

**FACTORS INFLUENCING THE UPTAKE OF MALE
CIRCUMCISION AS HIV PREVENTION STRATEGY AMONG
ADOLESCENT BOYS IN NANOGANG COMMUNITY JUNIOR
SECONDARY SCHOOL (NCJSS) GABORONE, BOTSWANA**

by

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submitted in accordance with the requirements

for the degree of

MASTER OF PUBLIC HEALTH

at the

UNIVERSITY OF SOUTH AFRICA

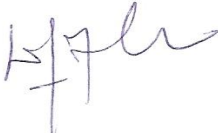
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DECLARATION

I declare that **FACTORS INFLUENCING THE UPTAKE OF MALE CIRCUMCISION AS HIV PREVENTION STRATEGY AMONG ADOLESCENT BOYS IN NANOGANG COMMUNITY JUNIOR SECONDARY SCHOOL (NCJSS) GABORONE, BOTSWANA** is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references and that this work has not been submitted before for any other degree at any other institution.



Yewondwossen Mulugeta Goshme

30 July 2012
DATE

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ABSTRACT

A quantitative and descriptive type of study design was followed using structured self-administered questionnaires distributed among 84 conveniently selected male adolescent learners from Nanogang Community Junior Secondary School (NCJSS) in Gaborone. The purpose of this study was to describe factors that influence the uptake of safe male circumcision (SMC) as a human immune-deficiency virus (HIV) prevention strategy among male adolescent learners. The study findings show that protection from HIV and other sexually transmitted infections (STIs) was found to be the main reason for adolescent learners undergoing male circumcision (MC) ($p < .01$). Reasons such as maintenance of genital hygiene, culture, religion, and the enhancement of sexual pleasure were not found to be significant factors. Misconceptions such as the belief that girls do not like circumcised partners were found to be the main reason for adolescent learners not undergoing MC ($p < .05$). A number of factors which were claimed in previous studies to be obstacles for the uptake of MC, such as surgical complications, peer pressure, stigma, and discrimination, were not found to be major obstacles.

KEYWORDS:

Male circumcision (MC); safe male circumcision (SMC); benefits of MC; risks of MC; factors that hinder the uptake of MC; factors that facilitate the uptake of MC; HIV prevention.

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Dedication

I am dedicating this work first and foremost to the almighty GOD who gave me strength, courage and wisdom I need to complete. I also extend my loyalty to my beloved FAMILY who was there for me all the time.

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List of abbreviations

AIDS	Acquired Immuno-deficiency Syndrome
ART	Anti-retroviral therapy
BAIS	Botswana AIDS Impact Survey
CPS	Canadian Paediatrics Society
ELISA	Enzyme-linked Immuno-sorbent Assay
HIV	Human Immuno-deficiency Virus
HRDC	Health Research and Development Committee
HSREC	Health Studies Research Ethics Committee
IRB	Institutional Review Board
MC	Male Circumcision
M&E	Monitoring and Evaluation
MOH	Ministry of Health
NCJSS	Nanogang Community Junior Secondary School
RCT	Randomised Clinical Trial
SMC	Safe Male Circumcision
SPSS	Statistical Package for Social Sciences
SSA	Sub-Saharan African
STIs	Sexually Transmitted Infections
UNAIDS	United Nation Programme on HIV/AIDS
UNISA	University of South Africa
VCT	Voluntary Counselling and Testing
VMMC	Voluntary Medical Male Circumcision
WHO	World Health Organization

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CHAPTER 1

ORIENTATION TO THE STUDY

1.1 INTRODUCTION

Male circumcision (MC) is one of the oldest and most common surgical procedures in the world, and is undertaken for various different reasons: religious, cultural, social, and medical (Thomas 2003). The World Health Organization (WHO) estimates that 30% of all males 15 years and older in the world are circumcised. Of these, about two thirds (70%) are Muslims (resident predominantly in Asia, the Middle East, and North Africa), 13% are non-Muslim and non-Jewish men living in the United States of America, and 0.8% are Jewish (WHO/UNAIDS 2007a:7). MC is less commonly practiced in Southern Africa. Self-reported prevalence in Botswana is less than 15% (BAIS III 2008:50; WHO 2009:13).

Based on compelling research evidence, the WHO recommends that MC be considered as an additional human immune-deficiency virus (HIV) prevention strategy for heterosexually acquired infection in men (WHO/UNAIDS 2007c:4). Following the endorsement of MC as an additional HIV infection prevention strategy, initiatives to introduce safe voluntary medical male circumcision (VMMC) services commenced in 2008 in several Sub-Saharan African (SSA) communities (Westercamp, Agot, Ndinya-Achola & Bailey 2012:157-166). Safe male circumcision (SMC) services were commenced in 2009 in most districts of Botswana to raise the prevalence of MC to 80% among HIV-negative men aged 0-49 years (approximately 500,000 men) by 2016 (MoH of Botswana 2008:12). The effectiveness of this intervention will depend on many factors, not the least of which is the extent to which MC is accepted and taken up by the target groups (Westercamp & Bailey 2007:341-355). However, reliable preliminary statistical data from the human immune-deficiency virus/acquired immune-deficiency syndrome (HIV/AIDS) Monitoring and Evaluation Unit of the Botswana Ministry of Health (MoH) shows a low MC uptake. A total of 17,805 MCs were performed between April 2009 and August 2011, which indicates that there could be barriers in the uptake of MC. The question is what the barriers could be that are affecting the uptake of SMC.

Addressing this question will help policy makers to design effective SMC service programme implementation strategies to reduce the prevalence of HIV.

This cross-sectional study aims to identify the key factors influencing the uptake of MC as HIV prevention strategy among adolescent boys in one community junior secondary school in Gaborone, Botswana. The effects of the HIV prevention strategy of MC are cumulative over a man's sexually active lifetime, and will therefore have most impact when implemented prior to sexual debut (Sawires, Dworkin, Fiamma, Peacock, Szekeres & Coates 2007:708-713). The phase of adolescence is a time when new healthy behaviours are laid down, behaviours that track into adulthood and will influence health and morbidity throughout one's life (Viner 2005:528). Adolescents have more diverse health concerns, and of a greater magnitude than expected by health care providers (Marcine 2007:122-128).

1.2 BACKGROUND INFORMATION ABOUT THE RESEARCH PROBLEM

Evidence shows that MC is a powerful HIV prevention tool. A number of observational epidemiological studies in different parts of the world have reported that MC significantly reduces the risk of heterosexual transmission of HIV from women to men (Adjusted RR=0.39, 95% CI 0.27-0.56) (Bongaarts, Reining, Way & Conant 1989:373; Byakika-Tusiime 2008:835-841; Sawires et al 2007:708-713; Siegfried, Muller, Deeks, Volmink, Egger, Low, Walker & Williamson 2005:165-173; Tobian, Serwadda, Quinn, Kigozi, Gravitt, Laeyendecker, Charvat, Ssempijja, Riedesel, Oliver, Nowak, Moulton, Chen, Reynolds, Wawer & Gray 2009:1298-1309; Weiss, Quigley & Hayes 2000:2361-2370). Randomised clinical trials (RCTs) conducted in Kenya, South Africa, and Uganda showed a 50-60% reduction in the acquisition of HIV infection in men following circumcision (Auvert, Taljaard, Lagarde, Sobngwi-Tambekou, Sitta & Puren 2005:e298; Bailey, Moses, Parker, Agot, Maclean, Krieger, Williams, Campell & Ndinya-Achola 2006:653; Gray, Kigozi, Serwadda, Makumbi, Watya, Nalugoda, Kiwanuka, Moulton, Chaudhary, Chen, Sewankambo, Wabwire-Mangen, Bacon, Williams, Opendi, Reynolds, Laeyendecker, Quinn & Wawer 2007b:663).

MC is also said to be a cost-effective HIV prevention strategy. Gray, Li, Kigosi, Serwadda, Nalugoda, Watya, Reynolds and Wawer (2007a:845-850) explain that large-scale uptake of MC in a population with high HIV prevalence and a low circumcision

rate has a considerable impact on the HIV epidemic and provides a cost-effective HIV prevention strategy if the benefits are not countered by behavioural compensation. In a similar study conducted in Rwanda and South Africa, researchers emphasised that providing universal access to MC in conjunction with other HIV prevention strategies will reduce the overall cost of addressing severe HIV epidemics driven by heterosexual transmission (Binagwaho, Pegurri, Muita & Bertozzi 2010:517; Kahan, Marseille & Auvert 2006:e517).

On the one hand, there is concern about the risk compensation of MC. Pinkerton (2001:727-736) argues that the protection that MC affords may be partially offset by increased risk of contracting HIV in response to perceived behavioural changes, particularly a reduction in condom use, or an increase in numbers of sexual partners. This was demonstrated in the Kenya trial, where circumcised men reported more risky behaviours at 24 months, and also in the study conducted in South Africa, where circumcised men had more sexual contacts than uncircumcised men from month 4 through to month 21 of the follow-up (Auvert et al 2005:e298; Bailey et al 2006:643-656). On the other hand, in the Uganda trial at 24 months no risk behaviour differences were observed between study arms (Gray et al 2007b:657-666). Therefore epidemiological models of MC scale up should take this dynamic risk into account. Currently several studies are in progress to assess the potential post-MC risk compensation. According to Herman-Roloff, Otieno, Agot, Ndinya-Achola & Bailey 2011:e19814), some men are motivated to seek MC services because they want to have sex without a condom and/or increase their number of sexual partners. Therefore, it remains important for a national communication strategy to continue to broadcast the message that MC is only partially protective against HIV acquisition, and to clarify the extent of the protective effect.

Once the key decision of using MC as an HIV prevention strategy has been made, finding the right models for successful implementation will be the next important step. Research is needed to establish whether there will still be a high uptake of surgery without the intensive counselling offered at the trial sites, and whether medical circumcision is favoured over traditional forms of circumcision. The optimum setting for surgery, be it in homes, clinics, or by mobile circumcision teams, is likely to vary in different communities. Research can help identify the most promising approaches

(Brown, Micheni, Grant, Mwenda, Muthiri & Grant 2001:608-612). It is against this background that the researcher is embarking on this study.

1.2.1 Source of the research problem

A review of the Botswana National SMC strategy document (MoH of Botswana 2008:12) shows government preparedness to increase the prevalence of SMC among the target groups (0-49 years) as part of the national HIV prevention strategy. Furthermore, a literature review demonstrates high acceptability of MC among adults and adolescents (Kebaabetswe, Lockman, Mogwe, Mandevu, Thior, Essex and Shapiro 2003:217), suggesting the potential for high MC uptake. However, preliminary statistical data from the Monitoring and Evaluation (M&E) Unit of the Department of HIV and AIDS Prevention and Care within the Botswana MoH shows very low SMC uptake. 17,805 MCs were performed between April 2009 and August 2011, which indicates that there could be barriers in the uptake of MC. It is these sources of information that prompted the researcher to propose a study on the reasons behind low MC uptake among adolescents.

1.2.2 Research problem

A research problem is an area of concern where there is a gap in existing knowledge, or a perplexing or enigmatic situation that a researcher wants to address through disciplined inquiry (Burns & Grove 2009:86; Polit & Beck 2008:81).

Botswana is one of the countries that accepts and incorporates SMC as an additional HIV prevention strategy. Studies show that MC is highly acceptable in Botswana (Kebaabetswe et al 2003:217). However, preliminary SMC statistical data from the MoH show low uptake (less than 2 SMCs performed per day), despite appropriate service delivery. This suggests that there is still very little known about the factors that influence MC uptake among adolescents in Botswana. This problem leads to the following research questions.

1.2.3 Research questions

In order to address the above research problem, the researcher will attempt to answer the following research questions:

- What key determining factors could influence the uptake of SMC among adolescent male learners aged 13-18 years in Botswana?
- What is the attitude of adolescent male learners towards SMC?
- Do adolescent male learners have knowledge about the health benefits and risks of SMC?

1.3 PURPOSE OF THE STUDY

The main purpose of this study is to describe factors that influence the uptake of SMC as HIV prevention strategy among adolescent male learners at Nanogang Community Junior Secondary School (NCJSS), Gaborone.

1.3.1 Research objectives

The objectives of the study are to

- explore and describe the factors that influence the uptake of SMC among adolescents
- describe the attitude of adolescent male learners towards SMC
- describe the knowledge of adolescent male learners about the risks and benefits of SMC

1.4 SIGNIFICANCE OF THE STUDY

MC is considered part of the comprehensive HIV prevention package for heterosexually acquired infections in men (WHO/UNAIDS 2007c:4). MC is also said to be a cost-effective HIV prevention measure. Studies by Binagwaho et al (2010:517) and Gray et al (2007a:845-850) show that large-scale uptake of MC in a population with high HIV prevalence and a low circumcision rate has a considerable impact on the HIV epidemic

and provides a cost-effective HIV prevention strategy. However, MC uptake in Botswana is significantly low due to various factors. Therefore, studying these factors will have a significant long-term impact on the control of the HIV epidemic. The study is expected to contribute to existing knowledge about the key factors that influence SMC uptake among adolescents. Furthermore, knowledge of these factors will bring insight or solutions, which could benefit health policy makers, programme managers, and health professionals. It could also inform the design of different implementation approach mechanisms to increase the uptake of SMC among targeted groups.

1.5 DEFINITION OF TERMS

In order to clarify the concepts used in this study, the researcher has given the following definitions. According to Polit and Beck (2008:91), a researcher uses the definition of a concept or variable in terms of the events by which it is measured in the study.

Adolescent

Adolescence begins with the onset of physiologically normal puberty and ends when an adult identity and behaviour are accepted. It corresponds to the period between the ages of 10 and 19, which is consistent with the WHO's definition of adolescence (CPS 2003:577). In this study, the term "adolescent" refers to the school-age 13-18-year-old male children attending Nanogang Community Junior Secondary School in Gaborone, Botswana.

HIV infection

Acute HIV infection is a flu-like syndrome that occurs immediately after a person contracts HIV. Normally it takes several weeks to several months for antibodies to the virus to develop. When antibodies to HIV appear in the blood, a person will test positive in the standard enzyme-linked immune-sorbent assay (ELISA) test for HIV (MedicineNet.com 1999).

Knowledge

According to the *Oxford Advanced Learners Dictionary* (2000:658), “knowledge” is defined as facts, information and skills acquired through experience or education, or the theoretical or practical understanding of a subject. In this study, the researcher is interested in facts and information known regarding the risks and benefits of MC among adolescent learners.

Learners

A learner is someone (particularly a child) who learns (as from a teacher), or takes up knowledge or beliefs (*Webster Third New International Dictionary of English Language* 1976:1286). In this study, the term “learners” refers to male schoolchildren aged 13 to 18 years attending NCJSS, Gaborone, Botswana.

Male circumcision

“Male circumcision” is defined as the surgical removal of all or part of the foreskin of the penis, and may be practised as part of a religious ritual usually performed shortly after birth or in childhood, as a medical procedure related to infections, injury or anomalies of the foreskin, or as part of a traditional ritual performed as an initiation into manhood (Siegfried, Muller, Volmink, Deeks, Egger, Low, Weiss, Walker & Williamson 2003).

Medical male circumcision

Medical male circumcision is male circumcision that is performed by trained personnel for medical reasons; such as infection and phimosis, where the foreskin is contracted in such a way that it can no longer retract over the shaft of the penis (WHO 2009:12).

Safe male circumcision

Safe male circumcision is male circumcision performed by well-trained health professionals in properly equipped settings under hygienic conditions (WHO/UNAIDS/JHPIEGO 2009:11).

Traditional male circumcision

Traditional male circumcision is defined as male circumcision for cultural (non-religious) reasons as a rite of passage into manhood carried out by a service provider who does not have formal training (WHO 2009:8).

1.6 FOUNDATION OF THE STUDY

The foundation of this quantitative study is based on a positivist tradition which adheres to the principles of determinism and objectivity (Polit & Beck 2008:69). The assumption is that a high level of MC acceptability, an improvement in genital hygiene, HIV and STI prevention, and health education about the importance of MC could lead to a high level of MC uptake, which could ultimately increase the prevalence of MC and lower the prevalence of HIV.

The factors that could influence the uptake of MC are illustrated in figure 1.1. Knowledge of these determining key factors could inform the design of programme implementation strategies.

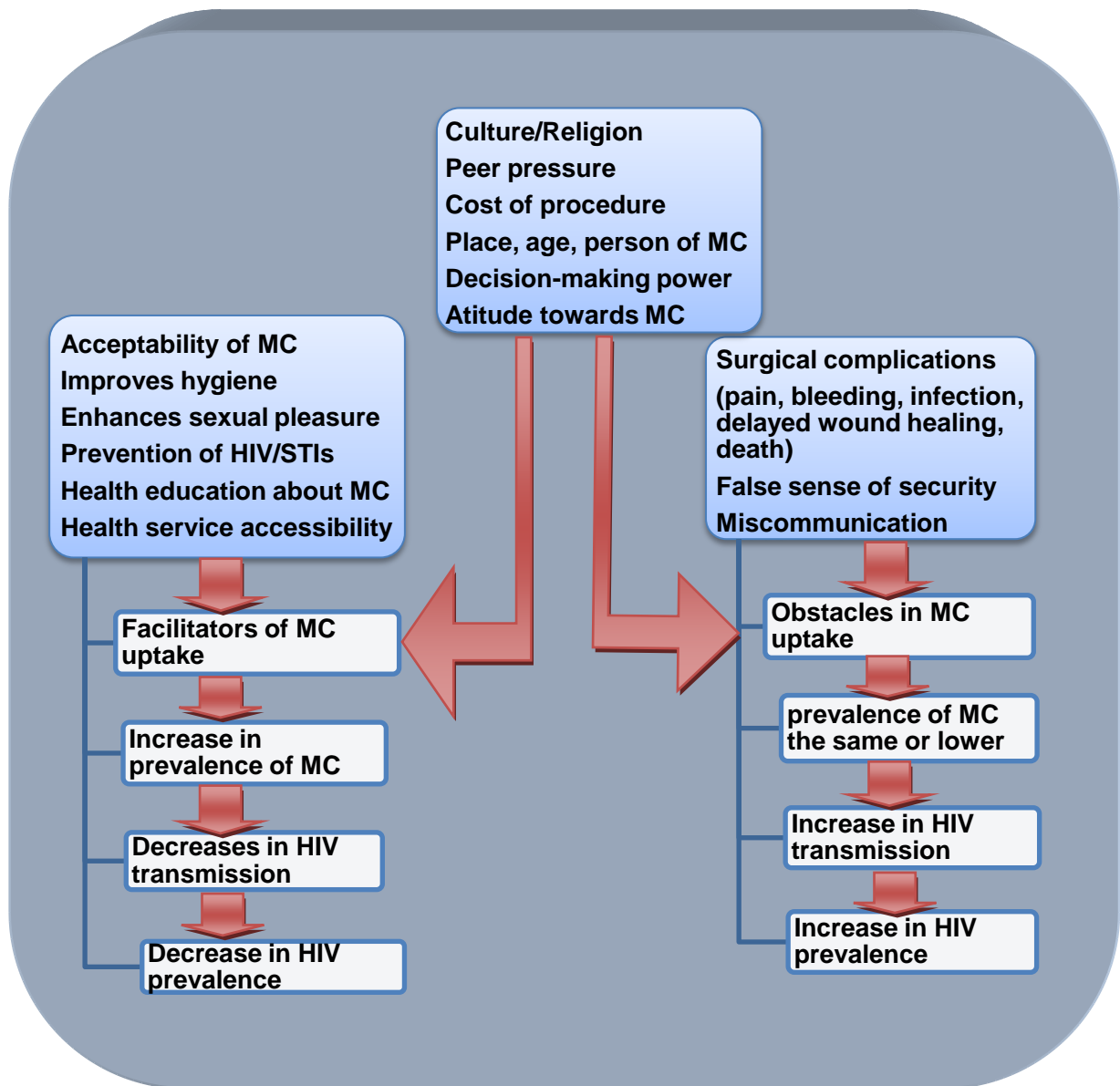


Figure 1.1 A conceptual framework for the uptake of the MC

1.7 RESEARCH DESIGN AND METHODS

This section of the chapter serves to orientate the reader to the research design and methods used in this dissertation. It provides answers to the research questions posed by the researcher in the planning of the study.

