

# Examining the Types and Consequences of Female Genital Mutilation in Somalia: A Cross-Sectional Study on the Burden and Impact of Acute and Long-Term Complications

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## Abstract

**Background:** In Africa, female genital mutilation (FGM) is a widespread and harmful practice, with Somalia having the highest incidence at 98%. This practice has severe and long-lasting physical and mental health consequences. The aim of the study was to evaluate the different types of FGM; immediate and long-term complications associated with the practice, and identify factors related to its prevalence. **Method:** In a one-year cross-sectional hospital-based study, data were collected from females aged 18 - 50 with a history of FGM. Face-to-face semi-structured questionnaires were used for data collection. Data analysis was performed using SPSS version 26, utilizing univariate and bivariate analyses to identify correlations between variables, which were presented in tables. **Results:** In a study involving 255 female participants, 65.5% were between 18 and 30 years old. The majority (82.7%) were married, while 47.1% were illiterate. FGM cases were more prevalent in rural areas (61.6%). Among the participants, 45.1% were employed. Type 3 FGM was the most common (44.3%), followed by Type 2 (32.2%) and Type 1 (23.9%). In terms of short-term complications experienced by circumcised women, the most

common were bleeding, reported by 29.8% of participants, followed by infection (25.1%), and urinary retention (19.2%). Among the long-term complications observed, recurrent vaginal infections were the most prevalent, affecting 29.8% of the surveyed females. This was episiotomy during delivery (22.3%) and genital scarring (10.2%). **Conclusion:** The study reveals that Type 3 FGM is highly prevalent among the surveyed females, contributing to an increased risk of recurrent vaginal infections, prolonged second stage of labor, higher likelihood of episiotomy during delivery, and genital scarring. These findings emphasize the urgent need for effective preventive strategies and implementation from both international and local organizations to eliminate the harmful practice of FGM.

## Keywords

Female Genital Mutilation, Women, Obstetrics and Gynecology, Somalia

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## 1. Introduction

Female genital mutilation (FGM) refers to all procedures that involve the partial or complete removal of the external female genitalia or other harm to the female genital organs for non-medical purposes [1]. Globally, FGM affects between 125 and 200 million women and girls, mainly in Africa, some Middle Eastern and South Asian regions, and among immigrant groups in North America, Europe, and Australia [2] [3]. UNICEF data from 2024 shows that Djibouti (90%), Guinea (95%), Somalia (99%), and Guinea (95%) have the highest rates of female genital mutilation [4].

Most FGM victims are females between the ages of 0 and 15. It comes from a combination of social and cultural factors, including tradition and social pressure, religious support for female genital mutilation, preserving her virginity, misconceptions about improving fertility and ideals of purity and beauty. The practice shows persistent gender inequality and predates the spread of Christianity and Islam [5] [6]. FGM procedures involve the participation of traditional circumcisers, midwives, nurses, or individuals without medical training. Although some trained nurses use sterile tools, many women rely on non-sterile tools and lack medical knowledge, anesthesia, and antibiotics. Typically, FGM procedures employ a variety of sharp implements, such as scissors, razor blades, knives, glass, or scalpels. After cutting and stitching the genitalia, FGM performers manage the bleeding by applying substances like honey, tree leaves, or yogurt to stop it [7]-[9]. The World Health Organization (WHO) has identified four types of FGM. Type 1 clitoridectomy is the partial or total removal of the clitoris. In Muslim nations, it is referred to as Sunnah circumcision. Type 2 excision is the partial or total removal of the clitoral glands and the labia minora, with or without the removal of the labia majora. Type 3 infibulation is the narrowing of the vaginal opening through the creation of a covering seal, also known as Pharaonic

circumcision, and type IV unclassified includes pricking, nicking, scraping, and cauterization of the female genitals [10].

