

# Determinants of Female Genital Mutilation Among Under Five-Year Children in Motta Town, Northwest Ethiopia, 2022: Unmatched Case Control Study

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**Introduction:** Female genital mutilation is the removal of a woman's external genitalia in whole or in part for a non-obvious medical reason. Female genital mutilation causes short- and long-term complications like bleeding, pain, infection and exposes girls to sexually transmitted diseases. The determinants of female genital mutilation among children under the age of five have received less attention. As a result, the purpose of this study was to determine the factors that influence female genital mutilation in children under the age of five.

**Methods:** A community-based unmatched case control study design was used. The study participants were chosen using computer-generated simple random sampling technique. With a ratio of 1:4 between cases and controls, 323 participants were recruited. Data were collected using an interviewer-administered questionnaire. The association between each independent variable and the dependent variable was determined using binary logistic regression. In a multivariable analysis, variables were considered statistically significant if they had a P-value of less than 0.05 at a 95% confidence interval.

**Results:** In this study, mothers' circumcision status (AOR = 4.6; 95% CI: 2.29–9.25), mothers who had an unfavorable attitude (AOR = 4.15; 95% CI: 1.96–8.82), households in the poorest wealth quintile (AOR = 3.65; 95% CI: 1.2–11.54), mothers who had inadequate knowledge (AOR = 3.31; 95% CI: 1.51–7.25) and antenatal care visit of mothers (AOR = 2.46; 95% CI: 1.03–5.83) were found to be determinant factors of female genital mutilation.

**Conclusion and Recommendation:** Mothers' circumcision status, mother's attitude, wealth quintile, knowledge of mothers, and number of antenatal care visits were factors associated with female genital mutilation. Regular awareness-building on the impacts of the practice and special attention to the mother's attitude are important to eliminate female genital mutilation.

**Keywords:** female genital mutilation, determinants, under-five children, Motta town

## Introduction

Female genital mutilation, commonly known as female genital cutting (FGC), is the entire or partial removal of the female external genitalia without a valid medical justification.<sup>1</sup> FGM is the removal of the clitoris or labia in whole or in part for nontherapeutic purposes. Female genital mutilation is performed for a variety of social, cultural, and religious reasons, including preserving and demonstrating virginity, marriageability within society, preventing promiscuity, and obtaining health and hygienic benefits.<sup>2</sup> Various forms of female genital mutilation, including clitoridectomy and damaging treatments to the female genitalia, are used by various groups.<sup>3</sup> Most of Africa, several Middle Eastern nations, some Asian regions, as well as some other places, practice the harmful cultural practice of female genital mutilation.<sup>4</sup> Female genital mutilation is usually performed between the 7th and 8th days after birth. This is common

among followers of the Orthodox Christian religion in Ethiopia after receiving holy water around the 7th day after birth, and female genital mutilation is often performed.<sup>5</sup>

Female genital mutilation (FGM) is widely done around the world, with an estimated 200 million girls and women undergoing the procedure in 30 countries across Africa, Asia, and the Middle East.<sup>6</sup> Every year, around 3.6 million girls are at risk of mutilation.<sup>7</sup> FGM affected 23.8 million Ethiopian women and girls.<sup>8</sup> FGM hurts girls and women in several ways and has no positive effects on health. It interferes with how girls' and women's bodies naturally work by eliminating and harming healthy, normal female genital tissue. Although health issues are more likely with all forms of FGM, the risk is higher with more extreme forms of FGM.<sup>9</sup> Female genital mutilation causes short- and long-term complications like bleeding, pain, and infection and exposes girls to sexually transmitted diseases.<sup>10</sup> Female genital mutilation reduces the sexual quality of life.<sup>11</sup> Female genital mutilation causes a substantial number of women and girls to have mental health problems.<sup>12</sup> Female genital mutilation causes numerous maternal and neonatal complications.<sup>13</sup>

Although female genital mutilation is recognized by international and regional human rights organizations as one of the most widespread forms of violence against women and children, it is nevertheless a deeply ingrained cultural practice in many African countries.<sup>14</sup> Ethiopia's government has pledged to eradicate female genital mutilation by 2025 across the country's communities.<sup>15</sup> Most previous studies have focused on the frequency, awareness, and attitudes about female genital mutilation among reproductive-age women, but the determinants of female genital mutilation among children under the age of five have received less attention. Some variables, such as maternal health-care usage characteristics, were also left out of the research, notably in Ethiopia. As a result, the study was aimed to determine the factors that influence female genital mutilation among under five year children in Motta town.

## Methods

### Study Design, Period and Area

A community-based unmatched case control study was carried out from May 13, 2022 to June 13, 2022 in Motta town, Northwest Ethiopia. Motta town is located 371 kilometers from Addis Ababa, the capital city of Ethiopia, and 120 kilometers from Bahir Dar, the capital city of the Amhara region. The town has six kebeles and an estimated under-five year children population of 4562. The town has one general hospital, one health center and six health posts.<sup>16</sup>

### Eligible Criteria

#### Inclusion Criteria

Under five-year-old female children with their mothers who lived in Motta town during the study period for both cases and controls.

#### Exclusion Criteria

Under-five-year-old female children whose circumcision status was unknown and children aged less than ten days for controls were excluded.

