QUALITY OF SEXUAL LIFE IN WOMEN WITH FEMALE GENITAL MUTILATION/CUTTING AND ASSOCIATED FACTORS AT GARISSA LEVEL FIVE HOSPITAL.

Principal investigator:

DR.AMINA RASHID.H

H58/75051/2014

Department of Obstetrics and Gynaecology

University of Nairobi

A dissertation submitted as partial fulfillment for the award of degree of Master of Medicine in Obstetrics and Gynecology, College of Health Sciences, University of Nairobi.

2019

DECLARATION

This is to declare that this dissertation is my original work and that it was done with the guidance of my supervisors. It has not been submitted to any other university for the award of a degree.

Signature…… Date…….

Dr.Amina Rashid.H

H58/75051/2014

Senior House Officer

Department of Obstetrics and Gynaecology

University of Nairobi.

CERTIFICATE OF SUPERVISION

This is to certify that this dissertation was developed under my guidance

Prof. Guyo .W. Jaldesa

MBChB, MMed, MSc

Associate Professor, Department of Obstetrics and Gynecology

University of Nairobi

Signature……

Date …….

PROF. NDAVI PATRICK. M

MBChB, MMED, MSc, FHBR, DLSHTM.

Associate Professor, Department of Obstetrics and Gynecology,

University of Nairobi.

Sign……

Date……..

Dr Kihara .A. B

M.B.Ch.B, M.Med

Senior Lecturer, Department of Obstetrics and Gynecology

University of Nairobi

Sign……

Date …….

DEPARTMENT CERTIFICATE OF AUTHENTICITY

This is to certify that this dissertation is the original work of Dr. Amina Rashid, a Master of Medicine student, registration number H58/75051/2014 in the Department of Obstetrics and Gynaecology at the University of Nairobi.

The research was carried out at the Garissa Level Five Hospital, reproductive health clinics under the supervision of Dr. A.B Kihara, Professor G. Jaldesa and Prof. Muia Ndavi. It has not been presented in any other university for award of degree.

Signature ……

Date ……

Professor Omondi Ogutu,

Associate Professor of Obstetrics and Gynaecology,

Consultant Obstetrician and Gynaecologist,

Chairman Department of Obstetrics and Gynaecology,

University of Nairobi.

ACKNOWLEDGEMENT

I would like to acknowledge my supervisors for their invaluable support during the development and finalization of this research.

I would also like to acknowledge the efforts of my research assistant, statistician without whom, this research would not have been achieved. I am also very grateful to the faculty members of the Department of Obstetrics and Gynaecology with special gratitude to the research team led by Professor Muia Ndavi for the constant lessons on research.

Lastly, I would like to thank the management of Garissa level five Hospital for allowing me to use the facility as the study site.

DEDICATION

I dedicate this work to my family for their support and motivation.

Table of Contents

LIST OF ABBREVIATIONS

ARP - Alternative rites of passage

FSD – Female sexual dysfunction

FGM - Female genital mutilation

FGC - Female genital cutting

FGM/C - Female genital mutilation /cutting

FSFI – Female sexual function index

KDHS - Kenya Demographic Health Survey

KOGS – Kenya Obstetrical and Gynaecological Society

Level V Hospital – Level five hospital

NSF – Normal sexual function

RH – Reproductive health

SQOL-F - sexual quality of life - female

UN – United nations

WHO – World health organisation

ABSTRACT

Background:

Globally an estimated 3million young girls undergo female genital mutilation/cutting (FGM/C) each year in the world. FGM/C has no health benefits and is associated with complications including sexual problems. According to the Kenya Demographic Health Survey Statistics (KDHS) 2014, 21% of women were reported to have undergone FGM/C with a high prevalence of 97.5% in North Eastern Kenya where Garissa County is located. While efforts to encourage the abandonment of FGM/C in Kenya began in the 1930s and anti-FGM/C campaigns have employed various strategies including alternative rites of passage for adolescent girls, empowerment of the girl child, public education campaigns, and advocacy programs for women and girls, government reports indicate major challenges persist towards eradicating FGM/C.

Objectives:

To determine the quality of sexual life post FGM/C and its associated factors among women attending the reproductive health (RH) clinics at Garissa level V Hospital in 2018**.**

Methodology

This descriptive cross sectional study was used to determine the quality of sexual life in women who have undergone FGM/C. The study population comprised of 165 women with FGM/C. We used the Female Sexual Function Index score (FSFI) Questionnaire to obtain quality of sexual life history post FGM/C as well as the associated FGM/C complications. The women were examined to ascertain the type of FGM/C and the associated complications.

Study site:

Garissa level Five Hospital, Reproductive Health clinics.

Results:

During the study 165 respondents with different types of FGM/C were interviewed, The mean age of the participants was (28.4 SD 6.4) with a mean age at cutting (7.4 SD 1.7). The older women, those who had no or low level of education as well those who were not gainfully employed had poor FSFI scores. Majority (39%) had FGM/C type II – Excision, while only 13% had FGM/C type IV. Analysis reported overall sexual function to be significantly different across the different types of FGM/C. there was a significant association ($p < 0.001$) between the FGM/C types and the sexual function score, with women who have FGM/C type I having higher

FSFI scores compared to women with type III and IV (28.9 VS 13.3).The data showed a significant association ($p< 0.001$) between long term complications and sexual function with women who have long term complications e.g. scarring having low FSFI scores (15.8 SD 6.6).

Conclusion:

Our study revealed that sexual experiences and functioning of women is negatively affected by FGM/C. The women who had FGM/C types III and IV scored poorly on the FSFI compared to types I or II. The effect of a reduced sexual functioning is likely to negatively impact the general wellbeing of these women.

CHAPTER ONE: INTRODUCTION AND LITERATURE REVIEW

1.1: INTRODUCTION

Female Genital Mutilation (FGM) also known as Female Genital cutting (FGC) is defined by WHO as any procedure that involves partial or total removal of the external female genitalia or other injury to the female genital organs for non-therapeutic reasons. The WHO classifies FGM/C into four categories (1). I -Clitoridectomy (partial or total removal of the clitoris). II - Excision (partial or total removal of the clitoris and labia minora, with or without removal of the labia majora). III -Infibulation (narrowing of vaginal orifice with creation of a covering seal by cutting and appositioning the labia minora and/or the labia majora, with or without excision of the clitoris). IV -All other harmful procedures to the female genitalia for non-medical purposes, pricking, piercing, or incising of the clitoris and/or labia, stretching of the clitoris and or labia, cauterization by burning of the clitoris and surrounding tissue, scraping of tissue surrounding the vaginal orifice (angurya cuts) or cutting of the vagina (gishiri cuts), introduction of corrosive substances or herbs into the vagina to cause bleeding or for the purposes of tightening or narrowing (1)(2). FGM/C has no health benefits, and is harmful to women in many ways with immediate and long term complications (3) including female sexual dysfunction (defined as a disorder of sexual desire, orgasm, arousal, lubrication and sexual pain that results in significant personal distress), clitoral cysts, dysmenorrhea, infertility, recurrent urinary tract infections, obstetric complications, shock, infection, and psychological problems (2).

At least 200 million girls and women alive today have undergone FGM/C in 30 countries. It is important to note that half of these girls and women who have been cut live in three countries (Egypt, Ethiopia and Indonesia) (4).

FGM/C differs across regions and cultures, It is concentrated in a swath of countries from the Atlantic Coast to the Horn of Africa and is practiced in 28 African Countries, with wide variations in the percentage of girls and women cut (5). Highest prevalence is in Somalia 98%, Guinea 96%, Djibouti 93%, Egypt 91% while the lowest prevalence is in Uganda 1%, Cameroon 1%, Niger 2% (5).

According to the Kenya Demographic Health Survey Statistics (KDHS) 2014, in Kenya 21 percent of women were reported to have undergone FGM/C, as compared with 27 percent in 2008-09 and 32 percent in 2003. KDHS also states that of these 21% the women are of ages 15-49, it is important to note that FGM/C has regional variability and closely associated with some ethnic groups (6). The large majority (greater than 75%) of Somali, Samburu, Kisii, and Masaai women are cut, compared to less than 2% of women in Luo, Luhya, Turkana, and Mijikenda/Swahili groups(6). Among women age 15-49 who were cut, 43% were cut between ages 10 and 14, 27% were cut at ages 5-9, and 27% were cut at age 15 or later. More than 80% of women were cut by a traditional circumciser while 15% were cut by a medical professional (6).

The Somali ethnic community in Kenya, has practiced genital cutting for centuries and the practice appears to have remained largely unchanged. The 2014 KDHS (6) found a prevalence of 93.6 percent among Somali respondents and 97.5% in North Eastern Kenya where the majority live. Type II (Excision) predominates, although type III (infibulation) is also prevalent, Type I- 1.1%, Type II- 66.1%, Type III- 26.2% (6) .

FGM/C poses various consequences that affect sexual relationships. Women who have undergone FGM/C are likely to report dyspareunia, reduced sexual desire and general lack of

sexual satisfaction (7). Little is documented about the sexual sequelae of FGM/C due to many factors including negligence and this lack of information has led to lay speculation though it significantly reduces women's sexual quality of life (8) .