FGM can have severe and lasting consequences for the physical and mental health of girls and women. The immediate health risks include excessive bleeding, infections, urinary problems, and menstrual difficulties. Additionally, the long-term effects can include chronic pain, fistulas, repeated urinary tract infections, genital scars, sexual dysfunction, and psychological trauma, an increased risk of complications during pregnancy and childbirth, and even death. In addition to the health-related, moral, and ethical implications of FGM, a report from the World Health Organization (WHO) reveals that a significant amount of at least \$3.7 million is spent each year on addressing obstetric complications associated with FGM [11].

The purpose of this study was to evaluate the different types, short- and long-term complications, and identify potential reasons and factors linked to the practice. It is crucial for health planners and decision-makers in the region to have a clear understanding of the current situation in order to adapt intervention strategies and enhance the well-being and sexual reproductive health of girls and women.

## **2. Method**

### **2.1 Study Design, Area, and Period**

This study was a cross-sectional hospital-based study conducted at the Mogadishu Somali Turkish Training and Research Hospital in Mogadishu, Somalia. The participants were girls and women who visited the hospital's obstetrics and gynecology clinics, where they received sexual and reproductive health services. The study took place from November 2020 to November 2021. This design allowed for the collection of data at a single point in time, providing insights into the prevalence, pattern, and impact of both acute and long-term complications associated with FGM. The obstetrics and gynecology physicians followed a standard protocol for evaluating these patients. These patients underwent physical examinations to detect patterns of FGM.

### **2.2 Eligibility Criteria**

Female participants aged 18 – 50 who had a history of mutilation who were willing to participate in the study were included in the study. Pediatric (<18 years) patients, those lacking or missing clinical data, and those who refused to participate in the study were also excluded.

### **2.3 Sample Size and Sampling Procedures**

The sample of the study was 255 women, using a convenient sampling technique, and the study period was over one year (November 2020 and November 2021). The respondents were adult (18 – 50 years of age) female patients attending the department of obstetrics and gynecology outpatient department of Mogadishu Somali Turkish Training and Research Hospital.

## 2.4. Data Collection/Study Instrument

All of the participants contributed to the study by completing a standardized, face-to-face semi structured questionnaires that contained data on sociodemographic characteristics such as age, marital status, educational level, and employment status. The type of FGM for each patient was assessed and confirmed by an OBS and GYN specialist by examination. The age of circumcision and operator were also recruited from the questionnaire, as were the menstrual history details, including the age of menarche and pain with menstruation. The questionnaire was first prepared in English and then translated into the local language (Somali), and then it was translated back to English to maintain its consistency.

## 2.5. Quality Control Measures

To ensure the quality of the data, several measures were implemented. First, validated and pre-tested questionnaires were used, ensuring that the data collection tools were reliable and accurate. Before the actual data collection, a pre-testing phase was carried out on a subset (5%) of the total eligible subjects who shared similar characteristics in non-selected areas. This helped identify any issues or areas for improvement in the questionnaire, and necessary amendments were made accordingly. Obstetric and gynecological specialists and resident doctors were collected data. Finally, collected data were carefully entered and cleaned before the running analysis.

## 2.6. Data Analysis

The statistical analyses were conducted using IBM SPSS for Windows, version 26. A univariate descriptive analysis was used for the data analysis. Categorical variables were presented as frequencies and points of estimates as well as the mean and standard deviation (SD) for quantitative variables. The chi-square test and cross-tabulations were used to determine associations. A bivariate analysis was used to determine the correlation between the variables. A p-value of  $< 0.05$  was considered to be statistically significant. Our research analysis also includes FGM/C information such as the age of circumcision, who performed the procedure (physicians or non-physicians).

## 2.7. Ethics Approval

The Mogadishu-Somali Turkey, Recep Tayyip Erdogan Training and Research Hospital's Ethics Review Board (approval number MSTH/7123) approved the study. Respondents were informed about the purpose of the study and verbal consent was obtained from the study participants to maintain confidentiality by omitting their names on the questionnaire.

