

**SEXUAL FUNCTION AND SELF-GENITAL IMAGE AFTER CLITORAL  
RESTORATIVE SURGERY IN WOMEN WHO HAD FEMALE GENITAL  
MUTILATION IN KENYA: A CROSS-SECTIONAL STUDY**

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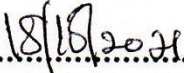
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**A Dissertation Submitted in Partial Fulfillment for the Degree of  
Masters of Medicine in Obstetrics and Gynecology,  
University of Nairobi**

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**DECLARATION**

**I, Dr. Hawa Hassan,** declare that this research dissertation is undertaken in part fulfillment of the Masters of Medicine in Obstetrics and Gynaecology from the University of Nairobi and is my original work and has not been undertaken and presented for a degree in any other university.


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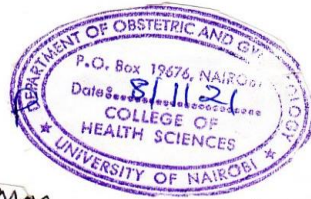
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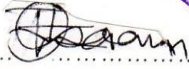
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## **DEDICATION**

I dedicate this work to my loving and supportive parents, my siblings who have been my cheerleaders throughout this journey. To my spouse and children for being my support and being patient with me.

## TABLE OF CONTENTS

|  |      |
|--|------|
| DECLARATION .....  | i    |
| SUPERVISORS' APPROVALS .....   | ii   |
| CERTIFICATE OF AUTHENTICITY .....  | ii   |
| ACKNOWLEDGEMENTS .....   | iv   |
| DEDICATION .....   | v    |
| TABLE OF CONTENTS.....   | vi   |
| LIST OF FIGURES .....  | viii |
| LIST OF TABLES .....   | ix   |
| LIST OF ABBREVIATIONS.....   | x    |
| OPERATIONAL DEFINITIONS.....   | xi   |
| ABSTRACT.....  | xii  |
| CHAPTER ONE: INTRODUCTION.....   | 1    |
| 1.1 Background .....   | 1    |
| CHAPTER TWO: LITERATURE REVIEW.....  | 2    |
| 2.1 Structure of the Clitoris.....   | 2    |
| 2.2 Types of Female Genital Mutilation (FGM).....                                      | 2    |
| 2.3 Impact of FGM on Sexuality.....  | 3    |
| 2.4 Assessment of Sexual Function and Self-Genital Image Following Clitoroplasty ..... | 4    |
| 2.5 Conceptual Framework .....   | 7    |
| 2.5.1 Narrative .....  | 7    |
| 2.5.2 Schematic.....   | 8    |
| 2.6 Problem Statement .....  | 8    |
| 2.7 Study Justification .....  | 9    |
| 2.8 Research Question.....   | 9    |
| 2.9 Study Objectives.....  | 9    |
| 2.9.1 Broad Objective .....  | 9    |
| 2.9.2 Specific Objectives .....  | 9    |
| CHAPTER THREE: METHODOLOGY .....   | 10   |
| 3.1 Study Design .....   | 10   |
| 3.2 Study Site and Setting .....   | 10   |
| 3.3 Study Population.....  | 10   |

|  |    |
|--|----|
| 3.4 Sample Size Determination.....                               | 10 |
| 3.5 Sampling Procedure .....                                     | 11 |
| 3.6 Recruitment and Consenting Procedures .....                  | 11 |
| 3.6.1 Inclusion Criteria .....                                   | 11 |
| 3.6.2 Exclusion criteria.....                                    | 11 |
| 3.7 Recruitment Procedure.....                                   | 12 |
| 3.7.1 Consenting .....   | 12 |
| 3.8 Study variables .....  | 12 |
| 3.9 Data Collection Procedures.....                              | 13 |
| 3.10 Study Flow Chart.....                                       | 14 |
| 3.11 Clitoral Restoration Surgical Procedure.....                | 14 |
| 3.12 Quality Assurance and Procedures.....                       | 15 |
| 3.13 Data Management and Analysis.....                           | 15 |
| 3.14 Ethical Considerations.....                                 | 16 |
| 3.15 Study Results Dissemination Plan.....                       | 16 |
| 3.16 Study Limitations and How to Minimize Them.....             | 16 |
| CHAPTER FOUR: Results.....                                       | 17 |
| 4.1 Demographic Characteristics .....                            | 17 |
| 4.2 Female Genital Self Image after Reconstruction .....         | 18 |
| 4.3 Female Sexual Function .....                                 | 20 |
| CHAPTER FIVE: Discussion, Conclusions, and Recommendations ..... | 24 |
| 5.1 Discussion .....   | 24 |
| 5.2 Conclusions .....  | 26 |
| 5.3 Recommendations .....  | 26 |
| REFERENCES .....   | 27 |
| ANNEXES .....  | 31 |
| Annex I: Consent Form.....                                       | 31 |
| Annex II a: Study Questionnaire .....                            | 35 |
| Annex II b: Study Questionnaire (Kiswahili).....                 | 45 |
| FSFI Domain Scores and Full Scale Score (Kiswahili) .....        | 54 |
| Annex III: KNH/UoN-ERC Letter of Approval .....                  | 55 |
| Annex IV: Certificate of Plagiarism.....                         | 57 |



## LIST OF FIGURES

|  |    |
|--|----|
| Figure 1: Structure of the Clitoris, image adapted (from Puppo, 2011a). 1. Anterior commissure; 2. Clitoral body covered by the prepuce; 3. Clitoral glans; 4. Labia minora: the lateral parts form the prepuce of the clitoris; the medial parts form the frenulum of the clitoris; 5. Labia majora; 6. External urethral orifice; 7. Duct of Skene’s gland; 8. Ducts of minor vestibular glands; 9. Labia minora; 10. Duct of Bartholin’s gland; 11. Vaginal orifice; 12. Hymen; 13. Frenulum of labia minora; 14. Posterior commissure..... | 2  |
| Figure 2: Conceptual framework showing the relationship between demographics of patients and individual factors such as genital self-image on the need for clitoral restorative surgery, and genital self-image and sexual function after restorative surgery .....  | 8  |
| Figure 3: Study Flow Chart.....  | 14 |

## LIST OF TABLES

|  |    |
|--|----|
| Table 1: Data Variables.....   | 13 |
| Table 2: Demographic data of women who underwent clitoral restorative surgery in Kenya.....                                    | 17 |
| Table 3: Genital self-image of women who underwent clitoral restorative surgery in Kenya.....                                  | 18 |
| Table 4: Genital self-image and demographic characteristics of women who underwent clitoral restorative surgery in Kenya ..... | 19 |
| Table 5: Female Sexual Function of women who underwent post-clitoral restorative surgery in Kenya.....                         | 20 |
| Table 6: Sexual function and demographic characteristics of women who underwent clitoral restorative surgery in Kenya .....    | 21 |
| Table 7: Predictors for sexual function of women who underwent clitoral restorative surgery in Kenya.....                      | 22 |

## **LIST OF ABBREVIATIONS**

|               |                                 |
|---------------|---------------------------------|
| <b>FGM/C-</b> | Female Genital Mutilation/Cut   |
| <b>FSFI-</b>  | Female Sexual Function Index    |
| <b>FGSIS-</b> | Female Genital self-image scale |
| <b>W.H.O-</b> | World Health Organization       |
| <b>CRS-</b>   | Clitoral restorative surgery    |

## OPERATIONAL DEFINITIONS

|   |   |
|---|---|
| <b>Female Genital Mutilation/Cut:</b>               | Any procedure involving partial or total removal of the external female genitalia or other injury to the female genital organs for non- medical reasons.                        |
| <b>Clitoroplasty/ Clitoral Restorative Surgery:</b> | Is a procedure aimed at re-exposing the clitoral remnant with or without defibulation to restore function among women who have undergone female genital mutilation/cut (FGM/C). |
| <b>Infibulation:</b>                                | Narrowing of the vaginal opening through the creation of a covering seal.   |
| <b>Defibulation:</b>                                | Surgical opening of the labia/scar tissue caused when the labia are joined together by infibulation.  |
| <b>Sexual Dysfunction:</b>                          | when an individual or a couple experiences the difficulty during any stage of a normal sexual activity including physical pleasure, desire, preference, arousal or orgasm.      |
| <b>Dyspareunia:</b>                                 | Persistent or recurrent genital pain that occurs just before, during or after intercourse.  |
| <b>Orgasm:</b>                                      | A feeling of intense sexual pleasure that happens during sexual activity.   |
| <b>Anorgasmia:</b>                                  | A type of sexual dysfunction in which a person has regular difficulty reaching orgasm after ample sexual stimulation.   |
| <b>Female Sexual Function Index:</b>                | A validated multidimensional self-report tool for the assessment of female sexual function.   |
| <b>Female Genital Self-Image Scale:</b>             | a validated tool to assess satisfaction of genital appearance.  |

## ABSTRACT

**Background:** Clitoral restoration surgery also known as clitoroplasty, is a procedure aimed at re-exposing the clitoral remnant with or without defibulation to restore function for females who had undergone genital mutilation. While results have been promising, there is paucity of data from studies that have used a validated assessment tool to evaluate sexual function post reconstruction. There is increasing evidence that FGM/C damages sexual function and this would appear logical following damage of sexually sensitive organ such as the clitoris. Long-term sexual dysfunction due to FGM / C, including dyspareunia, decreased sexual desire and excitement, decreased lubrication, decreased orgasm and anorgasmia has been recorded. As a potential manner to enhance sexual function among female genital mutilation, clitoral restorative surgery was suggested. However, the procedure remains somewhat controversial because there have been no studies using validated outcome measures to document the efficacy and safety of the procedure.

**Objective:** To assess sexual function and self-genital image after clitoral restorative surgery in women who had previously undergone female genital mutilation/cut.

**Methodology:** A cross-sectional study of 96 women with FGM/C aged 18-45 years who underwent clitoral restoration surgery at Platinum surgery center, at least one year from the time of administering the questionnaire was carried out. Records were reviewed, phone contacts extracted, and patients invited for interviews. After provision of informed consent, data was collected using an interviewer administered questionnaire, the Female Sexual Function Index (FSFI) and female self-genital image (FGSIS) tool used to assess sexual function and genital image post-surgery. Data was extracted from tools, uploaded into a Statistical Package for Social Sciences version 21.0 spreadsheet, and the demographic factors including age, education level, and marital status summarized into frequencies and proportions. Sexual function and genital image were analyzed as proportions and their incidence by the demographic and medical characteristics of participants determined using the Chi-square test and Logistic regression. Odds ratios and the P value were interpreted as our measures of association at 95% confidence level.

**Results:** The participants were age 20-55 years with mean age of 30.5 years. A majority had attained college education (68.0%), those married were 53.3%, and hailed from the Ameru ethnic group (22.9%). Christians and patients who had undergone stage II fgm/c were the majority at 81.3% and 55.8% respectively. Satisfaction with genital self-image was reported in 52.1% of

participants with Christians being 5.03 times (1.52-16.7) more likely to have a satisfactory self-image than Muslims ( $P < 0.01$ ). Of the 96 women, 82 women had engaged in sexual intercourse after the surgery, a majority of who reported female sexual dissatisfaction (70.7%). Women aged 30+ years were 3.04 time more likely to have FSD (1.08-8.51,  $p = 0.03$ ). The odd of FSD was also significantly higher among women with stage III FGM (OR (95%) = 5.5 (0.95-31.6) and who were unsatisfied with their self-image statistically ( $P < 0.05$ ). However, only age was a predictor for sexual satisfaction. A reduction in age by one year lowered the incidence of FSD by 22%.

**Discussion:** Women aged <35 years with a high level of education were more likely to present for the restorative surgery as per this study. In our study, more women from Ameru, Abagusii, Aembu, and Somali ethnic groups presented for surgery even though ethnic groups traditionally thought not to engage in FGM/c such as the Luo accounted for 2.1% of cases operated on. More Christians than Muslims had restorative surgery mostly after stage II or III FGM to improve their self-esteem, improve orgasm, regain identity, and improve relationship with their partners. Genital restorative surgery had a positive association with genital self-image, but did not translate to a significant improvement in sexual function among the 96 studied women. More than 70% of participants indicated that they were not satisfied with sexual function after restorative surgery with pain during intercourse seeming to be a bother.

**Conclusion:** Genital reconstruction increases the genital self-image of women irrespective of age and stage of FGM. However, sexual satisfaction after restorative surgery remains low at 29.3%, women aged 35+ years were 3.04 times more likely to have FSD, and FSD was significantly higher in women with stage III FGM.

**Recommendation:** Female genital reconstruction improves satisfaction with self-image but measures to minimize dyspareunia and increase sexual function should be considered as well as psychosexual counseling to manage expectations. Additional prospective studies analyzing baseline sexual function and image before and after surgery are recommended.

## CHAPTER ONE: INTRODUCTION

### 1.1 Background

The World Health Organization (WHO) describes female genital mutilation / cutting (FGM / C) as any operation involving partial or total removal of female external genitalia or other injury to female external genital organs for non-medical purposes <sup>1</sup>. Reconstruction of the clitoris after mutilation in females is a novel medical procedure that has been conveyed as an efficient and viable approach for reducing clitoral pain, improving the excitement of sex and restoring the appearance of the vulvar comparable to females who are not circumcised <sup>2</sup>.

While the precise amount of females globally who have experienced FGM / C remains unknown, UNICEF estimates that at least 200 million females in 30 nations have been cut <sup>3</sup>. The prevalence in Kenya is around 21.0 %, as per the 2014 Kenya Demographic Health Survey <sup>4</sup>.

For several thousand years, female genital mutilation/cut has been performed, yet scientific research has been restricted on the reasons why it continues today and the complete magnitude of the health harm it creates. Knowledge of measures to enhance the health of females undergoing the operation is under-recorded <sup>1</sup>. FGM/C may include clitoris, labia minora or majora cutting and stitching together the labia (type I, II or III).