Despite the progress made in curbing this harmful traditional practice, it still persists and in Kenya women hailing from other ethnic groups usually opt to undergo FGM/C, long after getting married and having children, while others practiced as a rite of passage from childhood (girlhood) to adulthood (womanhood). This situation differs from the general understanding of FGM/C practices among the Somali community living in Kenya seen to reflect a culturally deep-rooted practice where several closely related reasons are used to sustain the practice: religious obligation, family honour, and virginity as a prerequisite for marriage, an aesthetic preference for infibulated genitalia is also mentioned (9). However, FGM/C plays no role as a rite of passage. Underlying these reasons are the use of infibulation to enforce the cultural value of sexual purity in women (9).

We hypothesized that women who have undergone FGM/C have a low sexual quality of life and the aim of this study was therefore to explore the impact of FGM/C on sexual quality of life in women who have undergone this procedure. The proposed study (descriptive cross sectional study) investigated the quality of sexual life following the cut among women in Garissa Level V Hospital RH clinics.

1.2: LITERATURE REVIEW

1.2.1: FGM/C and quality of sexual life

Whilst there is some high quality research on FGM/C and pregnancy outcomes, little is known about the effects on sexual quality. Women who have undergone FGM/C of any type have a significantly lower overall sexual quality of life- female (SQOL-F) score (8) as shown by a case control study done by Andersson, Rymer et al (2012) at a large central London teaching hospital on a population of 73 women (with FGM/C) with 37 controls all from a similar cultural background using the SQOL-F questionnaire which concluded that Women who had undergone FGM/C of any type had a significantly lower ($P < 0.001$) overall SQOL-F score compared to the control group. The study also revealed that women who were sexually active and had undergone FGM type III differed the most from sexually active controls ($P < 0.05$) in their SQOL-F score, it concluded that FGM/C significantly reduced women's sexual quality of life, based on the results of the SQOL-F questionnaire (10).

A prospective case control study was conducted by Alsibiani.A et al in 2010 in Saudi Arabia to compare the sexual function of women with FGM/C (130 participants) to women without FGM/C (controls = 130). The study concluded that there were statistically significant differences between the two groups in their scores for arousal 3.6$\pm$1.2 (FGM/C group) versus 4.2 $\pm$ 1.4 (controls) (P=0.04), lubrication 3.4 $\pm$ 1 (FGM group) versus 3.9 $\pm$ 1.3 (controls) (P=0.01), orgasm 3.7 $\pm$ 1.2 versus 4.2 $\pm$ 1.4 (P=0.03), and satisfaction 4.5$\pm$ 1.2 versus 5 $\pm$ 1.4 (P=0.03) as well as the overall sexual function score in women with FGM/C 21.4$\pm$ 4.4, which was adversely altered versus 23.5+5 in the control group (P=0.009). The authors recommended that efforts to document and explain these complications should be encouraged so that FGM/C can be abandoned (2).

Rigmor Berg et al through a systematic review and meta-analysis in 2012 argued that the sexual consequences of FGM/C (total of 15 studies, with 12,671 participants from seven different countries included) compared to women without FGM/C, women who had been subjected to FGM/C were more likely to report dyspareunia , no sexual desire and less sexual satisfaction (7).

A cross-sectional study conducted in Cairo University Hospital in 2011 by Tarek et al noted that participants without FGM/C had significantly higher SQOL-F score compared with participants with FGM/C. The desire,arousal,lubrication,orgasm and satisfaction domains were significantly higher in particpants without FGM/C compared with controls. (11)

A study conducted in Egypt by Elnashar & Abdelhady, 2007 investigating sexual functioning of women with FGM/C and compared with women without FGM/C noted that sexual marital problems (dyspareunia, loss of libido, failure of orgasm and husband's unsatisfaction) was high among women with FGM/C (12).

To investigate the sexual experiences among married women in Mauche location, Nakuru County in Kenya, Tammary, Jaldesa, Ndavi ,Kigondu et al conducted a descriptive cross sectional study using 318 participants and concluded that sexual experiences and functioning of married women was negatively affected by FGM/C (13).

On the other hand, the finding that desire and arousal were not significantly different between cut and uncut contrasts a study that investigated pleasure and orgasm among women who had undergone FGM/C and which found that cut women including infibulated ones had higher orgasm and that desire, arousal, orgasm, and satisfaction were higher than control uncut women (Catania et al., 2007). These findings could be explained by the fact that some erectile structures fundamental for orgasm have not been excised during FGM/C (Catania et al., 2007). However,

the difference in findings could also have been due to methodological differences, sample and location of the study which was not indicated (14).

1.2.2 : Complications of FGM/C and quality of sexual life.

El Dafrawi, Lotfy et al (2001) conducted a case control study in Egypt involving two hundred and fifty women to investigate their psychosexual activity. Results showed that the 80%, who were circumcised, complained more significantly of dysmenorrhea (80.5%), vaginal dryness (48.5%) during intercourse, lack of sexual desire (28%), being less pleased by sex (49%) and less frequency of orgasm (25%) than the uncircumcised women. The study concluded that FGM/C has a negative impact on a woman's sexual life hence limiting the extent of satisfaction one can attain during intercourse.(15)

To verify the effect of FGM/C complications on female sexuality and to define the need for clitorolabioplasty Saeed M, Thabet A and Thabet S.M.A. conducted a study on women without FGM/C and women with FGM/C with some having clitoral cysts selected on random basis. Sexuality was assessed by a special questionnaire sheet prepared by the authors to fit the circumcised cases. Clitorolabioplasty and clitoral cyst excision were also done in cases of sexual defects. Results showed that Sexuality was not affected in minorly circumcised cases. However, was markedly affected in the mutilated cases. The scores for sex, desire and arousal and for orgasm were especially affected in such cases. These defects were not detected in cases having clitoral cysts until late, when cysts enlarged. The role of clitorolabioplasty in restoration of sexuality was confirmed. The loss of certain clitoral and labial bulk, necessary for orienting the woman towards her genitalia and initiating her interest in their function, was responsible for the occurrence of such defects; this was able to be restored by surgery (16).

In December 2012, the UN General Assembly adopted a resolution on the elimination of female genital mutilation. WHO efforts to eliminate female genital mutilation focus on: strengthening the health sector response, guidelines, training and policy to ensure that health professionals can provide medical care and counselling to girls and women living with FGM/C, building evidence, generating knowledge about the causes and consequences of the practice including quality of sexual functioning (17). In Kenya a broad range of initiatives and strategies that have been used include: health risk/harmful traditional FGM/C practices approach, addressing the health complications of FGM/C including complications related to sexual function, educating traditional FGM/C practitioners and offering alternative income, alternative rites of passage (ARPs), religious-oriented approach, legal approach, human rights approach, intergenerational dialogue, promotion of girl's education to oppose FGM/C and supporting girls escaping from FGM/C and child marriage (9)(18). Section 19 of the anti FGM/C law in Kenya, the punishment for performing FGM/C on another person is imprisonment above 3 years or a fine above two hundred thousand shilling (19).

Most studies done so far address comparison of cut and uncut women in regard to whether FGM/C significantly reduces women's sexual quality of life. The studies conclude that FGM/C has a negative impact on a woman's sexual life hence limiting the overall sexual function in women with FGM/C compared to women without FGM/C. However there is little research done on sexual quality post FGM/C hence this research project sought to establish the quality of sexual experience among women with FGM/C in Garissa County.

