on Early Infant Male Circumcision to communities in Chongwe more especially to mothers. Despite provision of health education to the public on EIMC and free services, the outcome of uptake of the service in Chongwe is not known (Bailey et al 2007). Therefore, there was need to conduct research on EIMC to find out the factors influencing its services and uptake in Chongwe District since it is one of the first districts infant male circumcision was implemented first

1.2 Statement of the Problem

Modelling studies estimated that the scale up of circumcision in the Sub Sahara Africa would account for a reduction in the prevalence of HIV by 67% (Bailey et al, 2007). Ministry of Health and other Non-Governmental organisations (NGO) such as CIDRZ are determined to reach prevalence in the male circumcision of 50% and uptake of 80% by the year 2020 through campaigns that help develop circumcision in the country (MOH, 2009). In Zambia, the national level of uptake of infant's male circumcision is at 10% (Bowa, 2008).

The EIMC strategy has been adopted as a preventive measure for HIV. Even though the benefits are long term, it is more effective than adult circumcision because it is done before one becomes sexually active (UNAIDS, 2010). This is one of the reasons why MOH and CIDRZ have introduced EIMC as a measure to prevent the spread of the disease. The consequence of failure to take children for circumcision is that when the infant reaches the age of adolescents and become sexually active, they would be more likely to acquire the HIV infection. Despite the programmes that have been put in place to sensitise and inform the mothers about EIMC, there has been low utilisation of circumcision services for male infants. Programs that have been introduced to help mothers understand the importance of EIMC as an intervention to reduce HIV infection have not yielded much result. At Chongwe, mothers that deliver from there are advised to take their male infants for circumcision.

However, in Chongwe District out of a total of 7,459 male babies born, only 878 (12%) male infants were circumcised from January 2012 to August 2014. These statistics show that despite mothers being sensitised about the importance and benefits of EIMC, the uptake is still not known. Mothers are still not bringing their male infants for circumcision services. The factors that influence uptake and acceptability of early infant male circumcision by the mothers are not well known.

This study identified factors influencing parents' access and uptake of EIMC as an intervention to reduce HIV infection in Chongwe District. Chongwe was chosen because CIDRZ took the project there so that they can be able to capture more mothers who could opt in for their boys to be medically circumcised.

1.3 Conceptual Framework

According to (Bailey et al 2014), cited certain issues that may lead to challenges that could affect uptake of early infant male circumcision. He used both descriptive and analytical approach to discuss these challenges below is some of the analysis.

1.3.1 Cultural Beliefs:

Culture can be both a motivating factor for EIMC as well as a reason for refusing it. In areas where circumcision is traditionally practiced such as the North-Western Province of Zambia, they may accept EIMC because male circumcision is part of their tradition. At the same time, they may not take their children for circumcision as they may want them to participate in the traditional circumcision ceremony as a rite of passage from childhood to adulthood.

Mothers from non-traditional circumcising tribes may refuse EIMC because they view it as a cultural practice associated with Muslims and selected tribes from North-Western Province. EIMC may be considered as a “taboo” within their own or their husband’s tradition. On the other hand, some mothers may accept EIMC because they view it as a procedure that can be performed in all cultures.

1.3.2 Religious Beliefs

Religious beliefs of the parents usually influence their decision of accepting or refusing EIMC services as they always adhere to the norms and values of their religion. Zambian parents who are Muslims usually accept EIMC services because it is part of their religious practices while other parents will not accept EIMC services because it is not part of their religious beliefs. Some churches in Zambia do not accept the practice of circumcision and hence parents who go to such churches cannot accept EIMC services while other churches allow circumcision and such parents readily accept EIMC.

1.3.3 Decision Making

The parent who is a primary decision maker has an influence whether to accept or refuse EIMC services. Single parents may accept the EIMC Services because they are at liberty to make their own decisions on EIMC while those who are married may refuse the service because they need to make consultations with each other before taking their child for EIMC. The single parents, on the other hand, might refuse the service because they have no one to consult about the service and may fear pain, bleeding or death following anesthesia.

Age of the parents also affects the decision to accept or refuse EIMC services. The younger parents may not make decisions on their own as they still need to consult the elderly people and usually refuse the service, while the older parents easily make their decisions either to

accept EIMC or not. On the other hand, younger parents may easily be influenced to accept the new EIMC service than the older parents who may have had other male children who were not circumcised.

1.3.4 Cosmetic Outcome

Some parents may worry about the cosmetic outcome of infant's penis following EIMC and may not accept the service. In contrast, other parents may not worry about the cosmetic outcome but are more concerned with its benefits of HIV prevention and will give consent for EIMC services.

Furthermore, parents may refuse the service for fear of being blamed later when the child grows up and questions the parents as to why they have permanently changed the appearance of his manhood without waiting for his consent. This is why they view it as an infringement of the child's human rights and the right to be able to make the decisions for himself when he grows older (autonomy).

1.3.5 Attitude

The parents' attitudes towards the early infant male circumcision (EIMC) service may either be positive or negative. Fathers who have not undergone circumcision will not believe that it is important for their children to undergo EIMC while others won't mind accepting EIMC despite them not being circumcised. On the other hand, Parents may not see the need for their child to be circumcised when the child is well and may refuse the service while other parents may accept the service when they are aware of the benefits of EIMC services of HIV prevention in adulthood.

1.3.6 Myths and Misconceptions

Parents may refuse or accept EIMC services as a result of some myths and misconceptions. Myths may include the belief or idea that EIMC may render the infant impotent, infertile, or may cause weak penile erections later in life and this may cause some parents not to accept the service. Parents' beliefs that their male infants who have undergone EIMC are completely free from HIV later in life may cause them to accept the service.

1.3.7 Perception of the safety of EIMC

Parents may accept or refuse EIMC services based on the knowledge they have on safety of the procedure. Parents may be concerned with bleeding, pain, baby dying following anaesthesia and wound not healing properly due to infection and may refuse to take up the

EIMC service. On contrary, some parents may be aware of the safety of EIMC services and may accept it.

1.3.8 Accessibility to Health Facilities

EIMC Service is only offered in Lusaka. There is easy access to health facilities providing EIMC services for Lusaka residents which help parents to accept the EIMC services. Parents who live outside Lusaka district do not have easy access to health facilities offering EIMC services and this may cause them not to accept the service.

1.3.9 Knowledge

The knowledge of parents on EIMC and HIV prevention may influence their decision to accept or refuse the service. Knowledge about EIMC such as short wound healing time and minimal complications following the procedure may cause some parents to accept the service while some parents' knowledge on EIMC may result in negative perceptions about EIMC, leading to the parents not accepting the service.

1.3.10 Disease Related Factors

Some parents may accept EIMC services when their male infants have certain medical conditions such as phimosis and balanitis in the first year of life, while others may accept or refuse EIMC when done for the prevention of Sexually Transmitted Infections and Penile Carcinoma later in adulthood. Some parents who are HIV positive may want their male infants to undergo EIMC in order to prevent their children from acquiring HIV in future.

1.3.11 Manpower

The number of trained EIMC health care providers may not be enough to cater for all the male infants in Lusaka and this may discourage mothers to take their children for circumcision. On the other hand, some Centers have enough EIMC health providers which make it easy for parents to take their male infants for the service. Sometimes parents are given appointment dates for the EIMC procedure because of inadequate EIMC providers which may discourage them to come back for the service. EIMC can be performed by health care professionals other than Doctors making it potentially more accessible than adult male circumcision. This may also discourage some parents who may not have trust in non-surgeons performing circumcision.

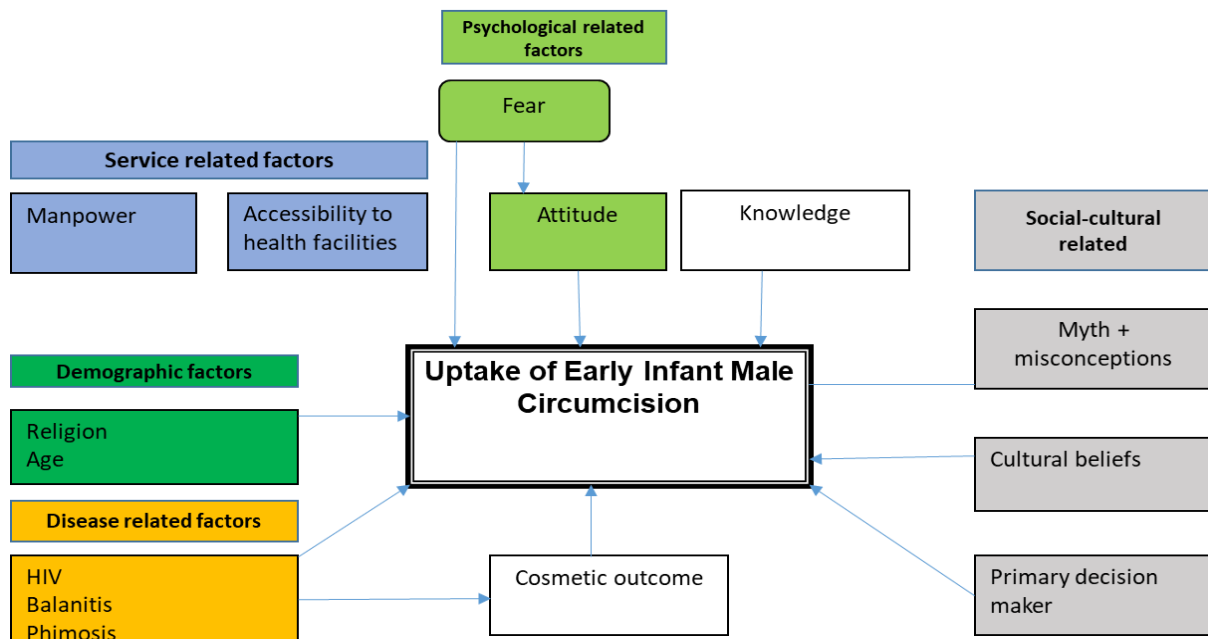


Figure 2: Problem Analysis Diagram

1.4 Justification and significance of the study

The high HIV prevalence in Southern Africa is a major concern for the government as it affects the achievement of the Sustainable Millennium Development Goals (SMDGs), by limiting economic development in the region (Walters et al, 2010). It is expected that many countries where early infant Male circumcision prevalence are low, EIMC services should be promoted as part of the scale-up for the long-term HIV prevention strategy. Ministry of Health recently adopted a goal to have 80% of new-born boys circumcised within the first 60 days of life by the year 2020 (Zambia National Male Circumcision Policy, 2009).