Since most erectile tissues are not excised, part of the cut clitoris recoils meaning healthy women with FGM/C may still attain orgasm and experience sexual interactions that satisfy them. Under the scar tissue, the palpable clitoral stump can be exposed, a neo-glans reconstructed and repositioned on the clitoral anatomical site. This is what clitoral restoration entails <sup>5</sup>.

This procedure has been reported to enhance sexual function as it reduces clitoral pain by removing peri-clitoral fibrosis, making the clitoris more available to stimulation <sup>5</sup>.

## CHAPTER TWO: LITERATURE REVIEW

### 2.1 Structure of the Clitoris

The clitoris consists of the glans (visible part of the clitoris covered by the prepuce), the body (connected by the suspensory ligament to the pubic symphysis), the crura (tissue connected to the ischio-pubic rami) and bulbs-erectile structures absorbed by the labia during excitement <sup>6</sup>.

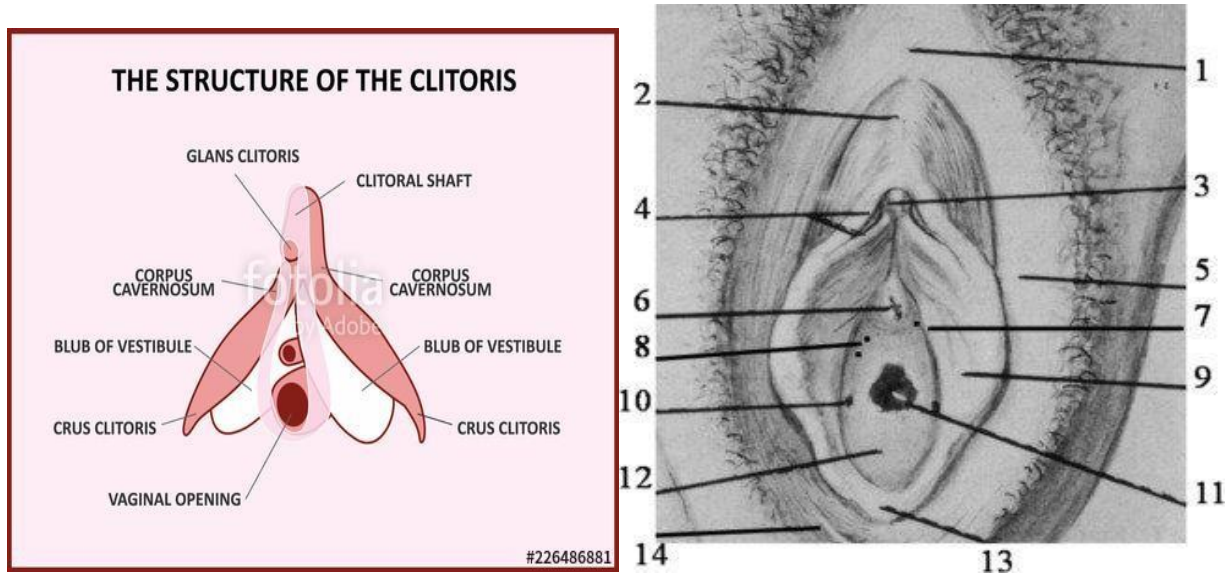


Figure 1: Structure of the Clitoris, image adapted (from Puppo, 2011a). 1. Anterior commissure; 2. Clitoral body covered by the prepuce; 3. Clitoral glans; 4. Labia minora: the lateral parts form the prepuce of the clitoris; the medial parts form the frenulum of the clitoris; 5. Labia majora; 6. External urethral orifice; 7. Duct of Skene's gland; 8. Ducts of minor vestibular glands; 9. Labia minora; 10. Duct of Bartholin's gland; 11. Vaginal orifice; 12. Hymen; 13. Frenulum of labia minora; 14. Posterior commissure.

### 2.2 Types of Female Genital Mutilation (FGM)

The cutting of the genitals in females is categorized into four different types <sup>7</sup> that have been listed and well explained below.

- a) Clitoridectomy: This is the removal of prepuce and part or the entire clitoris
- b) Excision: Removal of clitoris and prepuce and partial or complete labia minora
- c) Infibulation: Includes portion or all of the external genitalia being excised and the two sides being stitched together to variable degrees.
- d) Other: All other damaging non-medical procedures for the genitalia of women, such as pricking, squeezing, incising, scraping, and cauterizing of the genital region.



### **2.3 Impact of FGM on Sexuality**

The present publications are unsure on how the cutting or mutilation of females might impact on their sexual activity and desire, but it appears that mutilation of the genitals destroys normal functioning of the body sexually in those women who have their clitorises damaged<sup>8</sup>. Long-term sexual dysfunction owing to FGM / C was recorded, including dyspareunia, reduced sexual function, willingness and excitement, reduced lubrication, decreased orgasm and anorgasmia<sup>1</sup>.

A meta-analysis of 12,000 participants established that mutilated women were more prone to dyspareunia, not having the feeling of engaging in sex, and decreased sexual fulfillment. Clitoral retrieval surgery has been suggested as a potential means of improving sexual function among women, but the procedure remains somewhat controversial as no significant studies have been conducted using validated outcome measures to document the efficacy and safety of the procedure<sup>9</sup>.

Dr. Pierre Foldes created this restorative surgical procedure for the first time in France. The skin covering the stump is exposed and separated then the glans (clitoral remnant) is mobilized to elongate it and place it at the anatomical site with or without defibulation, to restore function among females with FGM / C<sup>10</sup>. While there have been promising outcomes, there was only one pilot study using a validated evaluation tool to assess post-reconstruction sexual function. Improvement in sexual function after clitoral reconstruction was proved in terms of self-esteem, sexual desire, excitement and happiness with minimal orgasm improvement and lubrication<sup>11</sup>.

In many cases, the damage or cutting of the genital in female is done with an essence of reducing the desire of having sex in women. The excision of the inner clitoris influences the will of having sex and reaching orgasm<sup>12</sup>. There are sexual complications among females involved in the cutting of their genital organs. Esho *et al* in Kenya, stated that females in general had negative sexual experience and specifically, adverse changes in desire and happiness were experienced after marriage intercourse<sup>13</sup>. A comparison research was conducted in Jeddah Saudi to find out the sexual function in those females who underwent the cut versus those who did not undergo the mutilation or cutting procedure. The results from the research were different between the two groups in terms of excitement, lubrication, organism and satisfaction. The study reported that sexual function in women who experienced the mutilation was negatively affected<sup>14</sup>.

An assessment of the research works on the orgasmic operation of females with the cut of their clitoris and the impact of surgical repair on orgasm was done. A PubMed search was conducted to define published FGM/C studies evaluating orgasm. The findings were as follows; whereas three of the seven FGM/C trials that included a control group discovered reduced orgasmic functioning in females affected, no survey was fully monitored for demographic variations between individuals or division of FGM/C group by clitoral integrity. Therefore, the effect of FGM/C on orgasm remains unknown. However, indirect proof indicates decreasing orgasm rates in females who are unable to engage in direct external clitoral stimulation. Surgical defibulation releases the scar of infibulation and can enhance sexual functioning but not orgasm.

Clitoral reconstructive surgery, which creates a new external clitoris, restores a more normal genital appearance, resolves pain at the excision site, and increases clitoral pleasure. One large study found that it enabled clitoral orgasm in approximately 40% of patients. Since rates of orgasm from all forms of stimulation (e.g., vaginal) were not assessed, it is unclear for how many women an external clitoris is necessary for orgasm.

The review however concludes that future studies on FGM/C and orgasm should address the methodological limitations of previous research. Although clitoral reconstruction allows many women with FGM/C to become clitorally orgasmic, it does not guarantee orgasm. Women should be offered psychotherapy to improve their sexual or orgasmic functioning regardless of their genital integrity<sup>12</sup>.

#### **2.4 Assessment of Sexual Function and Self-Genital Image Following Clitoroplasty**

Women who have had FGM / C do not have access to the medical procedure for the reconstruction yet the service is obtainable. In a prospective study conducted in France to assess clitoroplasty, approximately 2938 females participated. The primary nations of origin included Mali, Senegal and Ivory Coast. Out of those operated on, 866 patients (29%) attended the 1-year follow up visit. Before the surgery, 2933 (99%) of patients expected to have identity recovery, increased quality sex life in 2378 patients (81%) and reduced pain before surgery in 847 patients (29%). In comparison, 363 females (42%) had a hoodless glans at 1-year follow-up, 239 (28%) had a standard clitoris, 210 (24%) had a noticeable projection, 51 (6%) had a tangible projection, and three (0.4%) had no transition.

The majority of the patients (97.7%) reported an improvement, or at least no deterioration in pain (821 out of 840 patients), 97.7 percent had clitoral enjoyment (815 out of 834 patients). Out of 841 females, 430 (51 percent) encountered orgasms at 1 year. In 155 (5 percent) of the 2938 patients had immediate complications after surgery (hematoma, suture failure, mild fever) and 108 (4 percent) had to be hospitalized <sup>10</sup>.

A more recent study by Seifeldin *et al* (2018), noted that injection of platelet rich plasma (PRP) directly into the repaired clitoris improved the sensitivity by enhancing the blood flow, growth factors and activating the stem cells in that region. There was reported improvement in sexual function in terms of enhanced sensitivity and pleasure in 63% of the patients' seen while aesthetic appearance was indicated in 90% with 85% reporting palpable glans and sexual desire was demonstrated in 51% of the clients. This however does not negate the importance of multidisciplinary involvement to handle the psychosocial aspect. Surgery offers improved body image identity, self-confidence and psychosocial well-being which leads to psychosexual improvement in almost 88-96% of patients. Post-operative complications accounted for 5-11%, which included hematoma formation, infection, wound dehiscence, decreased sexual pleasure 2.5%, pain and orgasmic dysfunction at 8% and 18% respectively. These complications improved after 6-18 months' time period and PRP injection <sup>15</sup>. Reconstructive surgery appears to be associated with decreased pain and restored enjoyment after female genital mutilation. Surgeons need to be trained to make it more easily accessible in developing nations <sup>10</sup>.

A 2016 prospective study of 107 patients from El Gaala hospital in Egypt reported no improvement to 90% satisfaction in cosmetic outcome, psychological improvement in 82%, sexual desire in 24%, arousal in 27%, lubrication in 4%, orgasm in 8%, and reduced pain in 21% of patients post reconstruction. In younger females with better education and greater socioeconomic status, better outcomes were reported.

These marked improvements were particularly noted in young adult women with type I and type II FGM/C and were probably attributed to the psychological advantages of the procedure, which may exceed the physical advantages. Clitoral Reconstructive Surgery after Female Genital Mutilation was also seen to offer psychological enhancement due to a rise in confidence, self-esteem and genital image, as well as sexual willingness, excitement and happiness with minimal enhancement in orgasm, lubrication and pain <sup>5</sup>.

Due to evolving socio-cultural and economic variables, FGM is decreasing worldwide. Genital reconstructive surgery gives FGM/C victims hope of recovering their dignity, enhanced sexuality, and enhances quality of life. After the operation and support, enhancement in aesthetic appearance and a boost in self-confidence, female self-image and partnerships with partners have been reported <sup>5</sup>.

In a study done in Burkina Faso to describe and evaluate the results of reconstructive plastic surgery of the clitoris in order to promote reproductive health, a retrospective study was carried out from 2007 to 2010. It evaluated ninety-four women. The findings showed 32.3 years was the mean age. Before repair, the assessment of the sexual experience showed that 41.5 percent of patients had never had sexual desire before surgery, more than half had no clitoral orgasm, and about a third had dyspareunia. In more than half of the study population, the primary reason for consultation was linked to sexual dysfunction.

All patients were treated using Dr. Pierre Foldès' method. A lapse assessment at least six months after surgery showed a huge (89.7%) restoration of the clitoris. Before and after surgery there was a significant distinction between sexual desires. In 83.6 percent of patients, a substantial increase in desire for sex was noted. However, there was no important distinction between orgasms before and after the surgery. The findings indicated that getting an orgasm is multifactorial and that women do not require a clitoris to have an orgasm. In conclusion it was observed that, irrespective of the anatomical and functional outcomes, all females were happy with their body <sup>16</sup>.

In a systematic review of 3,726 references collected by Berg *et al*, 71 studies were eligible for analysis, including 7,291 females. Three different types of surgical interventions were identified, including defibulation or surgical separation of fused labia, excision of a cyst with or without any form of restoration, and restoration of the prepuce or glans. The reasons provided for seeking treatment were functional complaints, sexual ambitions, aesthetic ambitions, and restoring identity. A desire for enhanced sexual pleasure, vaginal appearance, and functioning were the most prevalent reasons for defibulation. The main reason aimed at reconstruction was to restore identity. The study showed that information on the experiences of females with surgery are scarce, but they discovered that after defibulation, females reported easier births.