## 3. Results

The research involved the participation of 255 female volunteers who enrolled in the study. A cross-sectional observational approach utilizing interviews served as

the research design. According to the results of this study, most of the individuals who experienced mutilation (167 out of the total sample of participants, accounting for 65.5%) were between the ages of 18 - 30 years. The next highest age group was individuals between 31 - 40, comprising approximately 29.4% (75 individuals), while those between 41 and 50 constituted about 5.1% (13 individuals) of the patients. The majority of the participants in this study, accounting for 82.7% of the total, were married. 11% of the participants were divorced, and 6.3% were widowed. In terms of education, the majority of patients (47.1%,  $n = 120$ ) were illiterate, with only 14.1% ( $n = 36$ ) of the participants reaching the university level of education. The distribution of mutilation cases among residents showed that 61.6% of the cases were from rural areas, while 38.4% were from urban areas. Out of the total sample, 115 participants (45.1%) were employed, 113 (44.3%) of the participants were housewives, and 5.9% ( $n = 15$ ) of the participants were students. 9.4% ( $n = 24$ ) of the participants were not employed. Out of the FGM victims, 134 cases were performed by traditional practitioners, while midwives and nurses performed 120 cases. Interestingly, only one case was reported to have been performed by a physician presented in **Table 1**). Regarding the type of FGM, most of the respondents ( $n = 113$ , 44.3%) had Type 3 FGM, while 81 participants (32.2%) had Type 2, and 61 participants (23.9%) had Type 1 see **Figure 1**.

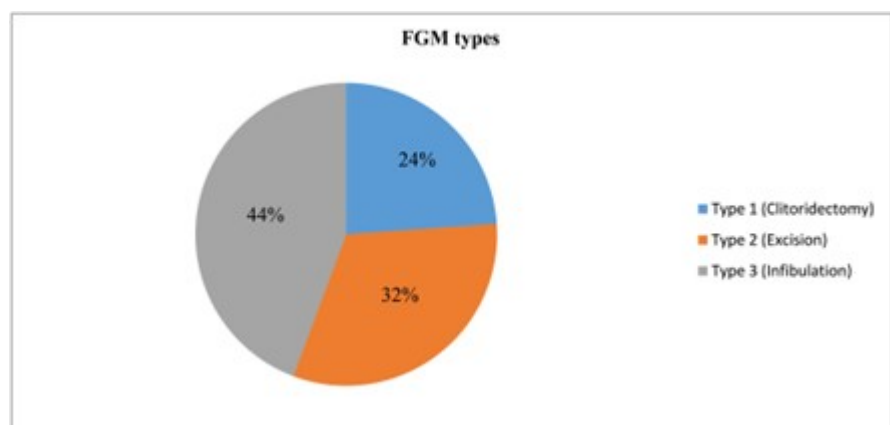
**Figure 2** and **Figure 3**, summarize the short-term and long-term complications of FGM. It was found that more than two-thirds of the patients developed at least one complication. The most common short-term complications among circumcised women were bleeding (29.8%), infection (25.1%), and urinary retention (19.2%). On the other hand, the most prevalent long-term complications were recurrent vaginal infections (29.8%), episiotomy during delivery (22.3%), and genital scarring (10.2%).

