

FEMALE GENITAL CUTTING AND SEXUAL BEHAVIOUR IN KENYA AND NIGERIA

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DEDICATION

To the memory of my wonderful mother, Gladys Patricia Moyo. You have always been my rock and inspiration.

To my son, Zoleka Lwandile Mpofu, it has been quite a ride but we made it "together".

To my daughter, Bongeka Vuyisile Mpofu, I did not mean to ruin your childhood memories. I will always love you.

This work is dedicated to you.

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ABSTRACT

Context: This study seeks to examine the relationship between female genital cutting (FGC) and the sexual behavior of women in Kenya and Nigeria. Although research evidence has shown that female genital cutting is a serious problem in many countries and needs to be eradicated, prevalence in many countries remains high. One of the reasons given for the continuation of this harmful practice, despite widespread global campaigns against it, is that it is deemed an essential aspect of grooming the female child in preparation for marriage. It is supposed to control female sexuality thereby ensuring that a girl remains a virgin until marriage and it enhances her chances of marriage. Little research has been carried out to evaluate how far FGC tempers the sexual behavior of women.

Methods: The study uses the Kenya Demographic and Health Survey of 2008/09 as well as the Nigeria Demographic and Health Survey of 2008. The population being examined is sexually active women who knew about circumcision and were thus asked if they had been circumcised or not to which the response was either yes or no. The sample size for Kenya is 5 187 women while in Nigeria it is 12 253 women. The study hypothesis is that there is a difference in the sexual behaviour of women who are circumcised and those who are not circumcised. Multiple linear regression, logistic regression as well as Poisson regression were used to examine the effect of selected predictor variables on sexual behaviour. The outcome variable is sexual behavior which was measured using age at first intercourse as well as total lifetime number of sexual partners.

Findings: The study results suggest that there is no association between female genital cutting and the sexual behaviour of women in Kenya and Nigeria. There was no difference in the age at which women first engage in sexual intercourse and in the number of sexual partners for women who were circumcised and those who were not. Thus there is no scientific evidence that the practice of FGC could control the sexual activities of women.

Conclusions: Female genital cutting does not have any effect on the sexual behaviour of women in Kenya and Nigeria. There is no difference in the sexual behaviour of women who are circumcised and those who are not circumcised in both countries. This is an indication that FGC does not serve the purpose it is purported to serve and should therefore be eradicated.

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Chapter 1: Introduction

1.1 Background

Female genital cutting (FGC), also known as female genital mutilation or female circumcision is the partial or total removal of the external female genitalia, or other injury to the female genital organs for non-medical reasons (WHO 2013). It is practiced in 29 countries across the world but mainly in Africa¹. . An estimated 140 million women have undergone FGC to date (WHO 2013). In Africa alone an estimated 101 million girls above the age of 10 are said to have undergone the procedure with an estimated 3 million being at risk of undergoing FGC each year (WHO 2013).

Prevalence of FGC varies widely. It is mainly concentrated in countries from the Atlantic Coast to the Horn of Africa, with wide variations in the percentages of girls and women cut both within and across countries (Stewart et al, 2002, UN report, 2012). Prevalence ranges from as low as 1% in countries such as Uganda and Cameroon to near universal in countries such as Egypt, Guinea and Somalia (WHO 2013). What is important to acknowledge is that prevalence as low as 1% is no real consolation as it is still 1% too high.

There has been a global outcry against the practice of FGC and it is now recognized as a violation of women's human rights as it can have severe adverse health outcomes including urinary tract and vaginal infections, fatal haemorrhaging, and obstetrical complications both short and long term (WHO, 2013). International organizations such as the United Nations (UN), WHO and international conventions and conferences such as the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), International Conference on Population and Development (ICPD) 1994 as well governments and non-governmental organizations (NGOs) have taken steps towards eradicating this practice as it is an important aspect in achieving Millennium Development Goals (MDG) 3, 4, and 5. These are concerned with promoting gender equality and empowering women, reducing child mortality and improving maternal health.

According to the UN, all forms of violence against women are a hindrance to the achievement of the MDG goals. With respect to gender equality, MDG 3 is about closing

the gender gap and empowering women in terms of access to education and paid employment as well as increasing women representation in parliament. FGC hinders this development in that the repercussions of FGC results in young girls missing school which puts them at a great disadvantage with regard to acquiring education while the continuous physical difficulties they face because of FGC impedes their access to paid employment outside agriculture and in engaging in a political career (Amnesty International, 2010). Regarding MDG 4, the WHO (factsheet on FGM, 2013) states that out of every 1000 babies born, about 10 to 20 die because of FGC. FGC is usually performed on infants and young girls and there is always the possibility of severe health consequences or even fatalities. Studies have shown that some women who have undergone the procedure often experience difficulties in child delivery and the practice is also associated with increased stillbirths and neonatal deaths (Amnesty International, 2010). FGC affects the attainment of MDG 4, the reduction of maternal mortality in that it is linked to a myriad of health complications around pregnancy and childbirth including obstructed labour (Amnesty International, 2010).

A number of reasons have been given for the perpetuation of this harmful practice. Key among these is the belief that FGC is a rite of passage through which a girl graduates into womanhood and is prepared for marriage (Ondiek 2010). It is a practice that is deeply entrenched in culture and tradition and therefore gives a girl cultural identity and a sense of belonging. It is believed that FGC enhances marriageability and promotes virginity as it is said to foster a culture of chastity until marriage (Sipsma and others, 2011, Van Rossem and Gage, 2009). It is meant to control female sexual desires before marriage. Ondiek, (2010) argues that it is meant for social and cultural identity and does not have any medical significance.

Knowledge on FGC is focused on the physiological aspect, that is, on its effect on women's physical health. A 2012 UNICEF report states that global campaigns and efforts to eradicate FGC initially focused on the adverse health consequences of the practice. Such an approach proved unsuccessful as it did not result in the anticipated decline in prevalence and also because it was realized that instead of eradicating the practice it inadvertently promoted the 'medicalization' of the practice as people engaged trained medical professionals to carry out the cutting in a bid to minimize negative health outcomes (UNICEF, 2012). This prompted a reconceptualization of FGC as a human rights issue and this was first instituted at the Vienna World Conference on Human Rights

of 1993 and was further reinforced in the 1994 International Conference on Population and Development (ICPD). The ICPD stressed the importance of women's reproductive rights, rights of the female child and stopping harmful traditional practices. In the past two decades, especially after the ICPD, focus on the practice has increased tremendously particularly from the field of public health. It is addressed from a human rights perspective and while that may be the case, there is more to the practice than just the partial or complete removal of female genitalia. The practice of FGC is deeply embedded in social and cultural traditions dating back generations. Over time, interventions have failed to understand the complexities surrounding the practice. It is this failure that has led to resistance to change and delayed the necessary elimination of a harmful practice and ultimately the elimination of abuse on women. Failure to conform to cultural ideals on FGC can have detrimental consequences on an individual such as ostracism and failure to attract a desirable marital partner (Assaad, 1980).

FGC is a common practice in Kenya with a prevalence of 27.1% (KDHS 2008-09). The country has had a long history of FGC. Efforts to combat the practice date to as far back as 1906 when western missionaries preached against the practice and painted it as barbaric and indecent (Thomas, 2003). Over the last decade or so the prevalence of FGC has been declining gradually. According to the Kenya Health and Demographic Survey 2008-09, the country has recorded some decline in FGC prevalence. In 1998 prevalence was 38%. This decreased to 32% in 2003 and by 2008-09 prevalence had declined to 27.1%. Whilst these declines are commendable the prevalence is still relatively high as the objective of intervention programs is to end the practice completely. Attempts to discourage the practice have been in place since 1982 and in 2001 the Kenyan government passed the Children's Act, which formally outlawed the practice (Livermore et al, 2005). In 2011 it passed the Prohibition of Female Genital Mutilation Act which is aimed at putting a stop to the practice.

Nigeria in West Africa has a prevalence of 30% (NDHS 2008). The practice is widespread among different tribes and religions. Kolawole et al (2010) state that in Nigeria, the practice is also deeply entrenched in culture in all geopolitical zones of the country and the main drivers are environmental, gender and health care. In Nigeria, the practice may be performed on neonates, infants, pubertal, antepartum or post partum women (Okhiai et al, 2011, Okeke et al, 2012).

While the NDHS places the prevalence of FGC at 30%, Okhiai et al, 2011 state that reports on human rights practices state that between 40 and 60% of girls and women in Nigeria are circumcised and they stipulate that the prevalence could actually be around 90%, an indication that the practice is still widely practiced in the country. However, they do contend that despite such high levels of prevalence there are indications that the number of circumcised young girls is waning. Okeke et al, 2012, also state that prevalence in Nigeria is declining. Ibekwe et al, 2012, argue that prevalence in Nigeria averages 50% but they go on to point out that prevalence differs according to region with areas such as parts of Kogi, Fulani and Ogun states experiencing 0% prevalence while the Benue and Kebbi states are experiencing around 100%. The region with the highest prevalence (77%) is the south-south with the south east following at 68% and south west having a prevalence of 65% and the north registering and is somewhat low levels. Nigeria has the highest absolute number of FGC in the world owing to its large population (Ibekwe and others, 2012, Okonofua, 1998). This accounts for almost 25% of the global total of women who have endured FGC. Nigeria is a signatory of the Maputo Protocol, a treaty instrument which was adopted in 2003 and came into effect in November 2005, which was aimed at combating FGC in Africa. Nigeria is also one of the countries which sponsored the 46th World Health Assembly resolution that called for the eradication of FGC in all countries yet the practice continues in the country (Ibekwe and others, 2012, Idowu, 2008). There is no federal law against FGC in the country (US Department of State Report 2001).

Studies in Nigeria have shown that prevalence is declining in the country. (Snow et al, 2002). The NDHS 2008 depicts a declining prevalence of circumcised women with age as it indicates that 65.6% of women age 45 to 49 are circumcised compared to 49% in the 15 to 19 age group. However, the practice of FGC continues to enjoy substantial support in communities where FGC is still considered to be part of culture and tradition. Of the six largest ethnic groups which are the Yoruba, Hausa, Fulani, Ibo, Ijaw and Kanuri, only the Fulani do not practice FGC whatsoever. One of the reasons cited for the persistence of the practice in Nigeria is that it is deeply rooted in a culture where the critical decision makers are grandmothers, mothers, women, opinion leaders, men and age groups (Okeke and others, 2012). It is a practice that is predicated on sexual discrimination and is believed to increase chances of getting married and hence mothers have their daughters circumcised so that they will not be shunned by society. In a bid to eliminate FGC, the

country has established a multi-sectorial technical working group on harmful traditional practices and has launched a regional plan of action and formulated a national policy and plan of action which met the approval of the Federal Executive Council for the elimination of FGC in the country (Ayenigbara et al 2013).

1.2 Problem Statement

While it is clear that FGC is a serious problem that needs to be uprooted in order to protect the health and rights of women, prevalence in many countries in Africa still remains high (WHO, 2013). Kenya and Nigeria are a few of the countries where the practice is still an issue with a prevalence of 27.1% for Kenya and around 30% for Nigeria (KHDS 2008/09 and NHDS 2008). There has been a global outcry against the practice of FGC with opposition ranging from charges that it is a discriminatory practice which is a violation against universally acknowledged human and women's rights (Toubia, 1994, Van Rossem and Gage, 2009). A number of adverse health outcomes have been associated with FGC and these include shock from pain and haemorrhage, infection, acute urinary retention following such trauma, damage to the urethra or anus in the struggle of the victim during the procedure making the extent of the operation dictated in many cases by chance; chronic pelvic infection, acquired gynaecosis resulting in hematocolpos, vulval adhesions, dysmenorrhoea, retention cysts, and sexual difficulties with anorgasmia (Okeke and others, 2012). There is also mental and psychological trauma associated with FGC mainly because such issues are most likely not going to be visible and therefore no help will be offered to the girl (Okeke and others, 2012). These are serious health and social consequences faced by women in practicing countries including Kenya and Nigeria (WHO, 2013, Toubia, 1994). International organizations that include the United Nations, WHO, and nongovernmental organizations have taken steps in a bid to eradicate the practice and thus protect women from being violated.

The practice of FGC has important implications on marriage. Gruenbaum (2005) points out that marriage and reproduction are essential to the long term economic and social security of most women. Therefore, the contention is that, in practicing societies, FGC goes hand in hand with economic and social security and hence this serves as motivation for the continuation of the practice. This is particularly so in communities where access to vital resources such as livestock and land depend on men and where one relies on the support of one's children in old age.

One of the main reasons for the perpetuation of FGC despite widespread campaigns against the practice has been that it is regarded as a necessary part of raising the girl child and preparing her for marriage (Assaad, 1980, Toubia, 1994, Gruenbaum, 2006, Van Rossem and Gage, 2009). FGC is a traditional practice and belief system that is intended for the cultural identity and graduation of a girl child into woman hood in preparation for marriage (Ondiek, 2010). It is supposed to moderate female sexuality by reducing a woman's libido (Van Rossem and Gage, 2009). Sipsma and others (2012) put forward that FGC is seen as a rite of passage for young girls in practicing communities. Ultimately, as Van Rossem and Gage (2009) note, whatever the reasons for the perpetuation of FGC, they inevitably link the practice to the social position of women in societies. Failure to conform to such cultural ideals can have detrimental consequences on an individual such as ostracism from one's community and failure to attract a desirable marital partner.

Perceptions on FGC include that it ensures that girls remain virgins until they get married (Van Rossem and Gage 2009). An individual's fate and identity is intricately linked to and is for the most part shaped by their family. In traditional families honour and dignity are regarded as fundamental to a family's status and therefore in order to maintain that status family members have to behave in an acceptable manner and sexual chastity is therefore revered and an important measure of good behavior. Female sexual behavior that is deemed inapt can be detrimental to a family's honour and standing in the community and thus it is regarded as something that needs to be controlled. FGC is therefore seen as an essential and necessary guarantee that a girl will remain a virgin until she gets married. If a girl remains chaste then her chances of marriage are guaranteed (Gruenbaum, 2001). Women's Health (2012) puts forward that communities that continue to support FGC believe that it not only empowers their daughters but that it will also ensure that they get good marriages and the family's good name is not damaged. It is regarded as a normal and acceptable part of raising the girl child. A report by Amnesty International (2010) concurs with most research as it puts forward that one of the reasons provided for the justification of the practice of FGC is control over female sexuality. The report states that virginity is a precondition for marriage and is thus equated to female honour. The practice is therefore defended as it is assumed to reduce women's sexual desire and restrain women from engaging in premarital sex thereby preserving virginity. According to a 2011 UNFPA report, one of the reasons for the

practice is psychosexual in nature. Women's sexuality needs to be controlled through cutting because it is believed that their sexuality would be insatiable if certain parts of their genitalia are not removed. In effect the removal of parts of the genitals, particularly the clitoris, will ensure virginity before marriage and guarantee fidelity after marriage.

Research on the subject has tended to focus more on the physiological impact of FGC as well as its effect on fertility (Livermore et al 2007, Ibekwe et al, 2012, Assaad, 1980). Not much has been done to assess how far the practice influences the sexual behaviour of women. This raises the question of whether FGC does indeed influence sexual behaviour. Is there any difference in the sexual behaviour of women who have undergone the procedure and those who have not? Because one of the primary reasons for practicing FGC is controlling female sexual desires thereby ensuring that a girl gets married, there is a need to further investigate if these reasons are valid. How far is sexual behaviour influenced or controlled by circumcision? There is need to determine the relationship between FGC and the sexual behaviour of women if intervention efforts are to be successful. The practice is said to impart into young girls values and life lessons on appropriate premarital behaviour and how to be responsible women and wives. This study problematizes this belief and seeks to understand the legitimacy of this belief.

1.3 Research Question

Is there any association between FGC and sexual behaviour of women in Kenya and Nigeria?

1.4 Research Objectives

1.4.1 General Objective

- To examine the relationship between FGC and sexual behaviour of women in Kenya and Nigeria.

1.4.2 Specific Objectives

- To examine the distribution of FGC and sexual behavior in Kenya and Nigeria.
- To assess the relationship between FGC and all the selected sociodemographic variables and how they influence sexual behaviour in Kenya and Nigeria
- To examine the relationship between FGC and sexual behaviour in Kenya and Nigeria.