In order to ensure the scale up of EIMC services in Zambia, it is vital to understand the possible pitfalls of its uptake within the Zambian health care setting.

Despite information being given on EIMC as a means of reducing HIV, Mothers in Chongwe District still shun the circumcision services. In a study conducted in Lusaka, Zambia on the acceptability of Neonatal Male Circumcision (NMC) by Walters et al, (2007), it showed that 97% of the respondents were willing to take their infants for NMC and only 11% of the respondents took their infants for NMC. This study, therefore, aimed at identifying factors influencing mothers to take their infants for circumcision. It is hoped that the findings of this study will be utilized by Chongwe, UTH, CIRDZ, and MOH to find strategies to improve the uptake of EIMC services. The research findings may also influence the scale up of national EIMC programs in Zambia and increase uptake of EIMC services by mothers.

To scale-up early infant male circumcision (EIMC) services in Zambia, it was vital to understand the possible benefits of its uptake within the Zambian health care setting. It is hoped that the findings of this study will be utilised by health institutions, mothers and MOH to find strategies to improve the uptake of EIMC services. The research findings will also influence the scale up of national EIMC programs in Zambia and increase uptake of EIMC services by mothers.

1.6 Research question

The research question that guided the study was

1. What are the factors that influence uptake of EIMC by mothers at Chongwe District?
2. Would improving the knowledge of mothers towards EIMC increase their uptake of EIMC?

1.7 Objectives

1.7.1 General Objective

- a. To identify factors that influence uptake of Early Infant Male Circumcision for HIV prevention among mothers of new born infants.

1.7.2 Specific Objectives

1. To assess the level of knowledge on Early Infant Male Circumcision and HIV among mothers.
2. Assess the attitude of mothers towards Early Infant Male Circumcision as an intervention for the prevention of HIV transmission.
3. To assess accessibility by mothers to early infant male circumcision services.
4. To identify the demographic characteristics that influences the mothers' uptake of Early Infant Male Circumcision services for prevention of HIV transmission.

1.8 Conceptual Definitions

1. **Religious beliefs:** The mothers' beliefs on EIMC based on their religion.
2. **Attitude:** The research respondent's way of perceiving EIMC.
3. **Cultural Beliefs:** The beliefs, norms, practices, and behaviors of mothers and how they perceive EIMC services.

1.9 Operational Definitions

1. **Uptake:** Mothers who had their male infants circumcised.

2. **Accessibility:** Mothers can easily reach the facility offering EIMC and services are readily available.
3. **Knowledge:** The level of understanding or awareness of circumcision and HIV among mothers.
4. **Infant:** A child aged from 0 to 60 days of life.
5. **Male circumcision:** Removal of the foreskin of the penis in the males.

1.10 Variables

1.10.1 Outcome variable

The outcome variable was EIMC uptake, it was categorized into yes (child circumcised) and no (child not circumcised). The prevalence of women with circumcised and not circumcised children was determined using Descriptive Statistics Analysis in STATA 13.

The confidence interval was set at 95% and all variables that showed a $p < 0.05$ at univariable analysis were included in the multivariable analysis to come up with the best model that explains the factors associated with EIMC. Odds ratios (OR) were used for reporting, and were given with 95% confidence intervals.

1.10.2 Explanatory variables

The study had a number of explanatory variables (i.) Knowledge on EIMC was scored on a scale of 0-9 and all women who had a score of 0-5 were classified as less knowledgeable while those who scored 6-9 had high knowledge levels on EIMC ii.) Attitude of women towards EIMC was scored on a scale of 0-6, women with a total score ≥ 3 had a positive attitude whereas those who scored < 3 had a negative attitude towards EIMC iii.) in terms of accessibility, EIMC centres that were 2 hours walk away were classified to be far while those centres that were below 2 hours were categorized to be near.

Table 1: Description of Scored Explanatory Variables

VARIABLES	INDICATORS	CUT-OFF POINTS	QUESTION NUMBERS
Independent Variables			
Knowledge on EIMC and HIV	High	Score 6-9	9 – 15
	Low	Score 0-5	
	<i>Note: Each correct response scored 1 point except for question 11 and 13 which had a score of two points each</i>		
Attitude	Positive	Scores 4-6	27- 31
	Negative	Scores 0-3	
	<i>Note: Each correct response scored 1 point except for question 31 which had a score of two points each correct/logical response for scaling up EIMC</i>		
Cultural beliefs	Positive	Scores 3-4	23 -26
	Negative	Scores 0-2	
	<i>Note: Each correct response scored 1 point</i>		
Accessibility of EIMC services	Very Far	Mother takes more than two hours to reach the clinic	21
	Far	Mother takes one to two hours to reach the clinic	
	Near	Mother takes one hour to reach the clinic	
Dependent Variable			
Uptake of EIMC	Yes	Child circumcised	16
	No	Child not circumcised	

CHAPTER TWO: LITERATURE

2.1 Introduction

HIV/AIDS pandemic is of concern to all the people in the world and it does not distinguish on who to affect. It is for this reason that if there is a way to help prevent the spread of the disease, all parents should be in the lead to promote it. One of the measures is the promotion of male circumcision which helps prevent the spread of HIV. Bailey et al, (2007) conducted randomised trial studies at Orange Farm in South Africa which showed that only 20 men out of 1,545 who were circumcised became HIV infected; compared to 49 out of 1,582 men in the control group of delayed circumcision who were infected (Auvert et al, 2005). These findings increased awareness on the preventive capacity of male circumcision for HIV prevention. UNICEF and WHO (2007) then went a step further to suggest and implement Neonatal Male Circumcision as an effective method to prevent an increase in future HIV infections worldwide.

2.2 Uptake of Early Infant Male Circumcision

Globally the uptake of EIMC is a contentious issue. Most Parents feel that it is compulsory for them to have their child circumcised at a young age (Bailey et al, 2007) which leads to parents not willing to circumcise their sons.

For countries like New Zealand, Canada and United States of America (USA), neonatal circumcision was performed as a routine procedure as long as there was consent from the guardians of the child. Now the trend is reducing as a result of strong public opinion and because of the studies which were conducted on the benefits of routine circumcision which proved uncertain to support the practice (Bailey 2012).

A prospective study conducted by Weiss et al (2010), in London, to evaluate the complications following EIMC, revealed that a few complications exist. The study showed that the complications occurred in those children who were circumcised by inexperienced providers or performed in non-sterile conditions. This can affect the readiness of parents to accept to take their male infants to the clinics for circumcision. Bowa, (2011), conducted a study where he made a discovery that parents were concerned about the complications of circumcision. In order to help parents accept to take their children for circumcision, during

counselling, health providers should discuss the complications of EIMC with them, in order to promote the uptake of the service

Kalichman, (2010), states that scaling up of MC services has the potential to stem the entire HIV pandemic in Southern Africa. Studies conducted in Sub-Saharan Africa have shown that many parents agree that they want to have their children circumcised but that only a few of them actually take their children for circumcision (Walters et al, 2010). This means that even though most parents want their sons to be circumcised, there are certain factors that hinder them from doing so.

Westercamp and Bailey (2007) reviewed studies conducted in Sub-Saharan Africa on factors that influence the uptake of circumcision in non-circumcising communities. Across the studies, the median proportion of men willing to be circumcised was 65%. Even with the high willingness of these men to be circumcised, they cited concerns which ultimately influence the uptake of male circumcision in Sub-Saharan Africa.

The factors that were identified to affect uptake included fear of pain, the person's culture and religion, the cost of the procedure and the presence of complications after the procedure. Westerkamp and Bailey also stated that the uptake of EIMC is dependent mostly on the perception of the safety of the procedure. This study indicated that when parents were afraid for the safety of their children they would not take their children for circumcision.

Studies conducted in Sub-Saharan Africa have shown that many parents agree that they want to have their children circumcised but that only a few of them actually take their children for circumcision (Walters et al, 2010). This means that even though most parents want their sons to be circumcised, there are certain factors that hinder them from doing so.