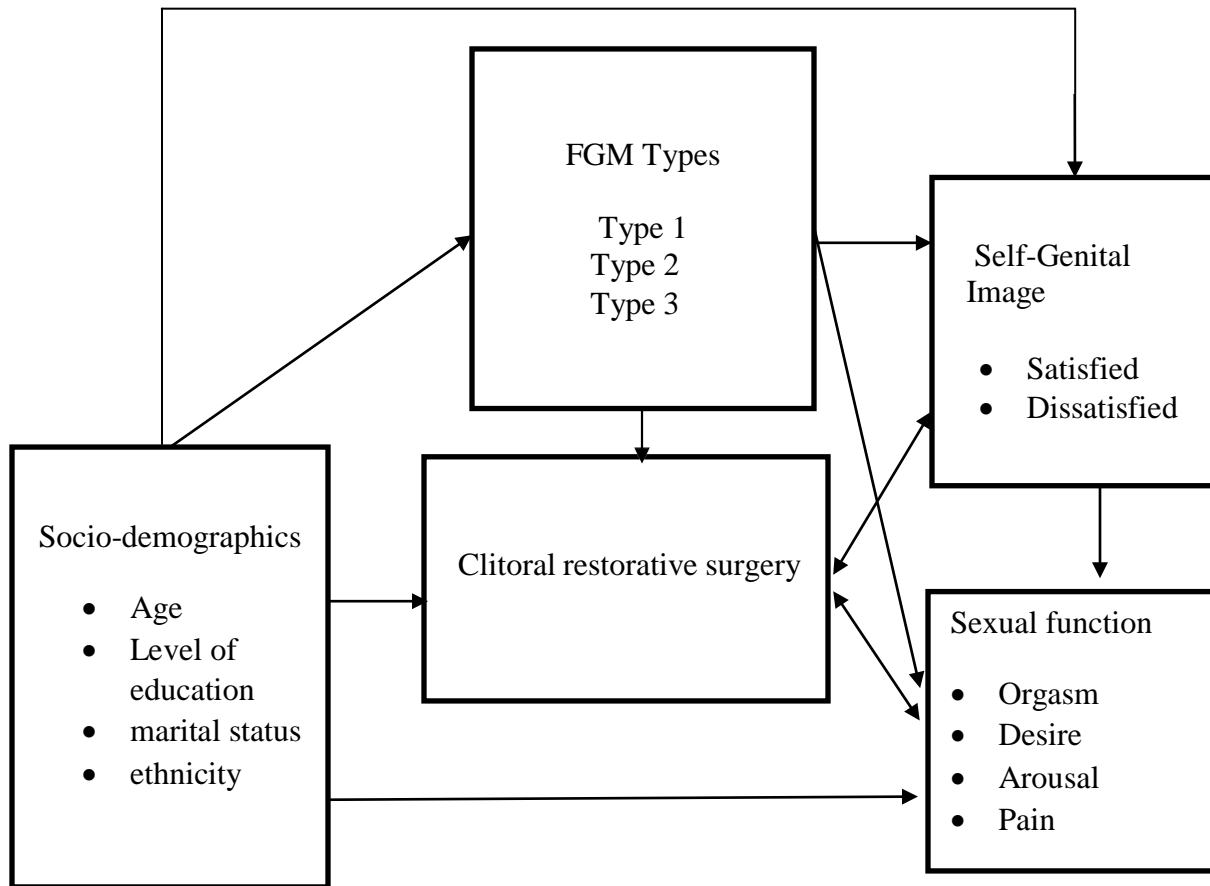
The results also showed most patients were satisfied with defibulation (total satisfaction= 50%-100%), typically due to changes in their sex life and that defibulation had a low social acceptance among females who hated their genitalia's new look. Most girls were pleased with genital reconstruction but about one third were dissatisfied with the aesthetics of their -newll vagina <sup>17</sup>.

## **2.5 Conceptual Framework**

### **2.5.1 Narrative**

FGM/C has been shown to affect sexual function and self-genital image with severity related to type of FGM. Socio-demographic characteristics like culture, age and socioeconomic status influence on how patients seek remedies for FGM/C. The clitoral restorative surgery is a novel procedure that was first described by Dr. Foldes as an attempt to help the victims of FGM/C. after 1 year follow up using validated tool it was shown that Clitoral restorative surgery does improve sexual function and perception of genital image. The decision to perform the procedure is also determined by the type of FGM, with type 2 and 3 being the commonest reason for CRS.

## 2.5.2 Schematic



**Figure 2: Conceptual framework showing the relationship between demographics of patients and individual factors such as genital self-image on the need for clitoral restorative surgery, and genital self-image and sexual function after restorative surgery**

## 2.6 Problem Statement

The magnitude of FGM/C in Kenya currently is at 21% according to KDHS 2014. It is very rampant in some communities ranging from 78% in the Maasai community to 94% in the Somali community, 86% in Samburu and Kisii at 84% (KDHS 2014). There is growing evidence that mutilation of the female genitalia is associated with obstetric, urogynaecological and sexual functioning. Clitoral restorative surgery is a new intervention aimed at improving sexual function among women with FGM/C. This study documented sexual function and female genital image after clitoral reconstructive surgery.

## **2.7 Study Justification**

Clitoral restorative surgery has been suggested as a potential means of improving sexual function among females who experienced mutilation or cut on their genital organs. On the other hand, this procedure remains somewhat controversial because there have been no large studies using validated outcome measures that document the efficacy and safety of the procedure <sup>4</sup>.

No study has so far been done in Kenya to assess the outcome of clitoral restorative surgery, a procedure that was conducted for women with FGM/C in 2017 by Dr. Bowers of Clitoraid (Clitoraid.org) a non-governmental organization that visited Kenya. She in turn trained local doctors who have continued to operate on these patients including my study participants. This study evaluated sexual function, and perception of self-genital image post the procedure, as well as complications if any associated with clitoral reconstructive surgery. It also made data available for policy makers with an aim to make the procedure available and accessible for all FGM/C victims.

## **2.8 Research Question**

What is the level of sexual function and perception of self-genital image after clitoral reconstructive surgery in women who had female genital mutilation/cut between 2017 and 2018 at Platinum Surgery Center?

## **2.9 Study Objectives**

### **2.9.1 Broad Objective**

To assess sexual function and self-genital image following clitoral restorative surgery of women who had previously undergone FGM/C between 2017 and 2018.

### **2.9.2 Specific Objectives**

Among women who had FGM/C and subsequently underwent clitoral reconstructive surgery between 2017- 2018: to assess

1. Change in sexual desire, orgasm, arousal, lubrication and pain.
2. percentage of women satisfied with the change in self-genital image
3. Socio-demographic characteristics of study participants.

## CHAPTER THREE: METHODOLOGY

### 3.1 Study Design

This was a cross-sectional study of 96 women with FGM/C, who had clitoral restorative surgery done and were reviewed at the Platinum surgery center. The study was done in the months of January to February 2020.

### 3.2 Study Site and Setting

The study was done at the Platinum surgery center in Hurlingham area Nairobi. The Platinum Surgery Center is a private facility dealing with aesthetic/plastic surgery. Follow-up reviews were done in the institution two weeks post-operative, at 6 months and 1 year after surgery. Data collection and analysis was then done between January and February 2020.

### 3.3 Study Population

One hundred and twenty-seven patients underwent clitoral restorative surgery in Kenya from May 2017 to December 2018. Patients with FGM/C were Kenyans and were of different ethnicities and age groups. Follow up and review were done at the Platinum surgery center.

### 3.4 Sample Size Determination

Foldes *et al* reported an increased sexual desire in 81.0% of women who had undergone clitoral reconstructive surgery. We used this parameter to determine our sample size (n).

Formula: (Fisher, 1981)

$$n = \frac{Nz^2pq}{E^2(N - 1) + z^2pq}$$

n: Sample size

P: Prevalence of sexual dysfunction

Z<sup>2</sup>: Normal variate for alpha (1.96)

q: 1-p

E: desired precision

N: Population size



Assumptions:

$$E = 5.0\%$$

$$P = 81.0\% \text{ (Foldes } et al.).$$

$$N = 127$$

$$Z^2 = 1.96$$

Estimated sample size:

$$n = \frac{127 \times 1.96^2 \times 0.81 \times 0.19}{0.05^2(127 - 1) + (1.96^2 \times 0.81 \times 0.19)} = 83$$

$$n = 83$$

After adjustment for 10% non-response rate: n= 92

### **3.5 Sampling Procedure**

Files of patients who underwent clitoral restorative surgery and follow up reviews at Platinum Surgery Center were separated and serialized, n=127. Using random sample tables, files were selected for review and patients tracked through phone calls and were requested to come as part of follow up visit at which point they were explained to the purpose of the study, consent sought, and the questionnaires given to fill. All the study respondents were literate and understood the questionnaire items.

### **3.6 Recruitment and Consenting Procedures**

#### **3.6.1 Inclusion Criteria**

- Age between 18-45 years old
- FGM/C type 2,3,4
- Women who underwent clitoral restorative surgery and have resumed sexual relationship
- Women who provided informed consent

#### **3.6.2 Exclusion criteria**

- Other causes of sexual dysfunction for example spinal injuries, medical conditions.
- Women who had undergone other surgeries aimed at correcting FGM/C.

### **3.7 Recruitment Procedure**

The data of patients was reviewed and participants recruited by principle investigator and trained research assistants. The study team extracted the contact details of patients and demographic data from hospital files. The qualified women were called and phone interviews conducted. Women were called the first time and if not available, a follow-up call was scheduled. Patients who were unreachable after the follow-up call were excluded and a substitute file selected randomly. Questionnaires (annex II) were then administered in English or Kiswahili as the participants were literate and chose the language of choice to fill.

#### **3.7.1 Consenting**

Once identified, the principal investigator or research assistant briefed the participants on the purpose of the study and its procedures and oral informed consent sought. A pre-designed consent form outlining the study purpose, procedure, potential benefits and possible risks was used to obtain written informed consent. Any pertinent questions regarding the study from the participant were answered at this point before signing consent forms. Potential participants who declined to offer consent were replaced sequentially by the next eligible participant who was selected randomly. Consenting process was free from coercion and was explicitly voluntary. Patients who accepted to take part in the study and give written consent were interviewed. The reasons for declining consent and non-participation by eligible participants were recorded.

### **3.8 Study variables**

The following data variables were analyzed in the study: The type of FGM/C determined the extent of injury and damage to sexual organs hence affecting sexual function and perception of genital image. Clitoral restorative surgery was done to improve sexual function and self-genital image but was dependent on the type of FGM/C. The socio-demographic characteristics of women were evaluated as intermediate variables and sexual function and self-genital image as outcome/dependable variables using the FSFI and FGSIS study tools respectively.

**Table 1: Data Variables**

| <b>Objective</b>                               | <b>Independent variable</b>                        | <b>Dependent variable</b>   | <b>Source of data</b> |
|--|--|---|-----------------------|
| To assess level of sexual function             | Type of FGM/cut<br>Clitoral restoration surgery    | sexual desire, orgasm, lubrication, pain                                    | questionnaire         |
| To assess self-genital image                   | Type of FGM<br>Clitoral restoral surgery           | Satisfaction, dissatisfaction in appearance of genitalia. Score from 1 to 5 | questionnaire         |
| To determine socio demographic characteristics | Age, marital status, level of education, ethnicity | Sexual desire, orgasm, arousal  | Questionnaire         |

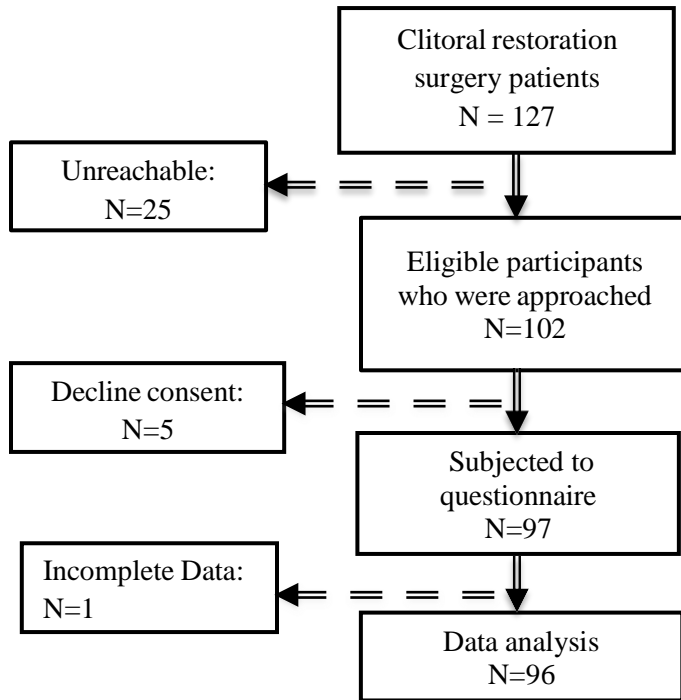
### **3.9 Data Collection Procedures**

Data was collected through self-administered questionnaire after obtaining formal permission and ethical clearance. Data were collected at Platinum surgery center in a secluded room to ensure privacy. Training of research assistants took place before data collection; they initially observed the process of obtaining informed consent, demonstrating the use of FSFI and FGSIS tools by the principle investigator. Eligible cases were contacted via the phone and invited as part of follow up visit for interview at Platinum surgery center.

The purpose of the study was explained and a written informed consent given. A self-administered questionnaire, which included FSFI and FGSIS tools, was administered in a secure room. Information about their sexual function was collected by the use of an authenticated assessment tool known as Female sexual function index (FSFI).

Using the female genital self-image scale (FGSIS), data on self-genital perception was gathered. Data was then extracted from files, questionnaires, the FSFI tool, and the FGSIS tool. The characteristics participants at the time of surgery were extracted from files and corroborated with primary data. Tools were assessed for validity and reliability.

### 3.10 Study Flow Chart



**Figure 3: Study Flow Chart**

Of the 127 women who underwent clitoral restorative surgery, 25 were not reachable, leaving a sample of 102 who were approached and informed consent administered. Of the 102, five declined consent. Ninety-seven completed a self-administered questionnaire, but only 96 had complete data (<5% missing data) (*Figure 3*), which was analyzed and presented.

### 3.11 Clitoral Restoration Surgical Procedure

Data were collected from patients who underwent clitoral restoration surgery following FGM in the clinic. Restoring both clitoral anatomy and clitoral function was the main aim of the surgery. Under appropriate general anesthesia, circular "buttonhole" skin incision was created over the clitoral shaft stump. Scissors resected heavily the skin covering the distal stump of the clitoris. The suspensory ligament was transected gradually near the bone and as deeply as necessary to allow the clitoris to mobilize sufficiently downwards to take it to the glans' anatomical place.