1.7.1 Research design

The researcher used a non-experimental, descriptive, cross-sectional design to answer the research questions. Data were collected without making any interference in the school premises.

1.7.2 Research methods

Research methods are techniques that researchers use to structure a study and to gather and analyse information relevant to the research questions (Polit & Beck 2008:15). This subject will be discussed in detail in chapter 3.

1.7.2.1 Study population

Polit and Beck (2008:337) define a study population as “the entire aggregation of cases in which a researcher is interested”. The population in this study consisted of all adolescent male learners aged 13 to 18 years who were enrolled at NCJSS for the 2012 academic year.

1.7.2.2 Sampling and sampling technique

A sample is a subset of the population that is selected for the study (Burns & Grove 2009:720). The sample in this study consists of 100 male learners from NCJSS who satisfy the inclusion criteria. The researcher used a non-probability sampling technique. Non-probability sampling is a technique in which not every element of the population has an opportunity for selection in the sample. This sampling technique is economical and simple, and it demands less time to obtain the desired sample size (Babbie 2008:184; Burns & Grove 2009:710).

1.7.2.3 Study site

The study site was NCJSS in Gaborone, Botswana. Gaborone is the capital city of Botswana. According to results of the 2011 Population and Housing Census, the total population of Gaborone is about 233,135. There are approximately 12 community junior

secondary schools in Gaborone. NCJSS is located to the south-east of Gaborone. The school enrolled a total of 776 male and female learners in the 2012 academic year.

1.7.2.4 Data collection

The researcher used a structured self-report instrument in the form of a self-administered questionnaire (see Annexure B). Those male adolescent learners who satisfied the inclusion criteria were given the questionnaire to complete. The questionnaire had a number of options to choose from. The items (questions) in the questionnaire were developed from reviewed literature. The data-collection instrument solicited the following information: demographic data, circumcision status by self-report, attitude towards MC, and reasons for undergoing or not undergoing MC. The instrument included a set of questions with predetermined response options to be answered in a specified sequence. According to Babbie (2008:246), “closed-ended questions provide a greater uniformity of responses and are more easily processed than open-ended ones”.

1.7.2.5 Data analysis

Category variables such as demographic profile, circumcision status, attitude towards MC, knowledge about benefits and risks of MC, and key factors that can influence MC uptake and continuous variables such as age of the respondent were summarised in frequency tables using numbers and percentages. The relationship between the numbers of attribute variables was assessed using cross-tabulation and Pearson’s chi-squared test. The researcher used Statistical Package for the Social Sciences (SPSS) Version 17.0 software to analyse the aggregated data. The researcher was assisted by a statistician.

1.8 SCOPE OF THE STUDY

The scope of the study is limited to the factors influencing MC uptake as HIV prevention strategy among male adolescent learners at NCJSS. The researcher will not include other adolescents for the purposes of this study. The study will target adolescent boys aged 13-18 years who enrolled at NCJSS in the 2012 academic year. The study has several limitations. Firstly, it is likely that the study population is not a representative

sample, and it is possible that the results obtained might not be generalisable to other adolescents in the country. Secondly, the researcher is of the opinion that the data-collection tool, which comprises mainly closed items, could have constrained respondents' opinions and responses. Furthermore, the environment where the data was collected, namely the school premises, could have affected the learners' responses either positively or negatively.

1.9 STRUCTURE OF THE DISSERTATION

This study is divided into five chapters, as follows:

Chapter 1: This chapter outlines what the study intends to do. It describes the background to the problem, the purpose of the study, as well as the objectives. It also briefly describes the design of the study, its scope, and the data-analysis procedure to be followed.

Chapter 2: Chapter 2 reviews literature from different settings that is relevant to the topic of the study.

Chapter 3: This chapter explains the research design and methods and the data-collection methods and processes used to obtain the relevant information.

Chapter 4: Chapter 4 provides an analysis of the data using different statistical methods.

Chapter 5: A discussion of the findings, limitations, recommendations, and conclusion of the study will be presented in this chapter.

1.10 CONCLUSION

This chapter provided an overview and introduction to the study. It gave a general background to the study and outlined the research questions, the purpose of the study, the research objectives, and the research design. The chapter also briefly described the data-collection procedure that will be followed in the study. The content of this chapter will be discussed in more detail in the chapters that follow.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter focuses on a review of literature that covered factors influencing the uptake of MC among men particularly adolescent boys. Researchers rarely conduct research in an intellectual vacuum; their studies are undertaken within the context of an existing base of knowledge to familiarise themselves with the available evidence on the research problem (Polit & Beck 2008:105).

This chapter is structured in the following manner: an overview of global HIV/AIDS epidemics will be presented first; then the review will take us to HIV/AIDS situation in SSA and Botswana respectively. The chapter will provide a number of global HIV prevention strategies to tailor the epidemics; male circumcision which is now considered as additional HIV prevention strategy will be presented in detail. Finally factors that facilitate and hinder uptake of MC will be presented from reviewed literature.

2.2 GLOBAL OVERVIEW OF HIV/AIDS EPIDEMICS

According to the UNAIDS (2010:16) report, the overall growth of the global AIDS epidemic appears to have stabilised, the annual number of new infections has been steadily declining since the late 1990s and there are fewer AIDS-related deaths due to the significant scale up of anti-retroviral therapy (ART) over the past few years. Although the number of new infections has been falling, the level of new infections overall are still high, and with significant reductions in mortality the number of people living with HIV worldwide has increased. At the end of 2010, an estimated 34 million people [31.6 million–35.2 million] were living with HIV worldwide up by 17% from 2001 (UNAIDS 2011:6).

The number of people becoming infected with HIV is continuing to fall. According to UNAIDS (2011:7), in 2010 there were 2.7 million [2.4 million–2.9 million] new HIV infections; including an estimated 390,000 [340,000–450,000] among children. This was

15% less than 2001, and 21% below the number of new infections at the peak of the epidemics in 1997. HIV incidence has fallen in 33 countries, 22 of them in SSA, the region most affected by the AIDS epidemic. The current HIV prevention strategy using MC will have tremendous impact if implemented according to plan.

2.3 HIV/AIDS IN THE SUB-SAHARAN AFRICA

According to the WHO/UNAIDS (2009a:21) and UNAIDS (2011:7) report, SSA is more heavily affected by HIV/AIDS than any other region in the world. An estimated 22.9 million (68%) people are living with HIV in the region, which are around two thirds of the global total. It was estimated that by the year 2010 that the life expectancy at birth could be decreased by at least 15 years (WHO 2011).

SSA's vulnerability to the HIV pandemic is multi-factorial and is determined by gender inequality, stigma and discrimination, poverty and displacements due to war as some of the key factors that increase vulnerability (Table 2.1) (Lau & Muula 2004:402-414). However, the vast majority of people who are newly infected with HIV in SSA are due to unprotected heterosexual intercourse (UNAIDS/WHO 2004:7; UNAIDS 2010:2).

The overall burden that HIV/AIDS has placed on SSA is unprecedented. HIV/AIDS is now the most common cause of death in the region (WHO 1999:82; UNAIDS/WHO 2005:22). According to UNFPA (2003:10), half of all new HIV infections, along with at least a third of the 333 million new cases of curable STIs, are among people aged 15-24. These young people often lack the information, skills and services they need to protect themselves from HIV infection. Therefore it is important to equip them with the knowledge and skills they need to prevent themselves from HIV/AIDS.

2.4 HIV/AIDS IN BOTSWANA

Botswana is a SSA country which has reached a 2 million mark according to the 2011 Population and Housing census, with more than 90% of the population below the age of 49 years (Majelantle 2011:22). The country is divided in 24 health districts. Currently there are 26 public, 3 defence and 3 mining hospitals.

Table 2.1 Key factors contributing to AIDS in Sub-Sahara Africa

Factor	Importance	Impact/comment
Early introduction of HIV into Africa	<p>Earliest cases occurred in Tanzania and Uganda during the late 1970s.</p> <p>African populations were amongst the first to confront HIV.</p>	<p>Africa is ahead of other populations in terms of HIV history.</p> <p>The epidemic has had more time to exact a toll on African Populations.</p>
Rate of spread of HIV	<p>HIV has spread more rapidly in SSA compared to Western and Central Africa.</p> <p>Rate of spread varies greatly among Sub-Saharan African Populations.</p>	<p>High sexually transmitted infections prevalence, inadequate management fuelling spread.</p> <p>As prevalence increases, rates of spread also increase. This vicious downward spiral will continue unless current trends change.</p>
Sexual practices	<p>Multiple partnerships are more common. Rates of condom use are relatively low.</p> <p>Frequenting of sex workers is often commingled with regular partnerships. Younger women tend to partner with older men for socioeconomic reasons.</p>	<p>Prevalence of HIV is greatest among young women.</p> <p>Multiple partnerships and employment of sex workers increases risk of transmission.</p>
Cultural paradigms	<p>Traditional practices, often conducted in secrecy, may carry increased risk of sexually transmitted infections.</p> <p>Multiple partnerships are more socially acceptable than in other cultures.</p> <p>Social position of women is subordinate. HIV is considered a taboo subject in most communities. Many prevention efforts have been developed for Western societies.</p>	<p>Women have little control over their sex lives, and thus little control over their HIV risk.</p> <p>Discussion of HIV is often stifled, hindering diagnosis, treatment and prevention efforts.</p> <p>Culture specific community interventions should be developed.</p>
Food shortages	<p>Poor nutritional status increases susceptibility to disease, including HIV.</p> <p>Sex may be exchanged for food.</p>	<p>Hunger may lead people to unduly expose themselves to HIV through transactional sex.</p> <p>Areas with food shortages will suffer increased impact as resources will be directed toward obtaining food instead of preventing and treating HIV.</p>
Economic conditions	<p>People who lack resources have difficulty accessing HIV resources. The poor tend to have less impact on policy makers, thus may be overlooked.</p> <p>People may exchange sex for financial security.</p>	<p>A large sector of the population suffers reduced access to medical care for HIV.</p> <p>Poverty may lead to undue HIV exposure.</p>
Political instability	<p>Political instability has led to a decline in social services.</p> <p>Medical care, including supply of ART, is inconsistent.</p>	<p>Instability makes initiation and maintenance of public health measures difficult.</p> <p>International organisations may be hesitant to invest resources.</p> <p>Countries in transition are amongst</p>

Factor	Importance	Impact/comment
		those most in need of HIV programs, but suffer reduced access.
Violence	<p>Conflict and war facilitate extortion of sexual favours. Rape is more common in conflict zones.</p> <p>Sanitation, basic health care, and preventative programs are forgone.</p> <p>Resources are diverted away from health promotion.</p>	<p>Frequent conflict in African nations makes outreach difficult and inconsistent.</p> <p>People are not motivated to change their behaviour when the future is bleak.</p> <p>Psychological impact of conflict engenders disregard for personal health.</p>
Urbanisation	<p>As Sub-Saharan Africa becomes increasingly developed, individuals become more mobile.</p> <p>Breakdown of “helpful” cultural taboos in urban areas. In some traditional cultures, multiple sexual partners and extramarital sex may be perceived negatively. In urban areas, such practices may escape notice.</p> <p>Transactional (commercial) sex flourish in urban areas compared to rural communities.</p>	<p>HIV infected individuals migrate in and out of different areas more easily. They bring with HIV with them.</p> <p>Commercial sex is a risk factor for HIV transmission.</p>
Antiretroviral therapy (ART) availability	<p>Supply of ART is not entirely reliable.</p> <p>ART is limited. Most countries have one primary option. ART is not affordable for candidates. Rural areas suffer poorer access than cosmopolitan centres.</p>	<p>Interruptions in therapy lead to resistance.</p> <p>Second line options for those who fail first line therapy are scarce. Untreated individuals may be more likely to transmit HIV due to increased viral loads.</p>
Lack of knowledge	<p>Unawareness of risk factors may contribute to spread. Unfortunately, better education does not necessarily lead to behavioural change.</p>	<p>Encouraging voluntary behavioural change through education will likely be insufficient to control the spread of HIV.</p>
Public health policy	<p>Africa has been slow to acknowledge the impact of HIV.</p> <p>HIV prevention and treatment efforts have not traditionally been a priority. Increasing reliance has been placed on international assistance, rather than community based interventions.</p>	<p>Sub-Saharan African leaders need to acknowledge the impact of the HIV epidemic.</p> <p>Resources need to be devoted to development of HIV prevention and treatment programs. Inadequate attendance to the issue will result in worsening of the epidemic.</p>
Historical factors	<p>Sustained political disruption, exploitation, and bad government have plagued Africa.</p> <p>International trade practices contribute to impoverishment.</p> <p>Population relocation, inequality, civil unrest, infrastructure facilitate mobility, and loss of traditional boundaries.</p>	<p>Colonial, post-colonial history has set the stage for Sub-Saharan Africa to be at high-risk for the spread of infectious disease.</p> <p>Many lessons can be learned from history. We should use these to curtail the epidemic.</p>

(Lau & Muula 2004:402-414)

2.4.1 Incidence of HIV in Botswana

The first case of HIV/AIDS in Botswana was identified in 1985, and it is estimated that significant spread of HIV infection continued in late 1980s. The HIV epidemic reached highest proportions over the past decade, with deaths from the disease affecting all stratas of society (MoH of Botswana 1998:2). Botswana has one of the highest levels of HIV in the world. WHO estimated that adult prevalence was about 25% (UNAIDS/WHO 2006:9; WHO 2009:19) However recent surveys show that the rate of new infections could be slowing. Prevalence in both urban and rural areas decreased between 2001 and 2006.

2.4.1.1 Prevalence of HIV by age

According to BAIS III (2008:3) report, HIV prevalence by age group ranged from 2.2% in the (1-4 years) to 40.6% in the (40-44 years) age group. HIV prevalence increases sharply with age peaking between the ages of 30 to 45 years and gradually declines with age (figure 2.1). The lowest incidence rate (0.7%) was recorded in the age group 15-19 years old. Adolescent population aged 10-19 years account (22%) of the total Botswana population (UNICEF 2003).

2.4.1.2 Prevalence of HIV by gender

In terms of gender, the prevalence of HIV is less than half (4.8%) in young men aged 15 to 24 (BAIS III 2008:3); which could be due to late sexual initiation, only 3.5% of young people aged 15-24 years reported that they had sex before the age of 15 years. Therefore implementing MC as HIV prevention strategy in adolesent age group is the most ideal way. HIV prevention strategy of MC effects will have most impact when implemented prior to sexual debut (Sawires et al 2007:708-713).

2.5 GLOBAL HIV/AIDS PREVENTION STRATEGIES

Combining behavioural, biomedical and structural HIV prevention approaches tailored to national epidemics, is the most effective approach in reducing new infections and improving service coverage among the key populations (WHO 2011:11). Such combined interventions approaches tackle both behavioural and social derives of the

epidemics. However, despite evidence of the effectiveness of this approach, few countries have extensively scaled up combined interventions such as: behavioural change counselling, male and female condom programming, early initiation of antiretroviral therapy, safe male circumcision, post-exposure prophylaxis, quality-assured HIV testing and counselling of serodiscordant couples, removing stigmatisation and discriminations. In addition health services should implement comprehensive infection-control strategies and procedures, including standard precautions, injection and surgical safety of blood safety, safe waste disposal (WHO 2011:11).

According to UNAIDS and WHO expert's analysis, expanded access to proven prevention strategies could avert half of the 62 million new HIV infections projected to occur between 2005 and 2015 (Stover, Bertozzi, Gutierrez, Walker, Stanecki, Greener, Gouws, Hankins, Garnett, Salomon, Boerma, Lay & Ghys 2006:1474-1476). Another analysis found that in SSA alone, expanded prevention could prevent 55% of the 53 million new infections projected to occur in the region between 2003 and 2020 (Salomon, Hogan, Stover, Stanecki, Walker, Ghys & Schwartländer 2005:e16). Prevention must be greatly prioritised in the response to AIDS and efforts are being made to find new prevention technologies to bolster the package of already known effective preventive methods. Male Circumcision is one of these new potential methods (Global HIV Prevention Working Group 2006:7).

2.5.1 Male circumcision

MC is one of the oldest and most common surgical procedures worldwide, and is undertaken for many reasons: religious, cultural, social and medical (Thomas 2003). Global estimates in 2006 suggested that about 30% of males representing a total of approximately 665 million men are circumcised (WHO/UNAIDS 2007b:1). MC is less common practice in Southern Africa; self-reported prevalence in several Southern African countries is around 15% (WHO/UNAIDS 2007b:11).

Evidence is showing MC as a powerful HIV prevention tool, a number of observational epidemiologic studies have reported that MC significantly reduces (Adjusted RR =0.39, 95% CI 0.27-0.56) the risk of heterosexual HIV transmission from women to men (Bongaarts et al 1989:373; Byakika-Tusiime 2008:835-841; Sawires et al 2007:708-713; Tobian et al 2009:1298-1309). RCT conducted in Kenya, South Africa and Uganda

showed 50%-60% reduction in acquisition of HIV infection in men following circumcision (Auvert et al 2005:e298; Bailey et al 2006:653; Gray et al 2007b:663).

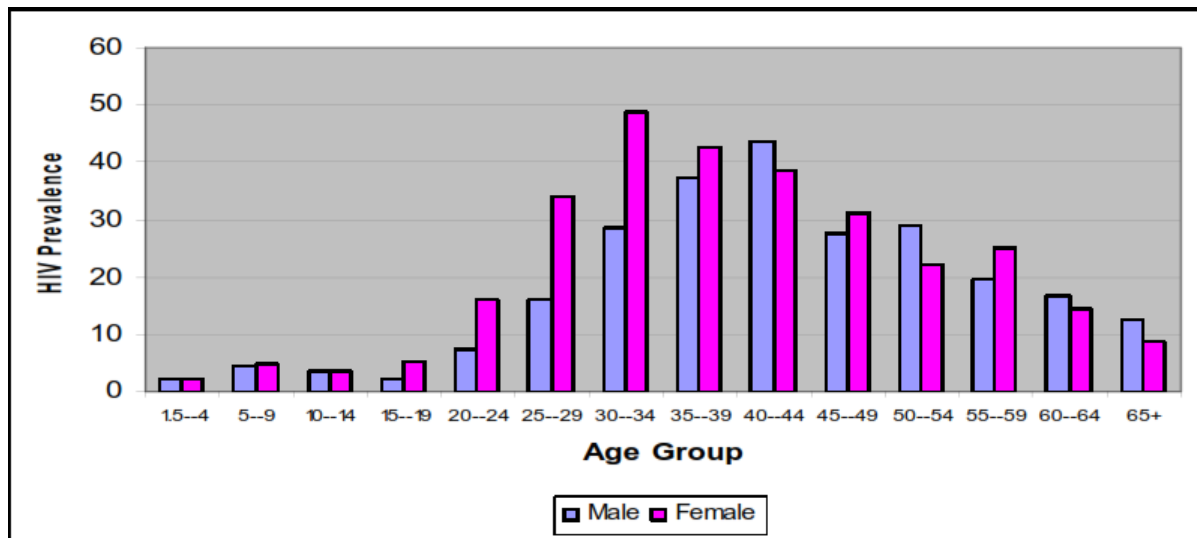


Figure 2.1 HIV prevalence by age and sex, Botswana, 2008

(UNAIDS/NACA 2010:12)

The protective biological mechanisms of MC are believed to be a combination of removing HIV vulnerable cells that are present at high densities in the foreskin, particularly Langerhans cells (Morris 2007:1147-1158); the highly vascularised prepuce has been discovered to contain a higher density of Langerhans cells, primary target cells for sexual transmission of HIV, than cervical or rectal mucosa (Szabo & Short 2000:1592; Soilleux & Coleman 2004:77-78). Moreover keratinisation of mucous membranes and reduction of penile trauma during intercourse are some explanations why MC may reduce the risk of HIV infection in men (Patterson, Landay, Siegel, Flener, Pessis, Chaviano, & Bailey 2002:867-873).