Another study conducted in Kenya by Marisa et al, (2016) on factors associated with preference for EIMC among parents, a sample of 613 mothers and fathers 430 of baby boys at 16 health centres in Western Kenya, Most of them 59% were for EIMC. On the actual day of having their male babies circumcised only 29% opted to have them circumcised. The barriers that were cited why they declined to take the boys included pain, inadequate knowledge on EIMC lack of facilities nearby to provide the service

A study conducted in Zimbabwe by Mahvu et al, (2014), on the acceptability of Neonatal Male Circumcision (NMC) on HIV prevention indicated that those men who had HIV were

more receptive to the service for their neonates and agreed to have the child circumcised in order to prevent them acquiring HIV in future. In a 2012 report published by Mavhu, on the same study conducted in 2011, he stated that parents would increase uptake of the EIMC services if the barriers were appropriately addressed and fathers were specifically targeted in the health education messages.

In Zambia, Walters et al, (2008), conducted a cross-sectional study on the acceptability of NMC at two public clinics in Lusaka. Following the study, mothers received information on the availability of NMC and uptake of the services was tracked. It was discovered that out of 97% of the parents who stated that definitely, they would take their children for circumcision only about 11% actually did.

The study cited factors such as the older age of the parents and mothers attending the antenatal clinics at an institution where the EIMC services are offered, as the most likely factors that encourage uptake of the EIMC services among parents.

2.3 Accessibility

Mavhu et al, (2011) noted that the barriers that usually hinder the parents to take their children are not insurmountable. These barriers include the fear of parents have on the procedure, lack of knowledge on EIMC and lack of available clinics for circumcision near the households.

Westercamp and Bailey (2007) reviewed studies conducted in sub-Saharan Africa on factors that influence the accessibility of early infant male circumcision that were identified included fear, pain, the person's culture and religion, the cost of the procedure and the presence of complications after the procedure. Westercamp and Bailey also stated that the accessibility of EIMC is dependent mostly on the perception of the safety of the procedure. The other reason that the parents shared with (Bailey et al, 2007) was the distance of the health centers providing the services were very far and the misconception that they had that the health professionals conducting the services were incompetent and above all the negative attitude of the health workers towards early infant male circumcision.

2.4 Primary Decision Maker

Three randomised trial studies were conducted in Western Kenya by Bailey et al (2010), which examined the parental decision making in the uptake of EIMC. The study concluded that fathers are the primary decision makers of EIMC and mothers who were married to husbands who were circumcised had no problem in deciding to have their infants circumcised, as opposed to those whose husband were not circumcised.

Another study was done in South-East Botswana on women to find out if they would be willing to have their infants circumcised and who the primary decision makers would be (Violante and Potts, 2012). From this study, 85% of women said they would wait for their husband to make a decision for their infants to be circumcised. This shows that as married women they were not willing to have their children circumcised without consent from their husbands. Gender dynamics are also seen to play a role in the parents' decision making on EIMC in the prevention of HIV.

In Botswana, Plank et al, (2009), conducted a study on the acceptability of EIMC for HIV prevention as well. Questionnaires were administered to sixty mothers of new born boys, 92% of the mothers responded that they would have their new born boys circumcised if the service is available in the clinical setting, primarily to prevent future HIV infection. The study concluded that culturally, fathers are expected to make decisions on circumcision of their infant. In this case, targeting the fathers in the health education messages would increase the acceptability of EIMC among parents.

Age of mothers also plays an important role in deciding on circumcision for their male children. Teenage mothers are considered inexperienced and irresponsible to have the child circumcised. The decision was left entirely to the elderly person in the village or household such as grandparents, fathers and mothers who influence the decision for EIMC Services. Therefore, it is not common for teenage mothers to consent for circumcision for their infants.

2.5 Cultural and Religious Beliefs

There are many reasons why circumcisions are still carried out today. These vary from medical indications, cultural and religious obligations (Mahvu et al, 2012).The sacred practice of traditional circumcision was first performed by the Jewish Patriarch Abraham, and the tradition has continued in every generation of Jewish people (Wallerstein, 1985).

The Torah (Jewish Bible) states in the old Testament books of: Bereshit/Genesis 17:12 that:”And he that is eight days old shall be circumcised among you, every man child in your generations.” and Vayyiqra/Leviticus 12: 2-3 reads: “If a woman have conceived seed, and born a man child, on the eighth day the flesh of his skin shall be circumcised (Bereshit/Genesis 17:12, Vayyiqra/Leviticus 12: 2-3).

According to the verses in Bereshit/Genesis and Vayyiqra/Leviticus, the Jewish tradition requires that the male circumcision should be performed on the eighth day and only performed by a qualified mohel. This is because a mohel is an expert in the surgical aspects of circumcision as well as knowledgeable in the laws and customs pertaining to a traditional circumcision and ceremony. This may indicate that the Jewish community will easily take their male infants for EIMC as the practice is part of their culture.

Studies were conducted in Zimbabwe to assess some traditionally circumcising tribes including the Xhosa, Chewa, Venda and Remba and their options on EIMC Services. These groups were not opposed to EIMC. However, they felt that they would prefer the procedure to be performed by someone who was circumcised and of the same tribe (WHO/UNAIDS, 2004).

In some other studies conducted in Zimbabwe, older men from the dominant traditionally circumcising population, the Shangaan, were strongly opposed to EIMC for two reasons. Firstly, they mentioned that circumcision is just one part of a comprehensive ‘rites of passage’ ritual and should therefore not be undertaken separately. Secondly, they noted that if infants were circumcised, their mothers would need to be involved in the process as they would nurse the wound. Among the Shangaan, allowing women to see and nurse the MC wound is considered taboo (WHO/UNAIDS, 2007). Some Muslim participants such as the Chewa of Malawian origin preferred the circumcision to be done by someone of the same religion

In both Botswana and Swaziland, studies showed that only 2% of participants felt that circumcision would lead to disapproval by their community (Halperin, 2006). In Zambia, tribes which practice male circumcision are the Lundas and Luvalas from the North Western Province. For them, MC is practiced as part of the cultural tradition, as a rite of passage from childhood to adulthood. According to Bailey et al., (2007), the Lunda and Luvale tribes in

Zambia, are fundamentally different from those belonging to an ethnic group that does not practice traditional circumcision.

Lack of circumcision was mentioned as an element of the ethnic identity of those who do not circumcise traditionally. According to this study, parents from traditionally circumcising tribes will easily accept EIMC Services. While other parents in the same ethnic group would like to wait until their sons are adolescents for them to go through the circumcision ceremonies as a rite of passage from childhood to adulthood.

According to WHO/UNAIDS, (2004), trends towards medical male circumcision have been observed in some traditionally circumcising communities in East and Southern Africa, implying that there is a readiness to use services provided through the formal health system and that such services are not in conflict with the culture. However, in other traditionally circumcising communities, it is clear that the idea of using medical services for traditional male circumcision currently remains unacceptable because of the traditional beliefs which require circumcision to be performed during adolescent as a rite of passage from childhood to adulthood. Mahvu et al (2010), further states that prior to the last century it was not medical but rather cultural and religious reasons for which circumcision was most often performed. Circumcision continues to be practiced for such reasons by many people.

2.6 Knowledge

It is expected that Knowledge on Early Infant Male Circumcision services may affect the uptake of the service by parents of male infants. In a study conducted in Zimbabwe on knowledge, a total of 240 participants took part in Focus Group Discussions and an additional three key informants were interviewed. The results showed that EIMC knowledge was generally poor. Despite low knowledge, EIMC acceptability was high among participants from most ethnic groups (WHO-UNAIDS, 2007).

In a study conducted in Zimbabwe on knowledge, a total of 240 participants took part in Focus Group Discussions and an additional three key informants were interviewed. The results showed that EIMC knowledge was generally poor. Despite low knowledge, EIMC acceptability was high among participants from most ethnic groups (WHO-UNAIDS, 2007).

When mothers have adequate knowledge on EIMC Service and its benefits, they will easily make an informed decision on EIMC Service. In counseling mothers who are offered or who request EIMC, health providers have a responsibility to explain all of the pros and cons, including that male circumcision are an irreversible procedure, and that it provides a child with no benefits in relation to HIV until the child becomes sexually active.

In another study which was done on EIMC knowledge by WHO in conjunction with USAID in 2007, EIMC knowledge was found to be poor. Male circumcision knowledge in general and EIMC knowledge, in particular, is poor among the general population and especially among traditionally non-circumcising groups (Ibid).

Several participants in the same study conducted by WHO-USAID in 2007, particularly females, did not know what the procedure involved. When probed, they did not know how much skin is removed as well as precisely where it is removed from. Additionally, participants from traditionally non-circumcising populations were unaware of MC's benefits. The same participants maintained that attempts to learn more about traditional MC have been futile since the procedure is highly secretive (WHO/UNAIDS, 2007). As a result of poor knowledge, Parents do not readily accept the EIMC Service.

When mothers have adequate knowledge on EIMC Service and its benefits, they will easily make an informed decision on EIMC Service. Male circumcision performed on infants involves the least physical risk. In counseling mothers who are offered or who request EIMC, health providers have a responsibility to explain all of the pros and cons, including that male circumcision are an irreversible procedure, and that it provides a child with no benefits in relation to HIV until the child becomes sexually active (Walters,2008).

However, some mothers, in the context of the best interests of the child, may wish to have their male child circumcised as an infant after considering evidence that there are fewer medical complications associated with the procedure when performed at an early age (UNAIDS, 2006).