The neurovascular bundle of the dorsal area was maintained. To avoid retraction, a first layer of suture was used to keep the extremity of the neoclitoral shaft in place. Continuous or interrupted monocryl sutures were positioned closely below the remainder of the fibrous layer surrounding the tunica to the vestibular mucosa and skin. Over the clitoris, the vestibular skin was closed with interrupted polyglactin stitches passing through the subcutaneous connective tissue and the central periosteum on both sides. All the dissected rooms were infiltrated by local anesthetic (6 mL of ropivacaine 7.5 mg / mL). If necessary, the preliminary processes for uncovering the clitoral stump were defibulation and removal of pseudocysts.

Patients were discharged within day of surgery. After surgery, they were examined about two weeks and asked to return within six months to a year. They were told that postoperative pain would last for about 2 weeks and that wound healing (epithelialization) would take 2 months, at which point they could resume sexual intercourse. Women were questioned at a visit of 1 year about image pain and functionality.

### **3.12 Quality Assurance and Procedures**

The research assistants were trained on appropriate techniques and the recording of clinical findings was entered after thorough scrutiny. Unique identifiers were assigned to all the study cases. If double entries were discovered, one of the questionnaires was withdrawn, discarded and serialization rectified. Information filled on the questionnaires was checked for any errors and corrected. The collected data was uploaded to a password protected excel software for analysis.

### **3.13 Data Management and Analysis**

Statistical Package for Social Scientists (SPSS) version 21.0 was used to analyses data. The demographic characteristics of patients was computed, analyzed, and presented as frequencies, ratios, and means with standard deviations where appropriate. Those characteristics included individual's information such as age, ethnicity, level of education and marital status. The association between patient characteristics and sexual function and genital image was analyzed using the chi square test and Logistic regression to identify risk factors and predictors. Statistical analysis was done at 95% confidence level, with a  $p < 0.05$  considered to be statistically significant.

### **3.14 Ethical Considerations**

Permission was sought from the KNH and UON Ethics Research Committee (ERC) to carry out this study as part of the UON dissertation. Permission to access patient data was also sought from the management of Platinum surgery center. All the study participants were subjected to an opt out consenting procedure, and were only enrolled after agreeing to participate voluntarily. There was no expected harm to the participants.

The participant's personal details were de-identified by assigning unique identifiers, only applicable to the study. This coded information was uploaded to the excel sheet and password protected. Back up data was kept in a password encrypted external hard drive, only known to the PI. Once the results were generated, they were communicated to the clinical team that conducted the surgeries.

### **3.15 Study Results Dissemination Plan**

The results were presented to the department of Obstetrics and Gynecology for inputs from the faculty and as part of the fulfillment of the master in Obstetrics and Gynecology. Following revisions by the internal and external examiners, the findings will be shared to Platinum surgical center and the KNH – UON ERC in form of a report submitted to the hospital management. The results from the participants will be incorporated into the clinical management system for individual discussion with the patients during their subsequent clinical follow up visits.

### **3.16 Study Limitations and How to Minimize Them**

In view of the various factors influencing sexual pleasure and the difficulty in assessing function, there was confounding. To overcome this, confounders were controlled during data analysis. The study collected historical information such as age at the time of clitoral reconstructive surgery. As a result, there might have been information bias due to poor documentation. It was however assumed that Platinum surgery center being a private hospital with a relatively well-maintained records department, had accurate records.

In addition, the collected information was collaborated with the information as collected from the participants during the interviews. Some patients had missing information. Where essential data was missing, the PI picked the next eligible file for enrolment in to the study; this decision was made on a daily basis. This study assessed outcomes after surgery and there was no baseline data to compare with. Recommendation on a study that will compare function before and after surgery is made.

## CHAPTER FOUR: RESULTS

Of the 127 women who underwent clitoral restorative surgery, 25 were not reachable, leaving a sample of 102 who were approached and informed consent administered. Of the 102, five declined consent. Ninety-seven completed a self-administered questionnaire, but only 96 had complete data (<5% missing data), which was analyzed and presented.

### 4.1 Demographic Characteristics

**Table 2: Demographic data of women who underwent clitoral restorative surgery in Kenya**

|                       |   | N (96)      | %     |
|-----------------------|---|-------------|-------|
| Age                   | <35                                       | 48          | 54.5  |
|                       | 35+                                       | 40          | 45.5  |
|                       | Unknown                                   | 8           |       |
| Education             | Primary                                   | 6           | 7.1   |
|                       | Secondary                                 | 20          | 23.8  |
|                       | College                                   | 58          | 69.0  |
|                       | Unknown                                   | 12          |       |
| Marital status        | Married                                   | 48          | 53.3  |
|                       | Single                                    | 40          | 44.4  |
|                       | Divorced                                  | 2           | 2.2   |
|                       | Unknown                                   | 6           |       |
| Ethnic group          | Abagusii                                  | 18          | 18.8  |
|                       | Borana                                    | 2           | 2.1   |
|                       | Aembu                                     | 14          | 14.6  |
|                       | Akamba                                    | 4           | 4.2   |
|                       | Agikuyu                                   | 12          | 12.5  |
|                       | Luo                                       | 2           | 2.1   |
|                       | Maasai                                    | 2           | 2.1   |
|                       | Mbeere                                    | 2           | 2.1   |
|                       | Ameru                                     | 22          | 22.9  |
|                       | Samburu                                   | 2           | 2.1   |
|                       | Somali                                    | 14          | 14.6  |
|                       | Taita                                     | 2           | 2.1   |
|                       | Religion                                  | Christian   | 78    |
| Muslim                |   | 18          | 18.8  |
| Total                 |   | 96          | 100.0 |
| Intercourse           | Yes                                       | 82          | 85.4  |
|                       | No  | 14          | 14.6  |
| Knowledge of FGM type |   | 86          | 89.6  |
| Type of fgm/c         | I   | 8           | 9.3   |
|                       | II  | 48          | 55.8  |
|                       | III                                       | 30          | 34.9  |
|                       | Unknown                                   | 10          |       |
|                       | *Reason for surgery(could be more than 1) | Pain relief | 16    |
|                       | Inability to have Orgasm                  | 46          | 47.9  |
|                       | Regain identity                           | 38          | 39.6  |
|                       | Improve self esteem                       | 86          | 89.6  |
|                       | Improve sensation                         | 26          | 27.1  |
|                       | Improve relationship with partner         | 30          | 31.3  |
|                       | Stop stigma                               | 1           | 1.0   |

The demographic characteristics are presented in *Table 2* above. The mean age was 30.5 years, age range 20-55 years, with 54.5% being <35 years. A majority of our study participants had college education (68.0%), most were married at 53.3%. Of those who sought the surgery majority (22.9%) hailed from the Ameru ethnic group. Abagusii, Aembu, and Somali ethnic groups were around 18.8%, 14.6%, and 14.6% of the studied women respectively.

Seventy-eight of the 96 studied women were Christians (81.3%) while Muslims accounted for 18.8%. Eighty-two of the 96 patients (85.4%) had engaged in sexual intercourse after the surgery, while the type of FGM/C of 89.6% of women was documented in the files. Forty-eight (55.8%) and 30 (34.9%) of the documented cases had TYPE II and III FGM/C respectively while eight cases (9.3%) had TYPE I. A majority (89.6%) underwent surgery to improve self-image, 47.9% for orgasm, 39.6% to regain identity, and 31.3% to improve sensation.

#### 4.2 Female Genital Self Image after Reconstruction

**Table 3: Genital self-image of women who underwent clitoral restorative surgery in Kenya**

|   |                   | N (96) | %    | Cum.% |
|---|-------------------|--------|------|-------|
| Female Genital Self Image                                       | Satisfied         | 50     | 52.1 | 52.1  |
|   | Unsatisfied       | 46     | 47.9 | 100   |
| I am satisfied with the appearance of my genitals               | Strongly agree    | 26     | 27.1 | 27.1  |
|   | Agree             | 36     | 37.5 | 64.6  |
|   | Disagree          | 14     | 14.6 | 79.2  |
|   | Strongly disagree | 20     | 20.8 | 100.0 |
| I feel comfortable letting a sexual partner look at my genitals | Strongly agree    | 20     | 20.8 | 20.8  |
|   | Agree             | 42     | 43.8 | 64.6  |
|   | Disagree          | 16     | 16.7 | 81.3  |
|   | Strongly disagree | 18     | 18.8 | 100.0 |
| I think my genitals smell fine                                  | Strongly agree    | 40     | 41.7 | 41.7  |
|   | Agree             | 54     | 56.3 | 97.9  |
|   | Strongly disagree | 2      | 2.1  | 100.0 |
|   |                   |        |      |       |
| I am not embarrassed about my genitals                          | Strongly agree    | 22     | 22.9 | 22.9  |
|   | Agree             | 36     | 37.5 | 60.4  |
|   | Disagree          | 24     | 25.0 | 85.4  |
|   | Strongly disagree | 14     | 14.6 | 100.0 |

A majority (52.1%) were satisfied with self-genital image. The satisfaction with the individual domains was also high, with 64.6% either strongly agreeing (27.1%) or agreeing (37.5%) that they were satisfied with the appearance of their genitals and 64.6% strongly agreeing (20.8%) or agreeing (43.8%) that they felt comfortable letting their sexual partners looking at their genitals.



Approximately 97.0% thought their genitals smelt fine, while 60.4% strongly agreed (22.9%) or agreed (37.5%) that they were not embarrassed about their genitals, as shown in *Table 3* above.

**Table 4: Genital self-image and demographic characteristics of women who underwent clitoral restorative surgery in Kenya**

|                 |           | FGSIS     |             | OR (95% CI)      | P value |
|-----------------|-----------|-----------|-------------|------------------|---------|
|                 |           | Satisfied | Unsatisfied |                  |         |
| Age             | <35       | 22 (45.8) | 26 (54.2)   | 1.77 (0.75-4.15) | 0.18    |
|                 | 35+       | 24 (60.0) | 16 (40.0)   | Reference        |         |
|                 | Unknown   | 4         | 4           |                  |         |
| Education level | Primary   | 4 (66.7)  | 2 (33.3)    | Reference        |         |
|                 | Secondary | 6 (30.0)  | 14 (70.0)   | 0.21 (0.03-1.50) | 0.10    |
|                 | College   | 32 (55.2) | 26 (44.8)   | 0.61 (0.10-3.63) | 0.58    |
|                 |           | 8         | 4           |                  |         |
| Ethnic group    | Abagusii  | 10 (55.6) | 8 (44.6)    | 1.19 (0.42-3.33) | 0.32    |
|                 | Borana    | 0 (0.0)   | 2 (100)     | -                | 0.13    |
|                 | Aembu     | 8 (57.1)  | 6 (42.9)    | 1.27 (0.40-3.99) | 0.41    |
|                 | Akamba    | 0 (0.0)   | 4 (100)     | -                | 0.03    |
|                 | Agikuyu   | 12 (100)  | 0 (0.0)     | -                | <0.01   |
|                 | Luo       | 2 (100)   | 0 (0.0)     | -                | 0.17    |
|                 | Maasai    | 2 (100)   | 0 (0.0)     | -                | 0.17    |
|                 | Mbeere    | 0 (0.0)   | 2 (100)     | -                | 0.13    |
|                 | Ameru     | 12 (54.5) | 10 (45.5)   | 1.14 (0.43-2.96) | 0.78    |
|                 | Samburu   | 0 (0.0)   | 2 (100)     | -                | 0.13    |
|                 | Somali    | 4         | 10          |                  |         |
|                 | Taita     | 0         | 2           | -                | 0.13    |
| Religion        | Christian | 46 (59.0) | 32 (41.0)   | 5.03 (1.52-16.7) | <0.01   |
|                 | Muslim    | 4 (22.2)  | 14 (77.8)   | Reference        |         |
| Intercourse     | Yes       | 44 (53.7) | 38 (46.3)   | 1.54 (0.49-4.85) | 0.74    |
|                 | No        | 6 (42.9)  | 8 (57.1)    | Reference        |         |
| Type of fgm/c   | I         | 4 (50.0)  | 4 (50.0)    | Reference        |         |
|                 | II        | 28 (58.3) | 20 (41.7)   | 1.40 (0.31-6.28) | 0.65    |
|                 | III       | 12 (40.0) | 18 (60.0)   | 0.66 (0.13-3.19) | 0.61    |
|                 | Unknown   | 6         | 4           |                  |         |

Christians were five times more likely to be satisfied with genital self-image than Muslims were (OR (95% CI) = 5.03 (1.52-16.7),  $p < 0.01$ ). Moreover, women from the Agikuyu and the Akamba ethnic groups were more likely to be satisfied with their genital self-image than other ethnic groups ( $P < 0.05$ ). Even though women ages <35 years were 77% more likely to be satisfied with their genital image than women ages 35+ years (OR (95% CI) = 1.77 (0.75-4.15), the difference was not statistically significant ( $P = 0.18$ ).

Women who had engaged in sex and had type II fgm/c were 54% and 40% more likely to be satisfied with the genital self-image than those who had not had intercourse and had type I fgm/c, even though not statistically significant ( $P>0.05$ ). After controlling for covariance between ethnic group and religion, religion was found to be a predictor for genital self-image after restorative surgery, with Christians found to be 4.7 times more likely to have a positive genital self-image (OR (95% CI) = 4.7 (1.22-17.97),  $P=0.02$  (Table 4 above).