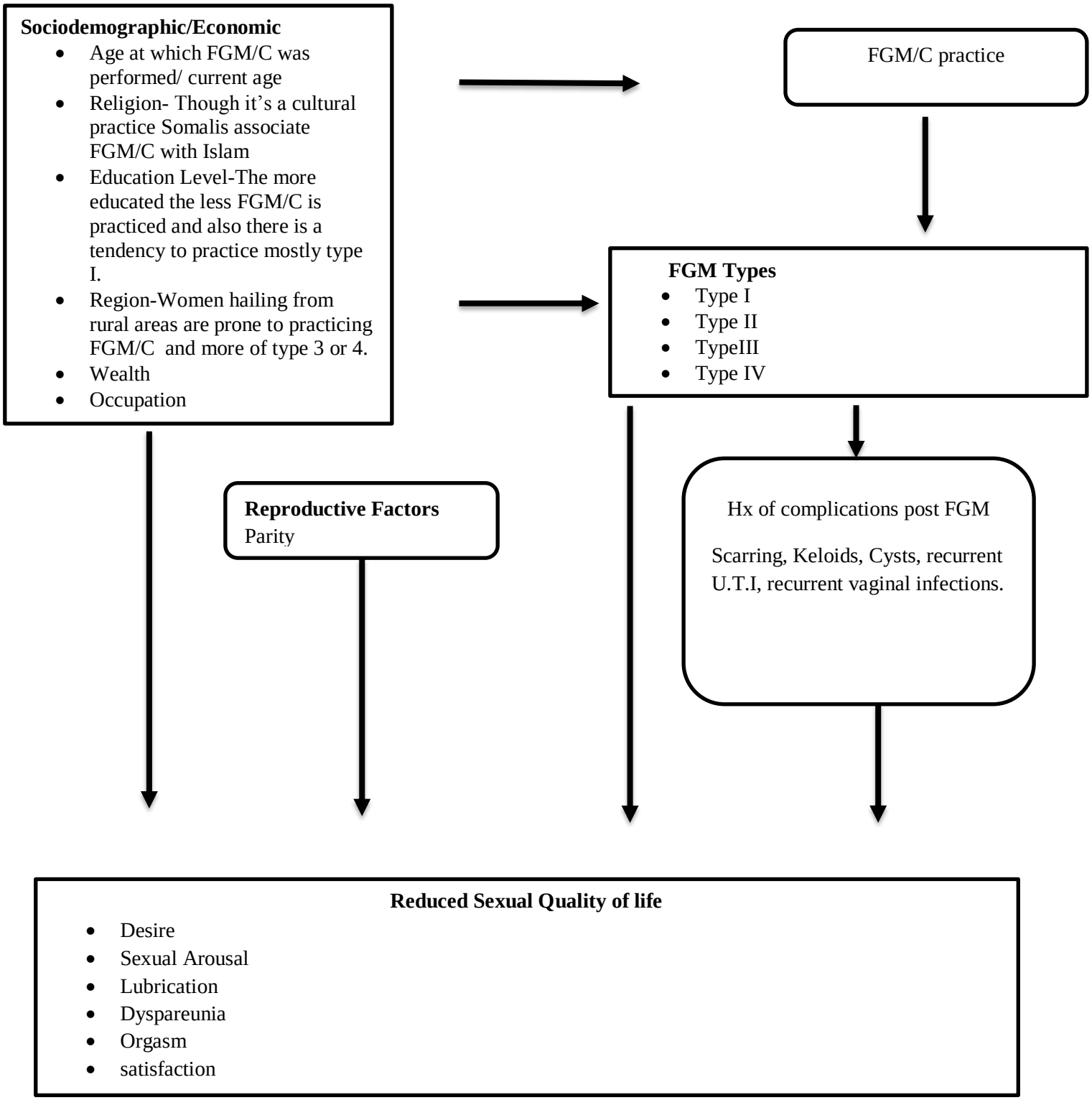
1.3: CONCEPTUAL FRAMEWORK.

Reduced sexual quality of life has been associated with FGM/C practice with the different types of FGM/C especially types III and IV leading to more sexual dysfunction compared to non-practice of FGM/C or type 1. The complications that arise due to FGM/C eg scarring, cysts and keloids are thought to further worsen the quality of sexual life post FGM/C and that usually clitorolabioplasty, cystectomy or keloid treatment improved/ restored the sexual function in these women.

Factors associated with FGM/C practice are varied and complex. Younger women, those hailing from rural areas, the somali community living in Garissa county, the less educated as well as the less wealthy are more likely to practice FGM/C. A higher level of education may be protective for women. Though a deeply rooted cultural practice, Islam is thought to be mostly associated with FGM/C. The age at which FGM/C was carried out/current age are as well thought to have an impact on sexual function.

In Kenya, no reference manual for health service providers exists for the management of sexual dysfunction post FGM/C compared to FGM/C related complications in pregnancy/childbirth. The disabling consequence of FGM/C is largely sexual in nature, leading to traumatic experiences and negative beliefs about sex, and requiring a myriad of coping strategies employed by the women, and their spouses, which may have it's own implications for marital and sexual bliss. With the current completion of our study, we hope to have policies that could capitalize on these findings and religious leaders could be more involved in continuing programs of action. This relationship is summarized in figure 1 below.

Figure 1; Schematic presentation of conceptual framework.



1.4: JUSTIFICATION.

Despite the steady decline of FGM/C among certain ethnic groups in Kenya where it was once almost universal, it has persisted among the Somalis with more than 95 per cent still being cut. FGM/C is known to have no health benefits and although the physical complications have previously been reported, the effects on sexual function and satisfaction have been poorly reported (10). The findings of this study are intended to inform the development of policies and programs as well as design guidelines and protocols aimed at promoting the elimination of FGM/C and improve the quality of sexual life among these women.

1.5: RESEARCH QUESTION.

What is the quality of sexual life post FGM/C among women attending the Garissa level V RH clinics?

1.6: OBJECTIVES.

1.6.1: Broad objective

To determine the quality of sexual life post FGM/C and its associated factors among women attending the RH clinics at Garissa level V Hospital**.**

1.6.2: Specific objectives

Among women who have undergone FGM/C attending the Garissa Level Five Hospital RH clinics to determine:

a) The association between socio-demographic and reproductive characteristics on quality of sexual life,

b) The relationship between FGM/C types and quality of sexual life.

c) The prevalence of sexual dysfunction,

d) The association between the complications of FGM/C and the quality of sexual life.

CHAPTER TWO: METHODOLOGY

2.1: STUDY DESIGN.

This research employed a descriptive cross-sectional study design that was aimed at exploring the quality of sexual life in women with FGM/C and associated factors in Garissa county of Northern Kenya attending the outpatient RH clinic using the Female Sexual Function Index (FSFI) questionnaire comprising of several parameters- desire, arousal, lubrication, orgasm, satisfaction and pain.

The FSFI is an international tool created to evaluate sexual functioning in women and comprises of 19 questions with different answer choice scales, all inviting the subject to refer to the context of their sexual life in the previous 4 weeks.

2.2: STUDY SITE AND SETTING.

The study was conducted at Garissa level V RH clinics (the daily RH Gynaecology / MCH clinics and weekly GOPC clinic), the Hospital is managed by Garissa County and is the main referral Hospital in Garissa which is predominantly inhabited by the Somali community with 97.3 percent prevalence for FGM with 66.1% women having undergone type II FGM. The hospital serves a population of 2,345,000 people and has a total bed capacity of 240, offering both outpatient and inpatient services. The RH clinics- ANC/ MCH are held Monday-Friday 8.30-4.30 PM with an average attendance of 70 women per day, GOPC; weekly with an average attendance of 20 women per day and the HRC once a week with an attendance of 10 women per day. Nurses, Clinical Officers, Medical Officers and an Obstetrician & Gynecologist, run the clinics.

2.3: STUDY POPULATION.

The study population was composed of women with FGM/C attending the RH clinics, Garissa level V Hospital located in Garissa County.

2.3.1: Inclusion Criteria

Participants in the study were women attending the Garissa Level Five Hospital reproductive health clinics. These women consented for evaluation, they were of ages 18 years and above as well as emancipated minors, who gave consent, were residing in Garissa County, married, sexually active and had all undergone FGM/C.

2.3.2: Exclusion Criteria

Participants without FGM/C, those not married (sexual activity outside marriage is considered a taboo in the Somali community and hence even if sexually active the women would not be forthcoming) and those not sexually active were excluded as well.

2.3.3: Study Duration

The study was conducted from March to October 2018.

2.4: SAMPLE SIZE AND SAMPLING METHOD.

Study participants were recruited, interviewed and evaluated from the Garissa level V RH clinics. All women with FGM/C attending the RH clinics during the period of data collection were recruited consecutively until the desired sample size was achieved (165 women/girls). The women were examined to ascertain they had undergone FGM/C and the types of FGM/C. The presence of post procedure complications eg scarring, keloids, cysts were noted. Sample size was determined using the following formula:

$$n = \frac{Z_{\alpha/2}^2 \sigma^2}{E^2}$$

n = Desired sample size

Where Z = Value from the standard normal distribution reflecting the confidence level that will be used (e.g. Z = 1.96 for 95% CI).

σ = is the standard deviation of the outcome variable.

E = the desired margin of error.

$$n = \frac{1.96^2 x\ 6.5^2}{1^2} = 165$$

2.5: RESEARCH PROCEDURE.

Study participants were recruited from the RH clinics. We used structured questionnaires to assess the socio-demographic and reproductive characteristics and the FSFI tool to evaluate the quality of sexual life. The women were also examined to ascertain type of FGM/C and associated complications. Two research assistants were also trained on study procedure and recruitment of study participants.

Consecutive sampling technique using the RH outpatient register or history of FGM/C was applied until the required sample size was achieved. Women who met the eligibility criteria were approached, consent sought and a focused history and examination done. Research assistants recorded findings from patient's records in the structured questionnaire.

2.6: DATA VARIABLES.

Box 1 showing objectives one and two data variables

	Independent variable	Dependent variable	Source of data
Objective 1	Prevalence of sexual dysfunction among women with FGM/C	Quality of Sexual function – (a) Sexual dysfunction (b) Sexual arousal, desire, lubrication, orgasm, satisfaction and pain.	Questionnaire
Objective 2	Socio demographic and reproductive factors. Age at which FGM/C was performed,current age, education level, religion, employment status, Cultural background, as well as parity in women with FGM/C.	Quality of sexual function – (a) Sexual dysfunction (b) Sexual arousal, desire, lubrication, orgasm, satisfaction and pain.	Questionnaire

Box 2 showing data variables for objective 3

	Independent variable	Dependent variable	Sources of data
Objective 2	FGM/C types. Types I, II, III, IV.	(a) Sexual dysfunction (b) Sexual arousal, desire, lubrication, orgasm, satisfaction and pain.	Questionnaire and physical examination.