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2.7 Disease Related Factors

Morris (2007) stated that traditionally, the United States Medical Establishment promoted male circumcision as a preventative measure for an array of pathologies including reduced risks of Penile Cancer, Urinary Tract Infections, Sexually Transmitted Diseases, and even Cervical Cancer in sexual partners. This consequently led to the advocating of routine Neonatal Circumcision. However, in recent times this notion has attracted great controversy, with opponents questioning the true extent of the documented benefits.

2.8 Conclusion

It is noted from the literature review that knowledge, primary decision markers, acceptability, cultural and religious beliefs have a bearing on the uptake of EIMC services by mothers in the prevention of HIV as cited by many authors. From the studies cited by many authors, knowledge on EIMC was poor. Despite the acceptability being high, the uptake of EIMC still remains low. Parents from circumcising tribes are more ready to accept EIMC services unlike those from non-circumcising tribes. Studies have shown that fathers have the key role in decision making on EIMC services even though some family members like grandparents may have a role in decision making. However, some fathers who are circumcised will want their sons to be circumcised when they reach adolescent.

Religions that practice circumcision are more likely to take up the service. In Zambia, few studies have been done on the acceptability of EIMC services. For this reason, this study will look at the factors that influence the uptake of EIMC services in order to add to the body of knowledge.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

The study will be a quantitative study. Women in Chongwe catchment area will be purposefully selected to participate in the study. Data will be collected through structured questionnaire and interviews. The collected data will later be organised using STATA 13.

3.2 Research Design

A cross-sectional study on Mother's uptake of early infant male circumcision was conducted in Chongwe District of Lusaka Province. The study followed a quantitative approach.

3.3 Research Setting

This was a cross sectional study conducted in four health centers in Chongwe from November, 2016 to March 2017. In Chongwe district, not all 38 health centres offer Male circumcision services. Four health centers namely Chongwe, Kasisi, Kanakatapa and Katende health centres offer male circumcision services. I chose the above mentioned health centres because they are in high density areas and offer infant male circumcision services.

3.4 Study population

The study population comprised of mothers who were attending health care services with babies who were boys aged zero days to sixty days at the selected health centers and the target age group were women in the reproductive age (15-41).

3.5 Target Population

The target population for this study will be mothers attending health care services with babies who were boys aged zero day to sixty days at Kasisi, Chongwe, Katende and Kanakatapa

3.6 Sample selection

Multistage sampling method was used to select the study participants. In the first stage, 4 clinics were purposively selected (only clinics providing EIMC services) while in the second stage a simple random sampling technique was used to select 352 mother for interviews from each of the selected 4 health facilities. A lottery approach was used to select under-five cards of mother for exit interviews after attending under-five clinic sessions.

3.7 Sample size selection

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

z - was the statistic that defined the level of confidence, in this case, the z value was 1.96 which was the most commonly used empirical statistic.

p - was the proportion used in the estimation formula (in our case the p value used is 0.3 (30%) based on findings of the Chongwe DHO survey (2013/2014) on the uptake and acceptability of neonatal male circumcision by parents in Zambia.

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

The estimated sample size:

$$n = \frac{1.96^2 0.3(1 - 0.3)}{0.05^2} = 320$$

Adjusting the sample size upwards for assumed non-response rate (r) then the sample size was adjusted as follows:

$$n_f = \frac{n}{r}$$

Where n_f was the final sample size and r was the response rate in decimals which was 99.1% (0.91) for Lusaka province in the ZDHS of 2013-2014, (CSO, 2014)

$n_f = 320 \div 0.91 \equiv 352$ Therefore, 352 mothers were recruited in the study

3.8 Eligibility Criteria

3.8.1 Inclusion Criteria

Mothers to male infants who were day zero to sixty days old attending children's clinic in the selected clinics during data collection were included provided they also consented to participate in the study.

3.8.2 Exclusion Criteria

Mothers with male infants above sixty days of age were excluded. Mothers who did not attend any health care services were equally not included in the study.

3.9 Data collection tools

One research instrument will be used to collect data from respondents and this will be a semi structured interview.

3.9.1 Semi structured interview schedule

The semi structured schedule had both open and closed ended questions and was adapted from similar studies conducted by Marisa (2016), Walters (2012).The instrument for data collection was divided into four sections as indicated below:

Section A compromised of demographic data to obtain personal details for the participants such as age, sex, marital status, religion, level of education, practice of EIMC in their religion, occupation, number of children

Section B compromised of uptake Knowledge on Circumcision and HIV prevention.

Section C compromised of Uptake of EIMC and section D comprised of Cultural beliefs.

The research instrument was prepared in English language and translated in Nyanja for participants who could neither read nor understand English.

3.9.2 Validity of the data collection tool

To ensure validity, the research instrument for quantitative data was carefully evaluated by a panel of experts including the researcher's supervisors. The research instrument was administered face to face by the researcher and was adapted from (Walters, 2014). Validity was ensured by accurate and careful phrasing of each question to avoid ambiguity and leading respondents to a particular answer.

3.9.3 Reliability of the Data Collection Tool

The research participants were informed of the purpose of the interview and the need to respond truthfully. Additionally, a pilot study was conducted at University Teaching Hospital (UTH) in order to examine accuracy of the questions, and elicit the information that was sought.

Furthermore, corrections were made where necessary to make questions clear and provide information that was sought. The physical and psychological environment where data was collected was made comfortable by ensuring that there was privacy, confidentiality and general physical comfort.

3.9.4 Trust Worthiness of Research Tool

Measures were put in place to ensure trustworthiness which included four strategies advocated by Lincoln and Guba, (1985:328). These are credibility, dependability, transferability and conformability.

Credibility

Credibility in this study was achieved through the use of prolonged engagement, use of different methods of data collection that included interviews.

Dependability

A description of how data was collected and analysed was clearly outlined and included in this study. This offered information as to how repeatable the research could be.

Conformability

The study procedures were well documented in this study in order to allow easy confirmation of the study findings by other reviewers.

3.10 Data collection techniques

Data on uptake of EIMC was collected by use of a semi structured questionnaire hence the quantitative approach. Face to face interviews were conducted with each mother.

The interviews were conducted in a private room.

Before conducting the interview, the researcher introduced herself and verbal permission was sought from the respondents followed by a written consent.

Each interview started with an introduction and overview of the research including the objectives of the study from the information sheet. The respondents were informed that no names would be written on the research instrument. The researcher read out questions to the respondents and entered responses on the data collection instrument. Respondents were encouraged to ask questions and seek clarification on items they did not understand in the questionnaire. At the end of the interview the respondents were thanked for their participation.

3.11 Pilot study

The pilot study was carried out at UTH. Respondents who participated in the pilot were not included in the main study. The pilot study was conducted in order to identify flaws in the data collecting tool and to establish whether the variables would be measurable. The study sample for the pilot constituted 10% of the main study sample and semi structured interview schedule was used to collect data from the respondents.

Purposive sampling method was used to select the respondents. The researcher made corrections on the questionnaire before the actual study was embarked upon.

3.12 Ethical considerations

Prior to the initiation of the study, ethical clearance was obtained from the University of Zambia Biomedical Research Ethics Committee. Written permission was requested from Lusaka district medical office before data collection began.

All participants were informed about the purpose of the study and informed that they had the right to decline from participating as well as the right to withdraw at any stage of the study; and that their decision would not affect services they would receive. Mothers who declined to participate in the study were not discriminated in any way. Participants were assured that no information pertaining to their identity was going to be recorded during data collection and reporting stages of the study, hence ensuring confidentiality. Each study participant completed a consent form before participating in the study. Information on the study as well as all possible risks of participating in the study were communicated to participants in order to respect their autonomous decision on whether to participate in the study or not.

The study did not provide any direct benefits to the study participants. This was clearly indicated on the consent form so as to ensure that participants who were uncomfortable with revealing information would be free to pull out from the study.

CHAPTER FOUR: DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.1 Introduction

This chapter highlights the findings of the study to identify factors that influence parents' uptake of Early Infant Male Circumcision in Chongwe district. For this study, a total of 352 participants were interviewed. Slightly over one third (33.5%) of the women were from Kanakatapa early male circumcision centre. Chongwe and Katende had 25% and 30.9% of the sampled women respectively. Kasisi centre had the lowest number of respondents with only 10.5% of the sampled population.

4.2 Data analysis

The study presented descriptive statistics as frequencies, means and standard deviation depending on the type of data. At Bivariate level, the study examined the demographic and socio-economic factors that influence uptake of EIMC among Chongwe women. Pearson's Chi-Square test was used to test for significance between the outcome and explanatory variables. For variables with expected values in any of the cells of a contingency table below 5, or below 10 when there was only one degree of freedom, fishers exact test was used to determine association between the independent and dependent variables. All variables that were significant at bivariate level were used to come up with the final model that explains EIMC uptake.

Multilinear logistic regression using a backward elimination approach was used to come up with the best predictors of EIMC uptake. Global p-values were then used to eliminate variables with the highest p-values.

4.3 Presentation of Findings

The data in this study is presented according to the sequence and sections in the interview schedule. Bar graphs were constructed for the outcome variable. Frequency tables were presented for each of the independent variables to indicate proportions of categories within each respective variable. The research results were presented in the form of bar graphs, pie charts and frequency tables to summarize results of the study in a way that enables readers to understand findings easily.