### 4.3 Female Sexual Function

**Table 5: Female Sexual Function of women who underwent post-clitoral restorative surgery in Kenya**

|                 |           | N (82) | %    |
|-----------------|-----------|--------|------|
| Sexual function | FSD       | 58     | 70.7 |
|                 | Satisfied | 24     | 29.3 |
| Desire          | Low       | 26     | 31.7 |
|                 | Moderate  | 38     | 46.3 |
|                 | High      | 18     | 22.0 |
| Arousal         | Low       | 38     | 46.3 |
|                 | Moderate  | 26     | 31.7 |
|                 | High      | 18     | 22.0 |
| Lubrication     | Low       | 32     | 39.0 |
|                 | Moderate  | 30     | 36.6 |
|                 | High      | 20     | 24.4 |
| Orgasm          | Low       | 42     | 51.2 |
|                 | Moderate  | 24     | 29.3 |
|                 | High      | 16     | 19.5 |
| Satisfaction    | Low       | 42     | 51.2 |
|                 | Moderate  | 16     | 19.5 |
|                 | High      | 24     | 29.3 |
| Pain            | High      | 30     | 36.6 |
|                 | Moderate  | 30     | 36.6 |
|                 | Low       | 22     | 26.8 |

The prevalence of Female Sexual Dysfunction (FSD) among 82 women who had conformed to engage in sex after clitoral restorative surgery was 70.7% with only 29.3% being satisfied with their level of sexual function, and varied between the domains. Overall, 68.3% of the studied women had moderate (46.3%) to high (22.0%) desire for sex after reconstructive surgery. However, only 22.0% were highly and 31.7% were moderately aroused during intercourse. Around 52.1% had low ability to orgasm during sexual activity with 29.3% moderate ability and

19.5% high ability to orgasm and were satisfied with their sexual relationships with their partners. Discomfort was a problem for a majority of the studied women, as 73.2% had moderate to high pain while engaging in sexual intercourse, as depicted in *Table 5* above.

**Table 6: Sexual function and demographic characteristics of women who underwent clitoral restorative surgery in Kenya**

|                           |             | Sexual Function |                | OR (95% CI)      | P               |
|---------------------------|-------------|-----------------|----------------|------------------|-----------------|
|                           |             | FSD (58)        | Satisfied (24) |                  |                 |
| Age group                 | <35         | 24 (58.5)       | 17 (41.5)      | Reference        |                 |
|                           | 35+         | 30 (81.1)       | 7 (18.9)       | 3.04 (1.08-8.51) | <b>0.03</b>     |
|                           | Unknown     | 4               | 0              |                  |                 |
| Education                 | Primary     | 4 (66.7)        | 2 (33.3)       | Reference        |                 |
|                           | Secondary   | 12 (75.0)       | 4 (25.0)       | 1.50 (0.19-11.5) | 0.69            |
|                           | College     | 36 (72.0)       | 14 (28.0)      | 1.21 (0.19-7.41) | 0.83            |
|                           | Unknown     | 6               | 4              |                  |                 |
| Marital status            | Married     | 32 (66.7)       | 16 (33.3)      | 0.88 (0.31-2.48) | 0.82            |
|                           | Single      | 18 (69.2)       | 8 (30.8)       | Reference        |                 |
|                           | Divorced    | 2 (100)         | 0 (0.0)        | -                | 0.35            |
|                           | Unknown     | 6               | 0              |                  |                 |
| Ethnic group              | Abagusii    | 14 (87.5)       | 2 (12.5)       | 3.50 (0.73-16.8) | 0.10            |
|                           | Borana      | 2 (100)         | 0 (0.0)        | -                | 0.35            |
|                           | Aembu       | 10 (71.4)       | 4 (28.6)       | 1.04 (0.29-3.72) | 0.94            |
|                           | Akamba      | 4 (100)         | 0 (0.0)        | -                | 0.18            |
|                           | Agikuyu     | 2 (20.0)        | 8 (80.0)       | 0.07 (0.01-0.37) | <b>&lt;0.01</b> |
|                           | Luo         | 0 (0.0)         | 2 (100)        | -                | <b>0.02</b>     |
|                           | Maasai      | 0 (0.0)         | 2 (100)        | -                | <b>0.02</b>     |
|                           | Mbeere      | 2 (100)         | 0 (0.0)        | -                | 0.35            |
|                           | Ameru       | 10 (71.4)       | 4 (28.6)       | 1.04 (0.29-3.72) | 0.94            |
|                           | Samburu     | 2 (100)         | 0 (0.0)        | -                | 0.35            |
|                           | Somali      | 10 (83.3)       | 2 (16.7)       | 2.29 (0.46-11.4) | 0.29            |
|                           | Taita       | 2 (100)         | 0 (0.0)        | -                | 0.35            |
| Religion                  | Christian   | 44 (66.7)       | 22 (33.3)      | reference        |                 |
|                           | Muslim      | 14 (87.5)       | 2 (12.5)       | 3.50 (0.73-16.8) | 0.10            |
| Type of fgm/c             | I           | 4 (50.0)        | 4 (50.0)       | reference        |                 |
|                           | II          | 24 (60.0)       | 16 (40.0)      | 1.50 (0.32-6.88) | 0.60            |
|                           | III         | 22 (84.6)       | 4 (15.4)       | 5.50 (0.95-31.6) | <b>0.04</b>     |
|                           | Unknown     | 8               | 0              |                  |                 |
| Female genital self-image | Satisfied   | 20 (45.5)       | 24 (54.5)      | reference        |                 |
|                           | Unsatisfied | 38 (100)        | 0 (0.0)        | -                | <b>&lt;0.01</b> |

An association between age, severity of fgm/c, and genital self-image and sexual function was evident. Women age 35+ years were 3.04 times more likely to have FSD than age <35 (OR (95% CI) = 3.04 (1.08-8.51), p=0.03, while women who had stage III fgm/c were 5.5 times more likely

to have FSD than women who had stage I fgm/c (OR (95% CI) = 5.5 (0.95-31.6), p=0.04. Finally, women who had unsatisfactory genital self-image were 54.5% more likely to have FSD than women who had a satisfactory genital self-image (P<0.01). Even though Muslims were 3.5 times more likely to have FSD than Christians (OR (95% CI) =3.50 (0.73-16.8)) the association was not statistically significant. Marriage lowered the incidence of FSD by 18% (OR (95% CI) = 0.88 (0.31-2.48)), but not statistically significantly (P=0.82), as depicted in *Table 6* above.

**Table 7: Predictors for sexual function of women who underwent clitoral restorative surgery in Kenya**

|                     |               | B      | OR     | 95% C.I. for OR |         | P               |
|---------------------|---------------|--------|--------|-----------------|---------|-----------------|
|                     |               |        |        | Lower           | Upper   |                 |
| Step 1 <sup>b</sup> | Ethnic group  |        |        |                 |         | 0.99            |
|                     | Abagusii      | -24.04 | 0.00   | 0.00            | .       | 0.99            |
|                     | Borana        | -8.86  | 0.00   | 0.00            | .       | 1.00            |
|                     | Aembu         | -24.76 | 0.00   | 0.00            | .       | 0.99            |
|                     | Akamba        | -8.54  | 0.00   | 0.00            | .       | 1.00            |
|                     | Agikuyu       | -19.30 | 0.00   | 0.00            | .       | 0.99            |
|                     | Luo           | -21.29 | 0.00   | 0.00            | .       | 1.00            |
|                     | Maasai        | -3.44  | 0.03   | 0.00            | .       | 1.00            |
|                     | Mbeere        | 0.35   | 1.42   | 0.00            | .       | 1.00            |
|                     | Ameru         | -22.93 | 0.00   | 0.00            | .       | 0.99            |
|                     | Samburu       | -5.97  | 0.00   | 0.00            | .       | 1.00            |
|                     | Somali        | -4.96  | 0.01   | 0.00            | .       | 1.00            |
|                     | Taita**       |        |        |                 |         |                 |
|                     | FGSI          |        |        |                 |         |                 |
|                     | Satisfied     | 37.93  | 2.9E16 | 0.00            | .       | 0.99            |
|                     | Unsatisfied** |        |        |                 |         |                 |
|                     | FGM type      |        |        |                 |         | 0.73            |
|                     | I             | 21.37  | 1.9E9  | 0.00            | .       | 0.99            |
|                     | II            | 1.93   | 6.935  | 0.05            | 880.866 | 0.43            |
|                     | III**         |        |        |                 |         |                 |
|                     | Age           | -0.31  | 0.72   | 0.57            | 0.927   | 0.01            |
| Step 2 <sup>b</sup> | FGSIS         |        |        |                 |         |                 |
|                     | Satisfied     | 35.46  | 2.5E15 | 0.00            | .       | 0.99            |
|                     | Unsatisfied** |        |        |                 |         |                 |
|                     | FGM type      |        |        |                 |         | 0.62            |
|                     | I             | 18.98  | 1.7E8  | 0.00            | .       | 0.99            |
|                     | II            | 1.00   | 2.72   | 0.36            | 20.514  | 0.32            |
|                     | III**         |        |        |                 |         |                 |
|                     | Age           | -0.24  | 0.78   | 0.65            | 0.930   | <b>&lt;0.01</b> |

After controlling covariance, only the age of participants was identified as a predictor for sexual function among women who underwent post-clitoral restorative surgery in Kenya. A reduction in age by every 0.24 years lowered the incidence of FSD by 22% (*Table 7 above*). Even though ethnicity, self-image, and fgm/c type were associated with FSD, they were not predictors ( $P>0.05$ ).

## CHAPTER FIVE: DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

### 5.1 Discussion

We sought to establish the association between clitoral restorative surgery and the wellbeing of Kenyan women who had undergone FGM/C, as measured by genital satisfaction and genital sexual functions. It was evident that women age <35 years with a high level of education were more likely to seek intervention aimed at correcting FGM/C. From our data, close to 70% who had undergone FGM/C had college education, while 7.1% had attained primary education. This contradicted the findings of Rawat <sup>19</sup> who found a statistically significant relationship between a high level of education and a reduction of genital mutilation activities. A possible explanation for this is that highly educated individuals are more likely to have a job and thus can afford restorative surgeries.

From our data, the incidence of women seeking surgery was higher among women from Ameru ethnic group who constituted 22.9% of our study population, Abagusii, Aembu, and Somali ethnic groups as they constituted 48% of the women studied. These findings are in agreement with the results of Shell-Doulani et al. <sup>(20)</sup> who in a report dubbed -Female Genital Mutilation in Kenya: is Change Taking Place? showed that the North Eastern, Eastern, Nyanza, and the Rift Valley provinces, from where a majority of our participants hailed, contribute the highest to the FGM/c burden in Kenya, leading to adverse outcomes such as sexual dysfunction <sup>21-23</sup>.

Even though FGM/C was low at the coastal strip, our data showed FGM/C in ethnic groups traditionally thought not to engage in FGM/C. Around 2.1% of women who had undergone the cut were of Luo ethnicity, which was comparable to the 1% incidence rate reported by Oloo et al <sup>24</sup>. Our small sample might have contributed to this finding. Moreover, proportions might have been over reported, as only women who had phones and were reachable were recruited/evaluated.

More Christians than Muslims presented for restorative surgery after FGM. This could be explained by how communities especially in northern Kenya perceive sex culturally, which influenced their decision to seek for restorative surgeries. Moreover, a majority of those who considered restorative surgery for FGM had either stage II or III FGM, mostly to improve their self-esteem. Close to 50% opted for surgery to improve orgasm, while 39.6% and 31.3% wanted to regain their identity and improve relationship with their spouses and or partners. This is similar to the findings of Jordal in Sweden in which symbolic restitution, lowering visible

stigma, and improvement of intimacy and sex through aesthetic and physical restoration of the vagina were identified as some of the main reasons for undergoing clitoral restorative surgery<sup>25</sup>. From this study, it was evident that genital restorative surgery has a positive association with genital self-image, as over 50% of the studied women reported satisfactory genital self-image. Women were mostly satisfied with the look of their genitals to the extent that they were no longer ashamed about their look and were comfortable with their partners looking at their genitals. Therefore, genital restorative surgery seemed to inspire self-acceptance, even though sensitization campaigns targeting Muslims and elderly women who have undergone fgm/c and are considering undergoing genital restorative surgery is warranted. From this study, more Christians came for surgery compared to Muslims yet FGM is high in Muslim practicing communities like the Somali.

Our results indicate the Christians and women age <35 years were five times and 1.7 times more likely to be satisfied with genital self-image after restorative surgery than Muslims and women ages 35+ years. Furthermore, even though satisfaction with genital restoration did not vary statistically by the education level of women, the stage of genital mutilation, and engagement in sexual intercourse, ethnicity seemed to influence satisfaction with genital restoration with Kikuyus and Akamba being more likely to be satisfied.

Similar findings have been reported in literature. Seifeldin reported a boost in cosmetic satisfaction and psychological improvement after surgical repair of fgm/c II and III by over 90% in a women's teaching hospital in Egypt in 2016<sup>26</sup>. Goodman et al. also reported an improvement in genital self-image and the overall body esteem of 120 women who underwent surgical restoration of FGM in California, USA in 2016<sup>27</sup>. In the study, the education level of women and stage of FGM/C did not influence satisfaction statistically.

Traditionally, genital surgical restoration is done to improve both the genital self-image of women and their sexual function. While an improvement in the psychological wellness of patients and therefore their self-image was optimal, surgical restoration did not translate to a significant improvement in sexual function among the 96 studied women. More than 70% of participants in this study indicated that they were not satisfied with sexual function after restorative surgery with pain during intercourse seeming to be a bother – a finding that is consistent with other studies<sup>28</sup>.

Post-operative dyspareunia, whose assessment was beyond the scope of this study, has been identified as a strong predictor for sexual function with women exhibiting the symptom reported to have a higher risk of female sexual dysfunction<sup>28</sup>.

While the desire for sex after surgery was modest, poor arousal and a lack of lubrication might have stifled sexual function further, leading to a lack of orgasm and dissatisfaction with sex. Esho et al.<sup>29</sup> had similar findings in Kenya where women had a negative sexual experience especially adverse changes in desire, arousal and satisfaction. Goodman et al.<sup>27</sup> reported a reduction in the physical and sexual performance after surgery (4-27% for individual sexual function domains).