1.5 Justification of the Study

This research is predicated on the notion that FGC is a tool for the social control of female sexuality. It seeks to evaluate FGC in light of the reasons perpetuating its continued existence. It asks the question: Is there any association between FGC and sexual behaviour of women who have undergone FGC and those who have not by looking at the age at which women initiate sexual activity and at the number of lifetime sexual partners that women in either group have. The general consensus among practicing communities is that FGC protects a girl's virtue. Therefore, one can argue that understanding how far FGC succeeds, if at all, in tempering female sexual behaviour is an important aspect if intervention programmes are to succeed. Gruenbaum (2005), puts forward that it is imperative that the socio-cultural dynamics of the practice be understood if FGC is to be abolished. She goes on to note that because the preservation of premarital virginity is a fundamental goal, for many, considering abandoning the practice comes with the all important aspect of risking their daughters chances of marriage and this gives them pause. The study seeks to contribute to the existing body of literature on understanding the practice of FGC and coming up with successful interventions that will see a rapid increase in the abandonment of FGC. It is important that there be empirical evidence on the subject that will make positive contributions to the formulation of effective policies and programmes in practicing countries that will result in quicker declines and consequently elimination of the practice. This is for the benefit of the millions of young girls and women who are at risk of being cut in the name of tradition. Evidence that FGC does not control female sexual behaviour, together with the fact that it is harmful will go a long way in convincing practising communities of its futility thereby saving young girls from the trauma of being cut. This will also contribute to the achievement of MDGs 3, 4 and 5 not only in Nigeria and Kenya, but also in other countries which continue to practice FGC.

1.6 Definition of Terms

1.6.1 **Female Genital Cutting:** As has been highlighted in the introduction, FGC refers to the partial or complete removal of the external female genitalia or other injury to the female genital organs for non therapeutic reasons. In literature the term female genital cutting has been used concurrently with female genital mutilation as well as female circumcision (WHO 2013).

1.6.2 **Sexual Behaviour:** For the purposes of this study, (female) sexual behaviour is indicated by the age at first sexual intercourse as well as the number of lifetime sexual partners a woman has had. These are used as measures of perceived “acceptable” or “unacceptable” sexual conduct because the focus of this study is to measure how far FGC succeeds in controlling or tempering female sexual behaviour.

Chapter 2: Literature Review

2.1 The practice of Female Genital Cutting

The practice of FGC, also known as female genital mutilation or female circumcision entails all procedures that intentionally alter or cause injury to the female genital organs for non-medical reasons (WHO, 2013). It is the partial or complete removal of the external female genitalia. Such practices are said to vary in terms of intensity and this ranges from the removal of the prepuce of the clitoris to full excision of the clitoris, the labia minora and the labia majora (Assaad 1980, Odimegwu and Okemgbo, 2000). The WHO has classified FGC into four types in line with the classification suggested by Karim and Ammar in 1965 (Assaad, 1980). These are Type 1 which is referred to as clitoridectomy and entails the partial or complete removal of the clitoris and in some cases only the prepuce, which is the fold of skin surrounding the clitoris. It is commonly known as the Sunna circumcision (Toubia, 1994). Type 2 is excision and this involves partial or complete removal of the clitoris as well as the labia minora with or without the excision of the labia majora. The raw surfaces are stitched up and after healing, the clitoris is absent but the urethra and vaginal introitus are not covered (Toubia, 1994). The third type is called infibulation and this involves the narrowing of the vaginal opening, and the labia minora and majora are completely excised then sewn together so that only the orifice for the passage of urine and menses is left. Infibulation is seen as the most severe form of FGC and has been found to have serious negative reproductive health and social consequences for women (Odimegwu and Okemgbo, 2000). The WHO classifies type four as all other harmful practices to external female genitalia for non-medical reasons such as pricking and scraping. The extent of cutting in these types of FGC can vary since the operator is usually a layperson with limited surgical technique (Toubia, 1994). Most of the time, the cutting is done in non-medical facilities, and therefore there is usually no anaesthetic involved.

There are variations in the age at which girls are cut. These include inter intra-country differences. Garba et al(2012) state that the age when girls are circumcised varies depending on the prevailing custom of the area, with most communities performing it during infancy, childhood and adolescence. For instance, in Egypt about 90% of girls are cut between the ages of 5 and 14 while in countries such as Ethiopia and Mali, about 60% of girls are cut before their fifth birthday. In Sudan it was found that 75% of girls were cut by the age of 9 or

10 in the South Darfur region, while in the Kassala region 75% of girls were cut by the age of 4 or 5 (UNICEF Report, 2005). In Ethiopia it is performed 8 days after birth while in Somalia it is performed around 3 to 4 years of age (Garba et al, 2012). Okeke et al (2012), concur with this argument as they state that there are variations the FGC practice. These can be variations between different countries and even within different states in one country. There are also tribal variations as well as religious and cultural variations. They go on to state that most parts of Nigeria perform FGC at a young age and as such the young girls cannot give refuse to be cut. Garba et al (2012), state that in Nigeria, FGC is performed mainly in the neonatal period to late adulthood. According to the KDHS 2008, there seems to be a propensity to circumcising girls at a young age with 45% of girls aged 15-19 being circumcised before the age of 10 compared to 14% of older women aged 45-49. The report also highlights regional differences, with the Coastal region registering the most number of females circumcised in infancy, two thirds of females in the North eastern region being cut between the ages of 3 and 7. In the Rift Valley and Central regions 6 out of 10 women who are circumcised were cut between the ages of 14-18 years.

2.2 Reasons for the perpetuation of FGC

Female genital cutting is a traditional practice and belief system that is seen as a rite of passage for the girl child. It is meant for cultural identity and graduation of a girl into womanhood in preparation for marriage (Ondiek, 2010). The practice of FGC is common in at least 28 countries in the world, with 26 of these countries being in Africa (Toubia, 1994, Odimegwu and Okembgo, 2000). Literature cites a number of reasons for the continued persistence of this practice despite national and international efforts to curb its existence. Van Rossem and Gage (2009) put forward that the entrenchment of FGC in culture and tradition of practicing societies tends to obscure both the origins and reasons behind the practice. It is seen as a rite of passage for young girls into adulthood. The practice is deeply embedded in tradition and culture, and hence has proved difficult to root out (Sipsma and others, 2011, Van Rossem and Gage, 2009). It persists because it is a social convention upheld by underlying gender and power relations (UNFPA Report, 2011). FGC is said to enhance marriageability, fertility, and to promote purity or virginity of a woman (Sipsma and others, 2011; Ondiek, 2010; Van Rossem and Gage, 2009, Odimegwu and Okembgo, 2000). FGC is also said to contribute to the social control over female sexuality; that is, its intention is to temper female sexual urges thereby preserving a girl's virginity for marriage (Van Rossem,

2009, Afifi 2000). Because practicing societies consider marriage to be an important part of ensuring a woman's position in the community, and consequently the probability of marriage, FGC plays a fundamental role in ensuring that both are achieved. It is therefore believed that being cut will reduce sexual pleasure for women thereby increasing the chance that she will refrain from premarital sex as well as extramarital sex. Garba et al (2012) are of the same view as they note that in Nigeria, the practice persists as a result of cultural reasons and the belief that it curtails sexual urges and prevents promiscuity in women. Great emphasis is placed on FGC as shaping female behaviour to match local ideals such as enhancing female passivity, reducing sexual expression, or tempering assertiveness (Stewart et al 2002). Kolawole et al (2010) argue that FGC is a model of gender inequality in which men feel they need to control the sexual behaviour of women, prevent promiscuity and ensure chastity until marriage as well as marital fidelity.

Toubia (1994) posits that the practice has strong cultural meaning because it is closely linked to women's sexuality and their reproductive role in society. Ntiri (1993) in a survey in southern Somalia, found that, just like in most practicing communities, the practice of FGC is a source of 'full womanhood' as well as a tool for controlling female sexuality. For many communities, controlling female sexuality is central to ascertaining that a daughter will get married in the future. Caldwell et al(1997) state that one of the reasons given by practitioners is that it has always been done and parents would therefore be ashamed or remiss if they did not do it. Therefore, it is clear that the belief in the protection of female virtue goes hand in hand with upholding family status and dignity (Van Rossem and Gage 2009). Also, as Toubia (1997), points out, circumcision of women gives them respect from other members of the community. Having undergone the practice renders one 'pure and moral' (Van Rossem and Gage 2009). When one is circumcised, it is a symbol of entry into womanhood and marks that one fully belongs to a community. Yoder et al(2001) found that for women in Guinea, the practice is seen as a mandatory rite of passage to adulthood, where they are taught the expected responsibilities and behaviour towards their husbands and families. It is through FGC that they get social approval by family and community, and hence are acceptable as ready for marriage and the responsibilities and duties that come with the role.

The WHO (2013) concurs with reasons cited in most literature. It states that FGC is sustained by beliefs about what society deems proper sexual behavior and links the practice to premarital virginity and marital fidelity in that it is meant to discourage illicit sexual behavior through the reduction of female sexual libido. Among the unmarried who have undergone

infibulation the fear of the pain associated with opening the covering and that it will be found out is expected to discourage young women from premarital sexual acts. The WHO (2013) goes on to cite pressure to conform to social convention as one of the reasons for the resilience of the practice. Van Rossem and Gage (2009) posit that a common trait in most of these reasons is that they link the practice to the social position of women in society, and thus the practice reproduces the social position of women. In a study carried out in Southeast Nigeria, Ibekwe et al (2012) found that a significant number of women knew about the practice of FGC as well as the problems associated with it. Almost half affirmed that the practice was still in existence and they cited reasons such as culture, tradition, ignorance, misconceptions about reducing sexual desire and easy vaginal entry. Kolawole et al (2010) note that the practice of FGC continues mainly because it is part of societal norms handed down through generations and any attempts to abandon it is met with societal pressure and risk of isolation. It is seen as a social convention which is ensured through a non-written system of rewards and punishments (Kelly in Kolawole et al 2010).

It has been argued that blaming FGC on patriarchy or male domination is a narrow approach (Van Rossem and Gage, 2002, Epstein, 2007). This is because stratification in practicing societies is complex and FGC defines the social position of women not only with regard to men, but also with regard to other women and as members of their communities (Van Rossem and Gage, 2002). They go on to point out that women themselves play a fundamental role in sustaining the practice because they derive their social status and position from their role as wives and mothers, and hence ensuring the marriageability of their daughters is another way of enhancing their own status. In many practicing communities, honour and dignity of the family is very important and sexual behaviour is one indicator of honour. Therefore, inappropriate sexual behaviour can damage a family's reputation and status and thus there is need to control it, and FGC is one such way of doing so. It is important that women uphold "strict modesty and chastity codes that ensure virginity and marital fidelity" (Van Rossem and Gage, 2002). Most practicing societies take marriage as an important source of status for women and thus the marriageability of girls is very important as it uplifts not only the girl but her family as well (Gruenbaum, 2001). Consequently the most important thing is that a woman who has been circumcised will uphold her virtue and hence her chances of marriage are enhanced.

Religious reasons have also been suggested as perpetuating FGC. Although there are no known religious writings on the practice, many who continue the practice believe that it has

religious backing (Assaad, 1980, El-Gibay and others, 2002). It is not clear just how and where the practice of FGC originated. Assaad (1980) puts forward that it is not clear whether the practice is an old African rite of passage or is adapted from Pharaonic practices. There are suggestions that the practice could have originated in ancient Egypt (Assaad, 1980, Odimegwu and Okembgo, 2000). It has been suggested that it came about because of the ancient Pharaonic belief that a person is born with both feminine and masculine souls. In the female the masculine soul was thought to be found in the clitoris, and therefore upon reaching puberty a young girl had to be relieved of her masculinity through circumcision as only then could she be identified as a full woman capable of the sexual life and marriage (Assaad, 1980). This reason has been cited in contemporary literature as one of the factors perpetuating the practice. Gruenbaum (2006) states that it is believed to make one fully female and feminine as the removal of tissue is thought to eliminate what are perceived as masculine parts.

2.3 Responses to the practice of FGC

The practice of FGC has been condemned globally as torturous and degrading to women and lacking respect for the dignity of women and girls (Nnaemeka, 2005). The WHO, the United Nations and other international organizations have come out in full force condemning the practice. It is seen as a serious violation of women's human rights particularly since there are no known health benefits for girls and women. The practice has for a long time been couched in secrecy and confusion and it is only in the last fifty years that it has been brought to the public fora. International conferences such as the Vienna Convention of 1993, and mainly the International Conference on Population and Development (ICPD) 1994 as well as the International Conference for Women in Beijing in 1995, played a pivotal role in highlighting the adverse consequences of the practice and in calling for international cooperation in abandoning the practice. The Vienna conference of 1993 was one of the first to highlight the predicament faced by women and also to include FGC as a part of human rights violations. The ICPD programme of action painted FGC as a basic rights violation and a lifelong threat to both women and girls' health, and governments the world over were urged to stop the practice as a matter of urgency. It emphasized reproductive rights, rights of female children as well as harmful traditional practices. Governments were encouraged to promote strong outreach community programmes that included village and community leaders, and to introduce education programmes highlighting the negative impact of FGC on women. In the

same vein, the 1995 Beijing Conference echoed the calls from ICPD by calling upon governments, NGOs and INGOs to come up with policies and programmes aimed at protecting the girl child against any form of discrimination and this included FGC. Also important is the Convention on the Elimination of all Forms of Discrimination Against Women (CEDAW) as it called for the eradication of this harmful practice.

In a research carried out in the Kuria district in Kenya, Ondiek (2010) found that FGM has different meanings to different people. To boys it means an available wife, to poor families it means a source of finance, as they are likely to gain economically when she gets married. The act of circumcision itself is a source of income to local practitioners as they charge a fee for the event. Ondiek also found out that in the Kuria district FGC has been practiced for years and that the community is set in its ways and not readily willing to adapt to a changing world around them, and this includes educating their children and therefore rites of passage such as FGC hinder the girl child's educational and professional development. This is likely to be the case in most practicing communities. Because most families who still believe in FGC are poor and uneducated, they will tend to place more importance on culture and tradition and are likely to shun anything that threatens their culture and tradition and that includes education.

A number of researches suggest that progress in eradicating FGC has been slow, as communities have resisted this change despite widespread campaigns highlighting the dangers associated with the practice (Nnaemeka, 2005, Gruenbaum, 2006, Bolin and Whelenhan, 2009, Sipsma and others, 2012). This is not necessarily because people are not aware of the fact that FGC can be harmful, even fatal and should be eliminated but because of the discourses and strategies with which such messages are disseminated. Research has shown that most campaigns against FGC have come about from a viewpoint of outrage, disgust and condemnation, and therefore are seen as a direct and aggressive attack on a people's core values, beliefs and traditions which have been a part of their very existence for generations (Nnaemeka 2005, Van Rossem and Gage 2009, Gruenbaum, 2006). Nnaemeka (2005) posits that debates on FGC have been met with conflict between Westerners and African feminists with regard to perceptions on the practice. On the one hand, the western view has been that the practice is barbaric and heathen while on the other African feminists argue that this viewpoint is not only prejudiced but lacks African reflection, and is therefore an attack on African cultures.

While a lot of research has lamented the slow progress recorded in the abandonment of FGC despite international campaigns against the practice, success stories have been recorded. A 2011 UNFPA report suggests that the rate of FGC abandonment has been accelerating, and this has been attributed to increased ownership of intervention programmes by local governments and communities. The report indicates that in Kenya progress on abandonment has been hastened by the introduction of legislation that categorically prohibits the practice of FGC, as well as an increase in the voice of young men publicly announcing their preference for uncut girls. Other countries cited to be recording accelerated declines include Eritrea, Djibouti, Guinea Bissau and Egypt, among others (UNFPA Annual Report 2011). Efforts have included the introduction of alternative rites of passages. In Senegal a programme called TOSTAN has witnessed significant progress in attitude change towards FGC. The main aim of TOSTAN was to mobilize communities to hold public declarations in support of the abandonment of harmful practices such as FGC. The programmes's success came about mainly because its purpose was promoting social change through educating community members to become agents of change in their communities (UNICEF Report 2008). In Kenya, a number of young men have come forward expressing their willingness to marry uncut girl. Community leaders have also come forward expressing their commitment to abandoning the practice in their communities. In Kenya, there is Maendeleo Ya Wanawake Organization (MYWO), which was introduced in a bid to implement community education aimed at eliminating FGC with the over-arching goal being to bring about behaviour change so as to eliminate FGC (maendeleo ya wanawake 2011). As is the case with TOSTAN, the programme has introduced alternative rites of passage where young girls are educated on issues relating to maturity and adulthood without being subjected to cutting of the genitalia.