Based on compelling research evidence, WHO recommended that MC be considered as additional HIV prevention strategy for heterosexually acquired infection in men (WHO/UNAIDS 2007c:4). Following that the WHO and UNAIDS developed operational guidelines for scaling up MC services for HIV prevention to support countries in the development of national programmes (WHO 2008a:9; WHO 2008b:14; WHO/UNAIDS 2009b:29). WHO and UNAIDS identified 13 Southern and Eastern African countries as high-priority for the implementation and rapid scale-up of MC programs: Botswana, Kenya, Lesotho, Malawi, Mozambique, Namibia, Rwanda, South Africa, Swaziland,

Tanzania, Uganda, Zambia, and Zimbabwe. These countries have been working towards the implementation of MC programs using operational guidelines developed by UNAIDS and WHO (Dickson, Tran, Samuelson, Njeuhmeli, Cherutich, Dick, Farley, Ryan & Hankins 2011:e1001133). Only Kenya appears to be on track towards the achievement of the estimated 80% coverage goal by 2015, having already achieved 61.5% of the target. None of the other countries appear to be on track to achieve their targets (Dickson et al 2011:e1001133).

Botswana endorsed the SMC strategy in 2008 as a complementary HIV prevention strategy on existing means of prevention in order to achieve no new HIV infections by the year 2016 (MoH of Botswana 2008:12). Despite very high acceptability of MC, preliminary statistical data from the Botswana Ministry of Health M&E department shows very low SMC uptake (17,805 MC have been performed from April 2009-August 2011), indicating some barriers.

2.6 FACTORS THAT FACILITATES UPTAKE OF MC

The facilitating factors for MC appear to be multiple. Reviewed literature identified the following factors as facilitators of MC uptake, namely: (1) acceptability of the procedure, (2) culture and religion, (3) disease prevention particularly HIV/STI, (4) maintenance of hygiene, (5) sexual pleasure, (6) peer pressure and (7) knowledge about use are the major one.

2.6.1 Acceptability of MC

Acceptability of MC has been studied among men and women in different parts of SSA countries (Botswana, Zimbabwe, South Africa, Tanzania, Kenya) showing results ranging from 45% to 81% (Halperin, Fritz, McFarland & Woelk 2005:238-239; Kebaabetswe et al 2003:217; Mattson, Bailey, Muga, Poulussen & Onyango 2005:192; Scott, Weiss & Viljoen 2005:304-313; Nnko, Washija, Urassa & Boerma 2001:214-218). A cross-sectional study conducted by Kebaabetswe et al (2003:217) to determine the acceptability of MC in Botswana revealed that MC appears to be highly acceptable. Among 238 uncircumcised men surveyed 145 (61%) stated that they would definitely or probably get circumcised themselves if it were offered free of charge and in a hospital setting; the response increased to 192 (81%) after five minutes informational session. A

similar cluster design survey conducted on acceptability of adolescent MC and their parents in two large villages of Botswana, showed high acceptability rate 75% (95% CI 70-80%) and 96% (95% CI 94-99%) respectively (Jayeoba, Dryden-Peterson, Okui, Smeaton, Magetse, Makori, Modikwa, Mogodi, Plank & Lockman 2012:340-349). Suggesting a potential for high MC uptake.

2.6.2 Culture and religion

The social status accorded to MC is of crucial significance in traditionally circumcising communities, because being circumcised is the only possible way of attaining manhood (WHO 2009:14). In many African societies and among certain ethnic groups, MC is carried out for cultural reasons, as an initiation rituals and a rite of passage from childhood into manhood (Bottoman, Mavundla & Toth 2009:29; Grant, Brown, Michen, Grant, Manuthu, & Njeru 2004:189-196). In South Africa among the Xhosa tribes, cultural male circumcision is performed on young adults as a rite of passage from childhood to manhood through the removal of his foreskin. For Xhosa males it is important to undergo this transformation, because one must complete the ritual according to tradition to be considered a man (Bottman et al 2009:29). Similarly, for the Yao in Malawi or the Lunda and Luvale tribes in Zambia, or the Bagisu in Uganda it is unacceptable to remain uncircumcised (Bailey, Muga, Poulussen & Abicht 2002:27-40; Lukobo & Bailey 2007:471-477; Nnko, Washija, Urassa & Boerma 2001:214-218). Although the history of MC in Botswana is documented as far back as 1874 (Mosothwane 1909:144-165), data on the prevalence of traditional MC are currently inadequate and require further study (WHO 2009:9). Brooks, Etzel, Klosinski, Leibowitz, Sawires, Szekeres, Weston and Coates (2010:1203-1206) and Wilcken, Miiro-Nakayima, Hizaamu, Keil and Balaba-Byansi (2010:209), highlight the importance of culture as a significant predictor for circumcision as whether men are currently circumcised depends largely on the culture they are brought up in.

On the other hand culture is not only a significant positive predictor for MC, in some cultures and traditions the perception is different; to be uncircumcised was mentioned as an element of the ethnic identity of those who do not circumcise traditionally. It serves as an ethnic marker primarily used by others. In Swaziland studies, 2% of participants felt that circumcision would lead to disapproval by their community (Tsela & Halperin 2006). In Botswana, though it did not differ by ethnicity; 22% of participants

cited “cultural reason” as a factor in their decision not to circumcise their male child (Kebaabetswe et al 2003:214-219).

Religion is also a major determinant of circumcision acceptability. According to Niang and Boiro (2007:22-32), circumcising male adolescent and young men is done to show commitment to God and to offer blood sacrifice to the ancestors and the earth. MC is universally associated with Islam religion. It is also considered fundamental to some minority Christian and animist sects (Lukobo & Baiely 2007:471-477; Ngalande, Levy, Kapondo & Bailey 2006:377-385). However there is great variability of religious perception of MC; In South Africa 38% of circumcised and 32% of uncircumcised study participants described circumcision as “forbidden” by their religion (Lagarde, Dirk, Puren, Reathe & Bertran 2003:89-95). According to Herman-Roloff et al (2011:e19814), several participants, especially those who were young, reported that they believed that it would be a sin to get circumcised since circumcision would change God's creation. Older men talked about religion in the sense that if a man is “saved,” then he will not be promiscuous, and as a consequence, he will have no need for MC to protect him against HIV.

These suggest that before MC is promoted in a country, it would be prudent to consult and collaborate with religious leaders to learn the stance of the various churches regarding MC. In many cases, churches can act as helpful advocates or obstructive opponents and may have significant influence on acceptability of MC (Westercamp & Bailey 2007:341-355). Therefore it would be important to include religious leaders and influential people of the church before implementation of MC programme.

2.6.3 Prevention of HIV and STI

There is strong evidence suggesting the association between ulcerative STDs particularly chancroid and syphilis and lack of circumcision. The first systematic review of MC and ulcerative STI strongly indicates that circumcised men are at lower risk of chancroid and syphilis (Weiss et al 2005:101-110). MC also offers protection against other sexually transmitted infections (STIs), further reducing the risk of HIV acquisition and transmission (Tobian et al 2009:1298-1309).

In some studies participants explained that the foreskin was perceived as a portal of entry for STI as the tissue is considered prone to traumatic injury during sexual intercourse (Bailey et al 2002:27-40; Ngalande et al 2006:377-385; Rain-Taljaard, Lagarde, Taljaard, Campbell, MacPhail, Williams & Auvert 2003:315-327). In Botswana out of 408 respondents 70% of study participants who are willing to circumcise their male child listed protection from STIs or HIV among their reasons for doing so (Kebaabetswe et al 2003:214-219). In Swaziland, 81% of the study participants stated that MC reduces the risk of STIs and few (18%) believed it can reduce the risk of HIV (Tsela & Halperin 2006). A similar study conducted in Zimbabwe by Halperin et al (2005:238-239) found out 69 respondents out of 86 mentioned that circumcision can reduce STIs, however only 6 men mentioned HIV prevention potential of circumcision.

However such belief is not universal; no association was found between willingness to be circumcised and perceived disease prevention benefits in a South African study; rather sexual pleasure was the strongest predictor of being willing to undergo MC (Scott et al 2005:304-313). Respondents in Zambian study reported that the circumcised penis was always dry and susceptible to cracking and provide a portal of entry for bacteria (Lukobo & Bailey 2007:471-477). Therefore HIV and STI prevention benefits of MC does not have similar consensus among different areas; and requires further study.

2.6.4 Maintenance of hygiene

Improved genital hygiene is something that is almost universally equated with MC in both traditionally circumcising and non-circumcising communities in Africa (Westercamp & Bailey 2007:341-355; Rain-Taljaard et al 2003:315-327). Circumcised males find it easy to maintain penile hygiene (Bailey et al 2002:27-40; Ngalande et al 2006:377-385). Ease of maintaining proper penile hygiene proved a major factor in women's acceptability of circumcision (Bailey et al 2002:27-40). Majority of participants, both male and female agreed that it was much easier for a circumcised man to maintain cleanliness (Ngalande et al 2006:377-385). Adolescent boys linked circumcision with modernity and good hygiene (Nnko et al 2001:214-218). Overall, adolescent males and females proved to be knowledgeable about potential benefits of MC (Rain-Taljaard et al 2003:315-327).

2.6.5 Enhances sexual pleasure

The perception of circumcision's influence on sexual drive, sexual performance, and sexual pleasure for the man himself or for his partner is likely to influence MC uptake. Participants in many studies believed that circumcision enhances sexual pleasure (Bailey et al 2002:27-40; Lagarde, Dirk, Puren, Reathe & Bertran 2003:89-95; Lukobo & Bailey 2007:471-477; Ngalande et al 2006:377-385). According to Lagarde et al (2003:89-95) in South Africa, 50% of circumcised and 30% of uncircumcised participants believed that MC increases sexual performance while only 21% of circumcised and 14% of uncircumcised believed that MC decreased sexual pleasure. On the other hand Taylor, Lockwood and Taylor (1996:291-295) and Boyle, Svoboda, Price and Turner (2000:301-310) argued that circumcision causes the loss of highly erogenous sexual tissue that is essential for optimal sexual pleasure. Surveys conducted as part of the RCTs found that many men were concerned that the surgery would reduce their sexual pleasure (Brooks et al 2010:1203-1206). Therefore it is not clear whether circumcision provides sexual pleasure or not.

2.6.6 Peer pressure

Peer mobilises are one of the promoters of MC. According to Lagarde et al (2003:89-95), approximately half of the non circumcised men agreed that MC proves manhood and earns respect from peers. Peer pressure was one of the most influential factors when deciding upon circumcision. According to Oh, Kim, Lim and Choi (2004:1530-1533) in Korea, 60.8% believed that they might be ridiculed by their peer group unless circumcised, and the younger the age of the respondent, the more frequently this opinion was held ($p < 0.05$). The social pressure posed is a very common facilitator of MC uptake especially among young men, according to Herman-Roloff et al (2011:e19814), in Kenya study many participants remarked that if a man from non-Luo ethnic groups chose to be circumcised, he might be able to mix more freely with women and men, in politics, professional and personal settings. On a similar study conducted in South Africa by Mavundla, Netswera, Toth, Bottoman and Tenge (2010:931-41) revealed that uninitiated men experienced great pressure by families, friends and community to get circumcised. They faced rejection, lack of respect and stigmatisation. The problem is it is difficult and unethical too to use this social pressure as a strategy to raise uptake of MC.

2.6.7 Health education

Knowledge is power. Knowing facts on the pros and cons of any intervention will have a long term positive influence. The acceptability of male circumcision was high among the general population in China. A study conducted by Yang, Abdullah, Wei, Jiang, Deng, Qin, Yan, Wang, Zhong, Wang, Ruan, Zou, Xie, Wei, Xu and Liang (2012:e30198) elucidates that more health education campaigns about positive health effects are necessary to increase MC rate in China. Dushoff, Patocs and Shi (2011:e28608) similarly emphasised that MC programme should be paired with education in order to sustain both short and long term effects. A significant increase in acceptability of MC in Botswana has been shown after short brief informational sessions on the advantages of circumcision (Kebaabetswe et al 2003:214-218) indicating health education programme could have major influence in uptake of MC.

2.7 FACTORS THAT HINDER UPTAKE OF MC

According to Brooks et al (2010:1203-1206), establishing the barriers to circumcision for individuals in different communities is a vital first step in designing communication and education campaigns to promote its benefits. With regard to this the researcher identified the following factors as barriers for circumcision namely: (1) decision-making power; (2) the cost of the procedure; (3) false sense of security; (4) a number of surgical complications like pain, bleeding, delayed wound healing, infections, penile amputation and death; (5) improper communications; (6) lack of health service accessibility and (7) age, place and person of MC.

2.7.1 Decision-making

Decision-making power plays a vital pivotal role in the uptake of MC uptake. According to UNAIDS (2008:13) decisions on whether or not to be circumcised occur within a complex social and political context and are influenced by numerous interacting factors including the attitudes of men, their sexual partners, their families and the cultural and religious environment.

In a study conducted in Botswana majority of adolescents and parents indicated that the boys should be the principal decision makers regarding their circumcision; however,

household disagreement on this issue was common. Among 221 responding adolescents and parents pairs, 40% disagree on who should be making the decision. 35% of these disagreeing pairs also differed in their decision regarding circumcision. The majority of adolescent boys and slight majority of parents preferred that the boy make the final decision (Jayeoba et al 2012:340-9). Nevertheless in reality, according to Botswana law this is not the case for SMC; an adolescent may be able to consent to be tested for HIV at 16 years of age , but he could only consent to SMC after 21 years of age (MoH of Botswana 2009:26).

2.7.2 Cost of the procedure

The cost of the procedure was a significant barrier to MC acceptability by participants in most studies (Bailey et al 2002:27-40; Lagarde et al 2003:89-95; Mattson et al 2005:182-194). Male and female participants in Zambia believed that, if the MC procedure were free or extremely inexpensive (less than \$2.5US), more men would be willing to get circumcised (Lukobo & Bailey 2007:471-477). In Botswana study, about 89% of participant's responded they would definitely circumcise a male child if circumcision was offered free of charge and in hospital settings (Kebaabetswe et al 2003:214-218).

2.7.3 False sense of security

Another worrisome issue is a false sense of security that accompanies MC, which could result in increasing promiscuity. A high proportion of circumcised men in a South African study said that circumcised men can safely have sex with many women (Lagarde et al 2003:89-95). This indicates that there is false feeling of security, which could be transformed into dangerous practices (sexual promiscuity). Pinkerton (2001:727-736) argued that the protection of MC may be partially offset by increased HIV risk in response to perceived behavioural changes; especially reduction in condom use or increases in the numbers of sex partners. Therefore epidemiological models of MC scale up should take this dynamic risk into account. Currently several studies are still on-going to assess the potential post MC risk compensation (Pinkerton 2001:727-736). According to Herman-Roloff et al (2011:e19814), some men are motivated to seek MC services because they want to have sex without a condom and/or increase their number of sexual partners. Therefore it remains important for a national communication strategy

to continue enforcing the general knowledge that MC is only partially protective against HIV acquisition and to clarify the magnitude of the protective effect.

2.7.4 Surgical complications

When circumcision is provided in medical or non-medical settings post surgical complications are common. The researcher identified pain, bleeding, delayed wound healing, infection, amputation of penis and even death as serious complications from the reviewed literatures.

2.7.4.1 Pain

Pain during and after MC surgical procedure is reported to be the major barrier for acceptability of circumcision (Kebaabetswe et al 2003:214-218; Bailey et al 2002:27-40; Ngalande et al 2006:377-385). In a study conducted in Botswana out of the 86 participants who initially responded that they would definitely not or probably not circumcise a male child, 35% listed pain among their reasons as a barrier for circumcision (Kebaabetswe et al 2003:214-218).

According to Hellsten (2004:248-253) and Caldwell, Orubuloye and Caldwell (1997:1181-1193), in traditional circumcision the endurance of pain is often considered as an essential part of the rituals and serves to test an individual's bravery. The procedure is always done without antiseptics and anaesthesia with traditional cutting tools. Such practices may predispose initiates to serious health complications. Therefore Hellsten (2004:248) concluded that before implementing mass circumcision, inclusion of tribe leaders, elders and the community at large in finding a solution is essential.

2.7.4.2 Bleeding

Apart from pain the researcher also identified bleeding as a complication. Herman-Roloff et al (2011:e19814) found out that post MC adverse events mainly bleeding is a common barrier of MC uptake. In a study conducted in South Africa, men circumcised in traditional settings reported to have more complications such as bleeding, penile injury and local infections (Lagarde et al 2003:89-95). A study conducted in Kenya also found

more adverse events (35%) among operations conducted in traditional settings than (18%) that were conducted in medical settings, suggesting that quite a number of procedures are performed by poorly trained practitioners (Bailey & Egesah 2006:19). In addressing these problems, Lukobo and Bailey (2007:471-477) advised that, if circumcision is accepted and introduced widely, manpower, surgical instruments, expendable supplies, and safety of surgery need to be clearly addressed in proper communication.

2.7.4.3 Wound infections

In addition to pain and bleeding, researchers identified wound infections as barriers of MC. In South Africa in areas where Xhosa male circumcision is practiced, there have been reports of botched circumcision and hospital admissions due to various complications ranging from poorly performed operations to gangrenous penises, as a result of infection. (Mavundla, Netswera, Bottoman & Toth 2009:396). Furthermore, deaths resulting from complications have also been reported. The study further indicates that during the circumcision seasons, there is an increase in the morbidity and mortality rates among young (Mavundla et al 2009:396). It is possible that the uptake of MC might be heavily influenced by fear of death associated with a sequel of infectious complications.

2.7.4.4 Delayed wound healing

There is a possibility that wound healing might be delayed during MC especially when there is an infection. Westercamp et al (2012:157-166) in a study conducted in Kisumu, Kenya identified the perception of long healing period following circumcision procedure as barriers to circumcision. As a result, Herman-Roloff et al (2011:e19814) revealed that delayed wound healing and prolonged time away from work are common barriers of MC uptake among men. Peltzer, Nqeketo, Petros and Kanta (2008:64) suggested that improving the quality of MC services could reduce healing times and thus reduce risk of HIV infection in those who resume sexual activity soon after circumcision.