Box 4 showing data variables for objective 4

	Independent exposure	Dependent outcome	Sources of data
Objective 3	Post FGM/C complications Short term - Pain, hemorrhage,delayed wound healing. Long term - Scarring cysts, keloids, recurrent infections.	(a) Sexual dysfunction (b) Sexual arousal, desire, lubrication, orgasm, satisfaction and pain.	Questionnaire and physical examination

2.7: DATA COLLECTION.

An interviewer administered structured questionnaire was used to obtain quality of sexual life history post FGM/C as well as the associated FGM/C complications and the Socio-Demographic ,economic and Reproductive Characteristics of these women. Findings were recorded in the questionnaires. Training of research assistants on study procedures, interviewing and data recording on the questionnaire was done. We used the Female Sexual Function Index score (FSFI) Questionnaire - The Female Sexual Function Index (FSFI), a 19-item questionnaire, which has been developed as a brief, multidimensional instrument for assessing the key dimensions of sexual function in women. It provides scores on six domains of sexual function (desire, arousal, lubrication, orgasm, satisfaction, and pain) as well as a total score. A score ≤ 27 is classified as FSD. The women were examined as well to ascertain the type of FGM/C. The examination was in keeping with the WHO FGM/C category classification for standardization(see appendix 6).

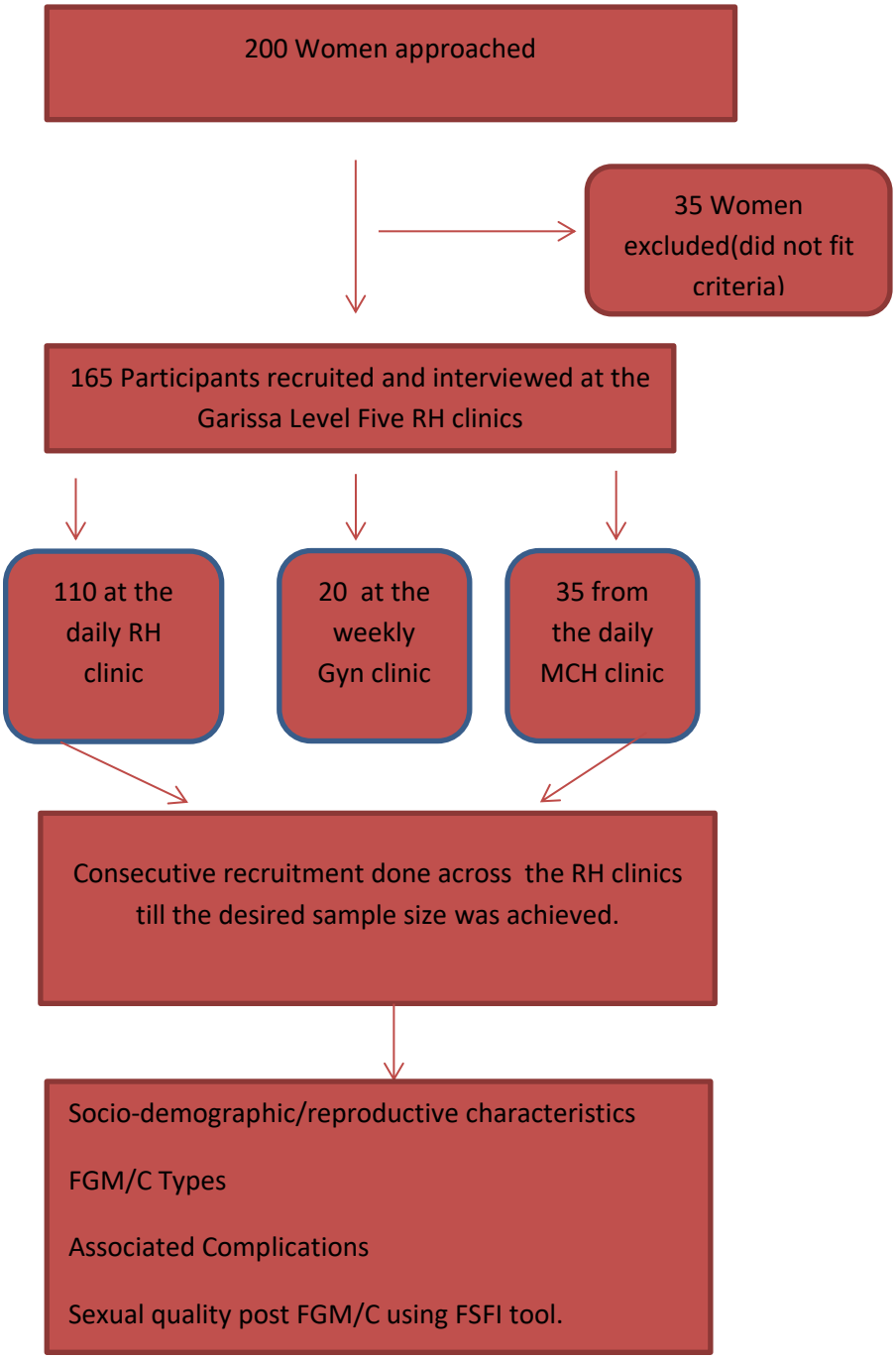
2.8: TRAINING PROCEDURE.

Research assistants were trained on the study details, how to fill the questionnaire in a standardized manner, how to recruit cases as well as examine the women and ascertain the types of FGM/C and their related complications.

2.9: STUDY FLOW.

A total of 200 women were interviewed between March to October 2018, 35 women were excluded as they did not meet the eligibility (inclusion) criteria. All women with FGM/C attending the RH clinics during the period of data collection were interviewed and recruited consecutively until the desired sample size of 165 women was achieved using a standard questionnaire and the FSFI index . All the 165 women were from the local Somali community, living in Garissa, all attending the RH clinics.Of these women 110 (67%) attended the daily RH clinic managed by a Clinical officer and a Nurse, 20 (12%) women were recruited from the weekly Gynaecology clinic managed by the Gynaecologist and Medical Officers, The remaining 35 (21%) women were recruited from the daily MCH clinic. The women were examined to ascertain the type of FGM/C and the post FGM/C procedure complications eg scarring, keloids, cysts were noted. Out of the 165 respondents interviewed 64 had FGM type II (commonest). The study flow is summarized in figure 2 below.

Figure two; Study flow of women who have undergone FGM/C attending Attending the Garissa level V Hospital RH clinics.



2.10: DATA ANALYSIS METHODS.

Data analysis was conducted using SPSS (IBM statistics) version 21. The socio-demographic, economic and reproductive characteristics of the sample were summarized using descriptive statistics. The continuous variables including current age and age at which FGM/C was performed were analyzed using mean (SD), and range. For categorical variables e.g. education level, marital status and parity the percentage of participants with each level of the variable were calculated and presented as frequency distributions using tables and graphs. The proportion of women presenting with FGM/C types 1, 2, 3 and 4 were calculated. The dependent variable was calculated using a score generating from adding up the responses to each of the 18 items in the FSFI questionnaire. In addition, a sub-score was calculated for each domain of the FSFI (sexual arousal, libido, lubrication, orgasm, and satisfaction). The Student T-test was used to examine association between the FSFI score and socio-demographic, economic and reproductive characteristics for factors that have two levels. (e.g. employment status). Lastly, multivariable linear regression analysis was conducted with FSFI score as the dependent variable and the socio-demographic, economic and reproductive characteristics showing significant association in the T-tests as the independent variables. All statistical analysis was based on a p value cut-off of 0.05 to determine statistical significance.

2.11: DATA CONFIDENTIALITY AND STORAGE.

The study though non-invasive aimed to obtain culturally sensitive information and thus confidentiality was strictly maintained through measures that included coding of records and no record of names, conducting of interviews and physical examinations to ascertain FGM/C type and associated complications in a private room, using respectful care and only by the research assistants trained for this study with a minimum of two female research assistants employed for the study. Filled questionnaires were kept under lock and key after the study. The data was also stored and backed up in electronic computer devices with only access to the researcher by use of password.

2.12: ETHICAL CONSIDERATIONS.

The study subject is sensitive as it deals with cultural connotations and hitherto a much closed community in terms of cultural practices. It is also a community that requires male approval for procedures and passage of information. Ethical concerns are raised not simply from the inherent bodily insult of FGM/C but from its known consequences.

Those mostly affected are the vulnerable in the society since it is usually undertaken when girls are young, however, even autonomous adults can be subject to family and social pressure to agree to procedures they disfavor and reasonably understand as liable to prejudice their health so that their capacity for freely given consent is negated or compromised.