However, this progress is measured not necessarily on actual recorded declines but on increased policies and programmes aimed at eradicating FGC and an increase in the number of people publicly professing their intention to abandon the practice. Livermore et al(2007), in a questionnaire-based study carried out in Kenya in 2007, found that there was a substantial decrease in the prevalence of FGC owing to increased awareness of health complications associated with the practice. That as it may, while it is imperative that there be significant progress in the abandonment of FGC for the benefit of women, the intention of this study is not necessarily to measure progress but to understand its effect on women's sexual behaviour.

2.4 Theory and Conceptual Framework

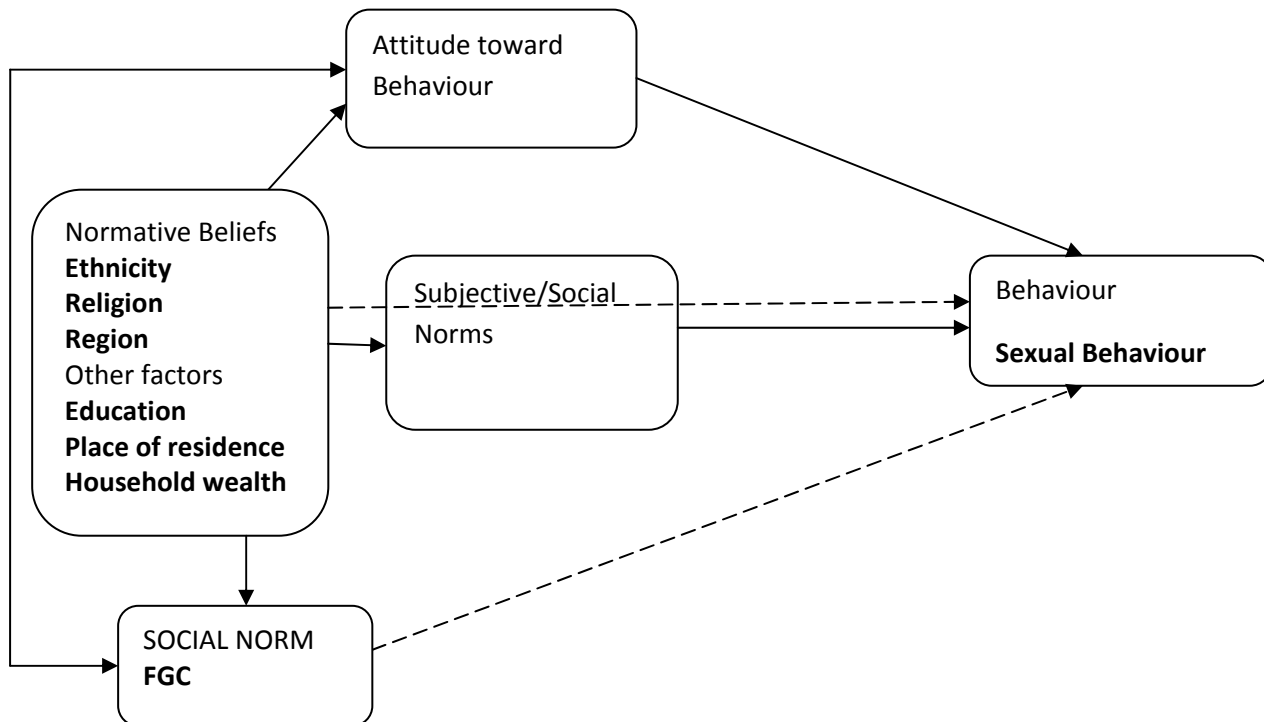
The study argues that one of the reasons for the resilience of FGC in practicing societies is that it is a practice that is highly embedded in culture and tradition. It is seen as an important aspect in the retention of a woman's virtue and enhances her chances of marriage. The Normative Social Influence theory (NSI) is adapted for this study. Normative social influence is defined as the influence to conform to the expectations of another (Deutsch and Gerard, 1955). The theory posits that individuals conform to particular behaviour because it is an expectation. This is associated with an expectation of either positive consequences such as acceptance, approval or enhancement of status or conformity because of fear of negative consequences such as disapproval or punishment.

Bicchieri (2006) speaks of social norms as being supported by and consisting of a cluster of self fulfilling expectations. From this perspective, it has been argued that FGC is a social norm because it meets a set of conditions, viz. that individuals are aware of the rule of behaviour regarding cutting and how it applies to them. Also that they will subscribe to this expectation as a result of them believing that the majority of their community will have their daughters circumcised and that that group expects them to cut their daughters and they may be sanctioned for failing to do so. According to a 2012 UNICEF report on FGC, there is a social obligation to conform to the practice and a belief that failure to conform will result in penalties such as social exclusion, criticism, ridicule, stigma and daughters failing to get suitable husbands. On the other hand, families will abandon the practice if they believe that other families in their social network either no longer practice or are abandoning FGC. In the case of FGC and sexual behaviour, the normative social influence theory comes into play in that the practice itself is perpetuated by conformity to social norms. Families continue the practice because of the perceived benefits that come with the practice such as protecting the virtue of women, enhancing marriageability chances as well as enhancing family status (Toubia, 1994). On the other hand, where success stories in as far as abandonment of the practice is concerned have been recorded, conformity comes into play as people within societies are influenced into accepting that the practice has negative rather than positive consequences for women. This generally comes about if families are convinced that a large part of their community no longer practices FGC or are ready to abandon the practice (UNICEF Report 2012).

Figure 1 illustrates the pathways through which FGC may influence the sexual behaviour of women. The conceptual framework is adapted and extended from the above theories to try and explain the relationship between sexual behaviour and FGC as well as other socio-demographic factors. Both theories emphasize the significance of social norms in influencing behaviour. The framework therefore follows the same premise that social behaviour is influenced by societal norms and that there are consequences to failing to adhere to such norms.

The bold lines indicate that there is a direct relationship between variables. The dotted lines indicate that whilst there is an indirect relationship between said variables and the outcome variable, i.e., there are other intermediate factors through which said variables affect the outcome variable; the variables also have a direct effect on the outcome variable. FGC can have a direct impact on women's sexual behaviour in that their circumcision status may influence their sexual behaviour through conforming to societal norms of propriety. Other sociodemographic factors may work through FGC to influence women's sexual behaviour. Sociodemographic factors may also have a direct impact on women's sexual behaviour. The conceptual model indicates that FGC is a means for control, in this case meant for controlling the sexual behaviour of women. Normative beliefs surrounding the practice are bound to have an influence on the attitude that women have on sexual behaviour and therefore also influence their intentions to engage in certain sexual behaviours. Research has shown that the practice is perpetuated by the fear of perceived negative outcomes associated with failure to conform to societal expectations. Families will subject their daughters to the practice because of the belief that it comes with positive outcomes that include sexual propriety as well as enhancing marriage prospects for their daughters (Assaad 1980, Van Rossem and Gage 2009, UNICEF Report 2012).

Figure 1: Conceptual framework for the Study of FGC and selected variables



Source: Adapted from Deutsch and Gerard 1955 .

2.5 Hypothesis Testing

Null Hypothesis: There is no difference in the sexual behavior of women who were circumcised and those who were not.

Research Hypothesis: There is a difference in the sexual behavior of women who were circumcised and those who were not.

Chapter 3: Methodology

3.1 Introduction

This chapter discusses the methodology employed in this study. Sources of the data used, the study population, sample design and size, the questionnaires used in the surveys are discussed. The section also looks at the analysis plan, which includes the univariate, bivariate and the multivariate levels of analysis.

3.2 Study Design

The study uses secondary data from two country surveys. It makes use of the Kenya Demographic and Health Survey (KDHS) 2008/2009 as well as the Nigeria Demographic and Health Survey (NDHS) of 2008.

The KDHS 2008-09 was carried out by the Kenya National Bureau of Statistics with the support of the National AIDS Control Council, the National AIDS/STD Control Programme, the Ministry of Health and Sanitation, the Kenya Medical Research Institute and the National Coordinating Agency for Population and Development with the technical support of the United States Agency for International Development (USAID) funded Measure DHS (KDHS 2008-09). Funding for the survey was provided by USAID/Kenya in conjunction with the United Nations Population Fund (UNFPA), the United Nations Children's Fund (UNICEF) and the World Bank (KDHS 2008-09).

This 2008-09 survey was carried out using a two stage sample design. The first stage entailed the selection of clusters from the national master sample frame. 400 clusters were selected with 133 urban and 267 rural clusters. The second stage of selection involved the systematic sampling of households from an updated list of households. All women aged 15-49 who were either usual residents or visitors present in sampled households on the night before the survey were eligible to be interviewed in the survey. (KDHS 2008/2009). The NDHS 2008 is the fourth of its kind in Nigeria and was conducted between June and September 2008.

In Nigeria, 33 385 women were successfully interviewed. Of these women, only 18 605 women were asked if they had ever been circumcised as the rest had never heard of the practice. 12 253 women were included in the current study. For the purposes of the survey, the country's preliminary census frame was used. Nigeria is divided into states and each state

is divided into local government areas (LGAs). The survey used enumeration areas (EAs) from the last census, which were classified as either rural or urban, as sampling units. In the census frame, the EAs are grouped by states, by LGAs within a state, and by localities within an LGA. Areas are classified as rural if they have less than 20 000 people. The cluster is the primary sampling unit with a minimum of 80 households. Because Nigeria is predominantly rural, urban areas in some states were oversampled so as to provide reliable information for the total urban population at national level (NDHS 2008).

The target for the survey in Nigeria was to interview 36 800 households. These were distributed in 888 clusters, 286 in urban areas and 602 in the rural areas. The sample was selected using a stratified two-stage cluster design. Weighting adjustment was performed as the sample was unbalanced among residence area and state (NDHS 2008).

3.2.1 Questionnaires

In both Kenya and Nigeria, the survey data was collected using three questionnaires. These comprised the women's, men's and household questionnaires. For this study, the women's questionnaire was used. In Kenya, the questionnaires were translated from English into Kiswahili and 10 other local languages (Kalenjin, Kamba, Kikuyu, Kisii, Luhya, Luo, Maasai, Meru, Mijikenda, and Somali) (KDHS 2008/2009). In Nigeria, the questionnaires were translated from English into three local languages, namely Hausa, Igbo and Yoruba (NDHS 2008).

Two pilot projects were conducted in the 12 districts of Kenya to test the questionnaires. There were twelve teams, (one for each language), comprising one female and male interviewer and a health worker. 260 households were covered in the pilot project (KDHS 2008/2009).

3.2.2 Training of Field Staff

In Kenya, the KNBS recruited research assistants and supervisors based on qualifications and experience particularly in past KDHS as well in health related sample surveys. 23 supervisors, 52 health workers, 92 female research assistants, 23 male research assistants, 23 field editors, 6 office editors, 4 quality assurance personnel and 5 reserves were recruited and trained in a three-week training session using the DHS standard training approach, was carried out from the 21st October to the 8th of November 2008 in Nakuru.

Participants were given three tests to help them grasp the concepts of the survey as well as completion of questionnaires. Health workers had a different class and they were trained by staff from KEMRI and NACC on how to administer the consent procedures, how to take blood tests for HIV and how to minimize risk when handling blood. Practice interviews were done by all trainees in selected households in Nakuru.

In Nigeria, 368 people were recruited and trained by NCP for the fieldwork. These comprised zonal coordinators, supervisors, field editors, female and male interviewers, reserve interviewers and quality control interviewers. The training for the main survey was conducted for three weeks in May-June 2008. 37 data collection teams were formed. 37 quality control interviewers were also selected.

3.2.3 Fieldwork

In Kenya, fieldwork commenced on the 13th of November 2008 until late February 2009. Each team was composed of 1 supervisor, 1 field editor, 4 female interviewers and 1 male interviewer, 2 health workers, 2 VCT counsellors and 1 driver. A few teams had 2 vehicles and 2 drivers. Field supervision was done by staff from KNBC and ICF Macro. A parallel team of 2 VCT counsellors was engaged to work with each team in order to address a need identified in related surveys of respondents expressing interests in learning of their HIV status.

All households were provided with brochures on HIV/AIDS and VCT. Eligible respondents were given numbered vouchers which were to be given to the VCT teams when the respondents went for VCT.

In Nigeria, 37 teams carried out the data collection for the survey and this was done over a period of 4 months from June to October 2008. Each team had 1 supervisor (team leader), 1 field editor, 4 female and 2 male interviewers, and 2 drivers. Fieldwork activities were coordinated and supervised by 19 senior NPC staff members who acted as zonal coordinators.

3.2.4 Study Population and Sample Size

In order to analyze the effect of FGC on sexual behaviour, a subset of the women in the DHS sample was selected. Women aged between the ages of 15 and 49 were interviewed in the two surveys and all were asked if they had ever heard of female circumcision to which the response was either yes or no. Only those women whose response was that they had heard of female circumcision were asked if they were circumcised. Those women who had never heard of the practice are therefore not part of this study. Therefore, the sample used in this study is limited to women who were asked if they had ever been circumcised, and who had engaged in sexual intercourse. This is because the study is interested in the sexual behaviour of the women vis-a-vis their circumcision status, and hence those women who had never been sexually active were excluded. Women who reported age at first intercourse as less than 14 or above 20 as well as those who reported having had more than five sexual partners were also excluded from the sample as their numbers were too small and it was felt that they would not make any difference to the study outcome.

In Kenya a nationally representative sample of 10 000 households was identified. The sample selected was not self-weighting, and hence it was imperative that a weighted analysis be used so as to ensure that the statistics in the report was nationally representative. Of the identified households, 8 444 women were successfully interviewed. Of these women, only 6 716 had ever heard of female circumcision and were thus asked if they had ever been circumcised. Of these women, 5 187 were included in the present study because they were sexually active (KDHS 2008/2009).

3.3 Variables and Variable Definition

3.3.1 Outcome variable

The outcome variable in this study is the respondent's sexual behaviour. This is measured using two indicators in the DHS, namely the respondent's age at first intercourse, and total lifetime number of sexual partners. These two indicators were chosen as measures of sexual behaviour because the researcher felt that they best represented sexual behaviour. Evidence from literature also suggests as much. Odimegwu and Okemgbo (2000), as well as Van Rossem and Gage (2009), measure sexual activity using age at sexual initiation. Number of sexual partners was chosen so as to assess whether there is a difference in number of partners

between circumcised and uncircumcised women with the expectation being that circumcised women will have fewer sexual partners. In the KDHS 2008, the variable age at first intercourse ranges from the age of 8 to 39. In this study, women who reported having their sexual debut between the ages of 14 and 20 were considered. The other age groups were excluded because the respondents in those age groups were so few (less than 5%) and it was felt that they would not make any difference to the study. The same was done for the NDHS 2008. There is also a category "no intercourse" which has been dropped because the population of interest is women who have engaged in sexual activity. The variable also had a category "at first union". Because age at first intercourse is a continuous variable, this category was quantified so that women's actual ages at first union were given. This was done on Stata 12.

The variable number of lifetime sexual partners was also truncated. While in the reports the range is from 1 to 60 in Kenya and 1 to 50 in Nigeria, for this study, the range considered is 1 to 5 sexual partners mainly because women who reported having more than five were very few. Also women whose response is "I don't know" were dropped.

3.3.2 Predictor variables

The main predictor variable is female genital cutting (FGC). All the women in the survey were asked if they had ever heard of circumcision and their response was either "yes" or "no". Only those women whose response was "yes" were then asked if they were circumcised or not. Women who were not aware of the practice of FGC are therefore not part of the study as they are deemed as being unaware of their circumcision status. This variable is thought to influence the sexual behaviour of women as measured by their age at first intercourse and the number of sexual partners.

The other predictor variables used in the study are outlined in Table 1. These include socioeconomic and demographic variables that are used to measure the background characteristics of the individual women. The socioeconomic status of the women is indicated using the variables "highest educational level" denoting the highest level of education reached by the respondent, "place of residence" referring to the place in which the respondent was interviewed which is either rural or urban as well as "wealth status". In the study, the variable "highest education" was truncated into three categories namely 'no education', 'primary' with secondary education and higher education being grouped into one category

'secondary and higher'. Wealth status was regrouped into three categories, which are 'poor', (poorest and poorer) 'middle' and 'rich' (richer and richest).