2.7.5 Improper communication about MC

Miss communication could also hinder uptake of MC. The weight ascribed to a rare but dramatic complication (e.g., complication leading to penile disfigurement) can have enormous impact. However, even with data-based assessments, there are disagreements about which risk/benefit endpoints to include in the balance and how heavily to weight them (Smith, Taylor, Kilmarx, Sullivan, Warner, Kamb, Bock, Kohmescher & Mastro 2010:72-82). In communicating about the risks and benefits of a new intervention, it was noted that anecdote, rumour, and misinformation can have greater impact than scientific evidence. According to Botswana (MoH of Botswana 2009:17), the media both print and broadcast have made frequent reports on SMC. At times this information was incomplete, distorted and misinterpreted leading to clients making misinformed decisions. Therefore development of appropriate and effective messages should involve participation by community members, advocates and other stakeholders before they are implemented (Brooks et al 2010:1203-1206). Communication and advocacy that is well-coordinated and strategic can effectively support an increased uptake of the procedure in Eastern and Southern Africa and ensure maximum benefits from expanding access to male circumcision services (UNAIDS 2008:13).

2.7.6 Health service accessibility

Though communication may hinder the progress towards the uptake of MC, service accessibility was also mentioned by some respondents as a barrier for MC uptake. In Botswana SMC programme was scaled up initially in 34 hospitals, 8 clinics and 17 private clinics with an intention to raise it in phased manner (MoH of Botswana 2009:12). Currently the existing 101 clinics with beds, 171 clinics without, 338 health posts and 884 mobile stops should be enough to provide optimal health service for the population; however the uptake of SMC at the facility level remains low. Factors like unequal distribution of health facilities per population, low after hour services and variable utilisation of services affect quality and access (WHO 2009:12).

2.7.7 Age at circumcision

The ages at which males become circumcised will have an effect on how rapidly MC interventions may impact the HIV epidemic in any given area. Among a number of studies where acceptability studies have been undertaken, only in Botswana 55% of respondents favoured circumcision in infancy and early childhood (Kebaabetswe et al 2003:214-218).

In other studies most of the participant's favoured circumcision between 8-16 years with very few saying over 18 is the best (Bailey et al 2002:27-40; Lukobo & Bailey 2007:471-477). Practitioners interviewed in Kenya and Malawi preferred not to perform neonatal circumcision due to the small size of the penis and foreskin, potentially leading to higher rates of errors and complications. These providers preferred to perform the operation at ages 8–12 years (Bailey et al 2002:27-40). Ages 7–13 years were thought to be best since the boy could make the decision for himself, understand the significance of the event, take care of the wound himself, the wound also heals faster than if done post-pubertally, and have likely not begun sexual activity (Bailey et al 2002:27-40; Lukobo & Bailey 2007:471-477; Ngalande et al 2006:377-385).

In South Africa among the Xhosa speaking people's traditional cultural beliefs, adolescents are required to be circumcised before they are regarded as men around 18 years, although it can range from 16 to 26 years (Peltzer et al 2008:64).

2.7.8 Place and person performing the circumcision procedure

Whilst the age at which one is circumcised is important, the place and the person performing the procedure plays a major role in influencing MC uptake. In areas where traditional circumcision is uncommon, the preference is overwhelmingly for a medical practitioner to be the provider. A number of studies reported fear of infection, bleeding, excessive pain, and possible mutilation at the hands of traditional circumcisers (Kebaabetswe et al 2003:214-218; Lagarde et al 2003:89-95; Lukobo & Bailey 2007:471-477). Only few participants believed traditional surgeons are more experienced and are more willing to keep confidentiality (Lukobo & Bailey 2007:471-477). In a South African study 77% of Zulu speaking prefer medical circumcision than traditional circumcision (Scott et al 2005:304-313).

Research is needed to establish whether there will still be high uptake of surgery without the intensive counselling offered at the trial sites, and whether medical circumcision is favoured over traditional forms of circumcision, the optimum setting for surgery be it in homes, clinics or by mobile circumcision teams is likely to vary in different communities; research can help identify the most promising approaches (Brown et al 2001:608-612).

2.8 CONCLUSION

This chapter presented an overview of HIV/AIDS situation globally, SSA in general and Botswana situation in particular. MC which is now considered as one of HIV prevention strategy has been discussed in detail in liaises with the Botswana SMC strategy. Despite high acceptability of MC in different parts of the world the up take in Botswana seemingly remains low; pointing out some barriers for MC. Apart from improved hygiene which is almost universally equated as a common factor to facilitate the uptake of MC; reviewed literatures could not identify a single factor as facilitators of MC. On the other hand literature review identified a number of MC barriers and discussed in detail. The next chapter will discuss the research methodology in detail.

CHAPTER 3

RESEARCH DESIGN AND METHODS

3.1 INTRODUCTION

This chapter discusses the research design and methodology used in the study. The study employs a descriptive non-experimental cross-sectional research design to address the research questions formulated in chapter 1. The chapter further discusses the research methods used, namely population and sampling procedures, and data-collection methods, that is, the instruments used and their characteristics. The chapter also discusses the validity and the reliability of the instruments used to collect data from the junior secondary school adolescents who volunteered to participate in this study. The researcher also addresses ethical issues related to the data collection and analysis.

3.2 RESEARCH DESIGN

The research design is the overall plan for addressing a research question(s), including recommendations to enhance the integrity of the study. It spells out the basic strategies that researchers adopt to develop evidence that is accurate and interpretable (Polit & Beck 2008:203, 765). This study employs a non-experimental, quantitative, descriptive, cross-sectional design. It aims to describe the factors that influence the uptake of the procedure of SMC as an HIV prevention strategy among male adolescent learners in one junior secondary school in Gaborone, Botswana. Aspects related to the research design used in this study will be discussed in detail in the following subsections.

3.2.1 Non-experimental design

This study is non-experimental in design. A non-experimental study is one which is conducted in a natural setting, where the researcher does not intervene by manipulating the independent variable (Polit & Beck 2008:63, 271). In this study, the researcher did not employ any form of intervention, apart from collecting information from the sampled population. The researcher did not have intent to prove causality, but rather to describe the status quo and to explore existing relationships. This choice of design is

appropriate; because a number of the attribute variables in this study, such as attitude towards MC, traditional beliefs, knowledge preference to health care, ethnicity, and decision-making power, have inherently natural qualities that cannot be studied by using an experimental design. According to Polit and Beck (2008:278), a vast number of inherent human characteristics cannot be experimentally manipulated.

3.2.2 Quantitative design

This study is also quantitative in design. Quantitative research is the investigation of phenomena that lend themselves to precise measurements and quantification (Polit & Beck 2008:763). It relies primarily on the collection of quantitative data based on precise measurement, using validated data-collection instruments. It is also used to test hypotheses, examine relationships, and determine cause-and-effect relationships between the variables (Burns & Grove 2009:22). In this study, the researcher assigned numbers to the study variables and collected quantifiable data from all the respondents. Data were aggregated together using different statistical principles to provide meaning. The researcher applied statistical principles and used SPSS Version 17.0 to analyse the data.

3.2.3 Descriptive design

The study was also descriptive in design. A researcher that computes and reports the number of times an event has taken place or not taken place fulfils a descriptive purpose (Babbie 2008:89). A descriptive study is limited to the description of the phenomenon in a population (Joubert, Ehrlich, Katzenellenbogen & Abdool Karim 2007:78). Its focus is to observe, describe, and document aspects of a situation as it naturally occurs (Burns & Grove 2009:696). Looking at the purpose of the study, here the researcher merely documents the views and preferences of adolescent learners towards the number of factors that influence the uptake of the procedure of MC. Although this study cannot ascertain causal agents, it can lead to the generation of hypotheses for further study to answer the question why adolescents choose the current behaviour that they do.

3.2.4 Cross-sectional design

Apart from being non-experimental, quantitative and descriptive in design, the study was also cross-sectional. A cross-sectional study involves studying a sample of a population that is made at one point in time; the phenomena under study are captured during one period of data collection (Babbie 2008:102; Polit & Beck 2008:208). The defining feature of a cross-sectional study is that it compares different population groups at a single point in time. In this study, the researcher collected data from all learners aged 13-18 years at NCJSS, at the same time and at the same place. Data were collected once, as contrasted with a longitudinal study, where data are collected over a period of time, sometimes lasting many years.

3.3 RESEARCH METHODS

Research methods are techniques that researchers use to structure a study and to gather and analyse information in a systematic fashion that is relevant to the research question (Polit & Beck 2008:15). In this section, the researcher discusses the different methods used to collect information in the study.

3.3.1 Study site

The study site was NCJSS, which is one of the community junior secondary schools in Gaborone. According to the principal of the school, the school offers education from Form 1 to Form 3. In the 2012 academic year, a total of 776 learners were enrolled, 379 were male of which 364 were between the age group 13 to 18 years. NCJSS was selected as a study site because of its unique and strategic location. It is located between Gaborone city and Tlokweng village, making it an appropriate location to provide education services for both city and village adolescent boys. The researcher is convinced that it is a good site to study the views of both city and village adolescent boys. As the study focused on male adolescents, the researcher believed that it was preferable to conduct the study at a secondary school, where adolescent learners could be accessed easily in groups.

3.3.2 Population

A population is the entire aggregation of cases in which a researcher is interested (Polit & Beck 2008:337). Mouton (1998:134) defines a population as “a collection of objects, events or individuals having some common characteristics that the researcher is interested in studying”. The researcher used as his study population adolescent males aged 13 to 18 years who are learners at NCJSS in Gaborone and were enrolled in the 2012 academic year.

3.3.3 Sampling and sampling technique

Sampling is the process of selecting a portion of a population to represent the entire population. The researcher used a non-probability sampling approach. According to Eurostat Glossary (2003:5), a non-probability sample is a sample in which the selection of units is based on factors other than random chance. In non-probability sampling, not every element of the population has an equal opportunity for selection in the sample. This sampling technique is economical and simple, and it demands less time to obtain the desired sample size (Babbie 2008:184; Burns & Grove 2009:710). The researcher is aware that the probability sampling method could have been a better option to ensure an equal chance for all teenage boys to participate in this study. However, in a study such as this one, where there is low uptake of MC at the clinical site and requirement of parental/guardian consent, it would be difficult to recruit required number of study participants. Therefore using non-probability (convenience) sampling is preferable. There are different types of non-probability sampling techniques, namely convenience sampling, quota sampling, purposive sampling, and snowball sampling (Burns & Grove 2009:710; Eurostat Glossary 2003:5). In this study, the researcher has used the convenience sampling technique. Convenience sampling entails using the most readily available people as study participants (Polit & Beck 2008:341). The researcher was interested in achieving a sample size of only 100 adolescent respondents, because of time and budgetary constraints.

All male adolescent learners of NCJSS who met the inclusion criteria were invited to apply to participate in the study. The researcher then explained the purpose of the study to all study participants. Since participation was entirely voluntary, those who chose to participate in the study were given a consent form to be signed by their parents (see

Annexures G and H). All adolescent males who brought signed consent forms during the time of data collection were included in the study.

Inclusion criteria

In order for the researcher to include appropriate respondents in the study, participants had to meet the following inclusion criteria:

- They had to be learners of NCJSS during the study period.
- They had to be boys aged 13-18 years, as the study focused on adolescent males.
- The ability to communicate in English or Setswana was a strong recommendation for subjects to participate in the study.
- Respondents had to be available at school (the study site) during the data-collection period.
- They had to provide written parental/guardian consent, giving permission to the researcher to involve the teenagers in the study.

3.3.4 Data gathering

Once the study participants had qualified to take part in the study, the data gathering process began. This section discusses several steps that the researcher took to improve the quality of the data.

3.3.4.1 Data-collection method and approach

Data were collected from all eligible participants in exactly the same way, using a questionnaire. A questionnaire is a list of questions which are answered by the respondents and which give indirect measures of the variables under investigation (Joubert et al 2009:107). The researcher applied a structured data-collection approach. Structured data collection involves having a fixed approach to gather information. Research data for quantitative studies are collected according to a structured plan, which indicates what information is to be gathered and how it is to be gathered (Polit & Beck 2008:414).

The researcher used a structured self-administered questionnaire as data-collection instrument (see Annexure B). This approach has a number of advantages, namely it is much less costly, it offers the possibility of anonymity, it allows the researcher to be precise, it allows for easy data processing, and it eliminates interviewer bias. However, unlike open-ended questions, the approach may overlook important personal expressions, opinions, or ideas of some participants (Babbie 2008:246).

3.3.4.2 *Data-collection instrument*

The items in the questionnaire were developed by the researcher from the reviewed literature. According to Polit and Beck (2008:414), when data are collected in a highly structured fashion, the researcher must develop a data-collection instrument, which is a formal written document used to collect and record information, such as a questionnaire.

3.3.4.3 *Validity of the data-collection instrument*

Validity is the degree to which an instrument measures what it is supposed to measure (Polit & Beck 2008:457). The validity of a study is the measure of the truth or accuracy of a claim, which is an important concern throughout the research process (Burns & Grove 2009:726). In designing a study, a constructive approach is to think in advance all of the possible factors that could undermine the validity of inferences made. When researchers can anticipate potential threats to validity and introduce design features to eliminate these threats, the validity of the inferences is strengthened (Polit & Beck 2008:286). In this study, the validity of the data-collection instrument was tested based on face validity and content validity.

- *Face validity*

Face validity, which is sometimes called measurement validity, is the extent to which a method measures what it is intended to measure. It is usually assessed by the judgement of an expert panel rather than by the use of formal statistical methods (Peat, Mellis, Williams & Xuan 2002:108). Three experts, from the fields of nursing, public health, and social science, respectively, as well as the researcher's supervisor, were given the questionnaire to comment on the appearance, clarity, relevance, and

sequence thereof. They were convinced that at face value, the tool appears to measure the characteristics of interest. Their overall comments were incorporated in the final questionnaire.

- *Content validity*

Content validity pertains to the extent to which the items adequately cover the domain under investigation (Peat et al 2002:109). In this study, the researcher included most of the relevant items from the reviewed literature in the questionnaire, in order to broaden the data-collection tool. According to Peat et al (2002:108), content validity, as with face validity, is also a concept that is judged by experts. Experts from health-related fields, nursing, social science, and public health critiqued the questionnaire and offered their contributions. They believed that the questions could measure the research objectives stated by the researcher. In addition, the researcher's supervisor was involved in formatting, modifying, and validating the data-collection tool.

3.3.4.4 Reliability of data-collection instrument

The reliability of a quantitative instrument is a major criterion for assessing its quality and adequacy before data collection (Polit & Beck 2008:452). According to Mouton (1998:144), reliability demands stability and consistency over time. It refers to the fact that when different research participants are tested by the same instrument at different times, they respond identically to the instrument. The most widely used method for evaluating reliability is the coefficient alpha (Cronbach's alpha). Cronbach's alpha is a statistical test used to determine the internal consistency of a questionnaire, that is, the degree of correlation between items (Peat et al 2002:124). It is a function of the average intercorrelations of items and the number of items in the scale (Devellis 2006:s50-s59). Its value ranges from 0.00 to 1.00, with higher coefficients (>.70) indicating a higher degree of reliability. In this study, the Cronbach's alpha coefficient was calculated to be .824 using SPSS Version 17.0, which shows internal consistency between the question items (see table 3.1).

3.3.4.5 Pilot study

A pilot study is “a small study conducted for helping to design a further confirmatory study” (Arnold, Burns, Adhiari, Kho, Meade & Cook 2009:s69-s74). Such studies may have various purposes, such as testing of study procedures and the validity of tools, estimating recruitment rate, and estimating parameters such as the variance of the outcome variables to calculate sample size, etc. (Thabane, Ma, Chu, Cheng, Ismaila, Rios, Robson, Thabane & Goldsmith 2010:1). They may also be used to correct any problems encountered before the main study is undertaken (Taylor, Kermode & Roberts 2006:262). In this study, the questionnaire was pretested using 10 students in the school premises who are not part of the study group, in order to refine the readability and clarity of the tool. Piloting did not lead to the quality of the data-collection tool being changed much.

Table 3.1 Cronbach’s alpha score

Reliability statistics

Cronbach’s alpha	No. of items
.824	24

SPSS VERSION 17.0

3.3.4.6 Characteristics of the data-collection instrument

A questionnaire includes a fixed set of questions to be answered in a specific sequence and with predesigned response options. The researcher used a Likert scale of measurement with five options (strongly agree, agree, unsure, disagree, and strongly disagree) to provide more response options for respondents. The Likert scale is an ordered one-dimensional scale from which respondents choose one option that best suits their point of view; it consists of several declarative items that express one’s point of view on a topic (Changing Minds 2002-2012 [s.a.]; Polit & Beck 2008:419). The questionnaire uses closed questions to provide answers to the questions raised by the researcher. According to Babbie (2008:246), “closed questions provide a greater uniformity of response and are more easily processed than open-ended ones”.

The researcher used both categorical and numerical variables. According to Joubert et al (2007:127), categorical variables are variables that cannot be quantified in a meaningful way. They can be nominal, such as the variables “male” and “female”, or ordinal, having some ordering, such as the variables “mild”, “moderate”, and “severe”. Numerical variables are variables for which numbers have intrinsic quantitative meaning. A numerical variable can be measured discretely, if the variable takes only a fixed value (for example, number of children in a family), or continuously, if the variable assumes any numerical value (weight). In this study, the researcher applied both nominal and continuous (scale) types of measurement (see table 3.3). The questionnaire is divided into the following five sections:

1. **SECTION A:** Biographical data:
Age, ethnic group, education level, and religion
2. **SECTION B:** MC status:
Age at time of MC, place where MC is performed, reasons for undergoing MC
3. **SECTION C:** Knowledge of and attitude towards MC
This section assesses the knowledge and attitudes towards MC among adolescent males in a secondary school in Gaborone, Botswana.
4. **SECTION D:** Reasons for undergoing MC
This section examines the reasons that adolescent males undergo MC. A number of related questions will be asked.
5. **SECTION E:** Reasons for not undergoing MC
In this section, the tool explores the reasons for not undergoing MC among adolescent males in a junior secondary school in Botswana. A number of related questions will be asked.

Table 3.2 below summarises the types of measurement used in various sections of the questionnaire.

Table 3.2 Research variables and types of measurement

Variable	Variable type	Type of measurement
Age	Numerical	Scale (Continuous)
Ethnicity	Categorical	Nominal
Religion	Categorical	Nominal
Education	Categorical	Nominal
MC status	Categorical	Nominal
Attitude towards MC	Categorical	Nominal
Facilitators of MC uptake	Categorical	Nominal
Barriers to MC uptake	Categorical	Nominal

3.3.4.7 Data-collection process

The researcher, together with research assistants, went to NCJSS to collect data. All male adolescent learners who were between 13 and 18 years and who were enrolled for the 2012 academic year at NCJSS were invited to apply to participate in the study. The researcher explained the purpose of the study to all study participants. Thereafter, those who fulfilled the eligibility criteria and chose to participate in the study were given a consent form one to two days prior to data collection to be signed by their parent/guardian. Adolescent learners who brought back signed consent forms within the allotted time were included in the study until the first 100 participants were reached. Study participants completed the questionnaire anonymously in one venue in one day after teaching time. Care was taken to collect individual responses. The researcher provided assistance for study participants that experienced problems in completing the questionnaire. The entire data collection process including the explanation, took 30 minutes to complete.

3.3.5 Data analysis

Collected data were analysed using computer software. The researcher used SPSS Version 17.0 software to analyse the internal consistency of the items in the questionnaire by calculating Cronbach's alpha coefficient. The SPSS enabled the researcher to eliminate question items that did not correlate with other question items. The researcher was assisted by a statistician from the Gaborone Institute of Health Sciences. The analysis of the data will be discussed in more detail in chapter 4.