Sexual function seemed to differ statistically by the socio-demographic and medical characteristics of patients. In terms of age, women aged 35+ years were more likely to be dissatisfied with sexual function than younger ones. Women from the Agikuyu ethnic group were also more likely to be satisfied with sexual function, while women who had undergone stage III FGM were 5.5 times more likely to be dissatisfied with sexual function after a surgery than those with stage I FGM. Overall, an improvement in genital self-image was positively associated with sexual function.

Thus, although improving the aesthetic value of the vagina has a positive effect on sexual function; interventions that can lower physical pain after surgery are warranted, to improve the outcomes of women. Moreover, sensitization campaigns targeted towards elderly women (34+) with a severe form of FGM (II and III) and actively engaging in sex are warranted, as they are most likely to develop female sexual dysfunction after surgery, as per our results.

## **5.2 Conclusions**

- Clitoral reconstructive surgery after FGM/C offers an improvement in genital self-image
- Female Sexual Dysfunction remains high after clitoral restorative surgery with age, perception of genital self-image, and severity of cut associated with its occurrence.

## **5.3 Recommendations**

- Psychosexual counseling should be done before and continued for women experiencing dyspareunia to overcome the findings of low sexual function.
- Prospective cohort studies to assess sexual function before and after surgery should be undertaken to address the limitation of this study.



## REFERENCES

1. World Health Organization. Female genital mutilation. Report of a WHO Technical Working Group. [Internet]. 1996. 1996. Available from: <https://extranet.who.int/iris/restricted/handle/10665/63602%5Cnhttp://www.who.int/iris/handle/10665/63602>
2. JasmineAbdulcadirMD\*†Maria I.RodriguezMD†PatrickPetignatMD\*LaleSayMD†. No TitleClitoral Reconstruction after Female Genital Mutilation/Cutting: Case Studies. *J Sex Med.* 2015;12(1):274–81.
3. United Nations Children’s Fund. Female Genital Mutilation/Cutting: a Global Concern Unicef’S Data Work on Fgm/C Support for Data Collection Data Analysis and Dissemination [Internet]. Unicef. 2016. Available from: [https://www.unicef.org/media/files/FGMC\\_2016\\_brochure\\_final\\_UNICEF\\_SPREAD.pdf](https://www.unicef.org/media/files/FGMC_2016_brochure_final_UNICEF_SPREAD.pdf)
4. Ojiambo R, Gibson AR, Konstabel K, Lieberman DE, Speakman JR, Reilly JJ, et al. Free-living physical activity and energy expenditure of rural children and adolescents in the Nandi region of Kenya. *Ann Hum Biol.* 2013;40(4):318–23.
5. Zhang GY, Li QF, Cai JL, Fu XB, Gao WY. Reconstructive surgery after female genital mutilation. Vol. 380, *The Lancet.* 2012. p. 1468–9.
6. Puppo V, Puppo G. Anatomy of sex: Revision of the new anatomical terms used for the clitoris and the female orgasm by sexologists. *Clin Anat.* 2015;28(3):293–304.
7. WHO. Understanding and addressing violence against women [Internet]. Vol. 1, World Health Organization. 2012. Available from: [http://apps.who.int/iris/bitstream/10665/77434/1/WHO\\_RHR\\_12.37\\_eng.pdf](http://apps.who.int/iris/bitstream/10665/77434/1/WHO_RHR_12.37_eng.pdf)
8. Berg, Rigmor C, Underland V. Gynecological consequences of female genital mutilation / cutting ( FGM / C ). *Nor Knowl Cent Heal Serv.* 2012;(11):121.
9. Sigurjonsson H, Jordal M. Addressing Female Genital Mutilation/Cutting (FGM/C) in the Era of Clitoral Reconstruction: Plastic Surgery. *Curr Sex Heal Reports.* 2018;10(2):50–6.
10. Foldès P, Cuzin B, Andro A. Reconstructive surgery after female genital mutilation: A prospective cohort study. *Lancet.* 2012;380(9837):134–41.

11. Vital M, De Visme S, Hanf M, Philippe HJ, Winer N, Wylomanski S. Using the Female Sexual Function Index (FSFI) to evaluate sexual function in women with genital mutilation undergoing surgical reconstruction: A pilot prospective study. *Eur J Obstet Gynecol Reprod Biol.* 2016;202(04):71–4.
12. Paterson LQP, Davis SN, Binik YM. Female genital mutilation/cutting and orgasm before and after surgical repair. *Sexologies.* 2012;21(1):3–8.
13. Esho T, Kimani S, Nyamongo I, Kimani V, Muniu S, Kigundu C, et al. The -heatll goes away: Sexual disorders of married women with female genital mutilation/cutting in Kenya. *Reprod Health.* 2017;14(1):1–9.
14. Alsibiani SA, Rouzi AA. Sexual function in women with female genital mutilation. *Fertil Steril.* 2010;93(3):722–4.
15. A S. Genital restorative surgery after female genital cutting. *Women’s Heal.* 2018;7(6):4–5.
16. Ouédraogo CMR, Madzou S, Touré B, Ouédraogo A, Ouédraogo S, Lankoandé J. Practice of reconstructive plastic surgery of the clitoris after genital mutilation in Burkina Faso. About 94 cases. *Ann Chir Plast Esthet.* 2013 Jun;58(3):208–15.
17. Berg RC, Taraldsen S, Said MA, Sørbye IK, Vangen S. Reasons for and Experiences With Surgical Interventions for Female Genital Mutilation/Cutting (FGM/C): A Systematic Review. Vol. 14, *Journal of Sexual Medicine.* Elsevier Inc; 2017. p. 977–90.
18. Jordal M, Griffin G, Sigurjonsson H. ‘I want what every other woman has’: reasons for wanting clitoral reconstructive surgery after female genital cutting—a qualitative study from Sweden. *Cult Heal Sex.* 2019 Jun;21(6):701–16.
19. Rawat R. The association between economic development, education and FGM in six selected African countries. *Afr J Midwifery Womens Health* [Internet]. 2017 Jul 2;11(3):137–46. Available from: <http://www.magonlinelibrary.com/doi/10.12968/ajmw.2017.11.3.137>
20. Shell-Duncan B, Gathara D, Moore Z. Female Genital Mutilation/Cutting In Kenya: Is Change Taking Place? Descriptive Statistics from Four Waves of Demographic and Health Surveys. [Internet]. New York, NY; 2017. Available from: <http://www.popcouncil.org/EvidencetoEndFGM-C>

21. Graamans EP, Zolnikov TR, Smet E, Nguura PN, Leshore LC, Have S Ten. Lessons learned from implementing alternative rites in the fight against female genital mutilation/cutting. *Pan Afr Med J* [Internet]. 2019;32. Available from: <http://www.panafrican-med-journal.com/content/article/32/59/full/>
22. Richard F, Ahmed W, Denholm N, Dawson A, Varol N, Essén B, et al. Female Genital Mutilation/Cutting: sharing data and experiences to accelerate eradication and improve care: part 2. *Reprod Health* [Internet]. 2017 Sep 15;14(S2):115. Available from: <http://reproductive-health-journal.biomedcentral.com/articles/10.1186/s12978-017-0362-x>
23. Klein E, Helzner E, Shayowitz M, Kohlhoff S, Smith-Norowitz TA. Female Genital Mutilation: Health Consequences and Complications—A Short Literature Review. *Obstet Gynecol Int* [Internet]. 2018 Jul 10;2018:1–7. Available from: <https://www.hindawi.com/journals/ogi/2018/7365715/>
24. Oloo H, Wanjiru M, Newell-Jones K. Female Genital Mutilation practices in Kenya: The role of Alternative Rites of Passage. A case study of Kisii and Kuria districts [Internet]. 2018. Available from: <https://www.feedtheminds.org/wp-content/uploads/2014/09/FGM-July-Report.pdf>
25. Jordal M, Griffin G, Sigurjonsson H. ‘I want what every other woman has’: reasons for wanting clitoral reconstructive surgery after female genital cutting – a qualitative study from Sweden. *Cult Health Sex* [Internet]. 2019 Jun 3;21(6):701–16. Available from: <https://www.tandfonline.com/doi/full/10.1080/13691058.2018.1510980>
26. Seifeldin A. Genital Reconstructive Surgery after Female Genital Mutilation. *Obstet Gynecol Int J* [Internet]. 2016 Jun 23;4(6). Available from: <https://medcraveonline.com/OGIJ/genital-reconstructive-surgery-after-female-genital-mutilation.html>
27. Goodman MP, Placik OJ, Matlock DL, Simopoulos AF, Dalton TA, Veale D, et al. Evaluation of Body Image and Sexual Satisfaction in Women Undergoing Female Genital Plastic/Cosmetic Surgery. *Aesthetic Surg J* [Internet]. 2016 Oct;36(9):1048–57. Available from: <https://academic.oup.com/asj/article-lookup/doi/10.1093/asj/sjw061>

28. Pauls RN, Silva WA, Rooney CM, Siddighi S, Kleeman SD, Dryfhout V, et al. Sexual function after vaginal surgery for pelvic organ prolapse and urinary incontinence. *Am J Obstet Gynecol* [Internet]. 2007 Dec;197(6):622.e1-622.e7. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S0002937807009805>
29. Esho T. An exploration of the psycho-sexual experiences of women who have undergone female genital cutting: a case of the Maasai in Kenya. *Facts, views Vis ObGyn* [Internet]. 2012;4(2):121–32. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/24753899>

## ANNEXES

### Annex I: Consent Form

**Study Number** \_\_\_\_\_

**Study title: Assessment of sexual function and self-genital image post clitoral restorative surgery in Kenya.**

**Principal investigator: Dr. Hawa Hassan**

#### **Introduction:**

I, Dr. Hawa Hassan a postgraduate student at the department of obstetrics and gynaecology at the university of Nairobi am conducting a study on **assessment of sexual function and self-genital image after clitoral restorative**. Participation in this study is voluntary. We aim to find out the effectiveness of clitoral reconstructive surgery in patients who had FGM/C. You are hereby requested to participate in the study. This information will help you make a decision on whether to participate in the study or not. You may ask any questions on the study or anything that is not clear

#### **How You Will Participate**

1. Once you consent to participate, we will take a short life history about your condition since you underwent FGM/C.
2. We will indicate your type of FGM/C from the files/records.
3. We will administer a questionnaire about your surgical experience and satisfaction with the outcomes.

#### **Are There Risks Involved?**

There are no risks in the involvement of the study.

You will not be penalized if you do not participate in this study.

All information obtained will be confidential.

#### **What are the Benefits of the Study?**

The benefits of the study will be improving recommendations of clitoral reconstructive surgery and its potential benefits for women with FGM/C. This will be a baseline study to find out more about clitoral reconstructive surgery.

Findings will be published in publications or presented in conferences without divulging any specific patient information.

**How Much Will It Cost Me?**

There will be no extra cost in the study

You will not gain any monetary price for participating in the study.

**What about Confidentiality?**

Participation in the study is voluntary. Once inducted in the study, you can choose to discontinue at any time.

If you have any questions or need further clarification about the study contact the principle investigator Dr. Hawa Hassan 0714918341 *Or Kenyatta National hospital Ethics and research committee (KNH-ERC) telephone 2726300 Ext 44355*

Are you satisfied with the information given? If yes, and you are willing to participate in the research, please fill in and sign the consent form below. If you have any questions, please feel free to contact us.

**Consent**

I ..... Hereby voluntarily consent to participate in the study. I acknowledge that thorough explanation of the nature of the study has been given to me by Dr./Mr/Mrs..... I clearly understand that my participation is voluntary.

Signature of participant.....Date.....

Signature of research assistant.....Date.....

## **Kiambatanisho 1: Fomu Ya Maelezo Kuhusu Idhini Ya Mgonjwa**

Kichwa cha utafiti.

Kutathmini faida ya upasuaji wa Clitoral Reconstructive Surgery kwa wasichana ambao wamekeketwa.

Mtafiti mkuu; Dkt Hawa Hassan

Utangulizi

Mimi Dkt. Hawa Hassan, mwanafunzi wa shahada katika Idara ya Uja uzito na Magonjwa ya wanawake, Chuo kikuu cha Nairobi, ninafanya utafiti juu ya Kutathmini faida ya upasuaji wa Clitoral Reconstructive Surgery kwa wasichana ambao wamekeketwa

Unaombwa kushiriki katika utafiti huu

Maelezo haya yatakusaidia kufanya uamuzi juu ya kushiriki katika utafiti huu. Unaweza kuuliza swali lolote kuhusu utafiti au chochote katika fomu hii kukuwezesha kuelewa zaidi.

### **Jinsi Utashiriki**

1. Ukipiga sahihi na kukubali kushiriki katika utafiti huu, tutachukua historia yako ilikutambulisha hali yako tangu ulipokeketwa
2. Tutaonyesha aina ya ukekeketaji ulio fanywa kutokana na uangaliaji uliofanyiwa awali.
3. Maelezo yatakayo elezwa kwa maswali yaliyo hapa juu yatatumiwa baadaye pia kwa utafiti

### **Je, Kuna Hatari Kushiriki Au Kutoshiriki**

1. Kushiriki kwa utafiti hii ni kwa hiari yako.
2. Habari yoyote utakayo toa kukuhusu itawekwa kwa siri. Jina lako halitachapishwa popote bila idhini yako.
3. Hakuna hatari yeyote itakayojiri kwa kushiriki au kutoshiriki.
4. Habari itakayotokea na utafiti huu pengine haitakufaidi wewe binafsi lakini itatupa maarifa ambayo itaboresha utibabu siku zijazo
5. Kuna uwezekano wa kushapishwa kwa matokeo ya utafiti huu katika majarida ya kisayansi au kuwekwa katika mikutano.

Kama umeridhika na maelezo na uko tayari kushiriki, tafadhali weka sahihi yako kwenye fomu ya idhini.