2.12.1: Informed Consent

Informed verbal/Written consent was sought through explanation about the study. For the benefit of participants who did not understand English, two research assistants fluent in the use of the local Somali language and accepted the need for change in this cultural practice were employed for the study. Consent was sought after patients finished their routine clinic visit.

2.12.2: Ethical Approval

Ethical approval was sought from the Kenyatta National Hospital – University of Nairobi Ethics and Research Committee and also the Garissa Level 5 Hospital administration. Study participants were also required to give written informed consent for participation. All information collected remained confidential and was only be used for purposes of the study. Participation was voluntary and no incentives were given. Participants were free to withdraw from the study and were not denied standard of care for their withdrawal from the study.

CHAPTER THREE: RESULTS.

A total of 200 women of Somali origin, residing in Garissa County were interviewed and evaluated from the Garissa level V RH clinics. All women had undergone FGM /C and were recruited consecutively until the desired sample size was achieved (165 women). The women were examined to ascertain they had undergone FGM/C and the types of FGM/C. The presence of post procedure complications eg scarring, keloids, cysts were noted.

3.1 BASELINE CHARACTERISTICS OF THE PARTICIPANTS.

3.1.1: Socio-demographic characteristics of the respondents

The mean age of the participants was (28.4 SD 6.4) ranging from 18 to 40 years and all had undergone FGM/C. The mean age at cutting was (7.4 SD 1.7) (89.7%) ranging from ages 5 to 9 years. Majority of the respondents (30.9%) had 3-5 children and as expected the older women had more children compared to the younger ones. Most of the respondents 84.4% were unemployed/identified themselves as homemakers and majority 63% reported no education at all while only 19% reported a low level of education (Primary). All the respondents professed the Islamic faith. (Table 1 below).

Table1; Socio-demographic and reproductive characteristics of women who have undergone Female Genital Mutilation/Cutting (FGM/C) in Garissa.

	Frequency (n)	Prevalence%
Current age		
15-19 years	4	2.4
20-24 years	48	29.1
25-29 years	44	26.7
30-34 years	38	23.0
35-39 years	22	13.3
≥ 40 years	9	5.5
Total	165	100%
Age FGM/C was done		
< 5 years	2	1.2
5-9 years	148	89.7
10-19	15	9.1
Total	165	100%
Parity		
0	27	16.4
1 to 2	40	24.2
3 to 5	51	30.9
6 and above	47	28.5
Total	165	100%
Occupation		
Unemployed	140	84.4
Employed	25	15.6
Total	165	100%
Formal education		
None	104	63.0
Primary	32	19.4
Secondary	13	7.9
Post-secondary	16	9.7
Total	165	100%

The data shows younger women have higher FSFI scores compared to older women (20.9 VS 13.4) though all scored below the FSFI threshold for FSD which is below 26.55, there was no significant association ($p = 0.078$) between age and sexual function. Also the women with fewer children scored higher on the FSFI compared to the women with more children (19.7 VS 15.9) but again there was no significant association ($p=0.092$) between number of children and sexual functioning.

We noted a significant association between age FGM/C was carried out and sexual quality. The women who were cut below age 5 had better FSFI scores 24.8 ± 1.9 compared to those who were cut older at age 5-9 years 18.3 ±7.4.

There was also a significant association ($p=0.003$) between educational level and sexual functioning with the women with no education or primary education having lower FSFI scores compared to those with secondary or post-secondary (17.1 VS 23.6). Women with gainful employment had slightly higher FSFI scores compared to the women who were unemployed (18.3 VS 20.2) but there was no significant association ($p=0.243$) between gainful employment and sexual functioning.

The sexual functioning of these women who had all undergone FGM/C was assessed across the six domains of the FSFI tool namely; desire, arousal, lubrication, orgasm, satisfaction and pain. (Table 2 below).

Table 2; Socio-demographic characteristics of women who have undergone Female Genital Mutilation/Cutting (FGM/C) in Garissa and their respective female sexual function index scores (FSFI).

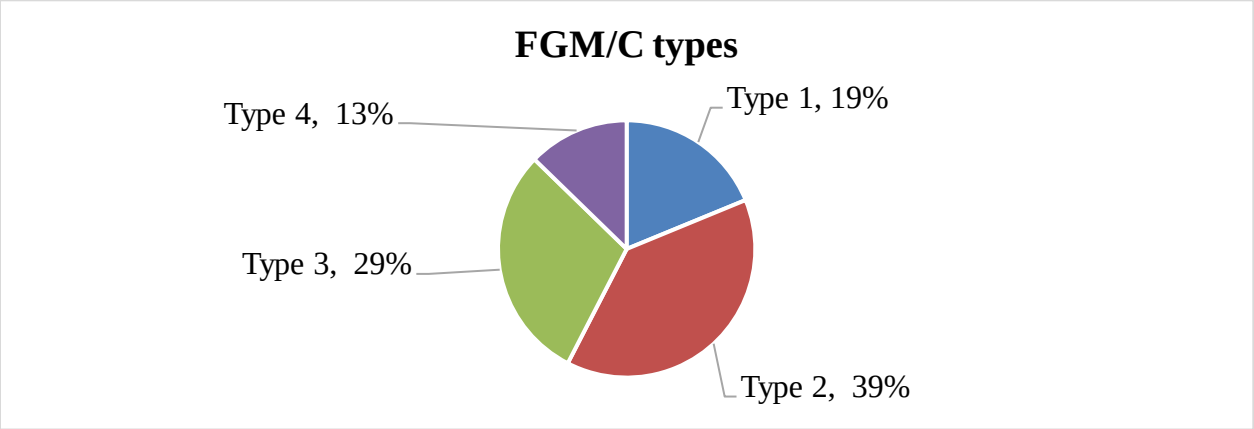
	*FSFI score (Mean ± SD)	P value
Age		
15-19 years	15.8±6.5	0.078
20-24 years	18.2±7.7	
25-29 years	20.9±7.4	
30-34 years	18.3±6.8	
35-39 years	17.9±7.9	
40 years and above	13.4±6.2	
Age FGM/C was done		
< 5	24.8 ± 1.9	0.04
5-9	18.3 ±7.4	
10-19	20.1 ±7.8	
Parity		
0	19.7±8.2	0.092
1 to 2	19.3±7.3	
3 to 5	19.3±6.7	
6 and above	15.9±7.7	
Employment status		
Unemployed	18.3±7.3	0.243
Employed	20.2±8.1	
Formal education		
None	17.1±7.2	0.003
Primary	19.5±7.5	
Secondary	21.8±7.3	
Post-secondary	23.6±6.6	

*FSFI Score interpretation; Score ≤ 26.55 is classified as female sexual dysfunction (FSD).There are individual domain scores and an overall score of the FSFI can be derived from the computational formula. For the individual domain scores, add the scores of the individual items that comprise the domain and multiply the sum by the domain factor. Adding up the domain scores obtains the full-scale score.

3.1.2: Female Genital Mutilation/Cutting by Type using WHO categories

Out of the 165 respondents (all the women were examined to ascertain the type of FGM/C), majority 64 (39%) had FGM/C type II - Excision (partial or total removal of the clitoris and labia minora, with or without removal of the labia majora), while only 21(13%) had FGM/C type IV. (Figure 3 below).

Figure 3; Female Genital Mutilation/Cutting by type using WHO categories in women who have undergone FGM/C attending the Garissa level five Hospital RH clinics.



Analysis reported overall sexual function to be significantly different across the different types of FGM/C. there was significant association ($p< 0.001$) between the FGM/C types and the sexual function score, with women who have FGM/C type I having higher FSFI scores compared to women with type III and IV (28.9 VS 13.3). The respondents that had type FGM/C I reported more arousal, desire, lubrication, orgasm, satisfaction and less pain compared to those that had FGM/C types III or IV.

Arousal was reported to be (2.1VS 4.8), desire was also reported to be significantly lower ($p=0.001$) (2.1VS 3.6), lubrication was similarly reported to be lower ($p=0.001$)in those with type IV compared to those with type I (2.5 VS 5.1), orgasm was as well reported to be

significantly lower (p=0.001)in those with FGM/C type IV compared to those with type I (1.9 VS4.8), satisfaction was similarly noted to be significantly lower (p=0.001)in those with FGM/C type IV compared to those with type I (1.7VS5.2), Pain was however more in those with FGM/C type IV compared to type I (2.9 VS 5.4). (Table 3 and figure 4 below).

Table 3; Female Sexual Function Index (FSFI) scores by domain related to the Female Genital Mutilation/Cutting (FGM/C) type in women who have undergone FGM/C attending the Garissa Level Five Hospital RH clinics.