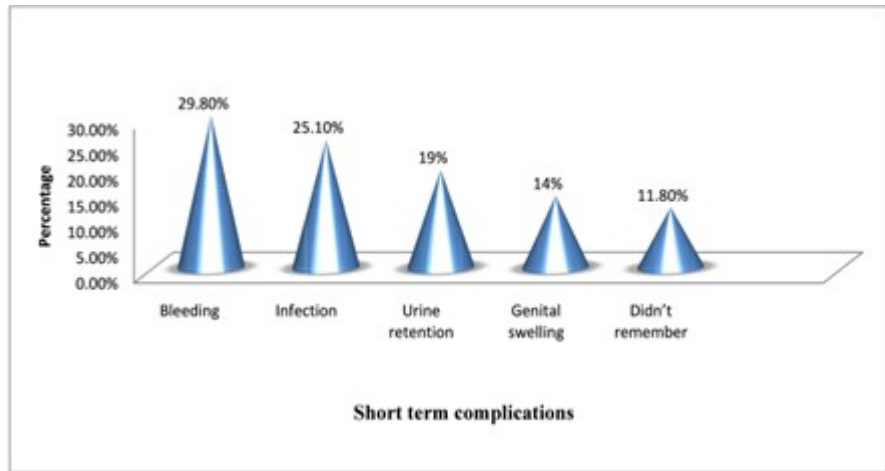
Sixty-eight percent of mutilated participants in the study aged 30 years had undergone type 1 or 2 FGM, while older women had more advanced stages (type 3), with 78.6% and 84.6% in the age groups of 31 - 40 years and 41 - 50 years, respectively ( $p < 0.001$ ). There was a significant association between the degree of FGM and educational background: 42% and 52.5% of women who underwent type 2 and type 3 FGM were illiterate compared to type 1, in which 70% of them went to school or higher grades ( $p < 0.001$ ). There was no association between the type of FGM and marital or employment status ( $p > 0.05$ ). Our study revealed that type 2 and type 3 FGM women had significantly higher painful menstrual rates, 59.2% and 60.7%, respectively ( $p < 0.001$ ). Concerning the transmission of FGM to future generations, 61.7% and 50% of type 1 and type 2 FGM, respectively, strongly support this harmful non-therapeutic procedure, while two-thirds of FGM type 1 strongly oppose this procedure performed on their daughters ( $p < 0.004$ ). Our study reveals that traditional practitioners (56.4%) conducted the majority of FGM operations, even though nurses, midwives, and doctors are less likely to do FGM ( $p > 0.05$ ), as shown in **Table 2**.

In our study of complications, patients with type 3 FGM made up 54% of the episiotomy complication FGM group, whereas patients with type 2 FGM made up

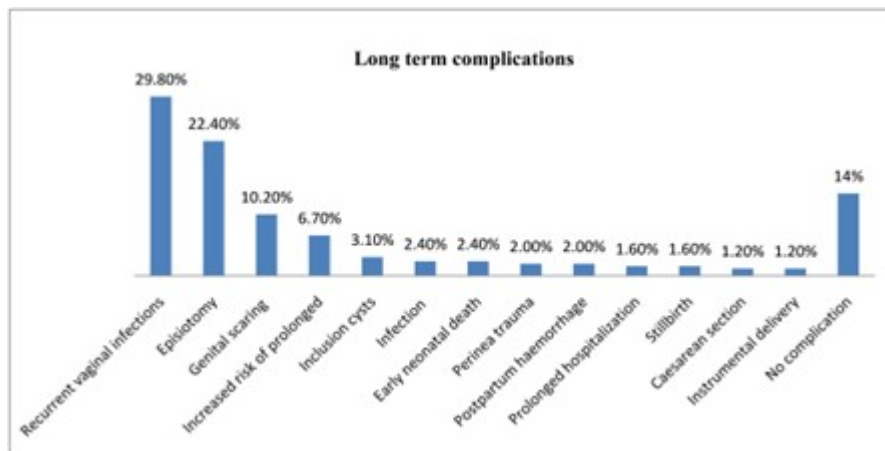
**Table 1.** Social demographic characteristics of the woman with female genital mutilation.

Variables	No of patients	Percentage %
<b>Age</b>		
18 - 30	167	65.5%
31 - 40	75	29.4%
41 - 50	13	5.1%
<b>Marital status</b>		
Married	211	82.7%
Divorced	28	11%
Widowed	16	6.3%
Total	255	100
<b>Educational level</b>		
Illiterate	120	47.1%
primary school	53	20.8%
secondary school	46	18.0%
University	36	14.1%
<b>Residence</b>		
Urban	98	38.4%
Rural	157	61.6%
<b>Employment</b>		
Employed	101	39.6%
Housewife	115	45.1%
Not employed	24	9.4%
Student	15	5.9%
<b>FGM performers</b>		
Traditional practitioners	134	52.5%
Physician	1	0.4%
Midwife or nurses	120	47.1%