3.4 ETHICAL CONSIDERATIONS

Research ethics refers to personal honesty and integrity when conducting a study. It starts with the identification of the study topic and continues through the publication of the study (Burns & Grove 2009:184). According to Polit and Beck (2008:753), research ethics refers to a system of moral values that are concerned with the degree to which the research procedures adhere to professional, legal and social obligations for the study participants. Ethics is typically concerned with morality, and both the words “ethics” and “morality” pertain to matters of right and wrong. Different disciplinary groups have agreed on different codes of conduct. Anyone involved in social scientific research shared by researchers needs to be aware of what is proper and what is improper when conducting a scientific inquiry (Babbie 2008:62).

3.4.1 Protecting the rights of the institutions involved

Researchers have a responsibility to ensure that their research plans are ethically sound and acceptable. But researchers may not be objective in assessing risk/benefit ratios or in developing procedures to protect participants' rights. Thus, it is standard practice for the ethical dimensions of a study to be subjected to external review, such as that provided by an institutional review board (IRB) (Polit & Beck 2008:184). An IRB is a committee that reviews research to ensure that the investigator is conducting the research ethically (Burns & Grove 2009:207). The researcher was granted IRB approval and permission to conduct this study at different levels: first from the University of South Africa's (UNISA) Postgraduate Research Committee (see Annexure A), and then from the Botswana Ministry of Health's Research and Development Committee and the Botswana Ministry of Education and Skills Development (see Annexures D and E). The NCJSS management also formally requested to provide access to the study site (see Annexure F). The researcher assured all the relevant authorities that any private information of the study participants would not be disclosed to any groups that could endanger the participants' privacy.

3.4.2 Autonomy

The right to self-determination is based on the ethical principle of respect for persons. Because human beings are capable of self-determination, or controlling their own destiny, they should be treated as autonomous individuals, who have the freedom to conduct their lives as they choose without external control. In addition, subjects have the right to withdraw from a study at any time without penalty (Burns & Grove 2009:189). Study participants were asked to give their written assent and to provide parental/guardian consent to participate in the study (see Annexure G). The study commenced after both parental/guardian consent and the respondents' assent had been obtained. Participants were informed that they could withdraw from the study at any time.

3.4.3 Confidentiality and anonymity

A research project guarantees anonymity when the researcher himself cannot identify a given response with a given respondent. A research project guarantees confidentiality when the researcher can identify a given person's responses, but essentially promises not to do so publicly (Babbie 2008:64-65). As is evident from the questionnaire, the names of the respondents were not required. As a result, the data that were collected were anonymous. Study participants were assured that their responses would be kept confidential and that the findings of the study would not be linked to them.

3.4.4 The scientific integrity of the researcher

Research in all fields is a significant feature of all societies and represents major commitments, whether from the public sector or the private sector. Results and findings form the basis of policy decisions at all levels of government and the private sector. Therefore, it is of paramount importance that the research itself is conducted with integrity, in a responsible manner, and in accordance with high ethical standards (Ple'dran 2009:2-4). The researcher maintained professional ethics and scientific conduct throughout the study by properly referencing any ideas, quotations, words, and other statements made by other authors.

3.5 CONCLUSION

This chapter discussed the methodology undertaken by the researcher. The researcher has employed a non-experimental, quantitative, cross-sectional, descriptive study design. The research methods, including the sampling method, the sample size, the population under study, and the study site were discussed in depth. The ethical principles that govern the study participants' rights, as well as the researcher's integrity, were discussed. The characteristics of the data-collection tool, as well as the validity and reliability of the instrument, were also described. The next chapter will discuss the findings of the study in detail.

CHAPTER 4

RESEARCH FINDINGS

4.1 INTRODUCTION

This chapter presents the study findings based on the data that were collected from the NCJSS adolescent boys who responded by completing the questionnaire. The purpose of the study was to describe the factors that influence the uptake of SMC as HIV prevention strategy among male adolescent learners at NCJSS, Gaborone. The study findings will be discussed in the following section. The researcher will first discuss the data-management process and the demographic characteristics of the respondents. Thereafter, the circumcision status of the respondents, their knowledge of the benefits and the risks of MC, and their attitudes towards SMC will be described. The factors that could influence the uptake of MC positively and negatively are presented and discussed. Finally, the relationship between the variables is described.

4.2 DATA MANAGEMENT AND ANALYSIS

The researcher went to NCJSS with the research assistant with the intention of collecting data from 100 male adolescent learners. On the first day at the school, the main aim of the researcher was to brief the adolescent learners about the purpose of the study. On this day, approximately 150 male learners from Form 1 to Form 3 showed interest and assented to be included in the study. Family consent forms were issued to 150 prospective participants, to be taken home and signed by their parents, as permission authorising the adolescents to participate in the study. However, only 84 male learners were able to obtain family/guardian consent. The number of participants in the study was therefore only 84. The remaining 16 learners could not obtain family/guardian consent.

Respondents were gathered together in one hall and asked to complete a structured questionnaire by indicating their preference or degree of agreement with a set of statements. The completed questionnaires were given code numbers from 001 to 084 to facilitate data entry. Visual data screening was done for any errors and missing values

before statistical analysis was performed. No errors or missing values were found. Then each question in the questionnaire was coded with numbers for data entry and analysis. The level-of-agreement statements of the Likert scale questions were assigned a numerical value, 1 for “strongly disagree”, 2 for “disagree”, 3 for “unsure”, 4 for “agree”, and 5 for “strongly agree”. The data of all the respondents were entered one by one into SPSS Version 17.0 for Windows. The response to every specific variable was described and analysed separately. Both descriptive and inferential statistics were compiled. Data analysis was performed for the 84 respondents who completed the questionnaire. The study findings will be discussed in the following sections. The data will be presented in the form of tables, pie charts, and bar graphs.

4.3 DEMOGRAPHIC DATA OF THE RESPONDENTS

In this section, findings on demographic variables of the respondents, such as age group, education level, ethnicity, and religious affiliation are presented.

4.3.1 Age distribution

The age of the respondents ranged from 13 to 18 years. 90.5% (N=76) of the respondents were in the age group 13-16 years, while 9.5% (N=8) were in the age group 17-18 years. Table 4.1 shows the age distribution of the respondents.

Table 4.1 Age distribution of respondents (N=84)

Age group	Frequency	Percentage
13-14	45	53.6
15-16	31	36.9
17-18	8	9.5
Total	84	100.0

4.3.2 Education level

A total of 84 male adolescent learners participated in the study, of which the majority were in Form 1 about 54.8% (N=46), 21.4% (N=18) were in Form 2, and 23.8% (N=20) were in Form 3. The disparity in age, as reflected above and the disparity in education level may affect the results of the study. As participation in the study was entirely voluntary, it was difficult to obtain equal numbers of respondents in all age groups and

education categories. Table 4.2 shows the distribution of respondents according to education category.

Table 4.2 Education level of respondents (N=84)

Class	Frequency	Percentage
Form 1	46	54.8
Form 2	18	21.4
Form 3	20	23.8
Total	84	100.0

4.3.3 Ethnic distribution

Respondents who were represented in the study findings were from the major ethnic groups in Botswana. 19.0% (N=16) were of Bakalaka ethnicity, 11.9% (N=10) were Bakgatla and Bakwena, respectively, and 38.1% (N=32) belonged to different ethnic groups, including those of non-Botswanan origin. Figure 4.1 below depicts the distribution of respondents according to ethnic group.

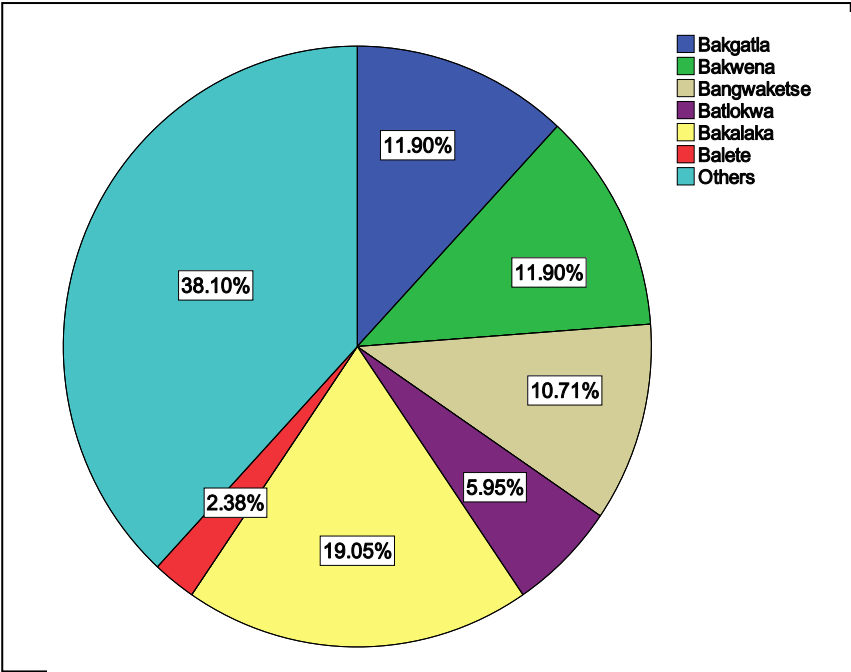


Figure 4.1 Ethnic distributions of respondents

4.3.4 Religious affiliation

Besides ethnicity, the researcher also explored the religious affiliation of the respondents. The majority of the study respondents reported to be Christian 97.6% (N=82). 1.2% of respondents (N=1) claimed to be Muslim, and the remaining 1.2% (N=1) reported that they did not have any religious affiliation. Other religions, such as traditional beliefs or indigenous African religions were not represented among the respondents. Figure 4.2 below portrays the religious distribution of the respondents.

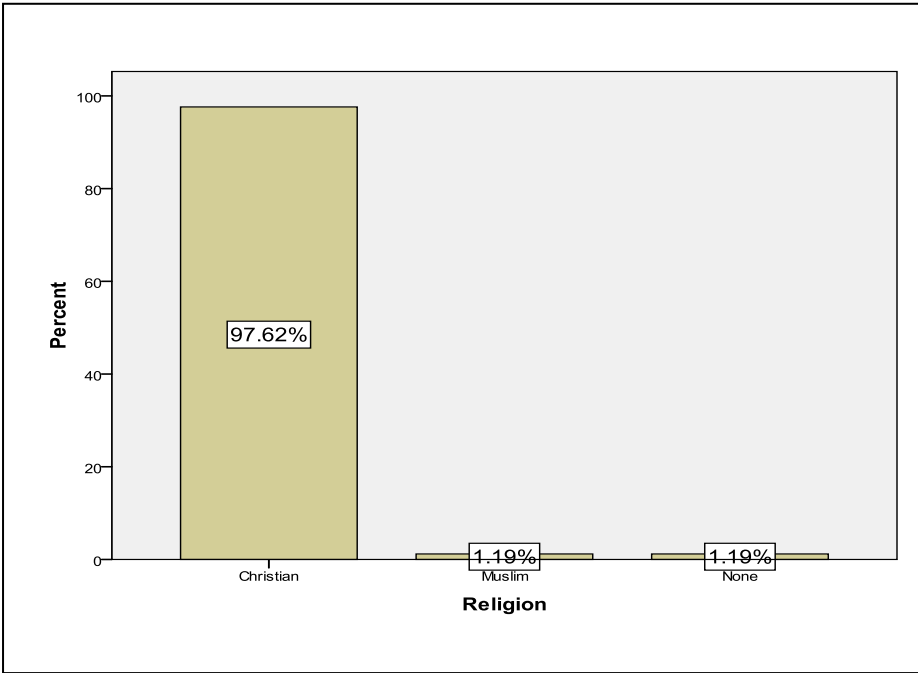


Figure 4.2 Religious affiliation of respondents (N=84)

4.4 CIRCUMCISION STATUS AND PERSONAL VIEWS

Having described the respondents in terms of their demographic characteristics, the researcher will now present the findings concerning the respondents' circumcision status and their personal views regarding circumcision. In this section, the researcher first presents the circumcision status of the respondents, followed by the findings concerning who the primary decision maker is in the respondent's family, and the respondents' personal views regarding the best age at which circumcision should be performed, as well as their views regarding what the best place is for performing the circumcision procedure.

4.4.1 Circumcision status

Of the 84 adolescent respondents, a high proportion 84.5% (N=71) reported to be not circumcised, and 15.5% (N=13) reported to be circumcised. This finding is in line with national statistics pertaining to MC prevalence. According to the WHO (2009:10) and CSO (2008:3) report, the prevalence of MC in Botswana is less than 15%. Table 4.3 shows the circumcision status of the respondents.

Table 4.3 Circumcision status of respondents (N=84)

Circumcision status	Frequency	Percentage
Yes	13	15.5
No	71	84.5
Total	84	100.0

4.4.2 Best age for circumcision

Respondents were also asked to provide their views regarding the best age at which to be circumcised. About 31.0% (N=26) of respondents were of the opinion that the adolescence years (14-19 years) are the best age at which to be circumcised. The next most common age at which to be circumcised was birth. Table 4.4 below reflects respondents' views with regard to best age for circumcision. A similar finding was observed in a previous study, where 55% of respondents favoured circumcision in infancy and early childhood (Kebaabetswe et al 2003:214-218). Only one respondent (1.2%, N=1) regarded adulthood as the best age at which to be circumcised. These findings suggest that educational programmes need to make adolescents aware of SMC before they reach adulthood.

4.4.3 Primary decision maker

Regarding decision making, 36.9% (N=31) of respondents regarded themselves as the primary decision maker for their own circumcision. Fathers were regarded as the primary decision maker by 33.3% (N=28) of respondents, and mothers were seen as the primary decision maker by 21.4% (N=18) of respondents. In a study conducted in Botswana, the majority of adolescents and parents indicated that the boy should be the

primary decision maker regarding his circumcision (Jayeoba et al 2012:340-349). However, the legal age of consent for medical procedures in Botswana is 18 years (Jayeoba et al 2012:340-349). The above findings suggest the need for a legal framework and policy modifications to enable boys to consent to their own circumcision. Figure 4.3 depicts the distribution of persons regarded as the primary decision maker regarding MC.

Table 4.4 Best age for MC among respondents (N=84)

Age	Frequency	Percent
Newborn	24	28.6
2-6 years	14	16.7
7-13 years	12	14.3
14-19 years	26	31.0
20 years and above	1	1.2
Never	2	2.4
Unsure	5	6.0
Total	84	100.0

4.4.4 Best place for circumcision to be performed

During data analysis it became clear that medical circumcision is favoured over traditional forms of circumcision. All the respondents 100% (N=84) considered the clinic or the hospital as the best place to have SMC performed on one. Traditional settings and homes were not regarded by NCJSS learners as the best place to be circumcised. Similar responses were reported in previous studies conducted in two villages in Botswana, where 98% of the adolescent study participants and their parents felt that the hospital was the most appropriate place for circumcision (Jayeoba et al 2012:340-349). Therefore, health professionals who are working in clinics and hospitals need to equip themselves to address the needs of adolescents with regard to circumcision.

4.5 KNOWLEDGE OF AND ATTITUDE TOWARDS MALE CIRCUMCISION

In addition to personal views with regard to circumcision status, knowledge of and attitude towards MC were also explored in this study. As a result, this section presents the findings and explains the knowledge that adolescent learners possess regarding the benefits and the risks of MC, as well as their attitude towards MC. For analysis

purposes, similar responses from the Likert scale responses were merged together, that is, the “strongly agree” and “agree” responses were taken as agreement, and the “strongly disagree” and “disagree” responses were taken as disagreement.

4.5.1 Knowledge of the risks and the benefits of MC

Of the 84 respondents, 64.3% (N=54) revealed that they obtain sufficient information regarding MC from different sources, while 21.4% (N=18) did not agree that they obtain sufficient health information.

Regarding the role of MC in reducing HIV infection, 64.3% (N=54) of respondents reported that they knew that MC can reduce HIV infection, while 22.6% (N=19) reported that they did not know this.

About 72.6% (N=61) of respondents claimed that they have sufficient knowledge of the benefits of MC. Few respondents 12% (N=10) claimed not to have knowledge of the benefits of MC, and a considerable number of respondents 15.5% (N=13) claimed to be unsure of the benefits of MC.

Concerning the risks of MC, 40.5% (N=34) indicated that they have knowledge of the risks related to MC. 29.8% (N=25) of respondents indicated that they did not have knowledge of the risks, and 29.8% (N=25) indicated that they were unsure of the risks related to MC. Table 4.5 shows the individual responses in detail.

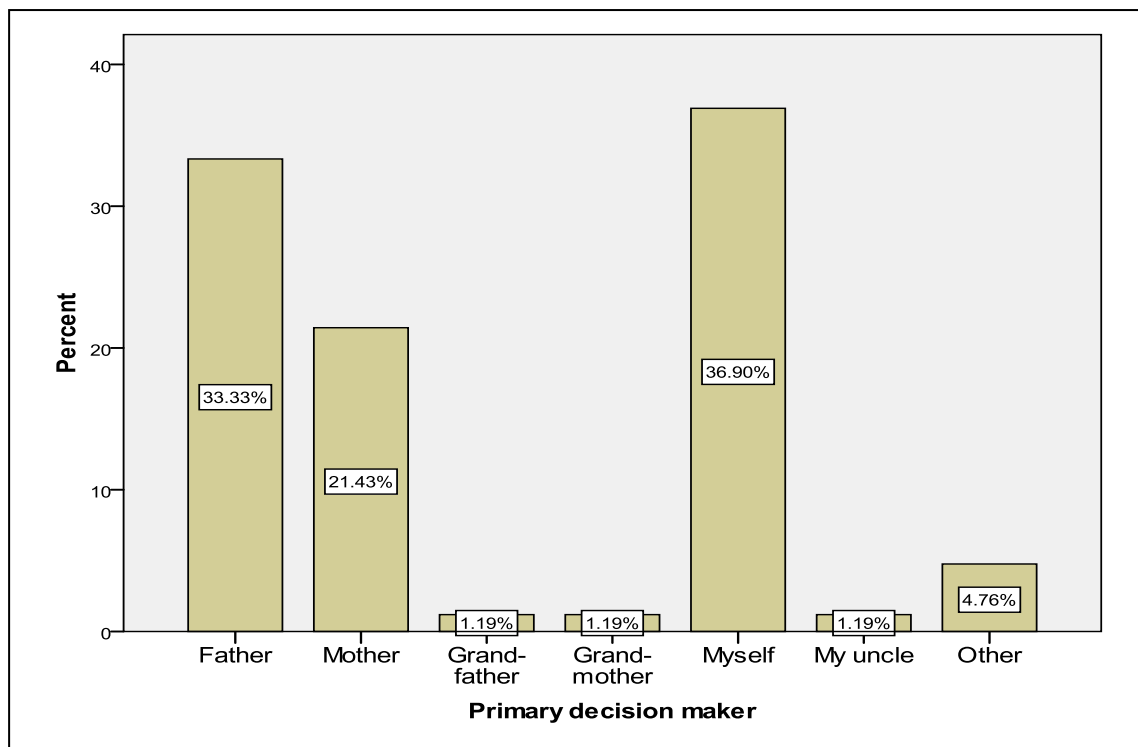


Figure 4.3 Primary decision maker regarding MC (N=84)

4.5.2 Attitude towards MC

About 67.8% (N=57) of the respondents had a positive attitude towards MC, while only 16.6% (N=14) responded negatively with regard to the attitudes. These findings are consistent with the findings of the MC acceptability study conducted by Kebaabetswe et al (2003:217) and Jayeoba et al (2012:340-349). Table 4.5 below reflects the respondents' responses to the questions pertaining to their knowledge of and attitude towards MC.

4.6 FACILITATORS OF MC UPTAKE

Besides knowledge of and attitude towards MC, the researcher also examined the facilitators of MC uptake. This section discusses the findings concerning the factors that facilitate the uptake of MC, namely: (1) protection from disease, (2) maintaining genital hygiene, (3) culture and religion, and (4) enhancing sexual pleasure.