The demographic variables are "age of the respondent" indicating age at time of interview, "religion" which refers to the religious affiliation of the respondent, "region" referring to the region of residence where the interview took place. "Ethnicity" is another variable used which refers to the ethnic background of the respondent. For the purposes of this study, for both countries the different ethnic group were regrouped. In the KDHS there are 12 ethnic groups while in the NDHS there are 10 ethnic groups. While it is acknowledged that these ethnic groups have different cultural idiosyncrasies, for the sake of convenience they were grouped according to regional locale. The variable religion was regrouped into four categories. In Kenya these are 'Roman Catholic', 'Protestant/Other Christian', 'Muslim' and 'Other' while in Nigeria they are 'Catholic', 'Other Christian', 'Islam' and 'Other'. "Ethnicity" was regrouped into four main categories for each country. These predictor variables were selected because empirical evidence has shown that they may have an effect on circumcision as well as on the sexual behaviour of women either directly or indirectly. A 2008 UNICEF Report cites these factors as important differential markers of FGC prevalence rates. Stewart and other (2002) also identify these factors as having either a direct or indirect effect on sexual behaviour. Van Rossem and Gage (2009) also identify these factors as being associated with FGC.

Table 1: Variables used and their definitions.

Variable	Variable Definition	
Outcome Variable Sexual behaviour: <i>Age at first intercourse</i> <i>(this is a continuous variable)</i> <i>Number of lifetime sexual partners</i>	Kenya 14 - 20 1 2 3 4 5	Nigeria 14 -20 1 2 3 4 5
Main predictor Variable Female Genital Cutting	Have you yourself been circumcised? Yes (1) No (0)	Have you yourself been circumcised Yes (1) No (0)

Socioeconomic Variables		
Highest Level of Education	None (0) Primary (1) Secondary and Higher (2)	None (0) Primary (1) Secondary and Higher (2)
Place of Residence	Urban (1) Rural (2)	Urban (1) Rural (2)
Socioeconomic status Wealth status	Poor (0) Middle (1) Rich (2)	Poor (0) Middle (1) Rich (2)
Demographic Factors		
Age of Respondent	15-19(0) 20-24(1) 25-29(2) 30-34(3) 35-39(4) 40-44(5) 45-49(6)	15-19(0) 20-24(1) 25-29(2) 30-34(3) 35-39(4) 40-44(5) 45-49(6)
Region	Central region { <i>Nairobi, Central and the Coast</i> } (0) Eastern { <i>Eastern and North Eastern</i> } (1) Western { <i>Rift Valley, Western and Nyanza</i> }(2)	North { <i>Central, East and West</i> } (0) South { <i>East, South and West</i> } (1)
Ethnicity	Kikuyu { <i>Kikuyu, Embu, Kamba, Kikuyu, Meru, Taita/Taveta, Mijikenda Swahili</i> } (0) Somali and others (1) Luhya { <i>Kalenjin, Kisii, Luhya, Luo, Masai</i> } (2)	Hausa-Fulani (<i>Hausa, Fulani, Kanuri/Beriberi, Tiv, Igala</i>) (0) Igbo { <i>Igbo, Ijaw / Izon, Ibibio, Ekoi</i> } (1) Yoruba, (2) Others (3)
Religion	Muslim (0) Protestant/ Other Christian (1) Roman Catholic (2) Other (3)	Islam (0) Other Christian (1) Catholic (2) Other (3)

3.4 Data Analysis Plan

In order to estimate the effect that FGC and other selected sociodemographic variables have on women's sexual behaviour, in this case measured as age at first sexual intercourse and total number of lifetime partners, three levels of analysis were done in Stata 12. Stata 12 is a statistical package used for the management and analysis of data sets.

A univariate level of analysis of the data was performed which described all the predictor variables used and analyzed in this study and gave a summary of the distribution of the

respondents. A frequency distribution table is given in order to illustrate the summary. This is followed by a bivariate analysis using simple linear regression and Poisson regression. Simple linear regression is done for the continuous variable age at first intercourse while Poisson regression is used for the analysis of number of sexual partners, which is count data. This was done in order to measure the impact that each of the socioeconomic and demographic predictor variables as well FGC have on the outcome variable, in this case, women's sexual behaviour.

At the third level, a multivariate analysis is then carried out using multiple linear regression analysis for age at first intercourse as well as Poisson regression for total lifetime number of sexual partners. Logistic regression is also used to measure the relationship between FGC and the predictor variables which are level of education, place of residence, wealth status, age, region, ethnicity and religion. Multiple linear regression is used because 'age at first sexual intercourse' is continuous. Poisson regression is used because number of sexual partners is count data. Logistic regression is used because the circumcision variable is categorical. In the multivariate analysis, five models are used. The first model looks at the relationship between all the selected background factors and FGC. The second model looks at the association between all the selected background factors and sexual behaviour, the third looks at FGC and sexual behaviour and a fourth model will look at the association between FGC, all the other background factors and sexual behaviour. A final model looks at only those variables that were found significant in affecting sexual behaviour. This is done using the stepwise technique.

The linear regression model is expressed as follows:

$$y_i = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \dots + \beta_n x_{ni} + \epsilon_i$$

Where:

y_i : is the measurements on the response variable which is sexual behaviour measured using age first intercourse and number of lifetime sexual partners.

α and β (alpha and beta): are the parameters in the linear regression that we want to estimate

x_i : the measurements on the predictor variables

ϵ_i : represents the random variability (it represents the fact that our model will not perfectly fit the data collected) (Field, 2009).

The Poisson regression model was used because counts are positive integers and the Poisson mean is greater than zero. The logarithm of the response variable is linked to a linear function of explanatory variables such that:

$$\text{Log}_e(Y) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 \dots + \beta_n x_n$$

And so:

$$Y = (e^{\beta_0})(e^{\beta_1 x_1})(e^{\beta_2 x_2}) \dots$$

The Poisson regression model expresses the natural logarithm of the outcome of interest as a linear function of a set of predictors. The dependent variable is a count of the occurrences of interest (www.oxfordjournals.org).

The logistic regression model is as follows:

$$P(Y) = \frac{1}{1 + e^{-(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 \dots + \beta_n x_n)}}$$

In which:

$P(Y)$ is the probability of Y occurring ,

e is the base of the natural logarithms

α and β (alpha and beta): are the parameters in the linear regression that we want to estimate

x_i : the measurements on the predictor variables (Field, 2009)

3.5 Ethical Considerations

The study used secondary data where no personal names or information are used hence there is no risk of breaching the confidentiality of interviewees.

3.6 Study Limitations

Because the study looks at sexual behavior, which is a rather sensitive and taboo subject, there is likely to be under reporting of the number of lifetime sexual partners a woman has had. Another limitation of this study is that there is a possibility that women may misrepresent the age at which they had their sexual debut, particularly those who initiated sexual intercourse at a young age. Such misrepresentations may have come about as a result of women wanting to conform to cultural expectations about what is deemed appropriate sexual behaviour.

Also to be considered is the temporal factor. The age at which the circumcision takes place varies across cultures and social groups. Research has shown that circumcision can be performed on infants just after birth in some cultures while some perform the procedure on young girls. Some communities perform FGC just before marriage or before a woman has her first baby. Bearing this in mind, it can therefore be difficult to ascertain when exactly the procedure was performed, that is, before or after onset of sexual activity or marriage.

Finally, another limitation is a woman's number of marriages. It is possible that for some women, their number of sexual partners was determined by multiple marriages and therefore the sexual act was performed within a marital union or subsequent and consecutive monogamous relationship and does not necessarily go against expected sexual propriety.

3.7 Study setting

3.7.1 Kenya

The Republic of Kenya is located on the eastern part of Africa, sharing borders with Ethiopia in the North, Somalia to the northwest, Tanzania in the south, Uganda and the Lake Victoria to the west as well as Sudan in the northwest.

The country is divided into 8 provinces, namely Nairobi, which is also the capital and largest city, the Rift Valley, Nyanza, the Eastern, Central, North and Western province and the Coast. It is made up of diverse ethnic groups, the Kikuyu 22%, Luhya 14%, Luo 13%, Kalenjin 12%, Kamba 11%, Kisii 6%, Meru 6%, and other ethnic groups which include the Taita, Taveta, Embu Somali, and the Masai making up 15%. The non-African population which comprises Asians, Europeans and Arabs makes up 1% of the population. The official languages are English and Swahili. Kenya covers 580 367 square kilometres and of this 571 466 is the land area (KDHS 2008/9). Most of the land is arid or semi arid with only 20% being arable.

According to the World Bank (2013), the population of Kenya is estimated at 44 137 656. The current growth rate is estimated at about 2.8% (KDHS 2008/09) and this has been attributed to declining fertility rates in recent decades. The country's fertility rates have fallen tremendously from around 8.1 in the 1970s to 4.6 in 2008, and 3.97 in 2012 (NCPD 2012). Teenage fertility has also been on the decline from 23% in 2003 to 18% in 2008. The country's growth rate was estimated to be at 2.8% in 2008. The Republic of Kenya is a young population, with about 60% of the population being under the age of 24. The country is

predominantly rural, with only 24% of the population being in the urban areas. 80% of the population can read and write.

According to the World Bank, Kenya is rated the 17th poorest nation in the world (Kaburi et al 2012). However, it is the largest economy in Eastern Africa. Economic development is hampered by a combination of corruption and reliance on primary goods whose prices remain low and its GDP growth rate is failing to keep up with its population growth (Kaburi et al 2012). Another reason cited for slow growth rate particularly in the last decade or so has been violence that erupted after the elections, exorbitant prices for food and fuel as well as the floundering global economy. According to the KDHS 2008/09, the country's economy is based on agriculture and it also has a strong industrial base. The country's economy grew by about 7% in the first decade after independence due to growth in the manufacturing sector as well as improvement in agriculture followed by a gradual decline. The decline was attributed to both internal and external influences, which included the world recession as well as droughts. As a result, the Kenyan people's welfare has declined and this has also meant failure to create a viable job market for the increasing labour force (KDHS 2008-9). In a bid to reverse the economic decline, the government introduced the Economic Recovery Strategy (ERS) for Wealth and Employment Creation in 2003 and this resulted in a steady economy growth of 0.5% in 2002 to 7% in 2007. Following this success the government went on to launch the Vision 2030 so as to consolidate gains from the ERS as well as to transform the country into an industrialized middle income country by 2030.

The 2007 International Religious Freedom Report states that Kenya is a predominantly Christian country with 82.5% of the population being Christian. The majority of these (47.4%) are Protestant, 23.3% are Catholic, while 11.8% belong to other Christian denominations. 11.1% are Muslim, 1.6% are traditionalist and 1.7% belong to other religions with 2.4 not belonging to any religion (KDHS 2008-9).

School enrolment has increased in the past decade at all levels of education particularly in primary and secondary schools, which have witnessed a doubling in enrolment in recent years (NCPD 2012).

3.7.2 Nigeria

The Federal Republic of Nigeria is located in West Africa. The country consists of 36 states and its capital city is Abuja. The country comprises about 500 different ethnic groups and the three largest are the Hausa, the Yoruba and the Igbo. According to the CIA fact-book, Nigeria

is the most populous country in Africa and the seventh most populous in the world with a population of 155 million people (NDHS 2008).

Nigeria is a predominantly agricultural economy. However, over the years, this has been overtaken by the discovery of oil and hence the country's economy is relies heavily on reserves of oil and gas (NDHS 2008). 99% of the country's export revenue, 78% of government revenue and 38.8% of national GDP comes from oil and gas reserves. The country produces crude oil and is the fifth largest exporter of crude oil in the OPEC. It also has vast gas and solid mineral reserves. Mohamed Chambas, Secretary General of the African, Caribbean and Pacific Group argues that despite such huge potential, Nigeria's economic and social conditions have remained far below the minimum expectations of its citizens. The country ranks 158 out of 177 on the UNDP's HDI with a large proportion of citizens having limited or no access to basic services such as clean water, electricity and basic health care.

In terms of education, there are huge disparities between the north and the south with the predominantly Muslin northerners lagging behind. There have been a number of educational policy changes in a bid to address these disparities. The country's educational policy provides for free education at primary level for all resulting in increases in the number of school enrolments and educational institutions across the country (NDHS 2008).

The country's population is estimated at 155 million with a national growth rate of around 3.2% per annum (NDHS 2008).

Chapter 4: Results

4.1 Introduction

This chapter looks at the statistical analysis of the data. The first section looks at the univariate analysis of the data. This gives a summary of the outcome and predictor variables using frequency tables which give a general picture of the study population. This is followed by the bivariate analysis which is used to show the association between each predictor variable and the outcome variables. For this purpose, simple linear regression and Poisson regression will be used. Regression analysis is used to fit a predictive model to data and use that model to predict values of the dependent variable from one or more independent variables (Field, 2000). Linear regression is used when one has collected data on two or more variables and wants to examine the actual relationship between the numeric response (outcome) variable and the predictor variables. In this case, simple linear regression is being used to examine the relationship between the outcome variable age at first intercourse, and each of the predictor variables which are FGC and the socioeconomic and demographic factors. Poisson regression is used for the analysis of the relationship between number of sexual partners and each of the predictor variables. Poisson regression is used when the outcome variable is numeric but in the form of counts. The aim of the regression analysis in this instance is to model the outcome variable as the estimate of the outcome using the explanatory variables. The exponential of the coefficient, which will be interpreted as the odds ratio, and its level of significance will be used to assess this relationship. The final section is the multivariate analysis using multiple linear regression and Poisson regression for the same reasons highlighted in the bivariate analysis. As is the case with the bivariate analysis, the exponential of the coefficient, the odds ratio, and its level of significance are given. A multivariate analysis using logistic regression is also done to investigate the relationship between the main predictor variable FGC and the other predictor variables. Logistic regression is used because FGC is a binary variable.

4.2 Univariate analysis

The results yielded by the univariate analysis of the Kenya 2008-09 DHS as well the Nigeria DHS 2008 are shown in Table 2. These illustrate the distribution of the women who were interviewed by to their background characteristics. It also gives a summary of the women according to their circumcision status, that is, if they were circumcised or not.

Table 2: Distribution of women who have ever heard of circumcision by background characteristics KDHS (2008-09) and NDHS (2008)

Variable	Kenya		Nigeria	
	Frequency	Percentage	Frequency	Percentage
Socioeconomic				
<i>Highest level of education</i>				
No education	456	8.79	3 338	27.26
Primary	3 140	60.53	2 954	24.13
Secondary and higher	1 591	30.68	5 951	48.61
Total	5 187	100.00	12 253	100.00
<i>Place of residence</i>				
Urban	1 241	23.94	5 060	41.33
Rural	3 946	76.06	7 183	58.67
Total	5 187	100.00	12 253	100.00
<i>Wealth status</i>				
Poor	1 810	34.88	3 377	27.59
Middle	1 009	19.47	2 376	19.41
Rich	2 368	45.65	6 490	53.01
Total	5 187	100.00	12 253	100.00
Demographic Factors				
<i>Age</i>				
15-19	457	9.37	1 113	9.09
20-24	1 202	23.18	2455	20.05
25-29	1 030	19.86	2 534	20.70
30-34	861	16.60	2 006	16.35
35-39	603	11.63	1 658	13.54
40-44	549	10.58	1 255	10.25
45-49	455	8.77	1 222	9.98
Total	5 187	100	12 253	100
<i>Region(Kenya)</i>				
Central	1 332	25.68		
Eastern	938	18.08		
Western	2 917	56.23		
Total	5 187	100.00		
<i>Region (Nigeria)</i>				
North			4 008	32.74
South			8 235	67.26
Total			12 253	100.00
<i>Religion (Kenya)</i>				
Catholic	1 144	22.07		
Protestant/other Christian	3 585	69.09		
Muslim	339	6.54		
Other	119	2.30		
Total	5 187	100.00		
<i>Religion (Nigeria)</i>				
Islam			4 571	37.33
Catholic			1 493	12.20

Other Christian			5 983	48.87
Other			196	1.60
Total			12 253	100.00
<i>Ethnicity (Kenya)</i>				
Kikuyu	2 150	41.46		
Somali and others	286	5.51		
Luhya	2 751	53.03		
Total	5 187	100.00		
<i>Ethnicity (Nigeria)</i>				
Hausa-Fulani			2 955	24.14
Igbo			3 699	30.21
Yoruba			3 094	25.27
Others			2 495	20.38
Total			12 253	100.00
<i>Respondent Circumcised</i>				
No	3 556	68.56	6 253	50.99
Yes	1 631	31.44	6 000	49.01
Total	5 187	100.00	12 253	100.00

Table 2 gives a breakdown of the distribution of women in the study according to various socioeconomic and demographic characteristics. In Kenya, the majority of women in the study population (60.53%) have primary education, while 8.79% are not educated at all and 30.68% have secondary and higher education. In the case of Nigeria, the majority of women (48.61%) have secondary and higher education with 24.13% having acquired primary education and 27.26% with no education at all.