**Figure 1.** Types of FGM among participants (according to WHO).



**Figure 2.** Short term complications of FGM.



**Figure 3.** Long term complications of FGM.

**Table 2.** Maternal sociodemographic features.

Variables	Type of FGM (According to WHO)			P-value
	Type 1	Type 2	Type 3	
<b>Age</b>				<0.001
18 - 30	48	66	53	
31 - 40	15	12	48	
41 - 50	11	1	1	
<b>Educational level</b>				<0.001
Illiterate	17	27	10	
Primary	16	9	10	
School	8	20	12	
University	20	26	8	
<b>Employment</b>				0.018
Employed	50	15	60	

**Continued**

Housewife	46	22	21	
Not employment	10	9	15	
Student	42	21	16	
<b>Menstruation</b>				<0.001
Painful	20	46	55	
Not painful	23	52	59	
<b>Residence</b>				<0.001
Urban	53	29	16	
Rural	27	58	72	
<b>Age during FGM</b>				<0.014
<8	24	45	69	
8 - 12	34	36	39	
>12	3	2	1	
<b>FGM performers</b>				<0.001
Traditional practitioners	38	42	54	
Physician	0	0	1	
Midwife or nurses	67	35	18	

36%, and patients with type 1 FGM made up 8%. The majority of the pregnant women in our study were FGM type 2 and type 3 patients ( $p < 0.001$ ).

#### 4. Discussion

Somalia has one of the world's highest rates of FGM prevalence, with 98% of Somali women and girls subjected to the practice. In this study, we aimed to evaluate the present prevalence of FGM, its different types, short- and long-term complications, and identify potential reasons and factors linked to the practice. In this current study, the majority (65.5%) of participants were younger than 30 years of age; a previous study from southeast Nigeria reported similar results [12]. The majority of the study's participants (83.5%) were married. In his study of Sudanese FGM, Adel Hussein Elduma discovered similar findings [13]. In our study, we found that almost half (47%) of the participants were illiterate. Ameyaw et al. reported in their study from Sierra Leone that the majority of the participants were illiterate [14]. Contrary to our findings, a study conducted in Malaysia found that the majority of its participants had a tertiary level of education [15]. This variability may be due to the differences in well-organized educational systems, strong and working central governments, and being a low-income nation. In our study, we found that the type of FGM and educational background had a significant relationship. This is not surprising given that the majority of type 2 and type 3 FGM cases in our study were older women with no educational background.

The current study found a strong correlation between FGM and older age and

illiteracy. A previous Finnish study with women of Kurdish and Somali origin found similar results [16]. According to our findings, FGM is more common in rural women and girls than in urban women and girls. Adel Hussein Elduma revealed similar conclusions [13]. The various strong cultural beliefs, traditions passed down from generation to generation, and religious-based practices firmly established in rural areas as opposed to urban areas may explain these findings. In contrast to our findings, a previous study found that FGM was more common among urban women and girls [17]. In this study, 44% of the participants had type 3 FGM. A previous study from Jijiga town in the Ethiopian Somali region and another study from Sudan both found similar results [18] [19]. Contrary to our findings, a study in the United Arab Emirates found that type 1 FGM was the most common [20], while a recent study in Somalia reported that type 2 FGM was the most prevalent among its participants [21]. In this study, we discovered that the majority of type 3 FGM participants were young; however, a previous study from Sudan found that the majority of its type 3 FGM participants were older women [22]. We could attribute this difference to a lack of effective international and local organizations, a lack of societal understanding of the consequences of this practice, and illiteracy among the Somali mothers of this young generation. In the current study, nearly two-thirds of women with type 3 and half of those with type 2 FGM supported the continuation of this practice, while two-thirds of women with type 1 FGM strongly opposed having the procedure performed on their daughters. Several studies have found that women who have had FGM support its continuation, including in Mali (71%), Guinea (71%), Gambia (67%), and Sierra Leone (58%) [23]. According to a study conducted in eastern Ethiopia with Somali and Harari people, the majority of Somali women who participated in the study strongly believed that FGM should continue to be practiced [24].