4.6.1 Protection from disease

Protection from STIs and HIV infection was reported by the majority of adolescent respondents 72.6% (N=61) as being the main reason for undergoing circumcision. This finding is higher than the finding in a previous study conducted in Swaziland, where only 18% of respondents claimed to believe that MC can protect one from HIV (Tsela & Halperin 2006). As shown in table 4.6, about 16.6% (N=14) of respondents did not agree that MC can protect one from HIV infection.

Table 4.5 Knowledge of and attitude towards MC among respondents (N=84)

Question item	Agree		Unsure		Disagree	
	n	%	n	%	n	%
I have a positive attitude towards MC	57	67.8%	13	15.5%	14	16.6%
I obtain sufficient health information regarding MC from different sources	54	64.3%	12	14.3%	18	21.4%
I know the location of the nearest MC centre, and it is within a 15 km radius from my home	31	36.9%	13	15.5%	40	47.6%
I know the benefits of MC	61	72.6%	13	15.5%	10	12.0%
I know the different risks related to MC	34	40.5%	25	29.8%	25	29.8%
I know that MC can help to reduce men's risk of HIV infection	54	64.3%	11	13.1%	19	22.6%

4.6.2 Genital hygiene

Maintaining genital hygiene was cited as a facilitator of MC uptake by 77.4% (N=65) of respondents, while a minority 7.1% (N=6) disagreed that this was a facilitator of MC uptake (see table 4.6 below). Improved genital hygiene is something that is almost universally associated with MC in both traditionally circumcising and non-circumcising communities in Africa (Westercamp & Bailey 2007:341-355; Rain-Taljaard et al 2003:315-327). Consistent with these findings, Nnko et al (2001:214-218) explains that adolescent boys link circumcision with modernity and good hygiene.

4.6.3 Culture and religion

Cultural and religious reasons were not found to be a driving force to undergo MC among most of the adolescent study participants. About 73.8% (N=62) of respondents did not agree that circumcision should be undergone for religious reasons; only 6.0% (N=5) believed that religion was a reason for undergoing MC. Similarly, 76.2% (N=64) did not believe that culture has an influence on MC uptake; only 10.7% (N=9) agreed that MC should be done for cultural reasons. These findings are consistent with the

findings of a study conducted by the Botswana-Harvard AIDS Institute Partnership (Jayeoba et al 2012:340-349), which found that religion and culture were not predictors of MC. Contrary to the above findings, other studies conducted among different ethnic groups in Africa have found that MC is carried out for cultural reasons, as an initiation ritual and a rite of passage from childhood into manhood (Bottoman et al 2009:29; Grant et al 2004:28-35). According to Brooks et al (2010:1203-1206), culture is fundamental and plays an important role in predicting men’s circumcision status. Table 4.6 shows the individual responses of the adolescent respondents to the questions pertaining to the factors that facilitate MC uptake.

4.6.4 Sexual pleasure

The desire to enhance sexual pleasure was cited as a reason for undergoing MC by only a few respondents 31.0% (N=26). 33.3% (N=28) of respondents did not agree that MC enhances sexual pleasure (see table 4.6). Participants in a number of studies have expressed the view that circumcision enhances sexual pleasure (Bailey et al 2002:27-40; Lagarde et al 2003:89-95; Lukobo & Bailey 2007:471-477; Ngalande et al 2006:377-385; Herman-Roloff et al 2011:e19814). Inconsistent with the above findings, surveys conducted as part of RCTs found that many men were concerned that the surgery would reduce their sexual pleasure (Brooks et al 2010:1203-1206). However, in general, whether circumcision reduces or enhances sexual pleasure is not well known and requires further study.

Table 4.6 Reasons for undergoing circumcision among respondents (N=84)

Question item	Agree		Unsure		Disagree	
	Count	Percentage	Count	Percentage	Count	Percentage
MC protects me from HIV and STIs	61	72.6%	9	10.7%	14	16.7%
MC is necessary to maintain hygiene	65	77.4%	13	15.5%	6	7.1%
MC enhances sexual pleasure	26	31.0%	30	35.7%	28	33.3%
MC should be undergone for cultural reasons	9	10.7%	11	13.1%	64	76.2%
MC should be undergone for religious reasons	5	6.0%	17	20.2%	62	73.8%
MC should be undergone for cosmetic reasons	14	16.7%	24	28.6%	46	54.8%

4.7 BARRIERS TO MC UPTAKE

A number of factors were found to be obstacles to the uptake of MC. The following section presents the findings concerning the barriers to MC uptake, primarily fear of surgical complications, fear of long wound healing time, peer pressure, and fear of stigma and discrimination.

4.7.1 Fear of surgical complications

Fear of surgical complications, such as pain, bleeding, and infection was cited by 39.3% (N=33) of the participants as a reason for not undergoing MC, while 48.8% (N=41) responded that they had no fear of surgical complications that prevented them from undergoing circumcision (see table 4.7). In a study conducted in Botswana, of the 86 participants who initially responded that they would definitely not or probably not circumcise a male child, 35% cited pain as one of their reasons, that is, as a barrier to the uptake of circumcision (Kebaabetswe et al 2003:214-218). Therefore, the safety of the surgery, proper anaesthesia, and aseptic technique need to be addressed in programme implementation.

4.7.2 Fear of long wound healing time

Fear of long wound healing time was reported by 38.1% (N=32) of the respondents as a reason for not undergoing MC, while 47.6% (N=40) of respondents did not regard long healing time as an obstacle to circumcision (see table 4.7). There is the possibility that wound healing could be delayed during MC, particularly when there is an infection. In a study conducted in Kisumu, Kenya, the perception of long healing period following the procedure of circumcision was identified as a barrier to the uptake of circumcision (Westercamp et al 2012:157-166). Therefore, improving the quality of MC services could reduce healing times and, consequently, facilitate MC uptake.

4.7.3 Peer pressure

Peer pressure was found to be one of the greatest influencing factors when deciding to undergo circumcision. The study found that about 14.3% (N=12) of respondents responded that they did not want to be circumcised because of peer pressure, while

80.9% (N=68) of respondents were not influenced by peer pressure (see table 4.7). Peer pressure is not always a barrier to MC uptake; it has been found to be a very common facilitator of MC uptake among young men (Lagarde et al 2003:89-95; Herman-Roloff et al 2011:e19814).

Table 4.7 Obstacles to MC uptake among respondents (N=84)

Question item	Agree		Unsure		Disagree	
	Count	Percentage	Count	Percentage	Count	Percentage
Fear of surgical complications, such as pain and bleeding	33	39.3%	10	11.9%	41	48.8%
Fear of long wound healing time	32	38.1%	12	14.3%	40	47.6%
Peer pressure	12	14.3%	4	4.8%	68	81.0%
Fear of stigma and discrimination	8	9.5%	12	14.3%	64	76.2%
MC is not accepted in my culture	12	14.3%	13	15.5%	59	70.2%
MC is not accepted in my religion	8	9.5%	18	21.4%	58	69.0%
Fear of HIV testing	14	16.7%	9	10.7%	61	72.6%
A false sense of security regarding MC	9	10.7%	14	16.7%	61	72.6%
MC reduces penis size	9	10.7%	13	15.5%	62	73.8%
Girls do not like circumcised boys	4	4.8%	12	14.3%	68	81.0%
MC reduces sexual pleasure	10	11.9%	11	13.1%	63	75.0%

4.7.4 Fear of stigma and discrimination

Of the 84 respondents, 76.2% (N=64) reported that stigma and discrimination would not influence them to undergo MC, while only 9.5% (N=8) had a fear of stigma and discrimination, and they claimed that this fear would prevent them from undergoing MC (see table 4.7).

4.7.5 The relationship between beliefs about the HIV-protection benefits of MC and attitude towards MC

Having a positive attitude towards the implementation of SMC programmes is an important factor when deciding whether to undergo the procedure of circumcision. Based on this fact, the researcher was interested to see whether there was a relationship between the most-rated facilitating factor, namely Question 16 (“I would want to be circumcised because circumcision protects me from STIs and HIV infection”) and Question 15 (“I have a positive attitude towards MC”) (see table 4.8). 57.1% (N=8) of respondents who had a negative attitude towards MC agreed that MC reduces HIV infection, while 82.5% (N=47) of respondents with a positive attitude towards MC agreed that MC reduces HIV infection. Thus, we can conclude that adolescents with a

positive attitude towards MC are more likely to have agreed that MC can reduce the risk of HIV infection (see figure 4.4).

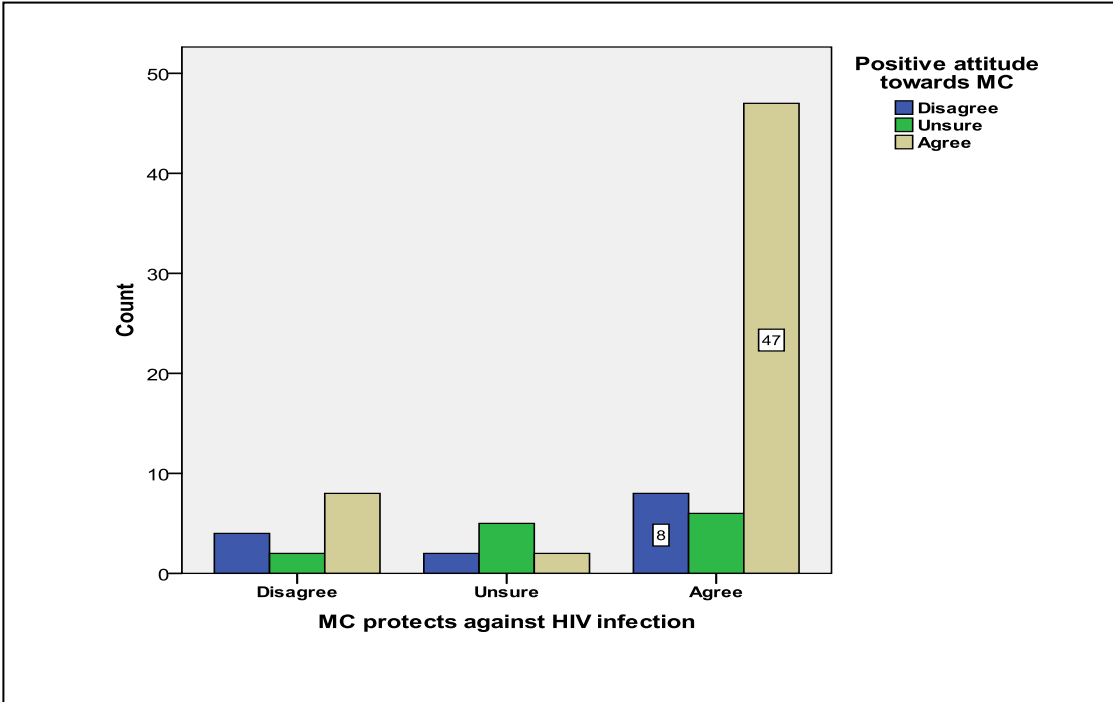


Figure 4.4 The relationship between a positive attitude and beliefs about the HIV-protection benefits of MC

Table 4.8 Cross-tabulation: positive attitude to MC * belief that MC reduces the risk of HIV infection

			Positive attitude towards MC			Total
			Disagree	Unsure	Agree	
Belief that MC reduces the risk of HIV infection	Disagree	Count	4	2	8	14
		Expected count	2.3	2.2	9.5	14.0
		% with a positive attitude towards MC	28.6%	15.4%	14.0%	16.7%
	Unsure	Count	2	5	2	9
		Expected count	1.5	1.4	6.1	9.0
		% with a positive attitude towards MC	14.3%	38.5%	3.5%	10.7%
	Agree	Count	8	6	47	61
		Expected count	10.2	9.4	41.4	61.0
		% with a positive attitude towards MC	57.1%	46.2%	82.5%	72.6%
TOTAL		Count	14	13	57	84
		Expected count	14.0	13.0	57.0	84.0
		% with a positive attitude towards MC	100.0%	100.0%	100.0%	100.0%

The researcher then performed a chi-square test to establish the relationship between “positive attitudes towards MC” and “belief that MC reduces the risk of HIV infection” (see table 4.9). The Pearson chi-square was calculated to be 16.186 at 4df, $p=.003$. This value is very high compared to the tabulated value of 9.49 at 4df, $\alpha=0.01$. Hence, it can be concluded that there is a significant positive relationship between the two variables. A positive attitude towards MC could lead adolescents to undergo MC.

Table 4.9 Chi-square tests

	Value	Degree of freedom (df)	Asymptotic sig. (2-sided)
Pearson chi-square	16.186 ^a	4	.003
Likelihood ratio	13.376	4	.010
No of valid cases	84		

a. 4 cells (44.4%) have an expected count of less than 5. The minimum expected count is 1.39.

4.7.6 The relationship between barriers to MC uptake and attitude towards MC

Here the researcher was interested to see the relationship between one of the most-identified barriers to MC, namely fear of surgical complications, and attitude towards MC. 42.9% (N=6) of respondents who had a negative attitude towards MC disagreed that surgical complications such as pain and bleeding after the procedure would not prevent them from undergoing MC, while 54.4% (N=31) of respondents who had a positive attitude towards MC disagreed that surgical complications would not prevent them from undergoing MC. Thus we can conclude that adolescent learners who had a positive attitude towards MC were most likely to have said that they disagreed that surgical complications would not prevent them from undergoing MC (see figure 4.5).

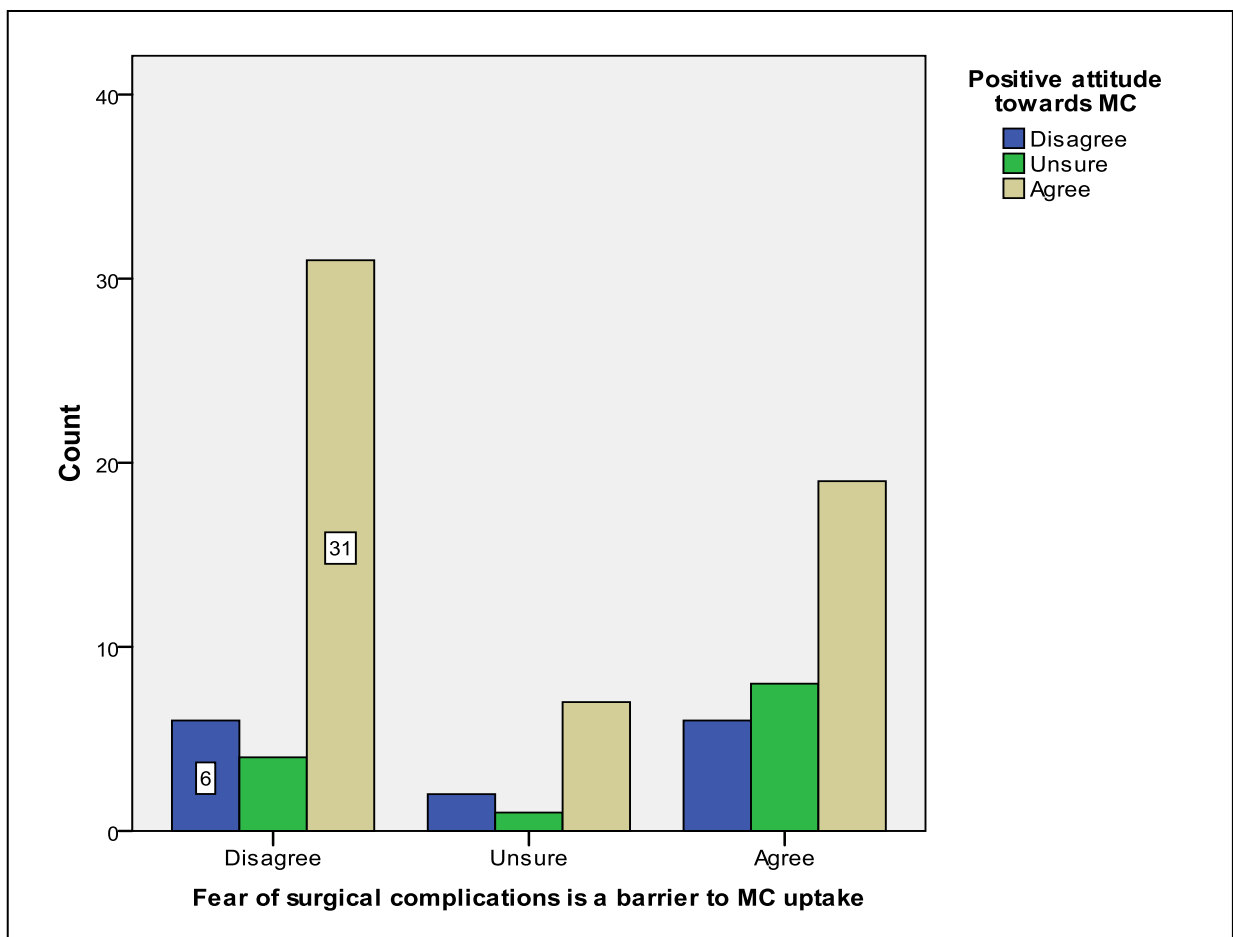


Figure 4.5 The relationship between a positive attitude and fear of surgical complications as barrier to MC uptake

The researcher then computed a Pearson chi square to ascertain the relationship between the two variables. As shown in table 4.11, the Pearson chi-square is calculated at 3.797 at 4df, while the tabulated value of chi-square at 4df is 9.49. Since the calculated value is less than the tabulated value, or $p=.434$, which is more than the critical value of $\alpha=0.05$ there is no significant relationship between fear of surgical complications such as bleeding and pain and attitude towards MC.

Table 4.10 Cross-tabulation between positive attitude towards MC * No MC for fear of surgical complications

			Positive attitude towards MC			Total
			Disagree	Unsure	Agree	
No MC for fear of surgical complications	Disagree	Count	6	4	31	41
		Expected count	6.8	6.3	27.8	41.0
		% with a positive attitude towards MC	42.9%	30.8%	54.4%	48.8%
	Unsure	Count	2	1	7	10
		Expected count	1.7	1.5	6.8	10.0
		% with a positive attitude towards MC	14.3%	7.7%	12.3%	11.9%
	Agree	Count	6	8	19	33
		Expected count	5.5	5.1	22.4	33.0
		% with a positive attitude towards MC	42.9%	61.5%	33.3%	39.3%
Total	Count	14	13	57	84	
	Expected count	14.0	13.0	57.0	84.0	
	% with a positive attitude towards MC	100.0%	100.0%	100.0%	100.0%	

Table 4.11 Chi-square tests

	Value	Degree of freedom (df)	Asymptotic sig. (2-sided)
Pearson chi-square	3.797 ^a	4	.434
Likelihood ratio	3.728	4	.444
No of valid cases	84		

a. 2 cells (22.2%) have an expected count of less than 5. The minimum expected count is 1.55.

The relationship between other influencing variables in MC uptake and positive attitude towards MC were also computed. There is a significant positive relationship between both misconceptions such as “I don’t want to be circumcised because girls don’t like circumcised partners” ($p=.034$) and having knowledge of the risks related to MC ($p=.004$) and positive attitude towards MC. The researcher did not find any difference with regard to the remaining variables (see table 4.12).