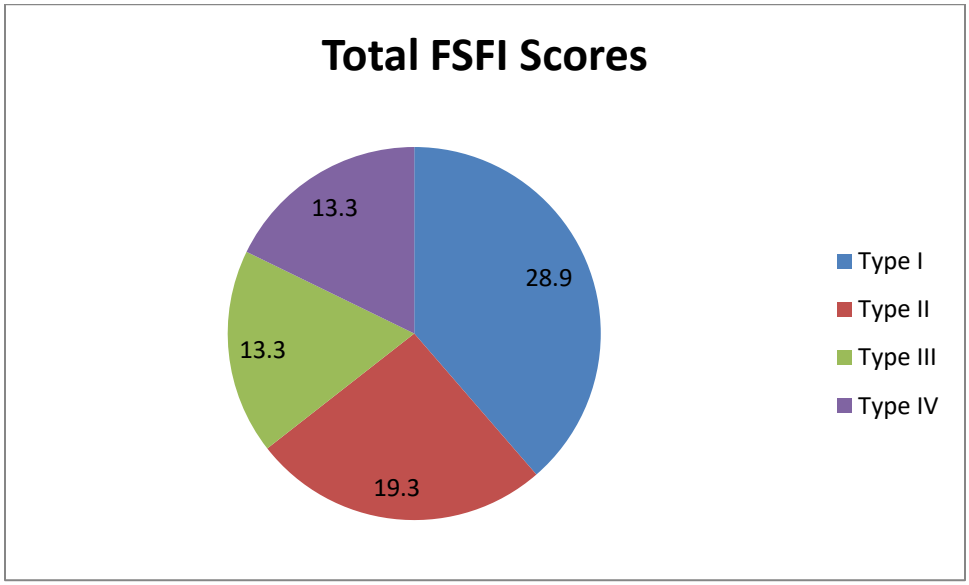
FSFI Domains	Type I	Type II	Type III	Type IV	P value
	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD	
Arousal	4.8 ±0. 9	3.1 ± 0. 8	2.3 ±0. 5	2.1 ±0. 7	<0.001
Desire	3.6 ±0. 7	2.8 ±0. 7	2.3 ±0. 7	2.1 ±0. 8	<0.001
Lubrication	5.1 ±0. 9	3.4 ± 0. 9	2.6 ±0. 7	2.5 ±0. 7	<0.001
Orgasm	4.8 ± 1. 1	2.9 ±1. 2	1.9 ± 0. 9	1.9 ±0. 8	<0.001
Satisfaction	5.2 ±1. 4	3.3 ±1. 6	1.8 ±1. 3	1.7 ±1. 1	<0.001
Pain	5.4±0. 9	3.7 ±0. 9	2.9 ±0. 9	2.5 ±1. 1	<0.001
FSFI Score total	28.9 ±5.2	19.3 ± 5.2	13.3 ± 4.1	13.3 ±4. 6	<0.001

A total FSFI score ≤ 26.55 is classified as Female Sexual Dysfunction (FSD).

Note that within the individual domains the lower the score the more discomfort, less satisfaction, difficult to maintain lubrication, low sexual desire and the higher score meant having less or no pain, more satisfaction, better lubrication and higher sexual desire.

The sexual functioning of the respondents across the Female sexual function index (FSFI) domains was reduced. Arousal, desire, lubrication, orgasm, satisfaction were reported to be low in those with FGM/C types III and IV compared to those with FGM/C type I. Pain was however more in those with FGM/C types III and IV compared to type I as shown above in table 3 and figure 4. Pain scoring is different from the other domains, the lower the score the more the pain.

Figure 4; Total Female Sexual Function Index (FSFI) scores and the respective Female Genital Mutilation/Cutting (FGM/C) type in women who have undergone FGM/C attending the Garissa level five Hospital RH clinics.



Overall sexual function was significantly different across the different types of FGM/C. there was significant association ($_{p< 0.001}$) between the FGM/C types and the sexual function score, with women who have FGM/C type I having higher FSFI scores compared to women with type III and IV. A total FSFI score ≤ 26.55 is classified as Female Sexual Dysfunction.

3.1.3: Prevalence of Sexual Dysfunction.

Female Sexual Dysfunction (FSD) was found in 82.4% of the 165 respondents. The total FSFI score was low at 18.61 ± 6.3) and the domain scores were significantly low namely desire, arousal, lubrication, orgasm, satisfaction, and pain. The mean scores for Satisfaction, lubrication, and orgasm were the lowest compared to the rest of the domain scores.(Table 4 below).

Table 4; prevalence of sexual dysfunction in women who have undergone Female Genital Mutilation/Cutting attending the Garissa level five Hospital RH clinics.

Variable category		Number	Percentage
Sexual dysfunction	Yes (total score < 26.5)	136	82.4%
	No (total score ≥ 26.5)	29	17.6%

18% of the respondents (29) had normal sexual function (NSF) while 82% (136) had sexual dysfunction (SD) with Female Sexual Function Index (FSFI) scores below 26.55.

Table 5; Frequency distribution of quality of sexual function among the study respondents in women who have undergone FGM/C attending the Garissa level five Hospital RH clinics.

Variable category		Number	Percentage
Sexual dysfunction	Yes (total score < 26.5)	136	82.4%
	No (total score ≥ 26.5)	29	17.6%
Distribution of mean score of the components of FSFI according to sexual functioning			
Variable category		Mean ± SD	
Desire mean FSFI score		3.6 SD 1.4	
Arousal mean FSFI score		3.4 SD 1.2	
Lubrication mean FSFI score		2.9 SD 1.2	
Orgasm mean FSFI score		2.9 SD 1.5	
Satisfaction mean FSFI score		2.7 SD 0.9	
Pain mean FSFI score		2.9 SD 1.9	

3.1.4: Complications post FGM/C

Table 6; Female Genital Mutilation/Cutting associated complications in women who have undergone FGM/C attending the Garissa level five Hospital RH clinics.

COMPLICATIONS	Type	N	Prevalence
Immediate post procedure complications	Pain	**140**	**64.5%**
	Haemorrhage	**17**	**7.8%**
	Urinary problems	**31**	**14.3%**
	Delayed wound healing	**29**	**13.4%**
Total		**217**	**100%**
Long term complications	Scarring	**75**	**51%**
	Recurrent infections	**67**	**45.6%**
	Cysts	**4**	**2.7%**
	Keloid	**1**	**0.7%**
Total		**147**	**100%**

Majority of the respondents 65% with immediate post procedure complications reported to have had pain for some days after the cut and scarring was noted to be the commonest long term complication with 51%.

Table 7: FGM/C associated complications and their respective FSFI scores in women who have undergone FGM/C attending the Garissa level five Hospital RH clinics.

Complications	FSFI Score Mean +/- SD	P value
Short term complications	20.9 SD 6.3	P <0.001
Long term complications	15.8 SD 6.6	

The data showed a significant association ($p< 0.001$) between complications especially longterm complications and sexual function with women who have long term complications e.g scarring having low FSFI scores (15.8 SD 6.6).

3.1.5: Association between the sociodemographic, reproductive and FGM/C types and sexual functioning, all as binary variables. (Table 8 below).

Table 8; Association between the sociodemographic, reproductive and FGM/C types and sexual functioning of the women that had undergone FGM/C.

Variable		Sexual Dysfunction					
		Yes		No		OR (95%S CI)	P value
Age	<30	75	55.1%	21	72.4%	0.5 (0.2-1.1)	0.087
	≥30	61	44.9%	8	27.6%		
Age FGM/C was done	<10	124	91.2%	26	89.7%	1.2 (0.3-4.5)	0.729
	≥10	12	8.8%	3	10.3%		
Parity	<3	62	45.6%	16	55.2%	0.7(0.3-1.5)	0.348
	≥3	74	54.4%	13	44.8%		
Employment status	Employed	19	14%	6	20.7%	0.6(0.2-1.7)	0.360
	Non employed	117	86.0%	23	79.3%		
Education	None	89	65.4%	15	51.7%	1.8(0.8-3.9)	0.165
	Primary and above	47	34.6%	14	48.3%		
FGM types	I and II	66	48.5%	29	100%		< 0.001
	III and IV	70	51.5%	0	0.0%		

There was significant association between the FGM/C types and the prevalence of sexual dysfunction with 51.5% (70) of women with FGM/C types III and IV compared to 48.5% (66) with FGM/C types I and II scoring below the 26.55 threshold of the FSFI score and a $p < 0.001$. Though the women who were below 30 years of age, those cut while below 10 years of age, the women with more than 3 children, the unemployed and uneducated had more sexual dysfunction compared to those who were above 30 years of age, cut while older than 10 years, with less children, employed and those with some level of education, there was no significant association ($p>0.005$).Age, parity, employment status were less likely associated with sexual dysfunction while age of cutting below 10 years, and lack of education were more likely associated with a higher chance of having sexual dysfunction given an OR>1.

3.2: Discussion

This study was a hospital based descriptive cross sectional study at Garissa Level 5 Hospital. It aimed to evaluate the quality of sexual life in women with Female Genital Mutilation/Cutting (FGM/C) and associated factors.

The main findings of this study were sexual experiences and functioning of women was negatively affected by FGM/C and that socio-demographic/reproductive factors further worsen the sexual functioning of these women. The most common type of FGM/C practiced throughout Garissa County is type II (Excision – 39%) and that women who had undergone the more severe types of FGM/C (types III and IV) had more sexual dysfunction and recorded low FSFI scores.