Cross tabulations of variables were used to clearly show the relationship between variables and for the researcher to be able to draw meaningful inferences. The tables and charts have been clearly numbered and carefully labeled with self-explanatory headings.

4.3.1 Section A: Social-demographic characteristics of the sample (n=352)

This section consists of demographic features of the respondents. In this section, data collected consists consist of respondents ages, marital status, level of education, occupation, religion, occupation and number of male children.

Table 2: Social-demographic characteristics (n=352)

Variables	Respondents n=352	Percentage (%)
Age group		
15-20	54	15.3
21-25	91	25.8
26-30	107	30.3
31-40	52	14.7
41+	48	13.6
Mean age	36 years	
Marital status		
Single (never married)	65	18.4
Married	219	62.2
Divorced	51	14.4
Widow	17	4.8
Religion		
Christian	228	64.7
Islam	64	18.1
Hinduism	60	17
Judaism	0	0
Occupation		
Employed	168	48
unemployed	184	52
Highest level of school attended		
None	41	11.6
Primary	146	41.4
Secondary	142	40.3
Tertiary	23	6.5
Number of male children		
1-2	32	9
3-6	161	45.7
7 +	159	45.1

Source: Field data – 2016

The socio-demographic characteristics of the sampled respondents are presented in Table 2. The ages ranged from 15–48 years with (30.3%) of the respondents ranging between 26-30 years. The study population had a mean age of 36 years. The majority of the women (59.7%) were married with most of them being Christians (69.3%). The study also shows that most

(40%) respondents were housewives' while half (50.3%) the sampled population reported having more than 6 male children.

4.3.2 Section B: Level of knowledge on Early Infant Male Circumcision and HIV among parents

Figure 2: Percent distribution on EIMC knowledge level

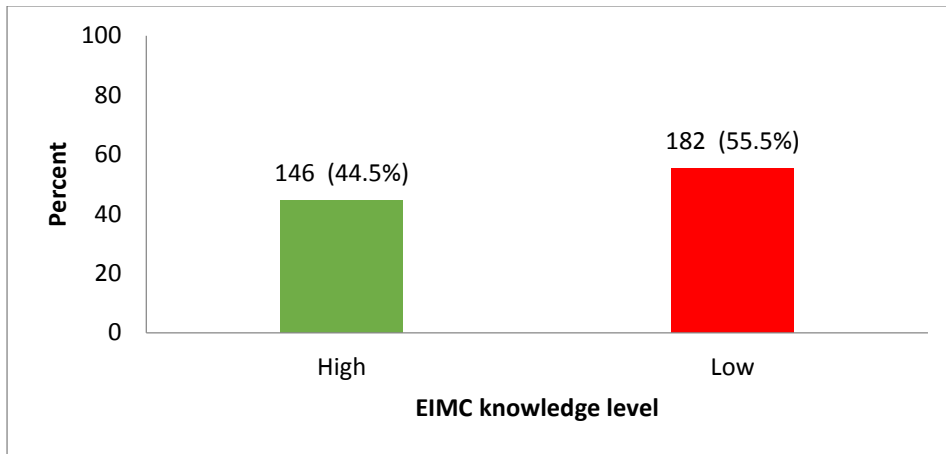
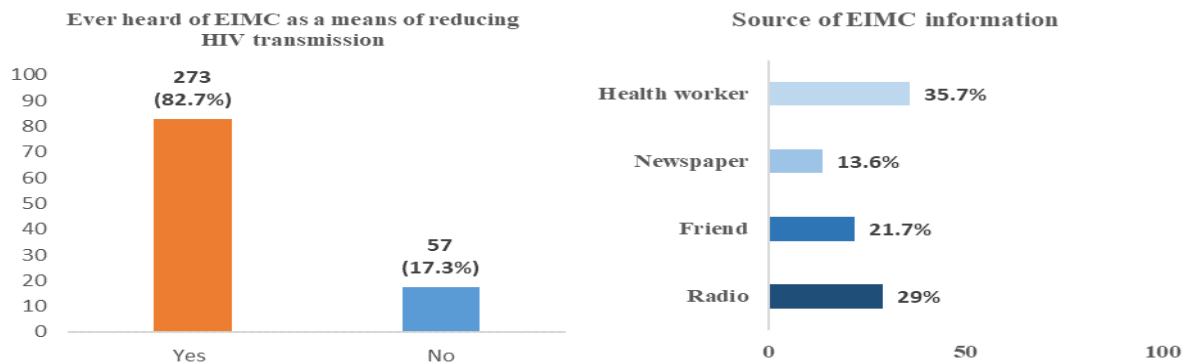


Figure 3 summarises EIMC level of knowledge amongst women who participated in the study. Slightly less than half (44.5%) of the sampled population had high knowledge levels on EIMC while 55.5% of the women had low knowledge levels.

Figure 3: Percent distribution of EIMC information and its source

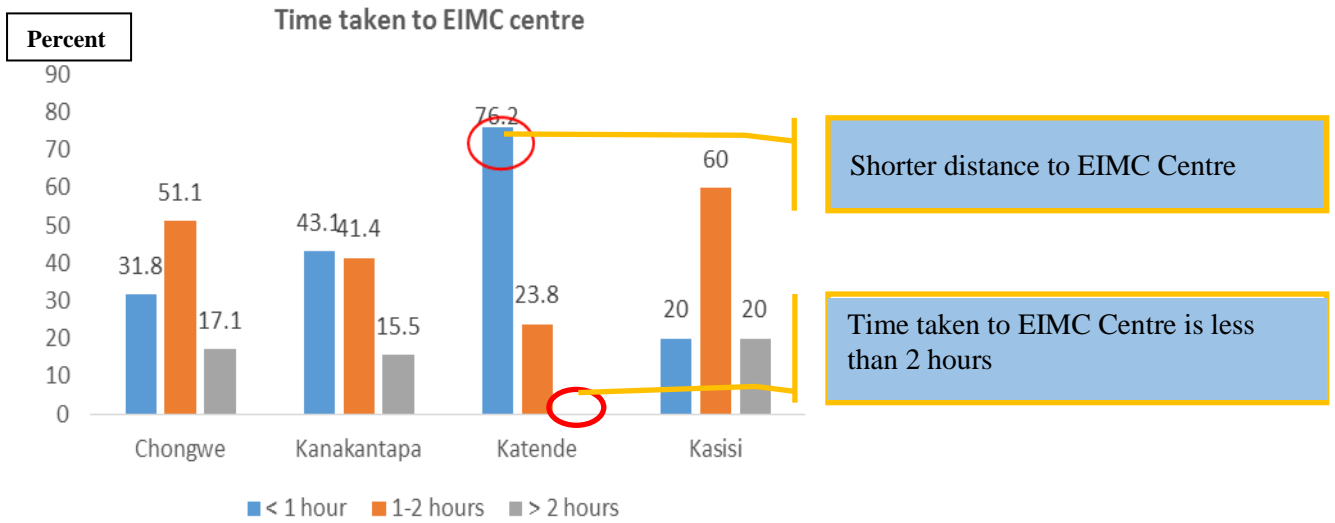


When asked whether one had received information about EIMC as a means of reducing HIV transmission, the majority (82.7%) of them 352 sampled women had information heard of EIMC as a means of reducing HIV transmission.

Respondents who indicated having information on EIMC as a means of reducing HIV transmission were then asked to mention the media through which they received such information. Results presented in figure 4 shows health workers being the main (35.7%) source of information followed by radio (29%). Although women reported friends (21.7%) being the source of information, only 13.6% cited the newspaper.

4.3.3 Section C: Accessibility by parents to early infant male circumcision services

Figure 4: Percent distribution of time taken to the nearest EIMC center



In order to access the accessibility of early infant male’s circumcision services, women were asked to state the amount of time taken to the nearest EIMC center. Figure 5 shows the distribution of time taken by women to move to the nearby EIMC centers in their respective communities. Half the sampled population in chongwe peri-urban took 1-2 hours to move to the nearest EIMC center. Less than two thirds (17.1%) of the women took more than 2 hours to get to the EIMC centre. A fairly distributed proportion of women in Kanakantapa took less than 2 hours to get to the nearest EIMC centre. From all the sampled.

EIMC centres, Katende seemed to have the shortest distance as it only takes most (76.2%) women less than one hour to get to the EIMC centre. Data collected in kanakatapa further suggest that no woman moved more than 2 hours to get to the EIMC centre. More than half of the women took about 1-2 hours to move to EIMC centre in Kasisi while an equal distribution of 20% women took less than 1 hour and above 2 hours to get to EIMC centre.