Table 4.12 The relationship between different influencing factors and a positive attitude towards MC

	Cases N=84	Pearson chi- square	Degree of freedom (df)	Asymptotic sig. (2- sided)	Sig.
I have information about MC * Positive attitude towards MC	84	1.599	4	.809	
I know the risks related to MC * Positive attitude towards MC	84	15.420	4	.004	*
I know the benefits of MC * Positive attitude towards MC	84	9.155	4	.057	
I know the best place to undergo MC * Positive attitude towards MC	84	1.378	4	.846	
MC is necessary for maintaining hygiene * Positive attitude towards MC	84	8.270	4	.082	
MC enhances sexual pleasure * Positive attitude towards MC	84	3.213	4	.523	
MC for cultural reasons * Positive attitude towards MC	84	8.359	4	.079	
MC for religious reasons * Positive attitude towards MC	84	5.743	4	.249	
MC for cosmetic reasons * Positive attitude towards MC	84	5.319	4	.256	
I don't want MC because of fear of long wound healing time * Positive attitude towards MC	84	1.394	4	.845	
I don't want MC due to peer pressure * Positive attitude towards MC	84	9.029	4	.060	
No MC due to fear of stigma and discrimination * Positive attitude towards MC	84	5.326	4	.255	
I do not have time to go to the clinic * Positive attitude towards MC	84	5.227	4	.265	
No MC because I am afraid of testing for HIV* Positive attitude towards MC	84	3.368	4	.490	
No MC because girls don't like circumcised partners * Positive attitude towards MC	84	10.410	4	.034	*
No MC because it reduces penis size * Positive attitude towards MC	84	9.504	4	.050	
No MC because it reduces sexual pleasure * Positive attitude towards MC	84	5.718	4	.221	

4.8 CONCLUSION

This chapter presented the analysis and discussion of data collected from 84 adolescent male learners who completed the structured questionnaire. Of the 84 respondents, 90.5% (N=76) were in the age group 13-16 years, while 9.5% (N=8) of respondents were in the age group 17-18 years. Form 1 learners were represented in larger numbers 54.8% (N=46) than learners in Forms 2 and 3. The majority of respondents 97.62% (N=82) were Christian. The study found that 15.5% (N=13) of respondents were circumcised, while 84.5% (N=71) were not circumcised.

The identity of the primary decision maker with regard to circumcision is important, and this can enhance the uptake of MC. 36.9% (N=31) of respondents regarded themselves as the primary decision maker in decisions regarding their own circumcision. The next most common primary decision maker was found to be the respondent's father, followed by the respondent's mother. A clinical setting was indicated as being the preferred place for undergoing MC by all respondents. MC was viewed favourably by 67.8% (N=57) of respondents.

Protection from HIV infection and having knowledge of the risks related to MC were found to be the main reasons for undergoing MC ($p < .01$). Reasons such as culture and religion and a desire to enhance sexual pleasure were not commonly cited by respondents as reasons to undergo MC.

A number of factors which were known to be obstacles to MC uptake, such as fear of surgical complications, fear of long wound healing time, peer pressure, fear of stigma and discrimination, a false sense of security, and misconceptions, such as "MC reduces penis size" and "MC reduces sexual pleasure" were not found to be statistically significant predictors of MC uptake. The misconception "Girls don't like circumcised partners" was found to have a significant relationship with positive attitude towards MC ($p < .05$).

The next chapter contains the discussion, limitations, recommendations, and conclusion of the study.

CHAPTER 5

DISCUSSION, LIMITATIONS, RECOMMENDATIONS AND CONCLUSION

5.1 INTRODUCTION

The previous chapter dealt with the research findings. In this chapter the researcher first discusses the research findings in detail, then describes the limitations of this research, and then makes recommendations based on the findings of the study in terms of education, practice, and further research. The chapter ends with some concluding remarks.

5.2 DISCUSSION

Among adolescent male learners of NCJSS, knowledge of health matters pertaining to MC was found to be high. The majority of respondents 64.3% (N=54) revealed that they obtain information regarding MC from different sources, such as the radio, newspapers, and television. Information is power. 72.6% (N=61) of respondents claimed that they knew the benefits of MC, 63% (N=54) of respondents had knowledge about the HIV-protection benefits of MC, and 35.5% (N=34) knew about the risks related to MC. Having knowledge of the risks related to MC was found to be a greater predictor of MC uptake among adolescents ($p=.004$) than was knowledge of the benefits of MC ($p=.057$). Even with data-based assessments, there were differences of opinion regarding which risk/benefit endpoints to include in the balance and how heavily to weight them (Smith et al 2010:72-82). It is believed that health information about the benefits and the risks of SMC could significantly influence adolescents' uptake of the procedure. A study conducted by Jayeoba et al (2012:340-349) showed that after a brief informational session covering the risks and the benefits of MC, three-quarters of the uncircumcised boys in the study reported that they definitely wanted to be circumcised. This suggests that the implementation of frequent health campaigns educating about the benefits and disadvantages of MC could have a long-term positive impact on MC uptake.

Protection from STIs and HIV infection and maintaining genital hygiene were cited by the majority of adolescent respondents 72.6% (N=61) and 77.3% (N=65) respectively to be the main reasons for them to undergo circumcision. Having knowledge of the HIV-protection benefits of MC was found to have a significant relationship with positive attitude towards MC ($p=.003$). These are the most important grounds for implementation of the UNAIDS/WHO recommendations to implement MC an additional strategy to reduce HIV transmission (MoH of Botswana 2008:12; WHO/UNAIDS 2007c:4) throughout Botswana. However, it should continually be emphasised that circumcision will not completely protect one from contracting HIV or other STIs. Enhancement of sexual pleasure, cultural and religious reasons were not found to be driving forces for adolescents to undergo MC. The misconception “Girls don’t like circumcised partners” was found to be the main obstacle to MC uptake ($p=.034$). A study conducted in Nyanza province in Kenya reported that, besides other reasons, enhanced sexual satisfaction was cited by participants as a facilitator of MC (Herman-Roloff et al 2011:e19814). Surveys conducted as part of randomised clinical trials (RCTs) found that many men were concerned that the surgery would reduce their sexual pleasure (Brooks et al 2010:1203-1206). Consequently, the researcher believes that whether circumcision reduces or enhances sexual pleasure requires further study.

Fear of surgical complications such as pain and bleeding and fear of long surgical wound healing time were not found to be statistically significant ($p=.434$) and ($p=.845$) respectively. This finding is not consistent with the findings of previous studies. In a study conducted in Botswana, 35% of respondents cited pain as one of their reasons for not undergoing circumcision (Kebaabetswe et al 2003:214-218; Herman-Roloff et al 2011:e19814). Other findings in this study are consistent with the findings of other studies. A study conducted by Herman-Roloff et al (2011:e19814) found that culture and religion were primary reasons that men chose not to be circumcised. This study found that 76.2% (N=64) and 73.8% (N=62) of adolescent respondents reported that they were not influenced by culture or religion in decisions regarding circumcision ($p=.079$) and ($p=.249$) respectively). According to Jayeoba et al (2012:340-349), culture and religion are not predictors of MC. The majority of respondents 80.9% (N=68) reported that they were not influenced to be circumcised by peer pressure, while only 14.3% (N=12) did not want to be circumcised due to peer pressure. This suggests that peer pressure is not a barrier to MC uptake ($p=.060$). Lagarde et al (2003:89-95) and Herman-Roloff et al (2011:e19814) found that peer pressure is not always a barrier to

MC uptake, but that it is sometimes a very common facilitator of MC uptake among young men. Similarly, fear of stigma and discrimination and other misconceptions, such as “Circumcision reduces penis size”, were not found to influence respondents to undergo MC.

5.3 LIMITATIONS OF THE STUDY

This study has some limitations. These include (1) representativeness of the respondents, and (2) the data-collection instrument used by the researcher. These are the main weaknesses identified by the researcher and are discussed in detail in the paragraph below.

Even though there are similarities in some of the demographic characteristics of the study participants, they are not a representative sample of adolescent boys in Gaborone. The researcher used a non-probability sampling method. Considering the purpose of the study and the prerequisite of parental/guardian consent, it was difficult to use probability sampling and select respondents randomly, which would have guaranteed that all adolescent males had an equal chance of participating in this study. Even though the results of the study may not be generalisable to all adolescents in Gaborone, the findings of the study could lay the foundation for planning effective SMC implementation for people in the age group of adolescence.

Besides the study sample not being representative, the data-collection instrument, which was a structured questionnaire with closed questions and statements, might have limited respondents' personal views. However, the researcher tried to incorporate a number of items in the data-collection tool from the reviewed literature to provide respondents with a broader choice of responses. The researcher believes that a mixed-method type of research would have given respondents more options to make their contribution to this study more meaningful and more far-reaching in terms of application of the findings.

5.4 RECOMMENDATIONS

In order to make appropriate recommendations, the researcher grouped his recommendations in terms of (1) practice, (2) communication and education, and (3)

further research in the health disciplines, and policy reform. The following recommendations are put forward by the researcher.

5.4.1 Recommendation regarding the practice of health professionals

As the majority of the respondents expressed a preference for undergoing the MC procedure in a safe place, such as a hospital or a clinic, the various health facilities need to equip themselves with the necessary resources.

5.4.2 Recommendations with regard to communication and health education

Even though the majority of the adolescent respondents expressed a positive attitude towards MC, it does not mean they are willing to be circumcised. Continual awareness raising with regard to SMC, where various different forums are used, is required to increase adolescent motivation to undergo SMC.

The use of proper communication channels, such as the distribution of educational pamphlets and flyers and health campaigns conducted in the schools could have an effect in winning over adolescent boys who have a negative attitude towards MC.

The media and other communication channels can also be used as campaign instruments.

5.4.3 Recommendations with regard to future research and policy reform

Most of the adolescent respondents 36.9% (N=31) regarded themselves as the primary decision maker in decisions regarding their own circumcision. However, the legal age for medical consent in Botswana is 18 years. This suggests that there is a need for legislation in Botswana to be revised, so that those adolescents who desire to be circumcised can be accommodated.

The researcher recommends that a further study, preferably a qualitative study or a mixed methods study, be undertaken, which will enable adolescents to express their opinions, so that more insightful suggestions can be proposed.

5.5 CONCLUSION

The main aim of this study was to describe the factors that influence the uptake of MC as HIV-prevention strategy among male adolescent learners at NCJSS in Gaborone. A descriptive quantitative design was chosen by the researcher to find solutions to the problem identified. The researcher made use of a sample of 84 adolescent male learners. Data was collected by using a structured self-administered questionnaire in one hall. The researcher used SPSS Version 17.0 software for data analysis.

The findings reveal that having knowledge of the HIV-protection benefits of MC and having knowledge of the risks related to MC were found to be driving forces for adolescent learners to undergo MC. It was stated earlier that the Government of Botswana has committed to use SMC as an additional strategy for HIV prevention. The programme was introduced in 2009 in most districts of Botswana to raise the prevalence of MC to 80% among 0-49-year-old HIV-negative men (approximately 500,000 men) by 2016 (MoH of Botswana 2008:12). Reasons such as culture and religion and the desire to enhance sexual pleasure were not found to be facilitators for adolescents to undergo MC. Policy makers need to plan ahead to provide continual education, capitalising on these facilitating factors to raise MC uptake.

Fear of surgical complications, such as pain, bleeding, and wound infections, were considered by almost one-third of respondents as a barrier to undergoing MC. Therefore, the various health facilities need to equip themselves with the necessary resources at all levels to address this problem. A number of factors which were known to be barriers to MC uptake, such as peer pressure, fear of stigma and discrimination, a false sense of security, and misconceptions such as "MC reduces penis size" and "MC reduces sexual pleasure" were not found to be barriers to undergoing MC among adolescents. The findings of this study underscore the fact that continual school health education, the use of proper communication channels, and some policy modifications are urgently needed to address matters relating to the health of adolescent boys, in particular as pertains to male circumcision.

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Annexure A

Clearance certificate from UNISA

Annexure B

Questionnaire English version

Annexure C

Questionnaire Setswana version

Annexure D

**Approval letter from Botswana Ministry of
Health**

Annexure E

**Permit from Ministry of Education and Skills
Development**

Annexure F

**Letter requesting permission to conduct
study at NCJSS**

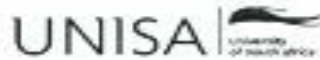
Annexure G

**Parental Informed consent /assent form
English version**

Annexure H

**Parental informed consent/assent form
Setswana version**

Annexure A Clearance certificate from UNISA



**UNIVERSITY OF SOUTH AFRICA
Health Studies Higher Degrees Committee
College of Human Sciences
ETHICAL CLEARANCE CERTIFICATE**

HSHDC 48/2011

Date of meeting: 31 November 2011 Student No: 3592-178-1
Project Title: Factors influencing uptake of male circumcision as HIV prevention strategy among adolescent boys in Nanoang Community Junior Secondary School Gaborone, Botswana
Researcher: Yewondwossen Mulugeta Goshme
Degree: Masters in Public Health Code: DIS4986
Supervisor: Prof TR Havundia
Qualification: D Litt et Phi
Joint Supervisor:

DECISION OF COMMITTEE

Approved Conditionally Approved

E Potgieter
Prof E Potgieter
CHAIRPERSON: HEALTH STUDIES HIGHER DEGREES COMMITTEE

Prof MC Bezuidenhout
Prof MC Bezuidenhout
ACADEMIC CHAIRPERSON: DEPARTMENT OF HEALTH STUDIES

PLEASE QUOTE THE PROJECT NUMBER IN ALL ENQUIRES



--	--	--

I. BACKGROUND DEMOGRAPHICS

1. Age (in years) **Mark (x)**
 13-14 15-16 17-18

2. Ethnicity: **Mark (x)**
 - i. Bakgatla-----
 - ii. Bakwena-----
 - iii. Bangwaketse-----
 - iv. Batlokwa-----
 - v. Bakalaka-----
 - vi. Balete-----
 - vii. Others, specify:-----

3. Educational level **Mark (x)**
 Form 1 Form 2 Form 3

4. Religions: **Mark (x)**
 Christian Muslim Others None

II. CIRCUMCISION STATUS AND VIEWS

5. Are you circumcised? **Mark (x)**
 Yes No Don't know

6. What is your personal view with regard to the best age for circumcision? **Mark (x)**
 - i. As a newborn baby-----
 - ii. 2-6 years-----
 - iii. 7-13 years-----
 - iv. 14-19 years-----
 - v. Above 20 years-----
 - vi. Never-----
 - vii. Unsure-----

7. Who make decision regarding male circumcision in your family? **Mark (x)**
 - i. My father-----
 - ii. My mother-----
 - iii. My grand father-----
 - iv. My grand mother-----
 - v. Myself-----
 - vi. My uncle-----
 - vii. Other, Specify-----

8. Where do you think is the best place to be circumcised? **Mark (x)**
 - i. Clinic/hospital-----
 - ii. At home-----
 - iii. Traditional setting-----
 - iv. Circumcision is not acceptable-----

Read each of the following statements below and indicate your best choice by selecting the number that best describes your agreements:

1. Strongly Disagree [SD]

3. Unsure [U]

4. Agree [A]

2. Disagree [D]

5. Strongly Agree [SA]

III. KNOWLEDGE & ATTITUDES FOR MALE CIRCUMCISION		SD	D	U	A	SA
9	I get enough health information regarding male circumcision from different source	1	2	3	4	5
10	I know the benefits of male circumcision.	1	2	3	4	5
11	I know the risks related to male circumcision	1	2	3	4	5
12	I do know that male circumcision can help reduce men's exposure to HIV infection.	1	2	3	4	5
13	I do know the location of Safe Male Circumcision centre in Gaborone.	1	2	3	4	5
14	The distance of male circumcision centre is within 15 kms radius from my home	1	2	3	4	5
15	Personally I have positive attitudes towards male circumcision	1	2	3	4	5
IV. REASONS FOR UNDERGOING MALE CIRCUMCISION						
16	I would want to be circumcised because it protects me from STI, HIV infections	1	2	3	4	5
17	Circumcision is necessary for keeping genital hygiene	1	2	3	4	5
18	I believe circumcision helps men enjoy sexual pleasure	1	2	3	4	5
19	I believe circumcision need to be performed for cultural reasons	1	2	3	4	5
20	I think circumcision should always be performed for religious reasons	1	2	3	4	5
21	Circumcision should be performed for cosmetic reasons only	1	2	3	4	5
22	I have no specific reason but I will undergo male circumcision	1	2	3	4	5
V. REASONS FOR NOT UNDERGOING MALE CIRCUMCISION						
23	I don't want to undergo circumcision because I fear surgical operation, pain, infection, bleeding and other complications	1	2	3	4	5
24	I fear that the circumcision wound will take too long to heal	1	2	3	4	5
25	Circumcision is not accepted in my culture	1	2	3	4	5
26	Circumcision is not accepted in my religion	1	2	3	4	5
27	I don't want to be circumcised due to afraid of peer pressure	1	2	3	4	5
28	I don't want to be circumcised because I fear stigma and discrimination	1	2	3	4	5
29	I don't have time to go to any centre for circumcision	1	2	3	4	5
30	I don't want to be circumcised because it gives me a false sense of security	1	2	3	4	5
31	I don't go for circumcision because I am afraid of being tested for HIV before the procedure	1	2	3	4	5
32	I don't want to be circumcised because I heard girls do not like circumcised boys	1	2	3	4	5
33	I don't want to be circumcised because I heard circumcision reduces penis size	1	2	3	4	5
34	I don't want to be circumcised because I heard circumcision reduces sexual feelings	1	2	3	4	5

Thank you for taking the time to complete this form!

8. O Kgaotse letlalo la bonna Kwa kae?
- i. Kokelwaneng/Sepateleng-----
 - ii. Gae (Home)-----
 - iii. Bogwereng/ Ka Ngwao-----
 - iv. Mafelong a mangwe -----

III. SEEMO SA LOARO LA GO KGAOLA LETLAO LA BONNA LE MAIKUTLO A GAGO

9. Ke tsaya kitso ya botsogo mabapi le tsa loaro la bonna go tswa mo mafelong a a karologanyeng **Tshwaya karabo ya gago ka (X)**

- i. Ke dumalana thata-----
- ii. Ke a dumalana-----
- iii. Ga ke tlhomamise maikutlo ame-----
- iv. Ga ke dumalane-----
- v. Ga ke dumalane gotlhelele-----

10. Ke itse mosola wa loaro la bonna

- i. Ke dumalana thata-----
- ii. Ke a dumalana-----
- iii. Ga ke tlhomamise maikutlo ame-----
- iv. Ga ke dumalane-----
- v. Ga ke dumalane gotlhelele-----

11. Ke itse bo diphatsa jwa loaro la bonna

- i. Ke dumalana thata-----
- ii. Ke a dumalana-----
- iii. Ga ke tlhomamise maikutlo ame-----
- iv. Ga ke dumalane-----
- v. Ga ke dumalane gotlhelele-----

12. Ke itse fa kgao loletlalo la bonna e ka fokotsa kgonagalo ya go tsenwa ke HIV.
Tshwaya karabo ya gago ka (X)

- i. Ke dumalana thata-----
- ii. Ke a dumalana-----
- iii. Ga ke tlhomamise maikutlo ame-----
- iv. Ga ke dumalane-----
- v. Ga ke dumalane gotlhelele-----

13. A o itse lefelo le le dirang kgao loletlalo la bonna e e sireletsegileng mo Gaborone.

Ee

Nnyaa

14. Sekgala sa go ya kwa lefelong la kgaolo letlalo la bonna mo motseng wa gaeno e ka nna:

- i. Kwa tlase ga 5km-----
- ii. Fa gare 5km le 10km-----
- iii. Fa gare 10 km le 15 km-----
- iv. Se feta 15 km-----
- v. Ga ke tlhomamise sekgala sat eng-----

15. Maikutlo a ga go ke a fe mabapi le kgaolo letlalo la banna? **Tshwaya karabo ya gago (X)**

- i. A mantle -----
- ii. Ga a mantle -----
- iii. A tlhakathakane-----
- iv. Ga ke a tlhomamise-----

IV. MABAKA A GO DIRA KGAOLOLETLALO LA BONNA

16. Ke ka batla go dira kgaolo letlalo la bonna ka gore e ka ntshireletsa mo go tsenweng ke HIV le malwetsi a mangwe a dikobo (STIs).