The study identified hemorrhages as the most prevalent short-term consequence, followed by infection, which aligns with findings from a prior study [25] [26]. According to our findings, nearly 60% of both type 2 and type 3 FGM women have painful menstrual cycles. In their review, Reisel and Creighton stated that women who have FGM have painful and prolonged periods [27]. This could be due to the FGM procedure obstructing the vaginal opening, which can cause pain during menstruation, an obstruction of menstrual flow, and irregular menstrual periods. Traditional practitioners, traditional birth attendants, or elderly women appointed for this task typically carry out FGM with specialized knives, scalpels, and scissors; they may use this equipment repeatedly without cleaning, thereby increasing the risk of hepatitis B, C, and HIV transmission. According to our findings, traditional female practitioners, or circumcisers, performed the majority of the FGM operations, which is consistent with a previous study [28]. In our study, we discovered that 22% of the participants underwent an episiotomy during childbirth, with women with type 3 FGM reporting the majority (54%) of these procedures. In a six-country study, Rodriguez *et al.* discovered similar results in women with type 3 FGM [29]. The fact that women with FGM type 3 had significantly

narrower vaginal openings compared to those without FGM or with other types of FGM could explain this.

In this study, we discovered that nearly one-third of the participants had recurrent vaginal infections. According to a systematic review of African countries, FGM victims frequently get infections, with females who had type 3 FGM reporting the majority of these illnesses [30]. Genital scars over the cut area are a common long-term effect of FGM, leading to sexual concerns, protracted second-stage labor, and obstructed childbirth. Our study found that 10.2% of participants had significant disfiguring keloid and scar formation. A Nigerian comparative study discovered a significant difference in genital scarring between types 1 and type 2 FGM women [31]. In this current study, a small number (6.7%) of participants had a prolonged second stage of labor, which is lower than the finding of Gebremicheal and his colleagues [18]. In contrast to our findings, a Swedish study discovered that FGM-pregnant women had a significantly shorter second stage of labor [32]. The possibility that FGM-related genital scarring is too delicate, with soft scar tissue that has reduced tensile strength and is prone to tearing during childbirth, could account for this. In our study, we found a small number of participants needed an emergency cesarean section during childbirth. According to numerous studies, the number of patients with FGM who require an emergency caesarean section during delivery is significant [18] [21]. Although it is difficult to obtain data on the mortality of girls or females who underwent FGM, estimates suggest that one in every 500 circumcisions results in death [33]. A 12-year-old girl died from type 3 FMG, according to a recent case report from Somalia [34].

## 5. Limitations

This study has some limitations. The research was not comparative, and there was no non-circumcised control group, which would have given us more in-depth information. Another major limitation of this study is that we did not assess psychological and sexual dysfunction [35] as one of FGM's complications.

## 6. Conclusion

FGM is still widespread around the world, particularly in nations like Somalia, despite the efforts of the WHO, UNICEF, and other local non-governmental organizations. FGM has not only short-term health consequences but also long-term ones, including gynecological, obstetric, and psychological ones. According to this study, FGM increases the risk of recurrent vaginal infections, prolongs the second stage of labor, raises the risk of episiotomies, and causes genital scarring. To eliminate this harmful practice, an effective preventive strategy and implementation are required from both international and local organizations.

## Declaration

### **Ethical approval and consent to participate**

Ethical approval was obtained by the ethics committee board of Mogadishu

Somali Turkey, Recep Tayyip Erdogan Training and Research Hospital (approval number MSTH/7123) and written informed consent was obtained from the patient for participation.

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### Conflicts of Interest

The authors have no financial or personal conflicts of interest.

### Provenance and Peer Review

Not commissioned, externally peer-reviewed.

Availability of data and materials: The dataset used and/or analyzed in the study are available from the corresponding author on reasonable request.

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