4.3.4 Section D: Attitudes of parents towards early infant male circumcision

Figure 5: Attitude of parents towards Early Infant Male Circumcision as an intervention for the prevention of HIV transmission

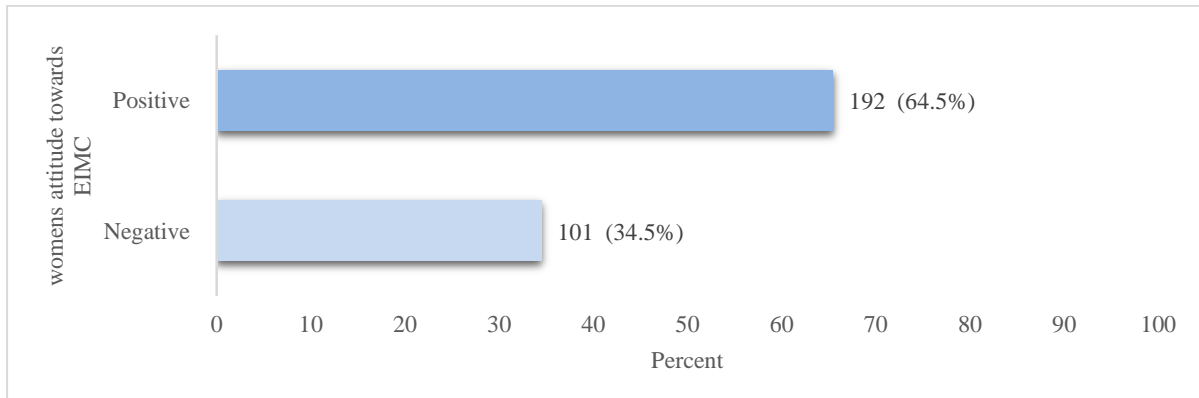
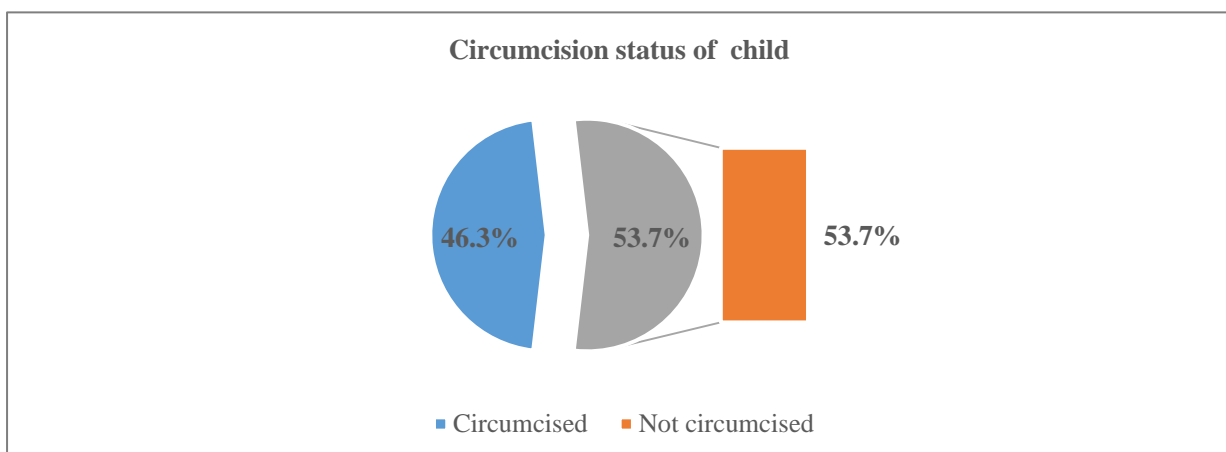


Figure 6 shows the proportion of women who had positive and negative attitudes towards early infant male circumcision. As defined in this study, having positive attitude towards EIMC meant scoring 4-6 marks of the six set questions to access attitude. From the results obtained in figure 4, 64.5% of the women in this study had a positive attitude towards early infant male circumcision while only 34.5% had negative attitude towards EIMC.

4.3.5 Section E: Uptake of early infant male circumcision services

Figure 6: Percent distribution of circumcision status of a child



In order to determine uptake of male circumcision services, women were asked if their child was circumcised or not. Figure 7 shows the percent distribution of women who had their recent male child circumcised. Of the 352 sampled women, slightly more than half (53.7%) women did not have their child circumcised while only 46.3 % were circumcised.

Further investigations show that there are a number of factors that are associated with EIMC uptake. Results presented in Table 3 indicates that the age of a women was associated with EIMC uptake ($p=0.002$). Findings further suggest a significant relationship between religious affiliation of a woman and EIMC uptake ($p=0.020$). Attitude of a woman towards EIMC was associated with EIMC uptake ($p=0.015$). Although there was an association between marital status and EIMC knowledge, Table 4 shows that marital status and EIMC uptake were not related ($p=0.454$). The number of male children a woman had was associated with uptake of EIMC ($p=0.017$). Additionally, husband/partners circumcision status was highly associated with EIMC uptake ($p<0.001$). Another highly significant relationship is between a household culture on male circumcision and EIMC uptake ($p<0.001$). Other socio-demographic variables such as decision maker on whether the child should be circumcised or statistically insignificant.

Table 3: Factors associated with EIMC uptake

Characteristics/factors	Uptake of EIMC		P-Value
	Yes %(n)	No %(n)	
Age group			
15-20	42.6 (23)	57.4 (31)	0.002*
21-25	37.1 (33)	62.1 (56)	
26-30	48.1 (37)	51.9 (40)	
31-40	38.5 (20)	61.5 (32)	
41-90	69.6 (39)	30.4 (17)	
Marital status			
Single	43.1 (28)	56.9 (37)	0.454
Married	45.6 (89)	54.4 (106)	
Divorced	46 (23)	54 (27)	
Widow	64.7 (11)	35.3 (6)	
Religion			
Christian	40.7 (92)	59.3 (134)	0.020*
Islam	54.3 (19)	45.7 (16)	
Hinduism	62.1 (36)	45.7 (16)	
Judaism	57.1 (4)	42.9 (3)	
Highest level of school attended			
None	39 (16)	61 (25)	0.343
Primary	52.2 (60)	47.8 (55)	
Secondary	45.4 (64)	54.6 (77)	
Tertiary	37.9 (11)	62.1 (18)	
Number of male children			
1-2		100 (3)	0.017*
3-6	40 (64)	60 (96)	
7 +	53.1 (87)	46.9 (77)	
Husband/partner circumcision status			
Circumcised	79.8 (63)	20.3 (16)	<0.001*
Not Circumcised	35.1 (61)	64.9 (113)	
Don't know	37.3 (25)	62.7 (42)	
Attitude			
Positive	43.9 (84)	56.1 (107)	0.015*
Negative	59 (59)	41 (41)	
Decision Maker			
Myself	50 (37)	50 (37)	0.374
Husband/partner	53.4 (47)	46.6 (41)	
Grandmother	56.5 (26)	43.5 (20)	
Grandfather	35.7 (5)	64.3 (9)	
Both partners	42.4 (36)	57.7 (49)	
Culture - male circumcision practice			
Yes	61 (103)	39 (66)	<0.001*
No	30.1 (46)	69.9 (107)	
Accessibility			
< 1 hour	43.4 (69)	54.6 (83)	0.385
1-2 hours	53.9 (62)	46.1 (53)	
> 2 hours	48 (14)	517 (15)	
Knowledge on EIMC			
High	46.6 (60)	50.4 (70)	0.285
Low	52.4 (87)	47.6 (79)	

Source: Field data – 2016

* $p < 0.05$

Regression analysis of factors associated with uptake of early infant male circumcision

Table 4 shows the predictor variable to early infant male circumcision uptake. Predictor variables included all social and demographic variables that were associated with EIMC uptake.

Table 4: Univariate analysis of the predictors of early infant male circumcision uptake

Variables	Respondents n=323	Proportional Odds Ratio (POR) (95% CI)	P-value
Age group			
15-20	54	1.0	
21-25	91	0.60 (0.26 – 1.42)	0.251
26-30	78	1.29 (0.53 – 3.71)	0.567
31-40	52	0.94 (0.31 – 2.58)	0.911
41+	56	4.60 (1.81 – 11.67)	0.001*
Religion			
Christian	228	1.0	
Islam	35	2.05 (0.81 – 5.14)	0.125
Hinduism	59	3.45 (1.60 – 7.43)	0.002*
Judaism	7	1.61 (0.27 – 9.55)	0.602
Husband/partner circumcision status			
Circumcised	79	1.0	
Not Circumcised	176	0.08 (0.04 – 0.17)	<0.001*
Don't know	67	0.08 (0.03 – 0.20)	<0.001*
Culture - male circumcision practice			
No	153	1.0	
Yes	170	3.01 (1.68 – 5.38)	<0.001*
Number of male children			
1-2	3	1.0	
3-6	161	1.01 (0.32 – 1.01)	0.026*
7 +	166	1.62 (0.34 -1.09)	0.101
Attitude			
Negative	101	1.0	
Positive	192	2.45 (1.27 – 4.72)	0.007*

Source: Field data – 2016

* $p < 0.05$

From the results in Table 4, it can be shown that the odds of women in the age groups ranging from 21-25 years and 31-40 years had low odds of having their infants circumcised compared to women aged below 20 years. However, women aged in the age range of 26-30 years as well as those above 40 years had high odds of EIMC update compared to women aged below 20 years (OR = 1.29; 95% CI:0.53 to 3.16) and (OR = 4.60; 95% CI: 1.81 to 11.67) respectively.

Results further suggest that Hindu women were three times more likely to have their infants circumcised than women from the Christian community (OR = 3.45; 95% CI:1.61 to 7.43). In addition, Judaism and Islamic women had high odds of having their infants circumcised than Christian women signifying low EIMC uptake among Christian women (OR = 1.61; 95% CI: 0.27 to 9.56) and (OR = 2.02; 95% CI: 0.81 to 5.14) respectively.