In this study socio-demographic and reproductive characteristics had an impact on women's sexual functioning. The mean age of the participants was (28.4 SD 6.4) ranging from 18 to 40 years. A study done by Ndavi, Jaldesa et al 2017 reported the mean age of the Respondents as 30.59 ± 7.36 years ranging from 15 to 45 years (13). The mean age at cutting was (7.4 SD 1.7) (89.7%) ranging from ages 5 to 9 years, a study done by Berg et al 2011 also reported the women in their study had been subjected to FGM/C in early childhood with mean age of 8.5(7) The older women (> 40 years old) had lower sexual function scores (FSFI score 13.4) compared to those who were younger (25-29 years, FSFI score 20.9), women who had more children (> para6) also scored poorly on the FSFI score (15.9). This finding concurs with a study conducted in Egypt by Elnashar et al 2007 investigating sexual functioning of women with FGM/C and concluded that demographic characteristics were strongly predictive of sexual difficulties (12). Ndavi, Jaldesa et al also concluded in a study done in 2017 that younger women had higher FSFI scores compared to older women(25.25vs23) In addition, there was a significant association (p= 0.035) between number of children and sexual functioning. The women with

fewer children had higher FSFI scores compared to women with more children (24.84 vs 23.42) (13). Several other studies have shown a link between socio-demographic factors and sexual functioning, Biglu et al noted in a study done in 2016, there is a highly significant correlation between the socioeconomic status and sexual functioning in women with FGM/C, and that almost all circumcision procedures in this study were done before 12 years of age (20).
This study showed that Female Genital Mutilation/Cutting (FGM/C) adversely affects women's sexual functioning and quality of sexual life and that women who had undergone FGM/C types III and IV recorded lower FSFI scores compared to those with types I and II; with those with type IV reporting more dyspareunia compared to the rest. Those with type I had 28.9+/-5.2 while those presenting with type IV had 13.3+/-4.6 SD. The findings in this study concur with a study done at a large central London teaching Hospital by Anderson, Rymer et al 2012 on Sexual quality of life in women who have undergone female genital mutilation which concluded Women who were sexually active and had undergone FGM type III differed the most from sexually active controls ($P < 0.05$) in their SQOL-F score, also that FGM/C significantly reduces women's sexual quality of life, based on the results of the SQOL-F questionnaire (8).

It was also noted in the study that women with FGM/C and associated complications e.g. scarring, keloids, cysts, recurrent urinary tract or vaginal infections had reduced sexual quality of life and scored poorly on the FSFI scoring system, with a score of 15.8 SD 6.6 ($P < 0.001$). The above findings concur with studies by Rigmor Berg et al 2012 as well as Thabet and Thabet 2003 which substantiate the proposition that a woman whose genital tissues have been partly removed is more likely to experience increased pain and reduction in sexual satisfaction and desire and that With FGM/C, also concluded that there are injured clitoral nerves and related receptors and various forms of scarring and adhesions around the excised genital parts (7) (16).

FSD was found in 82.4% of the 165 respondents. The total FSFI score was low at 18.61 ± 6.3) and the domain scores were significantly low with the mean scores for Satisfaction, lubrication, and orgasm being the lowest compared to the rest of the domain scores. These findings are consistent with previous studies evaluating the relation between FGM/C and female sexual function. Sahar et al 2017 found in 83.8% of the women FGM/C had FSD and that the total FSFI score was 19.82 ± 7.1 with the domain scores being significantly low namely desire, arousal, lubrication, orgasm, satisfaction, and pain(21). Biglu et al, 2016 proved that the total scores for circumcised women was significantly lower than control women (17.9 ± 5.39 versus 25.3 ± 4.34 respectively, p =0.000) (20). In a recent study by Esho, Ndavi, Jaldesa et al, 2017 in Kenya revealed that sexual experiences and functioning of married women was negatively affected by FGM/C (13).

This study has some limitations: first, all the participants had undergone FGM/C and hence the study was not able to assess for the effect of FGM/C on sexual quality. Second, A higher level study or even a mixed study method may have improved this study as it would answer perceptions women hold towards FGM/C.

However the study had some strengths, it was the first study on quality of sexual life post FGM/C and associated factors in Garissa County, we hope this study helps form a baseline study for subsequent higher level studies. It was a huge step forward that we were able to examine these women to get the types of FGM/C as well as note the existence of associated complications.

With completion of this study we hope to develop policies and programs as well as design guidelines and protocols aimed at promoting the elimination of FGM/C and improve the quality of sexual life among these women.

3.3; Conclusion

This study revealed that sexual experiences and functioning of women living in Garissa, are negatively affected by FGM/C. In Garissa county most of the women who have undergone FGM/C were cut at the age of 7 years with FGM/C type II (Excision) being the most common type practiced. The women who had FGM/C types III and IV scored poorly on the FSFI score as well those that had long term complications. In this study, FGM/C was associated with reduced scores of FSFI on all domains scores, sexual function among women with FGM/C is adversely altered.

4.2: Recommendations

1- Provide Public Education on the sexual ill- health associated with FGM/C practice

2- Intervention policies and strategies to assist the women that have sexual dysfuction following FGM/C

3- Advocate for elimination of FGM/C as a harmful practice in Garissa County

4- Avail surgical reconstruction at a subsidized rate at the county Hospitals.

REFERENCES

1. WHO | Classification of female genital mutilation. WHO [Internet]. World Health Organization; 2016 [cited 2017 Sep 20]; Available from: http://www.who.int/reproductivehealth/topics/fgm/overview/en/

2. Alsibiani SA, Rouzi AA. Sexual function in women with female genital mutilation. Fertil Steril [Internet]. 2010 Feb [cited 2017 Nov 10];93(3):722–4. Available from: http://www.ncbi.nlm.nih.gov/pubmed/19028385

3. WHO | Female genital mutilation. WHO [Internet]. World Health Organization; 2017 [cited 2017 Nov 8]; Available from: http://www.who.int/mediacentre/factsheets/fs241/en/

4. New statistical report on female genital mutilation shows harmful practice is a global concern – UNICEF | Press centre | UNICEF [Internet]. [cited 2017 Nov 8]. Available from: https://www.unicef.org/media/media_90033.html

5. Female Genital Mutilation/Cutting: A statistical overview and exploration of the dynamics of change.

6. Kenya National Bureau of Statistics (KNBS); ICF Macro. Kenya Demographic and Health Survey 2014. Heal (San Fr. 2014;1–314.

7. Berg RC, Denison E. Does female genital mutilation/cutting (FGM/C) affect women's sexual functioning? A systematic review of the sexual consequences of FGM/C. Sex Res Soc Policy. 2012;9(1):41–56.

8. Andersson SHA, Rymer J, Joyce DW, Momoh C, Gayle CM. Sexual quality of life in women who have undergone female genital mutilation: A case-control study. BJOG An Int J Obstet Gynaecol. 2012;119(13):1606–10.

9. Jaldesa GW, Askew I, Njue C, Wanjiru M. Female Genital Cutting among the Somali of Kenya and Management of its Complications. 2005 [cited 2017 Nov 10]; Available from: http://eldis.org/vfile/upload/1/document/0708/DOC19141.pdf

10. Andersson S, Rymer J, Joyce D, Momoh C, Gayle C. Sexual quality of life in women who have undergone female genital mutilation: a case-control study. BJOG An Int J Obstet Gynaecol [Internet]. Blackwell Publishing Ltd; 2012 Dec 1 [cited 2017 Nov 8];119(13):1606–11. Available from: http://doi.wiley.com/10.1111/1471-0528.12004

11. Anis TH, Aboul Gheit S, Awad HH, Saied HS. Effects of Female Genital Cutting on the Sexual Function of Egyptian Women. A Cross-Sectional Study. J Sex Med [Internet]. Blackwell Publishing Inc; 2012 Oct 1 [cited 2017 Nov 10];9(10):2682–92. Available from: http://linkinghub.elsevier.com/retrieve/pii/S1743609515337619

12. Elnashar A, Abdelhady R. The impact of female genital cutting on health of newly married women. Int J Gynecol Obstet [Internet]. 2007 Jun 1 [cited 2017 Nov 10];97(3):238–44. Available from: http://doi.wiley.com/10.1016/j.ijgo.2007.03.008

13. Esho T, Kimani S, Nyamongo I, Kimani V, Muniu S, Kigondu C, et al. "the 'heat' goes

away": sexual disorders of married women with fgm/c in kenya. :1–16.