With regard to place of residence of the respondents, in both Kenya and Nigeria, more women in the study population reside in rural areas than in urban areas. In Kenya, 76.06% of the women live in rural areas while in Nigeria 58.67% are in rural areas. 23.94% of women in Kenya live in urban areas, while in Nigeria it is 41.33%. This is not surprising as most African countries have a larger percentage of the population residing in rural areas.

It can be seen from the table that in terms of religious affiliation most of the Kenyan women belong to the Protestant or other Christian faith religions. This category makes up 69% of the population. The Muslim community makes up 6.54% while about 22% of the women are Catholic. In Nigeria, most women fall into the other Christian category making up almost 50% of the population. The Islam faith comes second with 37%. The Catholic and other religions make up 12% and 2% respectively.

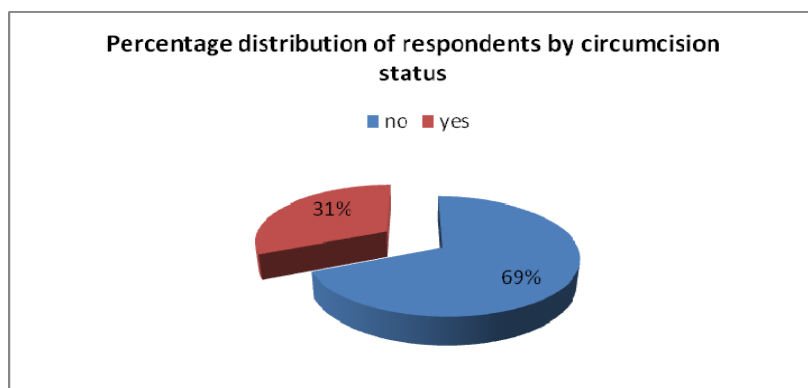
From the table, it is also evident that in Kenya, most women are located in the Western region with 56.23% of the women residing there while the least number of women reside in the Eastern region of the country (18.08%). In Nigeria, most of the population is in the Southern region of the country making up 67.26% of the population while the North makes up 32.74%.

With regard to wealth status, the table illustrates that for Kenya, most of the women in the study population fall within the rich quintile (46%). Poor women comprise 35% while those in the middle quintile make up the least of the population at 19%. Nigeria also has more women in the rich quintile (53%) followed by the poor quintile at 27.59% and the middle quintile comprises 19.41%.

Regarding ethnicity, in Kenya the majority of the women fall within the Luhya cluster at 53% followed by the Kikuyu cluster (41%) and the least number of women in the study are Somali and other ethnic groups. In Nigeria, most of the women are Igbo (30.21%) followed by the Yoruba at 25.27%, Hausa-Fulani at 24.14% with other smaller ethnic groups being the least at 20.38%.

It is also evident from Table 2 that for Kenya 68.56% of the women are not circumcised while 31.44% are circumcised. In Nigeria on the other hand, 51% of the women in the study population are not circumcised while 49% are circumcised.

Figure 2: Percentage distribution of women according to circumcision status in Kenya



As can be seen in figure 2 above, 31% of the respondents in Kenya are circumcised while 69% are not circumcised.

Figure 3: Percentage distribution of women by age at first intercourse and circumcision status in Kenya

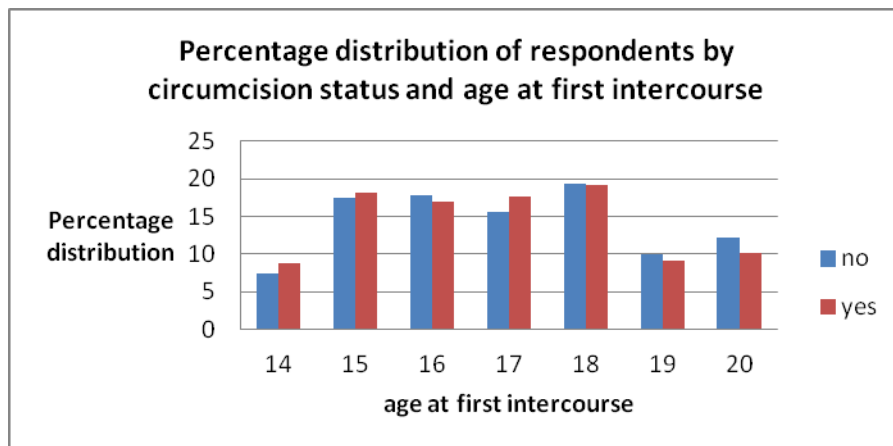
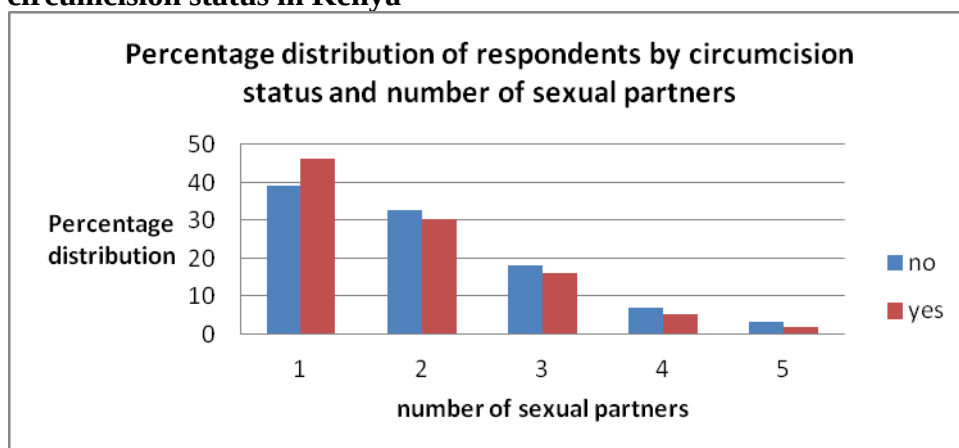


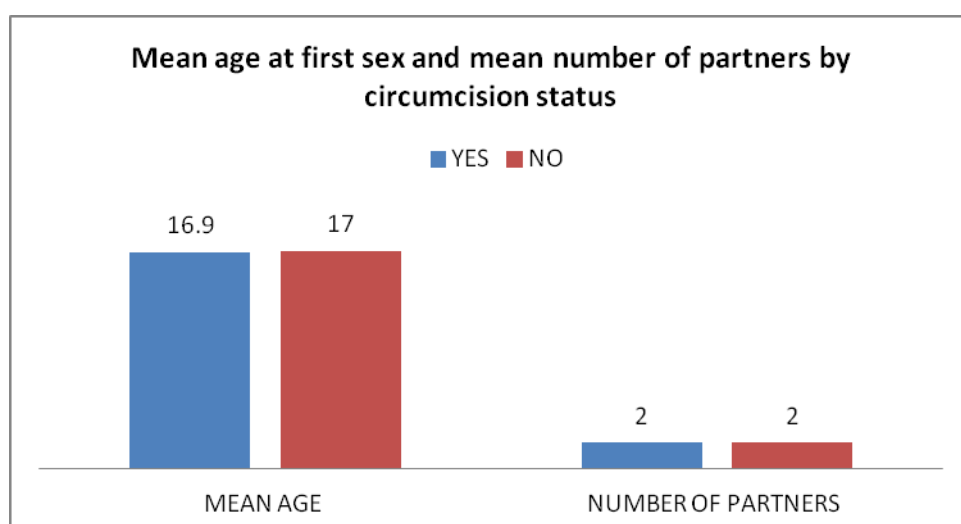
Figure 3 above is an illustration of the distribution of the respondents in the study population by age at first intercourse and their circumcision status in Kenya. Of the 5 187 women used in the study 9% of the circumcised population had their sexual debut at the age of 14 compared to 7.5% of uncircumcised women. About 18% of the circumcised and uncircumcised had sex by age 15. Eighteen percent of circumcised women initiated sex at the age of 17 compared to 15.5% of the uncircumcised while 19% of those who were circumcised and uncircumcised had sex at the age of 18. Also, about 9% of the circumcised compared to 10% of the uncircumcised had their first sex at the 19 while 10% of the circumcised had their sexual debut at age 20 compared to 12% of those who were not circumcised. These results seem to suggest that there is not that much difference in the age at which circumcised and uncircumcised women engage in their first sexual activity.

Figure 4: Percentage distribution of women by number of sexual partners and circumcision status in Kenya



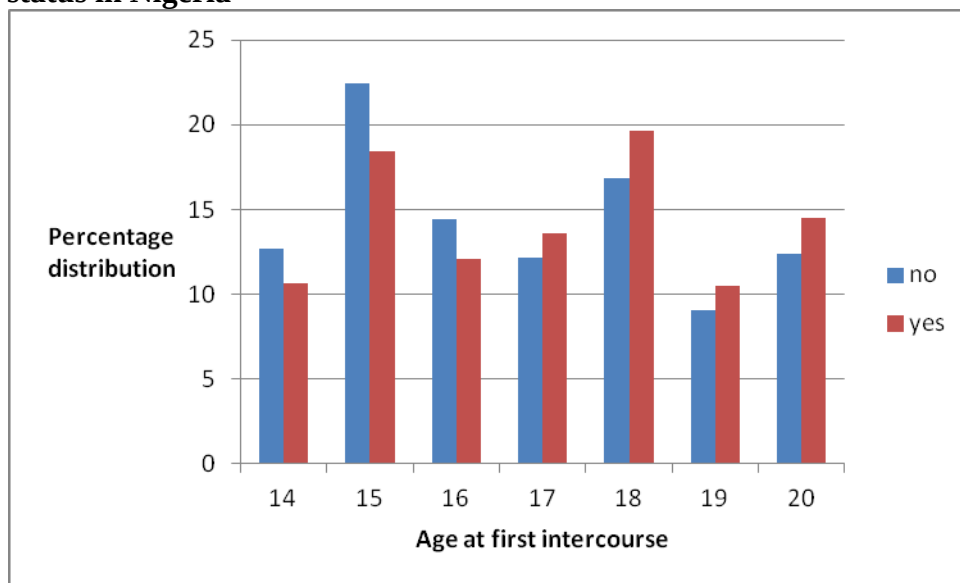
The results indicate that 46% of women who were circumcised reported having had one sexual partner compared to 39% of uncircumcised women. Less than a third of the circumcised reported having two sexual partners whilst a third of the uncircumcised had two partners. Sixteen percent of circumcised women reported having had 3 sexual partners compared to 18% of the uncircumcised. The table also shows that 5% of the circumcised had 4 sexual partners while 7% of the uncircumcised had the same number of partners and 2% of the circumcised reported having had at least 5 sexual partners in their lifetime compared to 3% of those who were not circumcised. These findings are an indication that there is no difference in the number of sexual partners that circumcised and uncircumcised women have, this seems to suggest that circumcision has no effect on the number of sexual partners that women have.

Figure 5: Mean age at first intercourse and mean number of sexual partners by circumcision status in Kenya



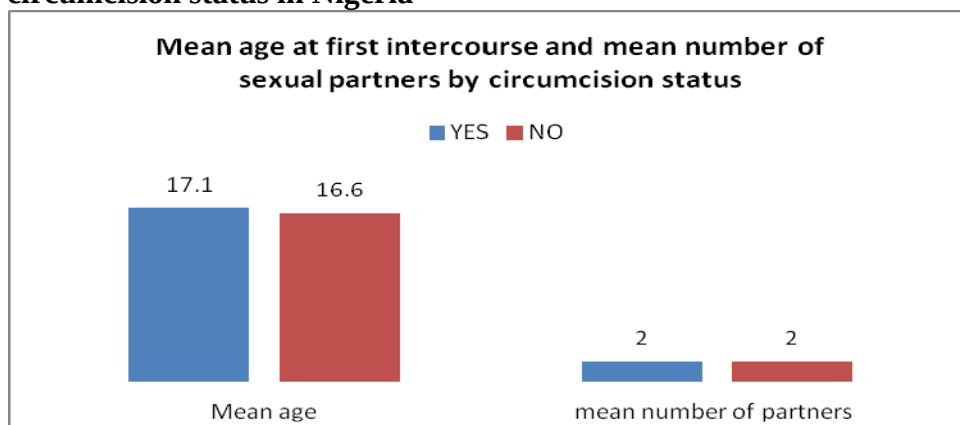
The results above indicate that the mean age at first intercourse in Kenya for circumcised women is 16.9 years while for the uncircumcised it is 17 years. This shows that there is no difference in the age at which circumcised and uncircumcised women first engage in sexual intercourse. The mean number of sexual partners for both circumcised and uncircumcised women is 2 partners also an indication that there is no difference in sexual behaviour.

Figure 6: Percentage distribution of women by age at first intercourse and circumcision status in Nigeria



The above is a display of the distribution of respondents in Nigeria by circumcision status and age at first intercourse. It is clear that in Nigeria, 11% of circumcised women compared to 13% of those who are not circumcised had their sexual debut at the age of 14. About a fifth of both the circumcised (18%) and uncircumcised (22%) had their first sex at the age of 15 while 12% and 14% of the circumcised and uncircumcised had their first sex at the age of 16. Figure 8 also shows that for the circumcised 14% and 12% uncircumcised had their sexual debut at the age of 17. Twenty percent of the circumcised and 17% uncircumcised had their first sex at the age of 18 with 11% circumcised and 9% uncircumcised at the age of 19. Finally, 15% of the circumcised compared to 12% of the uncircumcised had their sexual debut at the age of 20. These findings also suggests that there is little difference in the sexual behaviour of women who are circumcised and those who are not.

Figure 7: Mean age at first intercourse and mean number of sexual partners by circumcision status in Nigeria



The mean age at first intercourse for circumcised women in Nigeria is 17.1 years while for the uncircumcised it is 16.6 years. This indicates that there really is no difference between the two groups. The mean number of sexual partners for the circumcised and uncircumcised women is 2 partners also showing that there is no difference between the two groups of women.

4.3 Bivariate analysis

A bivariate analysis was carried out so as to test if a relationship exists between sexual behaviour (age at first intercourse and total lifetime number of sexual partners), and female genital cutting as well as the selected socioeconomic and demographic variables used in the study which are level of education, place of residence, age, wealth status, religion, region and ethnicity. Simple linear regression was used to analyze the relationship between age at first intercourse and all the independent variables. For the analysis of total lifetime number of sexual partners, Poisson regression was used.

The results of the bivariate analysis are shown on Table 3. The exponential of the coefficient, interpreted as the odds ratio, is used to determine the relationship between each predictor variable and the outcome variables. From the table, it can be seen that in Kenya, for women who are circumcised, age at first intercourse decreases by 11% compared to women who are not circumcised. With regard to the number of lifetime sexual partners, the table indicates that there is a decrease of only 9% in the number of sexual partners for women who are circumcised compared to women who are not circumcised. This difference is negligible hence indicating that there is not much of a difference in number of sexual partners for circumcised and uncircumcised women in Kenya. In Nigeria on the other hand, compared to women who are not circumcised, age at first intercourse is 1.35 times more likely to increase for women who are circumcised while there is no difference in the number of lifetime sexual partners for circumcised women compared to those who are not circumcised as there is only a difference of 5%.