Women with partners that were not circumcised and those that did not know their circumcision status had less odds of having their infants circumcised compared to women who had their partners/husbands circumcised women (OR = 0.08; 95% CI:0.04 to 0.18) and (OR = 0.08; 95% CI:0.03 to 0.20) respectively.

Women from cultures that practiced male circumcision were three times more likely to have their infants circumcised compared to women from cultures that did not practice male circumcision (OR = 3.01; 95% CI:1.68 to 1.09).

The more male children a woman has, the higher the odds of having their infants circumcised. For instance, women with more than 6 male children were one and half times more likely to have their infants circumcised than women with one or two children (OR = 1.62; 95% CI: 0.34 to 1.09).

Table 5: Multivariate analysis on factors associated with early infant male circumcision in Chongwe district

Characteristics/factors	Study sample N (%)	Adjusted OR (AOR) (95% CI)	P-value
<i>Husband/partner circumcision status</i>			
Circumcised	79	1.0	
Not Circumcised	176	0.10 (0.05 – 0.22)	<0.001**
Don't know	67	0.011 (0.05 – 0.27)	<0.001**
<i>Culture - male circumcision practice</i>			
No	153	1.0	
Yes	170	2.87 (1.65 – 5.00)	<0.001**
<i>Attitude</i>			
Negative	101	1.0	
Positive	192	2.75 (1.52 – 4.96)	0.001*

Source: Field data – 2016 * $p < 0.05$ ** $p < 0.0$

Multivariate logistic regression for factors associated with Early Infant Male Circumcision

In order to assess the contribution of all the factors associated with EIMC uptake to the overall variance, it was important at this stage to control confounding by conducting a multiple logistic regression analysis. Table 5 shows the final multivariate model that best explains the factors associated with EIMC uptake. A backward investigator led logistic elimination method was used to come up with the final model that best explains the factors associated with EIMC uptake. Table 4 (Appendix1) shows all the steps performed to come up with the final model. Taking all factors into consideration and adjusting for the effect of other factors, three factors were found to be associated with EIMC uptake. Women with partners that were not circumcised were less likely to have their infants circumcised compared to women who had their partners circumcised (OR 0.10; 95% CI: 0.05 to 0.22).

Women from cultures that practiced male circumcision were almost 3 times more likely to have their infants circumcised compared to women from cultures that did not practice male circumcision (OR = 2.8; 95% CI:1.65 to 5.00). Finally, women with a positive attitude towards EIMC had high odds of having their infants circumcised compared to women who had a negative attitude (OR = 2.7; 95% CI: 1.52 to 4.96).

CHAPTER FIVE: DISCUSSION OF FINDINGS

5.1 Introduction

This study found that partners influence can affect the child's circumcision status, according to the findings parents attitude towards male circumcision, 192 (65%) had a positive attitude towards circumcision. This is in line with Marisa et al 2016, looked at factors associated with preference of EIMC majority of the partners 61% had a positive attitude of EIMC.

5.2 Uptake EIMC

Partners influence towards male circumcision can influence uptake of male circumcision if the partner is in favour of MC. A study done in South-East Botswana found that 85% of women opted to wait for their husband to make a decision for their infants to be circumcised. This shows that married women were not willing to have their children circumcised without consent from their husbands

In contrast, a study done in Tanzania, found a negative influence of fathers' instrumental role in decision making as some fathers viewed EIMC as torture. This was due to the procedure and the pain undergone during circumcision. Although this study displayed a positive link between father's male circumcision status and EIMC uptake, the Tanzanian study showed a negative influence which was mainly as a result of the procedure and the pain they experienced which they did not want to happen to their male infants.

5.3 Partners Circumcision Status

This study highlights how circumcision status of the father can either positively or negatively affects EIMC. According to this study majority of the respondents 51%, their partners were not circumcised hence this negatively affected the uptake of infant circumcision. Among other factors, a study done in Swaziland suggested that fathers or husbands were one of the obstacles towards EIMC. Therefore, the study recommended that fathers should be targeted in order to see a positive change towards EIMC (Jarrett et al., 2014). This is similar to our findings in which women with partners that were circumcised were more likely to have their infants circumcised compared to women whose partners were not circumcised.

Circumcised fathers have a positive influence towards ensuring that their male children are circumcised as they understand the benefits. In Kenya, it was discovered that father's circumcision status was strongly associated with decision towards male child circumcision. The study reviewed that after the father's personal evaluation of MC benefits, a positive

decision towards having their male child being circumcised was more likely to be made (IRINNEWS 2010).

5.4 Women's Attitude towards EIMC

Parents' attitudes towards EIMC service may either positively or negatively influence mother's uptake of EIMC. In this study, women with a positive attitude towards EIMC were more likely to have their infants circumcised compared to women who had a negative attitude. According to the theory of Planned Behaviour, social and cultural norms play a critical role in shaping people's decisions. The theory further adds that attitude has an impact towards one's intentions to take up certain actions either positive or negative (Kikaya, 2016). In this study, women generally portrayed a positive attitude towards early infant male circumcision. Similarly, a study done in Swaziland showed positive family attitude towards EIMC although this was particularly after receiving additional information on EIMC (Jarrett et al., 2014). Due to insufficient data, no proper trend analysis could be performed to assess the general attitudes of Chongwe women towards EIMC; however, we think that such a positive attitude exhibited in this study could mainly have been influenced by intensified media campaigns on MC by MOH and other NGOs.

5.5 Education Level

Further, this study's findings are in agreement with other studies conducted in Kenya that revealed that parents' level of education as well as gender had a significantly positive influence by several factors among w. Most mothers were more positively concerned about their child's circumcision status than fathers (Torpay, 2016).

Further, culture can influence the behaviour of people towards EIMC depending on their cultural beliefs. In this study, the findings indicated that culture influenced mothers not to take their male infants for circumcision because EIMC was not practiced in most of the respondents' culture. A study that was done in Kenya showed that culture has a bigger influence on circumcision, parents in Kenya were not ready to take their children for M. MC. Kikaya et al, 2016 It's important to note here that Chongwe District is not an area where MC is being practiced hence the cultural beliefs of the Soli people of Chongwe does not believe in MC unlike the Luvale people of Western Province. In addition to the same cultural beliefs, this study found that majority of the women had seven or more sons but they could not allow their sons to be circumcised which were interesting.

Similarly, with our findings, a qualitative study done in Uganda shows that culture has both a positive and negative influence on male circumcision Torpay et al, 2010. The study showed that culture negatively influenced decision makers especially those from traditions that did not practice MC. According to tradition in Uganda, Uncircumcised men were viewed to be the most upright people considered to uphold cultural norms as a result, most males were not circumcised. Such cultural beliefs have an influence even towards parents taking their children for EIMC.

5.6 Cultural Beliefs

In another study done in Zimbabwe, it was evident that cultures that did not consider MC failed to adopt EIMC. Some parents noted that MC and EIMC had never been practiced in their clan, therefore, adoption of EIMC was unacceptable. Some mothers were refusing to have their child circumcised because their husbands were not circumcised (Webster M 2014, p.89).

In areas where circumcision is traditionally practiced such as the North-Western Province of Zambia, they may accept EIMC because male circumcision is part of their tradition. At the same time, they may not take their children for circumcision as they may want them to participate in the traditional circumcision ceremony as a rite of passage from childhood to adulthood.

Parents from non-traditional circumcising tribes may refuse EIMC because they view it as a cultural practice associated with Muslims and selected tribes from North-Western Province. EIMC may be considered as a “taboo” within their own or their husband’s tradition. On the other hand, some parents may accept EIMC because they view it as a procedure that can be performed in all cultures. There is need for the health workers to do a lot of sensitization and also to involve stake holders like chiefs, community leaders in discussions of male circumcision services to be implemented to them.

CHAPTER SIX: RECOMMENDATIONS AND CONCLUSION

6.1 Conclusion

In conclusion, this study identified factors that influence parents' uptake of Early Infant Male Circumcision. According to literature, there are several factors that influence uptake of early infant male circumcision; however, this study shows three key factors (Women's attitude, partner's circumcision status and cultural practice) influenced the uptake of EIMC in Chongwe district. Women from cultures that practiced male circumcision was more likely to have their infants circumcised compared to women from cultures that did not practice male circumcision. In addition, this study I can conclude that women with partners that were not circumcised were less likely to have their infants circumcised compared to women who had their partners circumcised. With regards to attitude, women with a positive attitude towards EIMC were more likely to have their infants circumcised compared to women who had a negative attitude.

6.2 Recommendations

Sensitisation strategies for EIMC services should be strengthened. Mothers have fear on the effects of the EIMC procedure on their male infants. Therefore during sensitisations emphasis should be put on the benefits of EIMC such as less pain and quick healing.

6.2.1 To the Government of Zambia

1. Through the Ministry of Health, the Government as a policy making body should ensure that deliberate programs such as training more health personnel who would perform EIMC procedures and opening up more health centres in order for mothers to easily access EIMC services.
2. Government need to work with stakeholders to promote uptake of EIMC services by involving them in sensitisation programs and putting up necessary infrastructure in order to improve EIMC services.
3. The Government should provide enough funding to the health centres performing EIMC services to promote continuity of the service.
4. The Government needs to increase funding for research programs to allow more research to be done on EIMC as an HIV preventive measure. .