14. Catania L, Abdulcadir O, Puppo V, Verde JB, Abdulcadir J, Abdulcadir D. Pleasure and Orgasm in Women with Female Genital Mutilation/Cutting (FGM/C). J Sex Med [Internet]. 2007 Nov [cited 2017 Nov 8];4(6):1666–78. Available from: http://www.ncbi.nlm.nih.gov/pubmed/17970975

15. El-Defrawi MH, Lotfy G, Dandash KF, Refaat AH, Eyada M. Female Genital Mutilation and its Psychosexual Impact. J Sex Marital Ther [Internet]. Informa UK Ltd ; 2001 Oct [cited 2017 Nov 8];27(5):465–73. Available from: http://www.tandfonline.com/doi/abs/10.1080/713846810

16. Thabet SMA, Thabet ASMA. Defective sexuality and female circumcision: The cause and the possible management. J Obstet Gynaecol Res [Internet]. Blackwell Science, Ltd; 2003 Feb 1 [cited 2017 Nov 8];29(1):12–9. Available from: http://doi.wiley.com/10.1046/j.1341-8076.2003.00065.x

17. UN General Assembly Adopts Worldwide Ban on Female Genital Mutilation | No Peace Without Justice [Internet]. [cited 2017 Dec 15]. Available from: http://www.npwj.org/FGM/UN-General-Assembly-Adopts-Worldwide-Ban-Female-Genital-Mutilation.html

18. Kenya28 Too Many [Internet]. [cited 2017 Nov 10]. Available from: https://www.28toomany.org/country/kenya/

19. PROHIBITION OF FEMALE GENITAL MUTILATION ACT. [cited 2017 Dec 15]; Available from: http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/ProhibitionofFemaleGenitalMutilationAct_No32of2011.pdf

20. Biglu M, Farnam A, Abotalebi P, Biglu S. Effect of female genital mutilation / cutting on sexual functions : Sexual & Reproductive Healthcare Effect of female genital mutilation / cutting on sexual functions. Sex Reprod Healthc [Internet]. Elsevier B.V.; 2016;10(July):3–8. Available from: http://dx.doi.org/10.1016/j.srhc.2016.07.002

21. Ismail SA, Abbas AM, Habib D, Morsy H, Saleh MA, Bahloul M. Effect of female genital mutilation/cutting; types I and II on sexual function: case-controlled study. Reprod Health [Internet]. BioMed Central; 2017 Dec 30 [cited 2017 Nov 29];14(1):108. Available from: http://reproductive-health-journal.biomedcentral.com/articles/10.1186/s12978-017-0371-9

APPENDICES

APPENDIX A: Questionnaires

Questionnaire. 1 : QUALITY OF SEXUAL LIFE IN WOMEN WITH FGM/C AND ASSOCIATED FACTORS ATTENDING THE GARISSA LEVEL FIVE REPRODUCTIVE HEALTH CLINICS IN 2018.

Socio-Demographic ,economic and Reproductive Characteristics of the women with FGM/C.

Instruction: Circle the answers

1. Age (in years).....

2. Marital Status

a. Single b. Married c. Divorced/Seperated d. Widow/Widower

3. Religion

a. Muslim b. Catholic c. Protestant d. Other_____(Specify)

4. Ethnic Group

a. Somali b. Other_____(specify)

5. Level of Education

a. None b. Primary c. Secondary d. Post-secondary

6. Gainfully employed

a. Yes b. No

7. Partner/Spouse gainfully employed

a. Yes b. No

8. Parity.....

Questionnaire 2

FEMALE SEXUAL FUNCTION INDEX (FSFI) QUESTIONNAIRE (ENGLISH)

The FSFI was created as a mean to evaluate sexual functioning in women and comprises of 19 questions with different answer choice scales, all inviting the subject to refer to the context of their sexual life in the previous 4 weeks.

1. Over the past 4 weeks, how **often** did you feel sexual desire or interest?

- Almost always or always
- Most times (more than half the time)
- Sometimes (about half the time)
- A few times (less than half the time)
- Almost never or never

2. Over the past 4 weeks, how would you rate your **level** (degree) of sexual desire or interest?

- Very high
- High
- Moderate
- Low
- Very low or none at all

Sexual arousal is a feeling that includes both physical and mental aspects of sexual excitement. It may include feelings of warmth or tingling in the genitals, lubrication (wetness), or muscle contractions.

3. Over the past 4 weeks, how **often** did you feel sexually aroused ("turned on") during sexual activity or intercourse?

- No sexual activity
- Almost always or always
- Most times (more than half the time)
- Sometimes (about half the time)
- A few times (less than half the time)

- Almost never or never

4. Over the past 4 weeks, how would you rate your **level** of sexual arousal ("turn on") during sexual activity or intercourse?

- No sexual activity
- Very high
- High
- Moderate
- Low
- Very low or none at all

5. Over the past 4 weeks, how **confident** were you about becoming sexually aroused during sexual activity or intercourse?

- No sexual activity
- Very high confidence
- High confidence
- Moderate confidence
- Low confidence
- Very low or no confidence

6. Over the past 4 weeks, how **often** have you been satisfied with your arousal (excitement) during sexual activity or intercourse?

- No sexual activity
- Almost always or always
- Most times (more than half the time)
- Sometimes (about half the time)
- A few times (less than half the time)
- Almost never or never

7. Over the past 4 weeks, how **often** did you become lubricated ("wet") during sexual activity or intercourse?

- No sexual activity
- Almost always or always
- Most times (more than half the time)
- Sometimes (about half the time)
- A few times (less than half the time)

- Almost never or never

8. Over the past 4 weeks, how **difficult** was it to become lubricated ("wet") during sexual activity or intercourse?

- No sexual activity
- Extremely difficult or impossible
- Very difficult
- Difficult
- Slightly difficult
- Not difficult

9. Over the past 4 weeks, how often did you **maintain** your lubrication ("wetness") until completion of sexual activity or intercourse?

- No sexual activity
- Almost always or always
- Most times (more than half the time)
- Sometimes (about half the time)
- A few times (less than half the time)
- Almost never or never

10. Over the past 4 weeks, how **difficult** was it to maintain your lubrication ("wetness") until completion of sexual activity or intercourse?

- No sexual activity
- Extremely difficult or impossible
- Very difficult
- Difficult
- Slightly difficult
- Not difficult

11. Over the past 4 weeks, when you had sexual stimulation or intercourse, how **often** did you reach orgasm (climax)?

- No sexual activity
- Almost always or always
- Most times (more than half the time)
- Sometimes (about half the time)
- A few times (less than half the time)

- Almost never or never

12. Over the past 4 weeks, when you had sexual stimulation or intercourse, how **difficult** was it for you to reach orgasm (climax)?

    - No sexual activity
    - Extremely difficult or impossible
    - Very difficult
    - Difficult
    - Slightly difficult
    - Not difficult

13. Over the past 4 weeks, how **satisfied** were you with your ability to reach orgasm (climax) during sexual activity or intercourse?

    - No sexual activity
    - Very satisfied
    - Moderately satisfied
    - About equally satisfied and dissatisfied
    - Moderately dissatisfied
    - Very dissatisfied

14. Over the past 4 weeks, how **satisfied** have you been with the amount of emotional closeness during sexual activity between you and your partner?

    - No sexual activity
    - Very satisfied
    - Moderately satisfied
    - About equally satisfied and dissatisfied
    - Moderately dissatisfied
    - Very dissatisfied

15. Over the past 4 weeks, how **satisfied** have you been with your sexual relationship with your partner?

    - Very satisfied
    - Moderately satisfied
    - About equally satisfied and dissatisfied
    - Moderately dissatisfied
    - Very dissatisfied

16. Over the past 4 weeks, how **satisfied** have you been with your overall sexual life?

- Very satisfied
- Moderately satisfied
- About equally satisfied and dissatisfied
- Moderately dissatisfied
- Very dissatisfied

17. Over the past 4 weeks, how **often** did you experience discomfort or pain during vaginal penetration?

- Did not attempt intercourse
- Almost always or always
- Most times (more than half the time)
- Sometimes (about half the time)
- A few times (less than half the time)
- Almost never or never

18. Over the past 4 weeks, how **often** did you experience discomfort or pain following vaginal penetration?

- Did not attempt intercourse
- Almost always or always
- Most times (more than half the time)
- Sometimes (about half the time)
- A few times (less than half the time)
- Almost never or never

19. Over the past 4 weeks, how would you rate your **level** (degree) of discomfort or pain during or following vaginal penetration?

- Did not attempt intercourse
- Very high
- High
- Moderate
- Low
- Very low or none at all

Appendix B: WHO FGM/C Classification

FGM Type	Explanation
Type I	Partial or total removal of the clitoris and/or the prepuce (clitoridectomy).
	Type Ia: Removal of the clitoral hood or prepuce only.
	Type Ib: Removal of the clitoris with the prepuce.
Type II	Partial or total removal of the clitoris and the labia minora, with or without excision of the labia majora (excision).
	Type IIa: Removal of the labia minora only.
	Type IIb: Partial or total removal of the clitoris and the labia minora.
	Type IIc: Partial or total removal of the clitoris, the labia minora and the labia majora.
Type III	Narrowing of the vaginal orifice with creation of a covering seal by cutting and appositioning the labia minora and/or the labia majora, with or without excision of the clitoris (infibulation).
	Type IIIa: Removal and apposition of the labia minora.
	Type IIIb: Removal and apposition of the labia majora.
Type IV	All other harmful procedures to the female genitalia for non-medical purposes, for example: pricking, piercing, incising, scraping and cauterization

APPENDIX C: ERC Approval form.