Ukiwa na swali ama kupata maelezo zaidi kuhusu utafiti huu, tafadhali wasiliana na sisi kwa nambari ya mtafiti Dr. Hawa Hassan 0714918341 au *Kenyatta National hospital Ethics and research committee (KNH-ERC) kupitia nambari ya simu 2726300 Ext 44355*

**Idhini:**

Mimi \_\_\_\_\_ nimeamua kwa hiari yangu mwenyewe kushiriki katika utafiti huu baada ya maelezo ya kina kutoka kwa Dkt. / Bwana / Bi. \_\_\_\_\_. Ninaelewa wazi kwamba ushiriki wangu ni kwa hiari.

Sahihi ya Mshiriki \_\_\_\_\_ Tarehe \_\_\_\_\_

Saini ya Mtafiti / Msaidizi \_\_\_\_\_ Tarehe \_\_\_\_\_



## **Annex II a: Study Questionnaire**

**„Sexual Function and Self-Genital Image after Clitoral Restorative Surgery in Women Who Had Female Genital Mutilation at Platinum surgery center: A retrospective case series study“**

### **Female Sexual Function Index (FSFI)**

#### **Background and Validation**

The Female Sexual Function Index (FSFI), a 19-item questionnaire, has been developed as a brief, multidimensional self-report instrument for assessing the key dimensions of sexual function in women.<sup>1</sup> It was developed on a female sample of normal controls and age-matched subjects who met DSM-IV®-TR criteria for female sexual arousal disorder (FSAD) and provides scores on six domains of sexual function (desire, arousal, lubrication, orgasm, satisfaction, and pain) as well as a total score.<sup>2</sup>

The FSFI has been validated on clinically diagnosed samples of women with female sexual arousal disorder (FSAD), female orgasmic disorder (FOD), and hypoactive sexual desire disorder (HSDD).<sup>2</sup>

#### **Physician Instructions**

Participants are to be allowed to complete the FSFI alone, in a private room.

Instructions for scoring appear on the last FSFI Pocket Card.

A copy of the FSFI is attached to this card.

1. Rosen R, *et al.* *J Sex Marital Ther.* 2000; 26:191-208.
2. Meston CM. *J Sex Marital Ther.* 2003; 29:39-46.

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## **Section one: Demographics**

**Name:**

**Date:**

**Age:**

Highest level of education:

- a) No school   b) Primary level   c) Secondary level   d) College

What country were you born in?

What ethnic group do you come from?

What religion do you practice?

What county were you cut in?

Have you had intercourse?

Are you married or single?

Do you know what type of fgm/c you had?

What are the reasons you considered surgical repair?

- Relief from pain
- Experience an orgasm
- Regain identity
- Improve self-image
- Improve general genital sensation
- Improve relationship with partner
- Other

**Section two: Female Genital Self-image Scale (FGSIS).**

1. I am satisfied with the appearance of my genitals  
a) Strongly agree b) agree c) disagree d) strongly disagree
  
1. I would feel comfortable letting a sexual partner look at my genitals  
a) Strongly agree b) agree c) disagree d) strongly disagree
  
2. I think my genitals smell fine  
a) Strongly agree b) agree c) disagree d) strongly disagree
  
3. I am not embarrassed about my genitals  
a) Strongly agree b) agree c) disagree d) strongly disagree.

### **Section Three: Female Sexual Function Index (FSFI).**

**Instructions:** These questions ask about your sexual feelings and responses during the past 4 weeks. Please answer the following questions as honestly and clearly as possible.

Your responses will be kept completely confidential.

In answering these questions the following definitions apply:

Sexual activity can include caressing, foreplay, masturbation, and vaginal intercourse.

Sexual intercourse is defined as penile penetration (entry) of the vagina.

Sexual stimulation includes situations like foreplay with a partner, self-stimulation (masturbation), or sexual fantasy.

#### ***Check Only One Box per Question***

Sexual desire or interest is a feeling that includes wanting to have a sexual experience, feeling receptive to a partner's sexual initiation, and thinking or fantasizing about having sex.

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

- 5 = Almost always or always
- 4 = Most times (more than half the time)
- 3 = Sometimes (about half the time)
- 2 = A few times (less than half the time)
- 1 = Almost never or never

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

- 5 = Very high
- 4 = High
- 3 = Moderate
- 2 = Low
- 1 = 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?**

- 0 = No sexual activity
- 5 = Almost always or always
- 4 = Most times (more than half the time)
- 3 = Sometimes (about half the time)
- 2 = A few times (less than half the time)
- 1 = 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?**

- 0 = No sexual activity
- 5 = Very high
- 4 = High
- 3 = Moderate
- 2 = Low
- 1 = 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?**

- 0 = No sexual activity
- 5 = Very high confidence
- 4 = High confidence
- 3 = Moderate confidence
- 2 = Low confidence
- 1 = 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?**

- 0 = No sexual activity
- 5 = Almost always or always

4 = Most times (more than half the time)

3 = Sometimes (about half the time)

2 = A few times (less than half the time)

1 = Almost never or never

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

0 = No sexual activity

5 = Almost always or always

4 = Most times (more than half the time)

3 = Sometimes (about half the time)

2 = A few times (less than half the time)

1 = Almost never or never

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

0 = No sexual activity

1 = Extremely difficult or impossible

2 = Very difficult

3 = Difficult

4 = Slightly difficult

5 = Not difficult

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

0 = No sexual activity

5 = Almost always or always

4 = Most times (more than half the time)

3 = Sometimes (about half the time)

2 = A few times (less than half the time)

1 = 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?**

- 0 = No sexual activity
- 1 = extremely difficult or impossible
- 2 = Very difficult
- 3 = Difficult
- 4 = Slightly difficult
- 5 = Not difficult

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

- 0 = No sexual activity
- 5 = Almost always or always
- 4 = Most times (more than half the time)
- 3 = Sometimes (about half the time)
- 2 = A few times (less than half the time)
- 1 = 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)?**

- 0 = No sexual activity
- 1 = Extremely difficult or impossible
- 2 = Very difficult
- 3 = Difficult
- 4 = Slightly difficult
- 5 = Not difficult

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

- 0 = No sexual activity
- 5 = Very satisfied
- 4 = Moderately satisfied
- 3 = About equally satisfied and dissatisfied
- 2 = Moderately dissatisfied
- 1 = 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?**

- 0 = No sexual activity
- 5 = Very satisfied
- 4 = Moderately satisfied
- 3 = About equally satisfied and dissatisfied
- 2 = Moderately dissatisfied
- 1 = Very dissatisfied

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

- 5 = Very satisfied
- 4 = Moderately satisfied
- 3 = About equally satisfied and dissatisfied
- 2 = Moderately dissatisfied
- 1 = Very dissatisfied



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

- 5 = Very satisfied
- 4 = Moderately satisfied
- 3 = About equally satisfied and dissatisfied
- 2 = Moderately dissatisfied
- 1 = Very dissatisfied

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

- 0 = Did not attempt intercourse
- 1 = Almost always or always
- 2 = Most times (more than half the time)
- 3 = Sometimes (about half the time)
- 4 = A few times (less than half the time)
- 5 = Almost never or never

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

- 0 = Did not attempt intercourse
- 1 = Almost always or always
- 2 = Most times (more than half the time)
- 3 = Sometimes (about half the time)
- 4 = A few times (less than half the time)
- 5 = 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?**

- 0 = Did not attempt intercourse
- 1 = Very high
- 2 = High
- 3 = Moderate

□ 4 = Low

□ 5 = Very low or none at all

**Thank you for completing this questionnaire.**

### **FSFI Domain Scores and Full Scale Score**

**A score  $\leq$  26.55 is classified as FSD.\***

From Rosen R, *et al.* The Female Sexual Function Index (FSFI): A Multidimensional Self-Report Instrument for the

Assessment of Female Sexual Function. *Journal of Sex and Marital Therapy*. 2000; 26(2):191-208. Reprinted by

Permission of the publisher, Taylor & Francis Ltd, <http://www.informaworld.com>.

\* Wiegand M, *et al.* *J Sex Marital Ther*. 2005; 31:1-20.

The individual domain scores and full scale (overall) score of the FSFI can be derived from the computational formula outlined in the table below. For the individual domain scores, add the scores of the individual items that comprise the domain and multiply the sum by the domain factor (see below). Add the six domain scores to obtain the full scale score. It should be noted that within the individual domains, a domain score of zero indicates that the subject reported having no sexual activity during the past month.

Subject scores can be entered in the right-hand column.

Desire 1, 2 1 – 5 0.6 1.2 6.0

Arousal 3, 4, 5, 6 0 – 5 0.3 0 6.0

Lubrication 7, 8, 9, 10 0 – 5 0.3 0 6.0

Orgasm 11, 12, 13 0 – 5 0.4 0 6.0

Satisfaction 14, 15, 16 0 (or 1) – 5 0.4 0 6.0

Pain 17, 18, 19 0 – 5 0.4 0 6.0

Full Scale Score Range 1.2 36.0

Total

Domain Questions Score

Range

Factor Minimum

Score

Maximum

## **Annex II b: Study Questionnaire (Kiswahili)**

### **„Sexual Function and Self-Genital Image after Clitoral Restorative Surgery in Women Who Had Female Genital Mutilation at Platinum surgery center: A cross-sectional study.**

#### **Female Sexual Function Index (FSFI)**

FSFI ni dodoso la vitu 19 ambacho imeandaliwa kama chombo cha kuripoti na kutathmini viwango muhimu vya ngono kwa wanawake. Iliundwa kwa sampuli ya kike ya udhibiti wa kawaida na masomo yanayoendana na umri ambaye alikutana na vigezo vya DSM-IV ®-TR kwa shida ya kijinsia ya kike (FSAD) na hutoa alama kwenye vikoa sita vya tendo la ngono (hamu, uchangamfu, kua na unyevu, orgasm, kuridhika, na maumivu) na jumla ya alama .2

FSFI imehalalishwa juu ya sampuli zilizogunduliwa za kliniki za wanawake walio na shida ya kijinsia ya kike (FSAD), shida ya wanawake (FOD), na shida ya hamu ya kijinsia (HSDD) .2

Maagizo ya Waganga

Washiriki wanaruhusiwa kukamilisha FSFI peke yao, katika chumba cha kibinafsi.

Maagizo ya bao yanaonekana kwenye Kadi ya Pocket ya FSFI ya mwisho.

Nakala ya FSFI imeambatanishwa na kadi hii.

1. Rosen R, *et al.* J Sex Marital Ther. 2000; 26:191-208.

2. Meston CM. J Sex Marital Ther. 2003; 29:39-46.

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#### **Sehemu ya kwanza: Idadi ya watu**

Jina:

Tarehe:

Umri:

Kiwango cha juu zaidi cha elimu:

a) Hakuna shule b) Kiwango cha msingi c) Kiwango cha Sekondari d) Chuo

Ulizaliwa katika nchi gani?

Unatoka kabila gani?

Unafanya dini gani?

Ulikatwa kaunti gani?

Umekuwa na uhusiano wa kimapenzi?

Je umeoa au hujaoa?

Je! Unajua ni aina gani ya FGM / C uliyokuwa nayo?

Je! Ni sababu gani ulizingatia ukarabati wa upasuaji?

- Kutuliza maumivu
- Pata uzoefu
- Rudisha kitambulisho
- Boresha picha ya kibinafsi
- Kuboresha hisia za jumla za uke
- Boresha uhusiano na mwenzi
- Nyingine

**Sehemu ya pili: Wigo wa picha ya Kike ya Kibinafsi (FGSIS).**

1. Nimeridhika na muonekano kwa sehemu za siri zangu

a) Kubali kabisa b) nakubali c) sikubali d) sikubaliani kabisa

2. Ningeishi raha kumuacha mwenzi wa jinsia aangalie sehemu za siri zangu

a) Kubali kabisa b) nakubali c) sikubali d) sikubaliani kabisa

3. Nadhani sehemu zangu za siri zinanukia vizuri

a) Kubali kabisa b) nakubali c) sikubali d) sikubaliani kabisa

4. Sina aibu juu ya sehemu zangu za siri

a) Kubali kabisa b) nakubali c) sikubali d) sikubaliani kabisa.

### **Sehemu ya tatu: Index ya Kazi ya Kijinsia ya Kike (FSFI)**

Maagizo: Maswali haya yanauliza juu ya hisia na majibu yako ya kimapenzi katika wiki 4 zilizopita. Tafadhali jibu maswali yafuatayo kwa uaminifu na waziwazi iwezekanavyo.

Majibu yako yatahifadhiwa kabisa. Katika kujibu maswali haya mafungu yafuatayo yanahusu: Tendo la kujamiiana linaweza kujumuisha kushinikiza, uso wa uso, punyeto, na ngono ya uke. Kujamiiana hufafanuliwa kama kupenya kwa penile (kuingia) kwa uke.

Kuchochea kingono ni pamoja na hali kama foreplay na mwenzi, kujisisimua (Punyeto), au ndoto ya kijinsia.

Sahihisha sanduku moja tu kwa kila swali

Tamaa ya kijinsia au kupendezwa ni hisia ambayo ni pamoja na kutaka kuwa na uzoefu wa kijinsia, kuhisi kupokelewa na mwenzi wa ngono, na kufikiria au kufikiria juu ya kufanya mapenzi.

1. Katika wiki 4 zilizopita, ni mara ngapi ulihisi hamu au hamu ya ngono?

- 5 = Karibu kila wakati au siku zote
- 4 = Mara nyingi (zaidi ya nusu ya wakati)
- 3 = 3 = Wakati mwingine (karibu nusu ya wakati)
- 2 = Mara chache (chini ya nusu ya wakati)
- 1 = Karibu kamwe au kamwe

2. Katika wiki 4 zilizopita, unawezaje kiwango chako (kiwango) cha hamu ya ngono au riba?

- 5 = Juu sana
- 4 = Juu
- 3 = wastani
- 2 = Chini
- 1 = Chini sana au hakuna kabisa

Kufanya mapenzi ni hisia ambayo inajumuisha wote wawili

Vipengele vya mwili na kiakili vya msisimko wa kijinsia.