5. The Government through Ministry of Health should formulate a policy which will clearly guide and regulate EIMC services in the country.

6.2.2 To the Chongwe District Medical Office (CDMO)

1. The study further shows that culture plays a critical role in influencing EIMC uptake in Chongwe district. We recommend that the Chongwe District Medical Office (CDMO) should engage key traditional leaders in the mobilization process in order to increase uptake of EIMC in the district.
2. MOH should alternatively take advantage of antenatal visits to educate women on the importance of early infant male circumcision. As seen in this study, attitude plays an important role towards EIMC uptake, and it can be safely said that change of attitudes cannot be achieved in a short period of time. Therefore, if women are educated on the importance of EIMC as early as their first antenatal care visit, positive change in attitudes are likely to be observed. While reinforcing the crucial role that fathers play in EIMC decision-making shown elsewhere and alluding to the fact that males are hard to reach where health care services is concerned. Antenatal care visits can be used as a platform to reach out to the male population as it is policy that all pregnant women should go with their male partners during the first antenatal visit in Zambia.
3. At district level, it is important for the CDMO to scale out information dissemination on EIMC in order to increase awareness among women.
4. It is generally known that men play a critical role in decision making; therefore, the rollout of Early Infant Male Circumcision messages towards fathers should be intensified.
5. Although this study was quantitative, it somewhat went to some extent to demonstrate women's low knowledge levels on EIMC in Chongwe district. However, we highly recommend for a qualitative study to be done in order to actual cultural or traditional issues surrounding EIMC. This is with the view that cultural beliefs vary from tribe to tribe, therefore, there is need to address such norms according to their respective context.
6. The CDMO should scale up EIMC services to other health centres currently not offering the service to improve accessibility to EIMC services by mothers.
7. CDMO should assist in the training of more Doctors and other health personnel in the provision of EIMC services.
8. CDMO should ensure that health centres maintain up to date statistics for future reference.

6.3 Dissemination of Findings

The findings of this study will be printed and bound into reports. The results will be disseminated by submitting a copy of the research report to the University of Zambia – School of Public Health, Medical library, Provincial Health Office, Ministry of Health.

6.4 Strengths and Limitations

The study results are limited to the fact that the sample size obtained only consisted of women from government health facilities. This presents a missed opportunity to compare the uptake of EIMC

6.5 Dissemination of results

Upon completion of the research, findings of the study will be presented during graduate forums in the School of Public Health and the University of Zambia. Results will also be communicated to the Chongwe District Medical Office as well as the Ministry of Health. In addition, a hard and soft copy of the findings will be made available to the University of Zambia library for graduate students and other concerned readers. Findings will also be published in a reputable journal.

6.6 Limitations

Limited to Chongwe District and may not be generalized to the entire province or country.

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APPENDICES

Appendix I: Information sheet

INFORMATION SHEET AND CONSENT FORM FOR INTERVIEW OF MOTHERS ON EARLY INFANT MALE CIRCUMCISION IN REDUCING HIV/AIDS

Information sheet Form. Date: 11th March 2016

Title of Study: Uptake of early infant male circumcision as an intervention in reducing HIV/AIDS by parents in Chongwe District, Lusaka Province, Zambia

Principal Investigator: Simwenda Kamanga Peggy (MPH student)

Department of Public Health

Cell: +260973147903

Email Address: psimwenda@yahoo.com

Introduction:

You are hereby invited to participate in a study which is part of my requirement to complete my Master of Public Health with the University of Zambia, School of Medicine, Public Health Department. This is an information sheet. The researcher will also explain and clarify the aim of this study. You are free to ask questions at any time and free not to answer questions you feel are too personal and you are also free to withdraw from the study at any point with no penalties against you.

What is the purpose of this research?

The purpose of the study is to provide information on the uptake and acceptance of early infant male circumcision as an intervention in reducing HIV/AIDS among Mothers. This will help to add more knowledge and provide different ways of interventions in reducing HIV/AIDS in infants. The research is also part of my academic requirements to complete my master's program.

Why are you being asked to participate in the Research?

Participants for these interviews will provide useful information that will help improve programs that address early infant male circumcision.

Procedures

If you agree to participate in the research: If you are participating in the research, I will ask you to fill a questionnaire. I will request you to take part in an interview; the interview will take about 30 minutes. It will be done within the clinic in a private room. If you allow me, I will issue you a questionnaire that will be explained to you in the simplest way you understand. If not, no name will be included in the documents.

The information you provide will be kept under key and lock and I will maintain confidentiality.

Risks/discomforts

I do not expect you to have any problems because of your participation in the interview discussion. However, some information I may learn from you may be personal and emotional. I would also like to assure you that the information I will get from you will not be shared with anyone outside the academic team, and will be kept confidential between the participants and the researcher.

Benefits

If you agree that you participate in the interview, apart from this there will be no direct benefits to you, but what I will learn from you during the interview will help improve the programs aimed at addressing early infant male circumcision.

Protecting data confidentiality

I have put up measures to protect the information I will get from you. Only members of the academic team will be able to see the information. I will not put names on any information collected from you. Instead, I will use numbers for identification. I will keep copies of typed information on CDs in case I have a problem with the computer. All this information will be kept on a secure computer and in a secure room.

What happens if you do not want to participate or decide to leave the discussion early?

You have a right to decide whether you want to take part in the discussion, and you are free to leave at any point during the discussion. You are also free not to answer any questions that you are not comfortable with and this will not bring any problem to you.

Who to call for questions or problems regarding the study?

You can call the Principal Investigator

Principal

Investigator: Simwenda Peggy (MPH student)

Department of Public Health

Cell: +260973147903

You can also call or contact

Supervisor: Joseph M Zulu, PhD,

Department of Public Health,

Cell: +260971591388.

You can also contact or call:

UNZABREC

Box 50110

Lusaka

Telephone: 260-1-256067

Appendix II: Consent form for the research study

Dear respondent,

I am a master’s student at the University of Zambia in the School of Medicine under the Department of public Health. I am conducting a research on the topic “**Uptake of Early Infant Male Circumcision as an HIV Prevention Intervention in Chongwe District**”. The purpose of the study is to identify factors affecting uptake of Early Infant Male circumcision Services in Chongwe District. The benefit of study is that the information provided will help us make recommendations to stakeholders to come up with measures to help Mothers take their children for Early Infant Male Circumcision (EIMC).

Be assured that the information being solicited will purely be for academic purpose and be treated as confidential. If you feel you cannot participate in this study, you are free to withdraw from the study.

Your cooperation will be highly appreciated.

Participant’s name (print)	Participant’s’ Signature	Date
.....

Witness’s name (print)	Witness’s signature	Date
.....

I will explain the purpose of this study to the participant. She will have the form read to her, will give the chance to ask questions, so if she will accepts the answers and signed the consent to enrol in the study.

Appendix III: Questionnaire

**THE UNIVERSITY OF ZAMBIA
SCHOOL OF PUBLIC HEALTH
DEPARTMENT OF HEALTH PROMOTION**

STRUCTURED INTERVIEW SCHEDULE

**TOPIC: MOTHER'S UPTAKE OF EARLY INFANT MALE CIRCUMCISION AS AN
HIV PREVENTION INTERVENTION IN CHONGWE DISTRICT**

Serial Number:

Place of Interview:

Name of Interviewer:

Date of Interview:

INSTRUCTIONS FOR INTERVIEWER

1. Introduce yourself to the respondents.
2. Do not write the respondent's name on the questionnaire.
3. Ask all questions in the order they are arranged.
4. Indicate the answers to the question by ticking in the box provided and write your responses to open ended questions in the space provided.
5. Assure the respondents that all information will be treated as confidential and used for the purpose it is intended for.
6. Obtain written consent from respondents.

SECTION A: DEMOGRAPHIC DATA

For Official Use

1. Age on your last birthday.....

2. What is your tribe? Specify.....

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 fore skin 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 Germ that causes AIDS []
- (d) A disease []

15. How can one acquire HIV?

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

SECTION C: UPTAKE OF EIMC

16. Is your child circumcised?

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

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

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

18. If your answer 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 your home from the clinic?

- (a) Takes less than one hour to reach the clinic []
- (b) Takes one to two hours to reach the clinic []
- (c) Takes more than two hours to reach the clinic []

22. Circumcision status of the husband/partner

- (a) Circumcised []
- (b) Not Circumcised []
- (c) I don't know []

SECTION D: CULTURAL BELIEFS

23. Do you think it is culturally right to practice circumcision?

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

24. If yes, for what reasons should circumcision done?

- (a) Rituals []
- (b) Hygiene []
- (c) Sexual satisfaction []
- (d) Rite of passage from childhood to adulthood []

25. Who do you think should perform EIMC?

- (a) Doctor []
- (b) Traditional leader []
- (c) Somebody of the same culture []
- (d) Other trained health professionals []

26. Culturally, should women be allowed to take care of the circumcised wounds?

- (a) Yes []
- (b) No []
- (c) Don't know []

SECTION E: ATTITUDE TOWARDS EIMC

27. What do you think about circumcising infants?

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

28. 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 []

29. In your opinion, do you think EIMC should be compulsory to all male infant in Zambia in the prevention of HIV/AIDS?

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

30. If 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 []

31. In your opinion, what do you think should be done to scale up EIMC up take among parents?

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Thank you for your participation!