Table 3: Bivariate analysis of sexual behaviour and predictor variables using simple linear regression and Poisson regression

	Age at first intercourse		Total lifetime number of sexual partners	
	Kenya	Nigeria	Kenya	Nigeria
<i>Circumcision</i>				
No	R.C	R.C	R.C	R.C
Yes	0.89*	1.35*	0.91*	0.95*
<i>Highest educational level</i>				
No education	R.C	R.C	R.C	R.C
Primary	1.20*	2.51*	1.27*	1.27*
Secondary and higher	3.29*	4.90*	1.23*	1.45*
<i>Type of place of residence</i>				
Urban	R.C	R.C	R.C	R.C
Rural	0.46*	0.44*	0.94*	0.91*
<i>Age</i>				
15-19	RC	RC	RC	RC
20-24	3.22*	4.01*	1.23*	1.27*
25-29	3.63*	4.06*	1.38*	1.45*
30-34	2.92*	3.25*	1.46*	1.46*
35-39	3.03*	2.89*	1.39*	1.42*
40-44	3.32*	2.80*	1.49*	1.38*
45-49	2.61*	2.89*	1.30*	1.30*
<i>Wealth Status</i>				
Poor	R.C	R.C	R.C	R.C
Middle	1.15*	1.84*	1.02	1.16*
Rich	2.18*	3.86*	1.07*	1.26*
<i>Region (Kenya)</i>				
Central	R.C		R.C	
Eastern	0.62*		0.99	
Western	0.46*		0.94*	
<i>Region (Nigeria)</i>				
North		R.C		R.C
South		3.53*		1.43*
<i>Religion</i>				
Muslim	R.C		R.C	
Catholic	1.23		1.45*	
Protestant/other christian	1.15		1.35*	
Other	0.86		1.25*	
<i>Religion (Nigeria)</i>				
Islam		R.C		R.C
Catholic		2.75*		1.31*
Other Christian		2.66*		1.42*
Other		1.70*		1.25*
<i>Ethnicity</i>				
Kikuyu+	R.C		R.C	
Somali and others	0.55*		0.64*	
Luhya+	0.53*		0.94*	
<i>Ethnicity (Nigeria)</i>				
Hausa-Fulani		R.C		R.C

Igbo		4.01*		1.52*
Yoruba		6.55*		1.38*
Others		3.29*		1.40*

NB: R.C refers to reference category. * p<0.05

With regard to highest level of education, in Kenya, women educated up secondary level and higher are 3 times more likely to delay engaging in sexual activity compared to women who are not educated while those with primary education are 1.2 times more likely to delay intercourse. A substantial increase is realised in the number of lifetime sexual partners for women with primary education (1.23) and secondary and higher education (1.27) compared to women who are not educated. For Nigeria, compared to women with no education, total number of lifetime sexual partners increases significantly for women educated up to primary level and the same is true for those with secondary and higher education. Age at first intercourse increases significantly for women with primary education and secondary and higher education as primary educated women are 2.51 times more likely to delay engaging in sexual activity and those with secondary and higher education are almost 5 times more likely to delay engaging in sexual activity for the first time.

Compared to women who live in urban areas, rural women are 0.46 times more likely to engage in their first intercourse at an earlier age in Kenya. Total lifetime number of sexual partners also decreases significantly for women in rural areas compared to women in urban areas. However, the difference between the two categories is only 6% hence one can conclude that there is not that much of a difference in number of sexual partners for the two groups of women. In Nigeria, rural women are more likely to engage in sexual activity at an earlier age compared to urban women while number of sexual partners decreases by just 9% for women in rural areas compared to women in urban areas which is not that much hence one may conclude that there is no difference. The age of the respondent was found to have a significant effect on sexual behaviour. Age at first intercourse tended to increase with age and so did the number of sexual partners. Also older women seemed to have more sexual partners than 15 to 19 year olds. Women aged 20-29 were 4 times more likely have more sexual partners than the 15-19 year olds and this likelihood decreased for older women.

Regarding wealth status, both Kenya and Nigeria indicate a significant increase in the age at first intercourse for women from the middle quintile and rich quintile (Kenya: 1.26 times and 2.14, Nigeria: 1.72 and 3.42 times). The same goes for total lifetime sexual partners in Nigeria. There is a significant increase in the number of partners for women from the middle

and rich quintiles compared to poor women (Nigeria: 1.16 and 1.26). In Kenya, however, there does not seem to be any relationship between wealth status and number of sexual partners as there is only a difference of less than 10% for richer women compared with poor women.

The table also shows that in Kenya, compared to women from the Central region, there is a significant decrease in age at first intercourse of (38%) for women from the Eastern region and for women from the western region (54%). In Nigeria, there is a significant increase in age at first intercourse for women from the South compared to the North (3.53). Regarding number of sexual partners, in Kenya, there is no difference in number of sexual partners in terms of region. The data show that women from the Eastern region are only 1% more likely to have fewer sexual partners compared to women from the Central region while those from the West are only 6% more likely to have fewer sexual partners. In Nigeria, however, there is a significant increase as Southern women are 1.4 times more likely to have more sexual partners compared to Northern women.

With respect to religion in Kenya, compared to women of Muslim faith, there is a significant increase in the age at first intercourse for women of Catholic, Protestant and other religions, but the results are statistically insignificant. Regarding number of sexual partners, women of Muslim religion seem to have fewer sexual partners as there is a significant increase in number for Catholics, Protestants and other religions. In Nigeria, there is a significant increase in age at first intercourse for women of Catholic faith (2.75), other Christian religion (2.66) and other religions (1.7) compared to women who are Islamic. Regarding number of sexual partners, compared to Islamic women, Catholic women are 1.3 times more likely to have more sexual partners, other Christian women are 1.4 times more likely and other religions are 1.3 times more likely to have more sexual partners than Islamic women.

The relationship between ethnicity and sexual behaviour is also shown in the table. For Kenya, compared to Kikuyu women, regarding age at first intercourse, the Somali and others ethnic group as well as the Luhya ethnic group are more likely to have their sexual debut at a younger age. The Somali and other ethnic group, is more likely to have fewer lifetime sexual partners compared to the Kikuyu. For Nigeria, compared to women of Hausa-Fulani origin, the Igbo, Yoruba and other ethnic group are more likely to delay engaging in sexual activity. With respect to number of sexual partners, there is a significant increase in number of sexual partners for the Igbo, the Yoruba, and Other ethnic group.

4.4 Multivariate Analysis

This section looks at the relationship between sexual behaviour and FGC as well as all the selected variables used in this study. A multiple linear regression analysis was carried out for the analysis of age at first intercourse whilst a Poisson regression was carried out for the analysis of total lifetime number of sexual partners and the exponential of the coefficient was used to determine the direction of the relationship. This was taken as the odds ratio. Logistic regression was used to analyze the relationship between FGC and the other predictor variables.

For this purpose four regression models were performed. The first model looks at the relationship between circumcision and sexual behaviour. The other variables are excluded from the model so as to assess how FGC alone influences sexual behaviour. The second model looks at the relationship between FGC and all the other predictor variables. This was done to assess how these variables influence FGC. The third model looks at the relationship between sexual behaviour and all the other predictor variables excluding FGC. This was performed so as to examine the impact of these variables on sexual behaviour. Finally, the fourth model looks at sexual behaviour and FGC having controlled for the other variables used in the study.

Table 4: Multiple Linear Regression analysis of FGC and sexual behaviour

MODEL 1	Kenya				Nigeria			
	Coefficient exponent	P> t	Coefficient exponent		Coefficient exponent	P> t	Coefficient exponent	P> t
Variable	Age at first intercourse		Total lifetime number of sexual partners		Age at first intercourse		Total lifetime number of sexual partners	
<i>Circumcision</i>								
No	R.C		R.C		R.C		R.C	
Yes	0.89*	0.027	0.91*	0.000	1.35*	0.000	0.95*	0.001
<i>Age at first intercourse</i>				<i>Age at first intercourse</i>				
F (1, 5185) 4.91				F (1, 12241) 75.04				
Prob>F 0.0267				Prob>F 0.0000				
R ² 0.0009				R ² 0.0061				
Adjusted R ² 0.0009				Adjusted R ² 0.0060				
<i>Total lifetime number of sexual partners</i>				<i>Total lifetime number of sexual partners</i>				
Log likelihood -7802.2711				Log likelihood -17110.122				
LR chi(2) 16.16				LR chi2 (1) 11.38				
Prob>chi2 0.0001				Prob>chi2 0.0007				
Pseudo R ² 0.0010				Pseudo R ² 0.0003				

*RC is the reference category, * p<0.05*

4.4.1 Female Genital Cutting and sexual behaviour

The model above is a regression of the relationship between sexual behaviour and the circumcision status of the respondents. As can be seen from Table 4, regarding age at first intercourse, in Kenya there is a decrease of only 11% in age at first intercourse for circumcised women compared to uncircumcised. This indicates that there is not much of a difference in behaviour between the two groups of women. In Nigeria, there is a significant increase in age as circumcised women are 1.35 times more likely to delay sexual activity compared to women who are not circumcised. The relationship between circumcision status and total lifetime number of sexual partners in Kenya is shown to decrease the number of sexual partners a woman has in her lifetime by only 9%, while in Nigeria, the number decreases by just 5% indicating that there is no difference in the number of sexual partners circumcised and uncircumcised women will have in their lifetime.

The F statistic in the linear regression output tests the null hypothesis that there is no relationship between x and y . It is a measure of how much the model has improved the prediction of the outcome compared to the level of inaccuracy of the model (Field 2009). A significant result for the F statistic will denote that a relationship exists as described by the straight line model. In Kenya, the F ratio is 4.91 and it is significant as Prob > F is 0.0267, which is less than 0.05. This indicates that the regression model is significant. In other words, the model predicts sexual behaviour significantly well. The R^2 is 0.0009, meaning that only 0.09% of the variation in sexual behaviour is explained by the model. The adjusted R^2 is 0.0009 which also indicates that most of the variation in sexual behaviour is attributable to other factors not included in the model. In Nigeria, the F ratio is 75 and is significant, an indication that the model is significant in predicting sexual behaviour. The R^2 is quite low. Only 0.06% of the variation in sexual behaviour is explained by the model.

In the Poisson regression output for both countries, the log likelihood is quite high, an indication that most of the variation in sexual behaviour has not been explained by the model. There are other factors that are responsible for the variance. The Likelihood Ratio χ^2 (LR χ^2) also tests the null hypothesis that there is no relationship between the outcome and predictor variables and in both countries it is significant ($p < 0.05$) an indication that a relationship exists between the outcome and predictor variables. This indicates that the model as a whole is statistically significant. The pseudo R^2 is quite low for both countries, (less than

1%) which also shows that most of the variation in sexual behaviour cannot be explained by the model.

Table 5: Odds Ratios from logistic regression analysis examining the association between FGC and Sociodemographic characteristics.

MODEL 2	Kenya FGC		Nigeria FGC	
Variable	Odds Ratio	P> t 	Odds Ratio	P> t
<i>Highest level of education</i>				
No education	R.C			
Primary	0.69*	0.003	1.11	0.107
Secondary and higher	0.62*	0.001	0.84*	0.012
<i>Place of residence</i>				
Urban	R.C			
Rural	1.72*	0.000	1.13*	0.008
<i>Age</i>				
15-19	RC		RC	
20-24	1.44*	0.011	1.30*	0.001
25-29	1.91*	0.000	1.33*	0.000
30-34	2.62*	0.000	1.33*	0.000
35-39	3.01*	0.000	1.56*	0.000
40-44	4.22*	0.000	1.81*	0.000
45-49	5.19*	0.000	1.93*	0.000
<i>Wealth status</i>				
Poor	R.C			
Middle	0.90	0.213	1.11	0.083
Rich	0.70*	0.000	1.17	0.050
<i>Region</i>				
Central	R.C			
Eastern	1.94*	0.000		
Western	0.89	0.338		
<i>Region</i>				
North			R.C	
South			2.85*	0.000
<i>Religion</i>				
Muslim	R.C			
Catholic	0.82	0.226		
Protestant/other Christian	0.63	0.004		
Other	1.35	0.238		
<i>Religion</i>				
Islam			R.C	
Catholic			0.58*	0.000
Other Christian			0.45*	0.000
Other			0.85	0.327
<i>Ethnicity</i>				
Kikuyu	R.C			
Somali and others	4.30*	0.000		
Luhya	1.66*	0.000		
<i>Ethnicity</i>				

Hausa-Fulani			R.C	
Igbo			1.27*	0.008
Yoruba			2.32*	0.000
Others			0.88	0.112
Log likelihood	-2877.49		-7837.53	
LR chi2 (18)	704.87		1292.84	
Prob > chi2	0.000		0.000	
Pseudo R2	0.1091		0.0762	

RC is the reference category, * $p < 0.05$

4.4.2 Correlates of FGC

Table 5 is an illustration of the logistic regression results of the relationship between the explanatory variables used in the study. Logistic regression is used in this case because FGC is the outcome variable and it is dichotomous. The table highlights the relationship between the main explanatory variable FGC and all the other explanatory variables. Odds ratios and level of significance are given for FGC by the various explanatory variables.

The table clearly shows that in Kenya, women with primary and secondary and higher education were significantly less likely to be circumcised than those who are not educated (0.52 and 0.49 respectively). In Nigeria women with secondary and higher education are also significantly less likely (0.72) to be circumcised compared to women with no education. Research has shown that while it is difficult to establish a relationship between circumcision status and educational levels prevalence is lower among the educated, which clearly indicates that girls who are circumcised are most likely going to attain lower levels of education. Regarding place of residence of the respondent, the table indicates that rural residence increases the chances of circumcision compared to urban residence (1.86 Kenya, 1.12 Nigeria). Age was also found to have a significant effect on the likelihood of circumcision. The chances that a woman was circumcised tended to increase with age in both Kenya and Nigeria. This is evidence of lower prevalence of circumcision among younger women.

The table also shows that in Kenya, a woman's wealth status had an effect on her chances of being circumcised. Compared to poor women, women from the rich wealth quintile are 27% less likely to be circumcised. For Nigeria the data indicate that women from the middle and rich wealth quintiles are more likely to be circumcised compared to poor women but the result is statistically insignificant. In terms of region, in Kenya, women from the eastern region have a higher chance of being circumcised compared to women from the central region (1.88, $p < 0.001$). In Nigeria, region has an effect on circumcision status, as women

from the south are 2.8 times more likely to be circumcised compared to women from the north. Women from the Protestant religion are 28% less likely to be circumcised compared to Muslim women in Kenya.

It is also evident from the table that regarding ethnicity, in Kenya, women of Somali and others ethnic group are 3.3 times more likely to be circumcised compared to the Kikuyu ethnic group while the Luhya are 1.4 times more likely to be circumcised compared to the Kikuyu. In Nigeria, ethnicity is significantly associated with circumcision. The Igbo are 1.3 times more likely to be circumcised compared to the Hausa-Fulani while the Yoruba are 2.5 times more likely to be circumcised compared to the Hausa-Fulani women.

For both Kenya and Nigeria, the Log likelihood is quite high which means that most of the variation in circumcision is not explained by the fitted model. The pseudo R^2 is low, 11% in Kenya and 8% in Nigeria. This also shows that about 90% of the variation in circumcision is accounted for by other factors not included in the model. The LR χ^2 is significant ($p < 0.05$) which is an indication that the model is significant in predicting circumcision.

Table 6: Odds ratios from regression analyses examining the association between sexual behaviour and predictor variables excluding FGC

MODEL 3	Age at first intercourse				Total lifetime number of sexual partners			
Variable	Kenya		Nigeria		Kenya		Nigeria	
	Coefficient exponent	P> t	Coefficient exponent	P> t	Coefficient exponent	P> t	Coefficient exponent	P> t
Highest level of education								
No education	R.C 1.22*	0.043	R.C 1.26*	0.000	R.C 1.13*	0.010	R.C 1.06*	0.016
Primary	2.85*	0.000	1.99*	0.000	1.04	0.384	1.19*	0.000
Secondary and higher								
Place of residence								
Urban	R.C 0.81*	0.003	R.C 0.76*	0.000	R.C 0.94*	0.044	R.C 0.98	0.257
Rural								
Age								
15-19	RC 2.92*	0.000	3.46*	0.000	1.22*	0.000	1.25*	0.000
20-24	3.19*	0.000	3.56*	0.000	1.38*	0.000	1.45*	0.000
25-29	2.59*	0.000	3.06*	0.000	1.45*	0.000	1.46*	0.000
30-34	2.86*	0.000	2.75*	0.000	1.40*	0.000	1.43*	0.000
35-39	3.00*	0.000	2.80*	0.000	1.51*	0.000	1.40*	0.000
40-44	2.69*	0.000	3.10*	0.000	1.31*	0.000	1.35*	0.000
45-49								
Wealth status								
Poor	R.C 0.92	0.215	R.C 1.12*	0.021	R.C 0.99	0.678	R.C 1.01	0.580
Middle	1.16*	0.021	1.39*	0.000	1.03	0.244	1.00	0.874
Rich								
Region								

Central	R.C				R.C			
Eastern	0.84*	0.023			1.04	0.246		
Western	0.81*	0.007			0.94	0.063		
Region			R.C				R.C	
North			1.14*	0.025			1.23*	0.000
South								
Religion	R.C				R.C			
Muslim	1.20	0.145			1.31*	0.000		
Catholic	1.19	0.158			1.22*	0.000		
Protestant/other	1.08	0.686			1.19*	0.045		
Christian								
Other								
Religion			R.C				R.C	
Islam			1.65*	0.000			1.05	0.097
Catholic			1.31*	0.000			1.14*	0.000
Other Christian			1.45*	0.005			1.09	0.122
Other								
Ethnicity	R.C				R.C			
Kikuyu	0.94	0.658			0.79*	0.000		
Somali and others	0.66*	0.000			1.04	0.235		
Others								
Ethnicity			R.C				R.C	
Hausa-Fulani			1.51*	0.000			1.04	0.304
Igbo			2.77*	0.000			0.97	0.398
Yoruba			1.60*	0.000			1.04	0.164
Others								
Kenya (age at first intercourse)				Nigeria (age at first intercourse)				
<i>F</i> (18, 5168)				<i>F</i> (18, 12224)				
47.45				182.67				
<i>Prob>F</i>				0.000				
0.0000				0.000				
<i>R</i> ²				0.2120				
0.1418				0.2108				
<i>Adjusted R</i> ²				0.2108				
0.1390								
Total lifetime number of sexual partners				Total lifetime number of sexual partners				
<i>Log likelihood</i>				<i>Log likelihood</i>				
-7888.4548				-166648.768				
<i>LR chi</i> ²				<i>LR chi</i> ²				
243.79				934.09				
<i>Prob>chi</i> ²				<i>Prob>chi</i> ²				
0.0000				0.0000				
<i>Pseudo R</i> ²				<i>Pseudo R</i> ²				
0.0156				0.0273				

RC is the reference category, * $p < 0.05$

4.4.3 Correlates of sexual behaviour excluding FGC

Age at first Intercourse

Table 6 is an illustration of the results from the regression of sexual behaviour (age at first intercourse and total lifetime number of sexual partners) with all the explanatory variables, save for circumcision status. In Kenya and Nigeria, age at first intercourse increases with education. Compared to women who are not educated, age at first intercourse increases significantly in Kenya and in Nigeria for women with secondary and higher education. In Kenya, women with secondary and higher education are 2.7 times more likely to delay their sexual debut while in Nigeria they are 1.9 times more likely to delay compared to women who are not educated.