- i. Ke dumalana thata-----
- ii. Ke a dumalana -----
- iii. Ga ke tlhomamise maikutlo ame -----
- iv. Ga ke dumalane -----
- v. Ga ke dumelane gotlhelele -----

17. Ke ka batla go dira kgaolo letlalo la bonna ka mabaka a bophepa le go itira bophepa.

- i. Ke dumalana thata-----
- ii. Ke a dumelana -----
- iii. Ga ke tlhomamise maikutlo ame -----
- iv. Ga ke dumalane -----
- v. Ga ke dumelane gotlhelele -----

18. Ke dumela gore kgaolo letlalo la bonna e ka dira gore tlhakanelo dikobo e nne monate.

- i. Ke dumalana thata-----
- ii. Ke a dumalana -----
- iii. Ga ke tlhomamise maikutlo ame -----
- iv. Ga ke dumalane -----
- v. Ga ke dumelane gotlhelele -----

19. Ke ka batla go kgaola letlalo la bonna ntateng ya mabaka a Tumelo

- i. Ke a dumalana-----
- ii. Ga ke dumalane-----
- iii. Ga ke tlhomamise maikutlo ame -----
- iv. Ga ke dumalane-----
- v. Ga ke dumalane gotlhelele -----

20. Ke ka batla go kgaola letlalo la bonna ntateng ya mabaka a Ngwao

- i. Ke a dumalana-----
- ii. Ga ke dumalane-----
- iii. Ga ke tlhomamise maikutlo ame -----
- iv. Ga ke dumalane-----
- v. Ga ke dumalane gotlhelele -----

21. Ke ka batla go kgaola letlalo la bonna ka lebaka la go lebega bontle.

- i. Ke dumalana thata-----
- ii. Ke a dumalana-----
- iii. Ga ke tthomamise maikutlo ame-----
- iv. Ga ke dumalane-----
- v. Ga ke dumalane gotlhelele-----

22. Ga kena lebaka lepe la go kgaola letlalo la bonna, mme legale ke tla ya go le kgaola

- i. Ke dumalana thata-----
- ii. Ke a dumalana -----
- iii. Ga ke tthaloganye maikutlo ame -----
- iv. Ga ke dumalane -----
- v. Ga ke dumalane gotlhelele-----

V. MABAKA A GO SA DIRE KGAOLOLETLALO LA BONNA

23. Ga ke bottle go kgaola letlalo la bonna ka ke boifa tshego, ya bongaka (surgical operation) botlhoko, go tsenwa ke bolwetse, go dutla madi a mantsi le bothata bope fela jo bo bakiwang ke tiro e ya loaro.

- i. Ke dumalana thata-----
- ii. Ke a dumalana-----
- iii. Ga ke tthomamise maikutlo ame-----
- iv. Ga ke dumalane-----
- v. Ga ke dumalane gotlhelele-----

24. Ga ke batle go kgaola letlalo la bonna ka ke boifa/tshaba lobaka le le leele la go fola ga ntho ya gogaola letlalo la bonna

- i. Ke dumelana thata -----
- ii. Ke a dumelana-----
- iii. Ga ke tthomamise maikutlo ame-----
- iv. Ga ke dumalane-----
- v. Ga ke dumalane gotlhelele -----

25. Ga ke batle go kgaola letlalo la bonna ka e le selo se se sa amogelesegeng mo Ngwaong le Tumelong.

- i. Ke dumalana thata-----
- ii. Ke a dumalana-----
- iii. Ga ke tthomamise maikutlo ame-----
- iv. Ga ke dumalane-----
- v. Ga ke dumalane gotlhelele-----

26. Ga ke batle go kgaola letlalo la bonna ka ke boifa/tshaba kgatelelo ya ba lekane (fear of peer pressure)

- i. Ke dumalana thata-----
- ii. Ke a dumalana-----
- iii. Ga ke tthomamise maikutlo ame-----
- iv. Ga ke dumalane-----
- v. Ga ke dumalane gotlhelele-----

27. Ga ke batle go kgaola letlalo la bonna ka ke boifa/tshaba kgatelelo ya ba lekane Kgethololo (stigma) le Kgethololo ka kakaretso (Discrimination).

- i. Ke dumalana thata-----
- ii. Ke a dumalana-----
- iii. Ga ke tthomamise maikutlo ame-----
- iv. Ga ke dumalane-----
- v. Ga ke dumalane gotlhelele-----

28. Ga kena nako ya go ya kwa kokelwaneng go kgaola letlalo la bonna

- i. Ke dumalana thata-----
- ii. Ke a dumalana-----
- iii. Ga ke tthomamise maikutlo ame-----
- iv. Ga ke dumalane-----
- v. Ga ke dumalane gotlhelele-----

29. Ga ke ye kwa kokelwaneng go kgaola letlalo la bonna, ka ke tshaba go tthatlhobelwa HIV pele ke ka kgaolwa letlalo la bonna.

- i. Ke dumalana-----
- ii. Ke a dumalana-----
- iii. Ga ke tthomamise maikutlo ame -----
- iv. Ga ke dumalane-----
- v. Ga ke dumalane gotlhelele -----

30. Ga ke battle so dira loaro la bonna ka gore ga lemphe tshireletso

- i. Ke dumalana thata-----
- ii. Ke a dumalana-----
- iii. Ga ke tthomamise maikutlo ame-----
- iv. Ga ke dumalane-----
- v. Ga ke dumalane gotlhelele-----

31. Ga ke batle go kgaola letlalo la bonna ka gore ke utlwile dikgang tse dintsi ka kgaolo letlalo la bonna jaaka: Banyana ga ba rate basimane ba ba kgaotseng letlalo,

- i. Kedumalana thata-----
- ii. Ke a dumalana-----
- iii. Gake tthomamise maikutlo ame-----
- iv. Ga ke dumalane-----
- v. Ga ke dumalane gotlhelele -----

32. Ga ke batle go kgaola letlalo la bonna ka gore ke utlwile dikgang tse dintsi ka kgaolo letlalo la bonna jaaka Kgaolo letlalo la bonna e fokotsa dikeletso tsa tlhakanelo dikobo

- i. Kedumalana thata-----
- ii. Ke a dumalana-----
- iii. Gake tthomamise maikutlo ame-----
- iv. Ga ke dumalane-----
- v. Ga ke dumalane gotlhelele -----

33. Ga ke batle go kgaola letlalo la bonna ka gore ke utlwile dikgang tse dintsi ka kgaolo letlalo la bonna jaaka kgaola letlalo la bonna e fokotsa botona jwa bonna (penis size)

- i. Kedumalana thata-----
- ii. Ke a dumalana-----
- iii. Gake tlhomamise maikutlo ame-----
- iv. Ga ke dumalane-----
- v. Ga ke dumalane gotlhelele -----

34. Ga ke batle go kgaola letlalo la bonna gotlhelele.

- i. Ke dumalana thata-----
- ii. Ke a dumalana-----
- iii. Ga ke dumelane-----
- iv. Ga ke dumelane gotlhelele-----
- v. Ga ke dumalane gotlhelele-----

Ke a leboga.

Monwana wa mmotsolotsi (Signature)-----Kgwedi -----

Annexure D Approval letter from Botswana Ministry of Health

Telephone: (267) 363200
FAX (267) 353100
TELEGRAMS: RABONGAKA
TELEX: 2818 CARE BD



MINISTRY OF HEALTH
PRIVATE BAG 0038
GABORONE

REPUBLIC OF BOTSWANA

REF NO: PPME-13/18/1 Vol VII (262)

20 December 2011

Health Research and Development Division

Notification of IRB Review: New application

Dr Yewondwossen Mulugeta Goshme
P.O. Box 520
Gaborone

Protocol Title:

**FACTORS INFLUENCING UPTAKE OF MALE
CIRCUMCISION AS HIV PREVENTION
STRATEGY AMONG ADOLESCENT BOYS IN
NANOGANG COMMUNITY JUNIOR
SECONDARY SCHOOL GABORONE**

SPONSOR:

N/A

HRU Review Date:	19 December 2011
HRU Expiration Date:	18 December 2012
HRU Review Type:	Full Board HRDC
HRU Review Determination	Approved
Risk Determination:	Minimal risk

Dear Dr Goshme

Thank you for submitting a new application for the above referenced study. This approval includes the following:

1. Application Form
2. Proposal
3. Supporting Documents

This permit does not however give you authority to collect data from the selected site without prior approval from the management. Consent from the identified individuals should be obtained at all times.

The research should be conducted as outlined in the approved proposal. Any changes to the approved proposal must be submitted to the Health Research and Development Division in the Ministry of Health for consideration and approval.

Furthermore, you are requested to submit at least one hardcopy and an electronic copy of the report to the Health Research, Ministry of Health within 3 months of completion of the study. Copies should also be submitted to all other relevant authorities.

If you have any questions please do not hesitate to contact Mr. P. Khulumani at pkhulumani@gov.bw, Tel +267-3914467 or Lemphi Moremi at +267-3632464 or Tel:

Continuing Review

In order to continue work on this study (including data analysis) beyond the expiry date, submit a Continuing Review Form for Approval at least three (3) months prior to the protocol's expiration date. The Continuing Review Form can be obtained from the Health Research Division Office (HRDD), Office No. 9A 10 or Ministry of Health website: www.moh.gov.bw or can be requested via e-mail from Mr. Kgomotso Motlhanka, e-mail address: kgmmotlhanka@gov.bw. As a courtesy, the HRDD will send you a reminder email about eight (8) weeks before the lapse date, but failure to receive it does not affect your responsibility to submit a timely Continuing Report form.

Amendments

During the approval period, if you propose any change to the protocol such as its funding source, recruiting materials, or consent documents, you must seek HRDC approval before implementing it. Please summarize the proposed change and the rationale for it in the amendment form available from the Health Research Division Office (HRDD), Office No. 9A 11 or Ministry of Health website: www.moh.gov.bw or can be requested via e-mail from Mr. Kgomotso Motlhanka, e-mail address: kgmmotlhanka@gov.bw. In addition submit three copies of an updated version of your original protocol application showing all proposed changes in bold or "track changes".

Reporting

Other events which must be reported promptly in writing to the HRDC include:

- Suspension or termination of the protocol by you or the grantor
- Unexpected problems involving risk to subjects or others
- Adverse events, including unanticipated or anticipated but severe physical harm to subjects.

Do not hesitate to contact us if you have any questions. Thank you for your cooperation and your commitment to the protection of human subjects in research.

Yours sincerely



P. Khulumani
For Permanent Secretary



Annexure E Permit letter from Ministry of Education and Skills Development

TELEPHONE: 3655469
TELEX: 2944 THUTO BD
FAX: 3185167



REPUBLIC OF BOTSWANA

MINISTRY OF EDUCATION
AND SKILLS DEVELOPMENT
PRIVATE BAG 005
GABORONE

REFERENCE : E1/20/2 XVI (8)

13th March 2012

Dr Yewondwossen M Goshme.
P O Box 520
Gaborone

Dear Madam/Sir

RE: REQUEST FOR A PERMIT TO CONDUCT A RESEARCH STUDY

We would like to acknowledge receipt of your application for research permit to conduct a study. This serves to grant you permission to conduct your study in the sampled areas in Botswana to address the following research objectives/question/topic:


Factors Influencing The Uptake Of Male Circumcision As HIV Prevention Strategy Among Adolescent Boys In Nanogang Community Junior Secondary School Gaborone, Botswana.

It is of paramount importance to seek **Assent** and **Consent** from the Department of Secondary Education, School Heads, Teachers, Parents and Students of the schools that you are going to collect data from. The interviews/administration of questionnaires to students should be done in the afternoon to avoid students missing lessons. We hope that you will conduct your study as stated in your proposal and that you will adhere to research ethics. Failure to comply with the above stated, will result in immediate termination of the research permit. The validity of the permit is from **13th March 2012 to 12th March 2013**.

You are requested to submit a copy of your final report of the study to the Ministry of Education and Skills Development, in the Department of Educational Planning and Research Services, Botswana.

Thank you.

A handwritten signature in black ink, appearing to be 'Kaaya Koruyezu'.

 Kaaya Koruyezu
For / Permanent Secretary

Annexure F

**FROM: DR. YEWONDWOSSEN M. GOSHME
P. O. BOX 520 GABORONE**

**To: SCHOOL HEAD
NANOGANG COMMUNITY JUNIOR SECONDARY SCHOOL**

26/04/2012

RE: REQUEST TO CONDUCT RESEARCH

I am **Dr. Yewondwossen M. Goshme**, the researcher responsible for a study on **“FACTORS INFLUENCING THE UPTAKE OF MALE CIRCUMCISION AS HIV PREVENTION STRATEGY AMONG ADOLESENT BOYS IN NANOGANG COMMUNITY JUNIOR SECONDARY SCHOOL**. I am requesting the school management to allow me enter to the research site and collect data from the eligible students. All the necessary precaution has been taken to maintain and adhere the ethical standard. As this study is based on voluntary participation the researcher prepared both parental consent and student’s assent.

It is believed that male circumcision can prevent HIV transmission. Botswana started to provide safe male circumcision program since 2009. This survey is designed to identify the key influencing factors that could possibly hinder the uptake of male circumcision among adolescent boys. NCJSS has been chosen to be the study site. The eligible students will fill the questionnaire during their free time and the estimated time to fill the form is not more than 20-30 minutes.

I have also attached a permit letter granted to conduct the study from different stakeholders. I thank you in advance for your cooperation.

**Dr. Yewondwossen M. Goshme
Researcher**

Annexure G

PARENTAL INFORMED CONSENT FORM

Title of study

Factors Influencing Uptake of Male Circumcision as HIV Prevention Strategy among Adolescent boys in Nanogang Community Secondary School

Introduction and description

I am **Dr. Yewondwossen Goshme**, the researcher responsible for this study and currently registered for MPH at the department of Health Sciences, University of South Africa (UNISA). You as Parent/ Guardian are being asked to take part in the above research project to give your permission for your young child may take part of the study by signing this form.

It is believed that **Male Circumcision (MC)** can prevent HIV transmission. Botswana as a country has been providing **Safe Male Circumcision** service since 2009. The programme is providing service for all men aged 0-49 years. However a number of obstacles could possibly limits its uptake at the clinical site. This survey is designed to identify factors that could hinder uptake of MC. The researcher believes that the study does not have risks like pain and physical injury for your boy. The content of the questions in the form are not sensitive enough to cause psychological disturbance. The researcher who is a medical doctor is always there for help if need be. The form will be filled without mentioning name. The selected adolescent learners will be given a form to fill. The estimated time to fill this form is not more than 20-30 minutes.

The study participants can choose to withdraw from the study at any time. They can also refuse to answer any questions which they are uncomfortable. The study is conducted completely on voluntary basis. The researcher will assure you that any information or response obtained in connection with this study remains completely confidential. If you have any questions about this study you may contact the researcher in person or call **(Tel 365589/ 71224208)** or contact **Pilate Khulumani** at the Botswana Health Research Development Unit, Ministry of Health **(Tel 391-4467/ 363-2018)**.

Thank you

Parent's/ Guardian's Signature: Student's Signature: Researcher's Signature:

Annexure H

KAROLO YA BONE (Setswana version parental consent form)

Foromo ya Titla ya Botsadi

Mabaka a a amang go tsaya loaro la bonna mo basimaneng ba dingwaga tse di fag are ke mokgwa k gosta maiteko a go thibela kanamo ya mogare wa HIV/AIDS mo sekolong se segolwane sa Nanogang (Nanogang C.J.S.S.)

Kettapele le tlhaloso

Wean o le motsadi kgotsa motlhokomedi wa ngwana wa mosimane wa dingwaga tse di fag are o koplwa go tsenya letsogo mo tshekatshekong e ka go fa ngwana wag ago tletla go nana le seabe mo Tshekatshekong e ka go baya monwana mo foromonge Go nale Tumelo ya gore kgaolo letlalo la bonna e ka thibela kaname ya bolwetsi jwa HIV/AIDS. Tshekatsheko e diretswe go sekaseka maikutlo a basimanyana mabapi le kgang ya go kgaolo letlalo la bonna. Basimanyana ba batla neelwa foromo (form) e go e tlatsa. Nako e e akantsweng go e tsaya go tlatsa foromo (form) ga e a tshwanela go feta metsotso e le masome a mabedi (not more than 20 minutes).

Ditamorago (Risks)

Mosekaseki (Researcher) o nale tumelo e e tletseng gore tshekatsheko e ga e na ditamorago dipe jaaka kutlo BOTLHOKO le KGOLAGALO MO MMELENG wa ngwana wag ago wa mosimane. Boleng jwa diotso tsa tshekatsheko e le foromo ga se tse di fatlhang tse di ka amang ngwana wag ago mo tlhalogonyong le go mo tsalela matshwenyego ape mo tlhaloganyong. Le fa go ntse dipotsol potsolloso e ka tsala ditlhongnyana mme go fokotsa se foromo (form) e e tla tlatswa kwa ntle ga go bolela maina.

Dipoelo

Batsaakarolo mo tshekatahekong e gab a na go duelwa sepe ka tshekatsheko e se na maduo ape a ka ka a neelwang, mme le gale maduo (outcome) a tshekatsheko e a tla thusa badiri melao le ditshwe tso le batsaakarolo ba bangwe go tla mananeo a popota a go thibela HIV/AIDS a ka thusang banaha botlhe ba lefatshe le.

Ditshenyegelo (costs)

Tshekatsheko e ga e na ditshenyegelo dipe mo batsaakarolo mo tshekatshekong e kamokgwa ope. Tshekatsheko e e tla dirwa mo sekolong dikagong ka ka dinako tse e seng tsa dithuto (during free lessons). Tshwanelo ya go gana go nna le seabe mo tshekatshekong e Batsaakarolo mo tshekatshekong e ba gololegile go intsha mo go yone nako nngwe le nngwe. Ba gololesegile gaoe go gana go araba potso epe fela e a tsayang e mmaya ka ta moseng le ma tlabisa ditlhong. Tshekatsheko e e dirwa ka boithaope ee seng gape.

Phithela kgomo ya serotswana /Sephiri

Mosekaseki (researcher) o tla tlhomamisa gore dintlha dipe fela tsa Tshekatsheko e e nna phithela kgomo ya serotswana / Sephiri. Dintlha tsa maiktlo a motsaakarolo di ka bolela phathalatea tela ka teta ya gagwe.

Dipotso

Fa o nale potso epe fela ka Tshekatsheko e (this study) o goloesegile go kgolaganya le mosekaseki ka namana kgotsa ka mogala o (**Tel 3655839/ 71224208**). Fa o nale dipotso dipe fela ka ditshwanelo tsa gago o le motsadi kgotsa motlhokomedi wa ngwana wa motsaakarolo mo tshekatsheekong e o ka leletsa **Pilate Khulumani** kwa Botswana Health Research Development Unit, Ministry of Health kwa mogaleng wa (**Tel 391 4467/ 363 2018**)

Leina la motsadi / Motlhokomedi wa ngwana: -----

Monwana wa Motsadi /Motlhokomedi wa ngwana-----

Leina la morutabana: -----

Moneoana wa morutabana: -----