Inaweza kujumuisha hisia za joto au kuuma ndani ya sehemu ya siri, lubrication (wetness), au unfinyanzi ya misuli.

3. Katika wiki 4 zilizopita, ni mara ngapi ulijisikia uchochezi wa kijinsia ("kugeuzwa") wakati wa tendo la ngono au kufanya ngono?

0 = Hakuna shughuli za ngono

5 = Karibu kila wakati au siku zote

4 = Mara nyingi (zaidi ya nusu ya wakati)

3 = Wakati mwingine (karibu nusu ya wakati)

2 = Mara chache (chini ya nusu ya wakati)

1 = Karibu kamwe au kamwe

4. Katika wiki 4 zilizopita, unawezaje kiwango chako cha kijinsia ("kuwasha") wakati wa shughuli za ngono au kujuana?

0 = Hakuna shughuli za ngono

5 = Juu sana

4 = Juu

3 = wastani

2 = Chini

1 = Chini sana au hakuna kabisa

5. Katika kipindi cha wiki 4 zilizopita, ulikuwa na ujasiri gani juu ya kuamka kingono wakati wa tendo la ngono au ngono?

- 0 = Hakuna shughuli za ngono
- 5 = Kujiamini sana
- 4 = Kujiamini sana
- 3 = Kujiamini kwa wastani
- 2 = Kujiamini duni
- 1 = Chini sana au hakuna ujasiri

6. Katika wiki 4 zilizopita, ni mara ngapi umeridhika na uchoyo wako (msisimko) wakati wa shughuli za ngono au kujuana?

- 0 = Hakuna shughuli za ngono
- 5 = Karibu kila wakati au siku zote
- 4 = Mara nyingi (zaidi ya nusu ya wakati)
- 3 = Wakati mwingine (karibu nusu ya wakati)
- 2 = Mara chache (chini ya nusu ya wakati)
- 1 = Karibu kamwe au kamwe

7. Katika wiki 4 zilizopita, ni mara ngapi ulipakwa mafuta ("mvua") wakati wa tendo la kujamiiana au kufanya ngono?

- 0 = Hakuna shughuli za ngono
- 5 = Karibu kila wakati au siku zote
- 4 = Mara nyingi (zaidi ya nusu ya wakati)
- 3 = Wakati mwingine (karibu nusu ya wakati)
- 2 = Mara chache (chini ya nusu ya wakati)
- 1 = Karibu kamwe au kamwe

8. Katika kipindi cha wiki 4 zilizopita, ilikuwa ni ngumu kiasi gani kujazwa ("mvua") wakati wa tendo la ngono au kujamiiana?

- 0 = Hakuna shughuli za ngono
- 1 = ngumu sana au haiwezekani
- 2 = Ugumu sana
- 3 = Ugumu
- 4 = Ugumu kidogo
- 5 = Si ngumu

9. Katika kipindi cha wiki 4 zilizopita, ni mara ngapi uliyotunza lubrication yako (–wet||) hadi umalizeji wa shughuli za ngono au kujishughulisha?

- 0 = Hakuna shughuli za ngono
- 5 = Karibu kila wakati au siku zote
- 4 = Mara nyingi (zaidi ya nusu ya wakati)
- 3 = Wakati mwingine (karibu nusu ya wakati)
- 2 = Mara chache (chini ya nusu ya wakati)
- 1 = Karibu kamwe au kamwe

10. Katika wiki 4 zilizopita, ilikuwa ngumu jinsi gani kudumisha mafuta yako? ("Wetness") hadi kukamilika kwa shughuli za ngono au kujamiiana?

- 0 = Hakuna shughuli za ngono
- 1 = ngumu sana au haiwezekani
- 2 = Ugumu sana
- 3 = Ugumu
- 4 = Ugumu kidogo
- 5 = Si ngumu



11. Katika wiki 4 zilizopita, wakati ulikuwa na msukumo wa kijinsia au kujuana, mara ngapi ulifikia orgasm (kilele)?

- 0 = Hakuna shughuli za ngono
- 5 = Karibu kila wakati au siku zote
- 4 = Mara nyingi (zaidi ya nusu ya wakati)
- 3 = Wakati mwingine (karibu nusu ya wakati)
- 2 = Mara chache (chini ya nusu ya wakati)
- 1 = Karibu kamwe au kamwe

12. Katika wiki 4 zilizopita, wakati ulikuwa na msukumo wa kijinsia au kujuana, ilikuwa ngumu sana ni kwa wewe kufikia kilele?

- 0 = Hakuna shughuli za ngono
- 1 = ngumu sana au haiwezekani
- 2 = Ugumu sana
- 3 = Ugumu
- 4 = Ugumu kidogo
- 5 = Si ngumu

13. Katika kipindi cha wiki 4 zilizopita, uliridhikaje na uwezo wako wa kufikia mazoezi (kilele) wakati wa shughuli za ngono au kujuana?

- 0 = Hakuna shughuli za ngono
- 5 = Imeridhika sana
- 4 = Imeridhika kiasi
- 3 = Karibu na kuridhika
- 2 = Hajaridhika kiasi
- 1 = Hajaridhika sana

14. Katika wiki 4 zilizopita, umeridhika kiasi gani na kiwango cha ukaribu wa kihemko wakati wa tendo la ngono kati yako na mwenzi wako?

- 0 = Hakuna shughuli za ngono
- 5 = Imeridhika sana
- 4 = Imeridhika kiasi
- 3 = Karibu na kuridhika
- 2 = Hajaridhika kiasi
- 1 = Hajaridhika sana

15. Katika wiki 4 zilizopita, umeridhikaje na uhusiano wako wa kimapenzi na mwenzi wako?

- 5 = Imeridhika sana
- 4 = Imeridhika kiasi
- 3 = Karibu na kuridhika
- 2 = Hajaridhika kiasi
- 1 = Hajaridhika sana

16. Katika wiki 4 zilizopita, umeridhika vipi na maisha yako yote ya kimapenzi?

- 5 = Imeridhika sana
- 4 = Imeridhika kiasi
- 3 = Karibu na kuridhika
- 2 = Hajaridhika kiasi
- 1 = Hajaridhika sana

17. Katika wiki 4 zilizopita, mara ngapi ulipata usumbufu au maumivu wakati wa kupenya kwa uke?

- 0 = Haikujaribu kuingiliana
- 1 = Karibu kila wakati au siku zote
- 2 = Mara nyingi (zaidi ya nusu ya wakati)
- 3 = Wakati mwingine (karibu nusu ya wakati)
- 4 = Mara chache (chini ya nusu ya wakati)
- 5 = Karibu kamwe au kamwe

18. Katika wiki 4 zilizopita, mara ngapi ulipata usumbufu au maumivu kufuatia kupenya kwa uke?

- 0 = Haikujaribu kuingiliana
- 1 = Karibu kila wakati au siku zote
- 2 = Mara nyingi (zaidi ya nusu ya wakati)
- 3 = Wakati mwingine (karibu nusu ya wakati)
- 4 = Mara chache (chini ya nusu ya wakati)
- 5 = Karibu kamwe au kamwe

19. Katika wiki 4 zilizopita, unawezaje kupima kiwango chako (kiwango) cha usumbufu au maumivu wakati au kufuata kupenya kwa uke?

- 0 = Haikujaribu kuingiliana
- 1 = Juu sana
- 2 = Juu
- 3 = wastani
- 4 = Chini
- 5 = Asili sana au hakuna kabisa

**Asante kwa kukamilisha dodoso hili.**

## FSFI Domain Scores and Full Scale Score (Kiswahili)

Alama  $\leq 26.55$  imeainishwa kama FSD. \*

Kutoka Rosen R, *et al.* Fahirisi ya Kazi ya Kijinsia ya Kike (FSFI): Chombo cha Ripoti ya Ubinafsi cha Tathmini ya Kazi ya Kijinsia ya Kike. Jarida la Tiba ya ngono na ndoa. 2000; 26 (2): 191-208. Imechapishwa na Ruhusa ya mchapishaji, Taylor & Francis Ltd, <http://www.informaworld.com>.

\* Wiegel M, *et al.* J Jinsia ya ndoa Ther. 2005; 31: 1-20.

Alama ya kikoa cha mtu binafsi na kiwango kamili (jumla) cha alama ya FSFI kinaweza kutolewa kutoka formula ilivyoainishwa katika jedwali hapa chini. Kwa kikoa cha mtu binafsi alama, ongeza alama ya vitu vya mtu binafsi ambavyo vinajumuisha kikoa na kuzidisha jumla na sababu ya kikoa (tazama hapa chini). Ongeza alama za kikoa sita kupata alama kamili. Ikumbukwe kwamba ndani ya kikoa cha mtu binafsi, alama ya kikoa ya sifuri inaonyesha kuwa mada iliyoripotiwa kukosa shughuli za kingono wakati wa mwezi uliopita.

Alama za somo zinaweza kuingizwa kwenye safu wima ya kulia.

Tamaa 1, 2 1 - 5 0.6 1.2 6.0

Arousal 3, 4, 5, 6 0 - 5 0.3 0 6.0

Mafuta 7, 8, 9, 10 0 - 5 0.3 0 6.0

Orgasm 11, 12, 13 0 - 5 0.4 0 6.0

Kuridhika 14, 15, 16 0 (au 1) - 5 0.4 0 6.0

Maumivu 17, 18, 19 0 - 5 0.4 0 6.0

Kiwango kamili cha Upeo wa Score 1.2 36.0

Jumla

Alama ya Maswali ya Kikoa

Mbio

Kiwango cha chini cha ukweli

Alama

Upeo

## Annex III: KNH/UoN-ERC Letter of Approval



UNIVERSITY OF NAIROBI  
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Tel: (254-020) 2726300 Ext 44355



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Tel: 726300-9  
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Telegrams: MEDSUP, Nairobi

### KNH-UON ERC

Email: [uonknh\\_erc@uonbi.ac.ke](mailto:uonknh_erc@uonbi.ac.ke)  
Website: <http://www.erc.uonbi.ac.ke>  
Facebook: <https://www.facebook.com/uonknh.erc>  
Twitter: @UONKNH\_ERC [https://twitter.com/UONKNH\\_ERC](https://twitter.com/UONKNH_ERC)

Ref: KNH-ERC/A/451

Dr. Hawa Hassan  
Reg. No. H58/87281/2016  
Dept. of Obstetrics and Gynecology  
School of Medicine  
College of Health Sciences  
University of Nairobi



28 November, 2019

Dear Dr. Hassan

**RESEARCH PROPOSAL: SEXUAL FUNCTION AND SELF-GENITAL IMAGE AFTER CLITORAL RESTORATIVE SURGERY IN WOMEN WHO HAD FEMALE GENITAL MUTILATION IN KENYA: A CROSS-SECTIONAL STUDY (P470/06/2019)**

This is to inform you that the KNH- UoN Ethics & Research Committee (KNH- UoN ERC) has reviewed and **approved** your above research proposal. The approval period is 28<sup>th</sup> November 2019 – 27<sup>th</sup> November 2020.

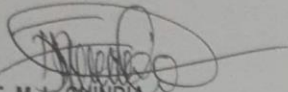
This approval is subject to compliance with the following requirements:

- a. Only approved documents (informed consents, study instruments, advertising materials etc) will be used.
- b. All changes (amendments, deviations, violations etc.) are submitted for review and approval by KNH-UoN ERC before implementation.
- c. Death and life threatening problems and serious adverse events (SAEs) or unexpected adverse events whether related or unrelated to the study must be reported to the KNH-UoN ERC within 72 hours of notification.
- d. Any changes, anticipated or otherwise that may increase the risks or affect safety or welfare of study participants and others or affect the integrity of the research must be reported to KNH- UoN ERC within 72 hours.
- e. Clearance for export of biological specimens must be obtained from KNH- UoN ERC for each batch of shipment.
- f. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. (*Attach a comprehensive progress report to support the renewal*).
- g. Submission of an *executive summary* report within 90 days upon completion of the study. This information will form part of the data base that will be consulted in future when processing related research studies so as to minimize chances of study duplication and/ or plagiarism.

For more details consult the KNH- UoN ERC website <http://www.erc.uonbi.ac.ke>

Protect to discover

Yours sincerely,



**PROF. M.L. CHINDIA**  
**SECRETARY, KNH-UoN ERC**

- c.c.    The Principal, College of Health Sciences, UoN  
         The Director, CS, KNH  
         The Chairperson, KNH- UoN ERC  
         The Assistant Director, Health Information, KNH  
         The Dean, School of Medicine, UoN  
         The Chair, Dept. of Obstetrics and Gynaecology, UoN  
Supervisors: Dr. Gichuhi Wanyoike, Dept. of Obstetrics and Gynaecology, UoN  
         Prof. Zahida Qureshi, Dept. of Obstetrics and Gynaecology, UoN  
         Dr. Adan Abdullahi A. Adan, Dept. of Surgery, UoN

## Annex IV: Certificate of Plagiarism

### SEXUAL FUNCTION AND SELF-GENITAL IMAGE AFTER CLITORAL RESTORATIVE SURGERY IN WOMEN WHO HAD FEMALE GENITAL MUTILATION IN KAREN HOSPITAL: A DESCRIPTIVE COHORT STUDY

#### ORIGINALITY REPORT

**15%**

SIMILARITY INDEX

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| <b>4</b> | <a href="http://www.thepmfajournal.com">www.thepmfajournal.com</a><br>Internet Source  | <b>1%</b> |
| <b>5</b> | <a href="http://www.science.gov">www.science.gov</a><br>Internet Source  | <b>1%</b> |
| <b>6</b> | Pierre Foldès, Béatrice Cuzin, Armelle Andro.<br>"Reconstructive surgery after female genital<br>mutilation: a prospective cohort study", The<br>Lancet, 2012<br>Publication | <b>1%</b> |
| <b>7</b> | Submitted to University of Nairobi   |           |