Place of residence was found to have an influence on age at first intercourse for women in both countries according to the data. Women who reside in rural areas are more likely to have sexual intercourse at an earlier age compared to urban women. In Nigeria, rural women are 26% more likely to have sexual intercourse at an earlier age compared to urban women. For both countries, wealth status seems to result in an increase in age at first intercourse. Age at first sex was found to increase with a woman's age. Compared to women who are poor, women in the middle quintile were more likely to engage in sexual activity at a later age in Kenya while in Nigeria women from the middle and rich quintiles were more likely to delay onset on sexual activity compared to poor women. Wealth had no significant effect on number of sexual partners in both countries. Also, in Kenya, compared to women from the Central region, age at first intercourse decreases significantly for women from regions in the East and West (0.84 and 0.81). In Nigeria, the results indicate that women from the south are more likely to delay sexual activity. The results indicate a substantial difference in number of sexual partners between the two regions, with Southern women more likely to have more sexual partners than Northern women.

With respect to religion, Table 6 indicates that in Kenya, there is no relationship between age at first intercourse and religion. The results indicate an increase in age for women of Catholic, Protestant and other religion but they are statistically insignificant. In Nigeria, there is a decrease in age at first intercourse for women from Catholic, other Christian and other religions compared to Islamic women. Regarding ethnicity, in Kenya, there is a decrease in age at first intercourse for Luhya women compared to the Kikuyu. In Nigeria, age at first intercourse increases significantly for women from the Igbo, Yoruba and others ethnic groupings compared to the Hausa-Fulani ethnic group. The data indicates that Igbo women are 1.55 times more likely to delay sexual activity, the Yoruba are almost 3 times more likely to delay and the other ethnic groups are almost 1.7 times more likely to delay sexual intercourse.

The p value for the model in both Kenya and Nigeria is significant which shows that this model fits the data well. This means that the model is a good predictor of sexual behaviour. The R^2 in Kenya is 14%. This means that only 14% of the variation in sexual behaviour is explained by the model. In Nigeria, the R^2 is 21%, an indication that most of the variation in sexual behaviour is explained by other factors not included in the model.

Total lifetime number of sexual partners

For Kenya, a woman's level of education has no effect on the number of sexual partners she will have in her lifetime. In Nigeria, women with secondary and higher education are significantly more likely to have more lifetime sexual partners compared to uneducated women. In both Kenya and Nigeria, there is not much difference in number of sexual partners for rural and urban women though the result is insignificant. Place of residence has no significant effect on the number of sexual partners a woman will have in her lifetime. The age of the woman was found to have an effect on number of sexual partners as the results show that older women were likely to have more sexual partners. A woman's wealth status also has no significant effect on number of lifetime sexual partners for either country.

Regarding region, in Nigeria, there seems to be an increase in number of sexual partners for women from the South compared to those from the North (1.22, $p < 0.001$). However, when it comes to Kenya, the results indicate that region has no statistically significant effect on number of sexual partners. When it comes to religion, in Kenya, there is an increase in number of sexual partners for women of Catholic, Protestant and other Christian religion compared to Muslim women. On the other hand, in Nigeria, there is an increase in number of sexual partners for Protestant women compared to Islamic women. The results show a decrease (23%) in number of sexual partners for women of Somali origin compared to Kikuyu women in Kenya. In Nigeria, ethnicity has no significant effect on number of sexual partners, signalling that there is no difference in number of sexual partners a woman will have by ethnic orientation.

In both Kenya and Nigeria, the log likelihood is high, indicating that the model does not explain most of the variation in sexual behaviour. The chi square p value is significant in both countries, which shows that the model as a whole is statistically significant. The pseudo R^2 in Kenya is 0.0156 which means that only 1.5% of the variation in sexual behaviour is accounted for by the model; the rest is explained by other factors not included in the model. In Nigeria, the pseudo R^2 is 0.0273. This indicates that only 2.7% of the variation in sexual behaviour is explained by the model.

Table 7: Full Model of Correlates of Sexual behaviour

Variable	Age at first intercourse				Total lifetime number of sexual partners			
MODEL 4	Kenya		Nigeria		Kenya		Nigeria	
	Coefficient exponent	P> t	Coefficient exponent	P> t	Coefficient exponent	P> t	Coefficient exponent	P> t
<i>Circumcision</i> No Yes	R.C 1.04	 0.429	R.C 1.06	 0.068	R.C 0.91*	 0.000	R.C 0.91*	 0.000
<i>Highest level of education</i> No education Primary Secondary and higher	R.C 1.23* 2.89*	 0.040 0.000	R.C 1.25* 2.01*	 0.000 0.000	R.C 1.12* 1.03	 0.016 0.504	R.C 1.06* 1.17*	 0.012 0.000
<i>Place of residence</i> Urban Rural	R.C 0.81*	 0.003*	R.C 0.75*	 0.000	R.C 0.95	 0.075	R.C 0.98	 0.301
<i>Age</i> 15-19 20-24 25-29 30-34 35-39 40-44 45-49	RC 2.92* 3.19* 2.56* 2.86* 2.97* 2.66*	 0.000 0.000 0.000 0.000 0.000 0.000	RC 3.42* 3.56* 3.03* 2.72* 2.80* 3.06*	 0.000 0.000 0.000 0.000 0.000 0.000	RC 1.23* 1.39* 1.46* 1.42* 1.54* 1.35*	 0.000 0.000 0.000 0.000 0.000 0.000	RC 1.26* 1.45* 1.49* 1.45* 1.43* 1.38*	 0.000 0.000 0.000 0.000 0.000 0.000
<i>Wealth status</i> Poor Middle Rich	R.C 0.92 1.17*	 0.221 0.019	R.C 1.12* 1.39*	 0.022 0.000	R.C 0.99 1.03	 0.628 0.348	R.C 1.01 1.01	 0.510 0.808
<i>Region (Kenya)</i> Central Eastern Western	R.C 0.84* 0.81*	 0.020 0.019			R.C 1.05 0.94	 0.151 0.060		
<i>Region (Nigeria)</i> North South			R.C 1.13*	 0.046			R.C 1.26*	 0.000
<i>Religion (Kenya)</i> Muslim Catholic Protestant/other Christian Other	R.C 1.20 1.19 1.07	 0.143 0.151 0.699			R.C 1.31* 1.22* 1.20*	 0.000 0.000 0.037		
<i>Religion (Nigeria)</i> Islam Catholic Other Christian Other			R.C 1.65* 1.32* 1.45*	 0.000 0.000 0.005			R.C 1.04 1.12* 1.09	 0.170 0.000 0.123
<i>Ethnicity(Kenya)</i> Kikuyu Somali and others Luhya	R.C 0.93 0.66*	 0.593 0.000			R.C 0.80* 1.04	 0.001 0.179		
<i>Ethnicity(Nigeria)</i> Hausa-Fulani Igbo Yoruba Others			R.C 1.51* 2.75* 1.60*	 0.000 0.000 0.000			R.C 1.04 0.99 1.04	 0.251 0.773 0.183
<i>Kenya (age at first intercourse)</i> <i>F (19, 5167)</i>				<i>Nigeria (age at first intercourse)</i> <i>F (19, 12223)</i>				
44.98				173.27				

<i>Prob>F</i>	0.0000	<i>Prob>F</i>	0.000
<i>R²</i>	0.1419	<i>R²</i>	0.2122
<i>Adjusted R²</i>	0.1389	<i>Adjusted R²</i>	0.2110
<i>Total lifetime number of sexual partners</i>		<i>Total lifetime number of sexual partners</i>	
<i>Log likelihood</i>	-7681.4096	<i>Log likelihood</i>	-16628.31
<i>LR chi2 (19)</i>	258.88	<i>LR chi2 (19)</i>	975.00
<i>Prob>chi2</i>	0.0000	<i>Prob>chi2</i>	0.0000
<i>Pseudo R²</i>	0.0165	<i>Pseudo R²</i>	0.0285

RC is the reference category, * p<0.05

4.4.4 Full Model of Correlates of sexual behaviour

Age at first intercourse

Table 7 is an illustration of the multivariate analysis of the association between the outcome variables and all the explanatory variables used in this study. As is evident from the table, age at first intercourse increases for circumcised women in both Kenya and Nigeria compared to their uncircumcised counterparts. In Kenya, however, the data indicates that the result is statistically insignificant. In Nigeria there is a difference of just 9%, which is quite small. One can therefore conclude that there is no difference in the age at which women engage in sexual intercourse between the circumcised and the uncircumcised. This indicates that there is no relationship between circumcision and age at onset of sexual activity. The respondent's level of education is shown to also increase age at first intercourse in both countries. Primary education results in an increase in age at first intercourse in Nigeria (1.26) and women with secondary and higher education are almost twice as likely to delay sexual activity. In Kenya women with secondary and higher education are 2.7 times more likely to delay onset of sexual activity.

It can be observed from the table that rural residence results in a decline in age at first intercourse for women in Kenya and Nigeria compared to those who reside in urban areas. In both countries, women in rural areas are more likely to begin sexual activity at a younger age compared to women in urban areas. From the table it can also be seen that for both countries, age at first intercourse increases with a woman's age. The wealth status of the respondents indicates that in both countries richer quintile women are likely to engage in their sexual experience at a later age compared to poor women. In Kenya rich women are 1.2 times more likely to delay sexual activity while in Nigeria they are 1.5 times more likely to delay.

It is also clear from the table that women from the Eastern and Western regions seem to engage in sexual activity at a younger age than those from the Central region (OR: 0.82, 0.81,

$p < 0.05$). This is also the case in Nigeria as women from the South engage in sexual intercourse at a later age. Regarding religion, in Kenya, while the data indicate that Muslim women will more likely engage in sexual intercourse at a younger age compared to Muslim women the result is statistically insignificant indicating that there is no relationship between religion and age at first intercourse. In Nigeria on the other hand age increases significantly for women of Catholic, Other Christian and other religions compared to Islamic women.

In Kenya, the table shows that for the Somali and others ethnic group, age at first intercourse decreases compared to the Kikuyu but the odds are statistically insignificant while it decreases significantly for the Luhya (OR: 0.63, $p < 0.05$). In the case of Nigeria, the age at first intercourse increases significantly for all the other ethnic groupings compared to the Hausa-Fulani ethnic group.

Generally, the results show that the model is statistically significant. In both Kenya and Nigeria, the p value for the model is 0.0000, an indication that the variables are important determinants of sexual behaviour. In Kenya the R^2 is 0.1419, which shows that only 14% of the variation in sexual behaviour can be explained by the model. In Nigeria, the R^2 is 0.2122, meaning that 21% of the variation in sexual behaviour can be explained by the model. The rest is explained by other factors not included in the model.

Total lifetime number of sexual partners

In both Kenya and Nigeria, the number of sexual partners decreases for circumcised women compared to women who are not circumcised. However, the percentage decrease is quite negligible (less than 10% for both countries). This suggests that circumcision does not really influence the sexual behaviour of women in that circumcised women will have more or less the same number of lifetime sexual partners.

The table also shows that in Kenya, a woman's education does not influence the number of sexual partners she will have in her lifetime. Not only are the results statistically insignificant, but the percentage difference between the number of partners for circumcised and uncircumcised women is really small. In Nigeria, women with secondary and higher education seem to have more sexual partners than their uneducated counterparts. Place of residence does not seem to affect number of sexual partners in either country. In both countries the odds are statistically insignificant but they indicate that there is not much of a

difference in terms of the number of sexual partners rural and urban women will have in their lifetime (OR: 0.95 and 0.98, $p>0.05$).

In both Kenya and Nigeria, the number of sexual partners that a woman has seems to increase with her age. For both countries, the odds for the respondents' wealth status are statistically insignificant though they indicate that there is not much difference in sexual behaviour with an increase in wealth compared to poorer women. This is an indication that wealth has no effect on number of sexual partners.

With regard to region, in Nigeria, the number of sexual partners increases significantly for women from the South compared to women from the North (OR: 1.25, $p<0.001$). In Kenya, while the odds are statistically insignificant they also indicate that there is no difference in the number of sexual partners by region, meaning that region has no significant effect on the number of sexual partners Kenyan women will have in their lifetime. While religion in Kenya indicates an increase in the number of sexual partners for Catholic, Protestant and other Christian religions compared to the Muslims, in Nigeria, there is a significant increase in number for Protestant women compared to the Islam. In Kenya, ethnicity has a significant influence on number of lifetime sexual partners. Women from the Somali and others ethnic group seem to have fewer sexual partners compared to Kikuyu women. In Nigeria, the results indicate that there is no difference in the sexual behaviour according to ethnicity.

The results from the model above indicate that in both Kenya and Nigeria, the log-likelihood is high meaning that most of the variation in sexual behaviour is not explained by the model but by other factors not included in the model. The LR χ^2 p value is 0.0000 in both countries which shows that the model as a whole is significant in predicting sexual behaviour. The Pseudo χ^2 in Kenya is 0.0165 indicating that only about 2% of the difference in sexual behaviour is attributable to the model. In Nigeria the Pseudo χ^2 is 0.0285, meaning that about 3% of the variation in sexual behaviour is explained by the model. The rest can be accounted for by other factors that were not included in the model.

Table 8: Critical variables

Variable	Age at first Intercourse		Total lifetime number of sexual partners	
	Kenya	Nigeria	Kenya	Nigeria
	Coefficient	Coefficient	Coefficient	Coefficient

	Exponent	exponent	exponent	exponent
<i>Highest level of education</i>				
No education	RC	R.C	RC	RC
Primary	0.24*	1.26*	1.13*	1.06*
Secondary and higher	1.10*	1.99*	1.08	1.19*
<i>Place of residence</i>				
Urban	RC	R.C	***	***
Rural	0.82*	0.76*		
<i>Age</i>				
15-19	RC		RC	RC
20-24	2.94*	3.46*	1.23*	1.25*
25-29	3.19*	3.56*	1.39*	1.45*
30-34	2.59*	3.06*	1.45*	1.46*
35-39	2.86*	2.75*	1.39*	1.43*
40-44	3.03*	2.80*	1.49*	1.40*
45-49	2.72*	3.10*	1.30*	1.35*
<i>Wealth status</i>				
Poor	RC	R.C	***	***
Middle	0.92	1.12*		
Rich	1.17*	1.39*		
<i>Region (Kenya)</i>				
Central	RC		***	
East	0.84*			
West	0.82*			
<i>Region (Nigeria)</i>				
North		R.C		RC
South		1.14*		1.22*
<i>Religion</i>				
Islam	***	R.C	RC	RC
Catholic		1.65*	1.26*	1.09*
Protestant		1.31*	1.17*	1.17*
Other		1.45*	1.12	1.13*
<i>Ethnicity (Kenya)</i>				
Kikuyu	RC		RC	
Somali and others	0.88		0.76*	
Luhya	0.66*		0.96	
<i>Ethnicity (Nigeria)</i>				
Hausa-Fulani		RC	***	***
Igbo		1.51*		
Yoruba		2.77*		
Other		1.60*		
<i>Kenya (age at first intercourse)</i>		<i>Nigeria (age at first intercourse)</i>		
<i>F</i> (15, 5171)	44.98	<i>F</i> (18, 12224)		182.67
<i>Prob>F</i>	0.0000	<i>Prob>F</i>		0.000
<i>R</i>²	0.1414	<i>R</i>²		0.2120
<i>Adjusted R</i>²	0.1391	<i>Adjusted R</i>²		0.2108
<i>Total lifetime number of sexual partners</i>		<i>Total lifetime number of sexual partners</i>		
<i>Log likelihood</i>	-7698.561	<i>Log likelihood</i>		-16655.399

<i>LR chi2</i> (13)	223.58	<i>LR chi2</i> (12)	920.82
<i>Prob>chi2</i>	0.0000	<i>Prob>chi2</i>	0.0000
<i>Pseudo R²</i>	0.0143	<i>Pseudo R²</i>	0.0269

* $p < 0.05$, *** variable dropped from model

4.4.5 Critical variables

Table 8 displays the variables that were found to significantly affect the sexual behaviour of women in Kenya and Nigeria. This was done using the stepwise technique, in this case backward elimination, whereby all the variables that were found to be insignificant were removed from the full model. As can be seen, in Kenya, the variables that were found to affect age at first intercourse are highest level of education, place of residence, age of the respondent, wealth status, religion and ethnicity while in Nigeria all the predictor variables except for circumcision were found to have an impact on age at first intercourse. Regarding number of sexual partners, in Kenya the significant predictor variables are level of education, age, religion and ethnicity while in Nigeria they are level of education, age, region and religion.

4.5 Hypothesis Testing

The findings in this study do not support the hypothesis that there is a difference in the sexual behaviour of women who were circumcised and those who were not. The research hypothesis was that there is a difference in sexual behaviour according to the circumcision status of women. It was hypothesized that cut women would exercise restraint when it came to sexual behaviour. Circumcision as a social practice is believed to temper female sexual behaviour with cut women refraining from premarital sex and practice marital fidelity. A finding that circumcised women delayed sexual activity and had fewer sexual partners than uncircumcised women would have supported the belief that circumcision is a useful tool of controlling female sexual behaviour. However, this study found this not to hold true. There is no difference in the sexual behaviour of women as a result of their circumcision status.

Chapter 5: Discussion, Conclusions and Recommendations

5.1 Discussion

The purpose of this study was to examine the relationship between female genital cutting (FGC) and the sexual behavior of women in Kenya and Nigeria. It was aimed at examining whether the practice of FGC influenced the age at which women initiated sexual activity as well as the number of sexual partners they have in their lifetime. This was based on the argument that the practice of FGC is essential because it controls a woman's sexual desire thereby preserving her virtue before marriage and consequently enhances her chances of marriage and ultimately ensures marital fidelity. It has been argued that circumcised women practice sexual restraint compared to women who are not circumcised (Odimegwu and Okemgbo, 2000). If this premise were true, one would expect to find that circumcised women delayed engaging in sexual activity and also had fewer sexual partners in their lifetime compared to women who are not circumcised.

The findings from the study indicate that in Kenya, about a third of the women (31%) are circumcised while almost half (49.01%) of women in the Nigeria study population are circumcised. While the prevalence of circumcision in Kenya is almost similar to the figures given in the KDHS 2008-09, which is 27.1%, there is a huge difference between the prevalence established in this study for Nigeria and the prevalence stated by the NDHS 2008, which is at 30%. The percentage established in this study seems to concur with findings from Okhiai et al (2011), who state that country reports on human rights practices place national prevalence at between 40% and 60%. Ibekwe et al (2012) also state that the country prevalence averages 50%. The study also identified the determinants of FGC in the two countries. In Kenya they are education, age, place of residence, wealth status, religion and ethnicity. In Nigeria they are education, age, place of residence, region, religion and ethnicity. This is in line with the 2008 UNICEF Report, which identified these sociodemographic factors as determinants of FGC.

The study also shows that around sixty percent of the women in both countries initiate sexual activity by the age of 17 (60% in Kenya and 58% in Nigeria). This concurs with the KDHS, which places the mean age at first intercourse at 17 years and the NDHS, which places mean age at 17.8 years. The majority of the women in both countries report to having had one lifetime sexual partner. In Kenya, 41% of the women reported having one partner and up to

32% report having at most two sexual partners in their lifetime, with only 3% reporting 5 sexual partners. The percentage is much higher for Nigeria, with 57% of the women reporting having had only one sexual partner while 27% report having just two sexual partners with only 2% reporting 5 sexual partners. While these figures are not necessarily related to the practice of FGC, they need to be taken with caution as studies have found that women have a propensity to minimize the number of sexual partners they have had in a bid to conform to cultural expectations about what is deemed appropriate sexual behaviour (Wiederman 1997). In the same vein, the study findings show that in Kenya, about the same percentage of circumcised and uncircumcised women initiate sex at an early age. Nine percent of circumcised women had sexual activity at the age of fourteen compared to 8% of uncircumcised women. Almost 60% of circumcised women have begun sexual intercourse by the age of 17 compared to 62% of uncircumcised women. The figures concur with the percentage shown to initiate sex by age 17 regardless of circumcision status. From these initial findings, one may conclude that circumcision does not influence age at first intercourse in Kenya.

In Nigeria, the relationship between circumcision and age at first intercourse shows that 62% of uncircumcised women would have initiated sexual activity by age 17 compared to 55% of circumcised women. There is not much difference in number of sexual partners by circumcision status in Nigeria. About 60% of both circumcised and uncircumcised women report having only 1 partner, and around 28% circumcised and 26% uncircumcised report having had up to two partners. This seems to suggest that FGC does not really influence sexual behaviour of women.

The foundation for the practice of FGC is that the practice promotes chastity among women. Circumcised women will conform to expected sexual behaviour and will therefore delay sexual intercourse and will have significantly fewer sexual partners than uncircumcised women. However, initial results suggest that in Kenya, circumcised women engage in sexual activity for the first time at a younger age than their uncircumcised counterparts. This finding defeats the whole purpose of the practice, as it seems FGC fails in tempering female sexual urges. On the other hand, in Nigeria, circumcised women will engage in sexual activity at a later age than uncircumcised women. This means that without controlling for other factors, FGC does succeed in controlling female sexual behaviour. It is also indicated that in Kenya and Nigeria, circumcised women are more likely to have fewer sexual partners compared to uncircumcised women. However, while this may be the case, the decrease in number is really

small that it is negligible. This can be taken to mean that there really is not that much of a difference in the number of sexual partners for circumcised and uncircumcised women thereby rendering the purpose of FGC moot.

Looking at the net effect of FGC on sexual behaviour of women, the multivariate analysis results show that in Kenya circumcision has no significant effect on the sexual behaviour of women. Even after controlling for other variables, circumcision did not seem to have an effect on the age at which women initiate sexual activity in Kenya. This testified to the notion that circumcision has nothing to do with the age at which women will engage in sexual activity for the first time. The same goes for the number of lifetime sexual partners a woman will have. There was no significant difference in the number of sexual partners that a circumcised and an uncircumcised woman would have in her lifetime. The difference between the number of lifetime sexual partners for circumcised and uncircumcised women in Kenya is insignificant. This finding therefore brings into question the very basis of the existence and perpetuation of the practice of circumcision as it does not seem to be achieving the role that it is purported to play in the lives of women. If FGC was an effective tool for controlling female sexual behaviour, one would expect that there would be a significant difference in the sexual behaviour of women depending on their circumcision status with circumcised women displaying more restraint when it comes to their sexuality. One of the key reasons for the continuation of this practice is its role in restraining and controlling female sexual desire and that it shapes female sexual behaviour to match local ideals regarding sexual propriety. As has been shown, however, circumcision did not make any difference when it came to sexual behaviour of Kenyan women and this leads to the conclusion that this is a practice that communities are hanging on to in the name of culture and tradition and more importantly for fear of ostracism and loss of status in the community. FGC does not play its expected role at all in the Kenyan community.

Findings in Kenya are in line with a similar study carried out in Guinea, which found that some of the common reasons given for FGC were not supported by statistical evidence. In their study looking at the effect of FGC on onset of sexual activity and marriage in Guinea, Van Rossem and Gage (2009) found FGC to be ineffective in controlling female sexuality. They therefore argue that such a finding is an indication of the erosion of traditional beliefs and rationalizations regarding this practice. Odimegwu and Okemgbo (2000) also found no statistical significant relationship between sexual activity and FGC in adolescents in a Nigerian state. Both studies posit that any relationship that may exist between FGC and

sexual behaviour could be as a result of other factors. According to the KDHS 2008 women's attitude towards the practice of FGC has been declining over the years. In 2008, 82% of respondents believed that the practiced should be stopped.

In the case of Nigeria, preliminary findings suggest that circumcision has a significant effect on the sexual behaviour of women. This is quite different from the Kenyan situation. Initial findings indicated that FGC has an effect on age at first intercourse, but that there was no difference when it came to lifetime number of sexual partners. After controlling for other factors, however, the data show that circumcision has no significant effect on the age at which women first engage in sexual activity neither did it have much of an effect in number of sexual partners a woman would have in her lifetime. While the results do indicate an increase in age at first intercourse for circumcised women and a decrease in number of sexual partners compared to those who are not circumcised, the difference is small. In both instances, there is a difference of less than 9%, which is too small to be considered as worthwhile. As was suggested in the case of Kenya, one would expect a significantly large difference in the sexual behaviour of women according to their circumcision status, with circumcised women delaying engaging in sexual activity and having fewer sexual partners. A difference as small as less than ten percent cannot be taken as an indication of the success of FGC in controlling female sexual behaviour.

Looking at the socioeconomic and demographic variables used in the study, one finds that in both countries, an increase in education will result in a delay in sexual activity, whilst the number of sexual partners will increase with education. What is interesting is that rural residence results in earlier onset of sexual activity. One would expect that since FGC is more common in rural areas compared to urban areas, then if the argument that it controls sexual behaviour holds, then rural women would be more likely to delay commencement of sexual activity. A possible explanation for this could be that rural women tend to marry at an earlier age and are therefore exposed to sexual activity earlier than urban women (Garenne, 2004. Education, place of residence, wealth status and in the case of Kenya, religion, did not seem to have any effect on the number of sexual partners.

As far as the examination shows, findings indicate that educated women and wealthy women are less likely to be circumcised. This is in line with the 2008 UNICEF Report which states that FGC prevalence is lower for women who are educated, an indication that circumcised girls are likely to grow up with low levels of education. This is also supported by a 2010

Amnesty International report, which states that circumcision hinders the educational attainment of young girls in that its consequences cause them to miss school. The findings also demonstrate that women in rural areas are more likely to be circumcised compared to urban women. Regarding place of residence, while rural women were more likely to be circumcised, they engaged in sexual intercourse earlier than women in urban areas. A possible explanation for this has been proffered above.

5.2 Conclusions

In conclusion, the findings of this study do not show FGC as a good predictor of sexual behaviour. The study refuted the very foundation of the practice of FGC. It challenged the research hypothesis that there is a difference in the sexual behaviour of women who are circumcised compared to those who are not circumcised with the expected result being that circumcised women will exercise restraint when it comes to sexual behaviour compared to their uncircumcised counterparts. This turned out not to be the case in Kenya and Nigeria, meaning that FGC does not exactly shape female sexual behaviour in these two countries.

One could argue that the apparent failure of FGC in controlling female sexual behaviour is because the practice now persists not because of the belief in its effectiveness but because it is part of an age old culture that people are reluctant to let go of. It is now seen more as part of the community but has lost its essence. Its perpetuation has more to do with expectations of conformity and fear of reprisals. Research has shown that practicing communities believe that if they do not circumcise their daughters then they will not get suitable marital partners and they will be shunned by members of the communities and lose their respectable status. Practicing communities place a high value on virginity, fidelity and chastity as these are deemed as the key to finding a suitable partner and getting married (Van Rossem and Gage, 2009).

Findings from this study are an indication that while prevalence of the practice of FGC is still relatively high in the two countries being investigated, it has lost its primary role. It is no longer a necessary practice meant to protect the virtue and chastity of young women. This makes it more so a harmful practice with no observable results and should definitely be abolished. The practice has become important only in terms of cultural identity rather than as an effective means of controlling sexual behaviour.

5.3 Recommendations

This study has shown that prevalence of FGC is still unacceptably high. There is need for more aggressive programmes aimed at the abandonment of FGC. A good example is programmes that have been introduced by UNICEF in countries such as Djibouti, Senegal, and parts of Kenya (UNICEF Report, 2012). UNICEF believes that the most effective and successful means of eradicating FGC is using programmes that are participatory in nature where communities are the agents of change as they get to define the problems and solutions themselves. Social change can be brought about by engaging families and communities who have decided not to practice FGC into spreading that message to others. This is contrary to instances where intervention comes from outside from people who are seen as not understanding the practice but are more concerned with condemning it. Programmes such as TOSTAN in parts of Senegal have proved effective in reducing prevalence of FGC. This is because the programmes focus on using community members as agents of change. Evidence from some countries has been that a successful approach is one that focuses more on doing away with the harmful practice of the FGC ritual while keeping the values that are imparted by the practice. This means making people understand the harm that FGC brings while commending its positive social impact. TOSTAN and MYWO place an emphasis on the hut that is the hut where young girls are taught the responsibilities of womanhood and wifely duties. This means that young girls continue to be taught the positive values but the cutting is eliminated. The introduction of alternative rites of passage to womanhood could be effective. As Van Rossem and Gage argue, rather than challenging existing traditions, an effective approach would be one that builds on traditions, community values and social roles through redefining some of its elements without necessarily abandoning the whole structure thereby providing a culturally acceptable alternative.

There is also a great need for not only the introduction of robust laws aimed at prosecuting those who continue the practice but also that such laws are enforced. Most countries have been seen to introduce policies and legislation aimed at eradicating FGC yet little is done to enforce them. There needs to be an effective system of monitoring that people are indeed abandoning this harmful practice and that harsh penalties are put in place for those failing to comply. This of course needs to go hand in hand with information dissemination on the harm that is brought about by FGC as lack of information could lead to people continuing the practice clandestinely. It is imperative that legislation targeting FGC should also focus on

medical personnel who are clandestinely performing cutting of girls as this is contrary to efforts aimed at eradicating FGC.

One important finding in this study is that there are variations in the practice of FGC by educational level, place of residence, ethnicity, religion and wealth status. Such variations need to be taken into consideration when planning and implementing intervention programmes. As recommended by UNICEF, this suggests that national plans to eliminate FGC should not apply uniform strategies for all sections of society but should instead consider the specificity of various groups that share particular characteristics. Also, strategies should be mindful of the extent of support of FGC and prevalence among different population groups and in cases where change is realized, this can be used to encourage transformation in other communities.

It is also important to acknowledge that while intervention may come about in the form of advocacy, it should be borne in mind that there are still women out there who sincerely support the practice of FGC and see it as a fundamental social custom and will continue to circumcise their daughters mainly because the social value that comes with FGC is high and therefore perceived as important. They will not necessarily understand why outsiders are so concerned over FGC. It is therefore imperative that reproductive health services be tailor-made to fit the needs of such women and that whatever concerns come about as a result of the practice, they be incorporated into reproductive health programmes.

Furthermore, as was demonstrated by the results, there are other factors that could be responsible for variations in the sexual behaviour of women in Kenya and Nigeria. There is therefore a need for further study to look into these factors.

Finally, as research has shown, FGC is lower and more likely to decline for women with higher educational levels. Educational attainment is associated with increasing disapproval of the practice of FGC. Therefore it is important that strategies be put in place to improve the educational levels of women as this is likely to increase the level of disapproval and consequently the decrease in prevalence of the practice.

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ⁱ Countries that practice FGC in Africa are:

1. Somalia
2. Guinea
3. Djibouti
4. Egypt
5. Eritrea
6. Mali
7. Sierra Leone
8. Sudan
9. Gambia
10. Burkina Faso
11. Ethiopia
12. Mauritania
13. Liberia
14. Guinea-Bissau
15. Chad
16. Cote d'Ivoire
17. Kenya
18. Nigeria
19. Senegal
20. Central African Republic
21. Tanzania
22. Benin
23. Ghana
24. Togo
25. Niger
26. Cameroon
27. Uganda