### Study Variables

#### Dependent Variable

Female genital mutilation

#### Independent Variables

##### Socio-Demographic Factors

Mother's age, religion, residence, mother's occupational status, father's occupational status, father's educational status, other girl's circumcision status, mother's educational and marital status, mother's circumcision status, number of children, media exposure status, and household wealth quintile.

##### Maternal Health Care Utilization Related Factors

Place of delivery, maternal health-care usage and number of ANC visits.

### Knowledge Related Factors

Mother's knowledge and know practice is forbidden.

### Attitude Related Factors

Mother's attitude, support the continuation, good practice and religious recommendation.

## Operational Definitions

### Cases

Mothers of female children under the age of five who answered "Yes" to the question, "Did your daughter have been circumcised?".<sup>17</sup>

### Controls

Mothers of female children under the age of five who answered "No" to the question, "Did your daughter have been circumcised?".<sup>17</sup>

### Adequate Knowledge

Mothers who scored greater than or equal to 4.3 from knowledge measuring questions about female genital mutilation.<sup>5</sup>

### Inadequate Knowledge

Mothers who scored below 4.3 from knowledge measuring questions about female genital mutilation.

### Favorable Attitude

Mothers who scored greater than or equal to 23.1 from attitude measuring questions about female genital mutilation.<sup>5</sup>

### Unfavorable Attitude

Mothers who scored below 23.1 from attitude measuring questions about female genital mutilation.

### Regular Media Exposure

Parents read newspaper, listen radio or watch television at least once a week are considered to be regularly exposed to media.<sup>17</sup>

## Sample Size Determination and Sampling Procedures

### Sample Size Determination

The sample size was computed by using Epi Info software version 7.2 using double population proportion formulas. Three significantly associated variables were considered.<sup>2,18</sup> After calculating the sample size, a variable that gives a large sample size was selected as the final sample size of the study. The following assumptions were used by the researchers: a 95% confidence interval, an 80% power of study, a case-to-control ratio of 1:4, and a 10% nonresponse rate for each variable (Table 1).

**Table 1** Sample Size Calculation for a Thesis on Determinants of Female Genital Mutilation Among Under-Five Year Children in Motta Town, Northwest Ethiopia, 2022

Variables	Exposure Status	COR	Percent of Case Exposed (P1)	Percent of Control Exposed (P2)	Sample Size	Final Sample Size After Adding 10%
Mother's education	Cannot read and write	2.49	56.9	34.61	238	262
Women's opinion	Support FGM	3.39	44.6	19.2	150	165
Religious recommendation	Do not Support FGM	2.32	47.3	27.91	293	323
	Required					
	Not required					

As we have seen from the above table, the third variable (Religious recommendation) gives a large sample size. So, the final sample size was 323 (65 cases and 258 controls).

### Sampling Technique and Procedure

First, three kebeles were selected using the lottery method. Then, a house-to-house search for eligible candidates was done by trained clinical and BSc nurses on 3627 households. Consequently, all under-five-year-old female children were screened in order to categorize them as cases or controls. During screening, a code was assigned to each case and control. From selected kebeles, 972 under-five-year-old female children were registered (76 cases and 896 controls). A sampling frame was listed for cases and controls, and study participants were selected using a computer generated simple random sampling technique for both cases and controls. In order to avoid duplication, only the younger kids from households with two or more under-five-year-old female children from a single family member were screened. From screened cases and controls, study participants were chosen using a computer-generated simple random sampling procedure. Proportional allocation was carried out in order to obtain samples from all of the chosen kebeles.

### Data Collection Tool and Procedures

A pretested interviewer-administered questionnaire was used to collect data. Three health extension workers collected the data. The questions were adopted and adapted from EDHS and other analogous studies conducted in the past.<sup>5,17–19</sup> Face validation was done for adapted questions. It includes socio-demographic-related factors, knowledge-related factors, attitude-related factors, and maternal health-care utilization-related factors. Three health extension workers were recruited to collect the data. Assigned data collectors were supervised and evaluated by a supervisor. The questionnaire was initially written in English before being translated into Amharic. The coherence of the translation was then checked by translating it back into the original language.

### Data Quality Control

The prepared questionnaire was translated into the Amharic language and then back to English for consistency by a language expert. One supervisor was recruited and training was given for a supervisor, screening team, and data collectors for two days on the objective of study, relevance of study, confidentiality of information, respondent's rights, and interview technique. Participants' kebele and goti were given to the data collectors in order to make data collection easier. The status of circumcision for children was kept secret from data collectors (data collectors were blinded in order to protect the quality of data). A pre-test was done on 5% (3 cases and 14 controls) in Keranio kebele. In order to do a pretest, two gotis were selected by lottery method. Screening was done, and 7 cases and 18 controls were registered. Then, a pretest was done on randomly selected daughters from screened cases and controls. The order of questions was readjusted that created confusion for the participant's mother. The collected data was entered into Epi Data version 4.4 and checked for completeness.

### Data Processing and Analysis Procedure

The data were coded, entered into Epi Data version 4.4, and verified for accuracy. The data were exported to SPSS version 23 for analysis. The variables that met the chi-square test assumption were entered into the bi-variable logistic regression. A binary logistic regression model was applied. Variables with a 95% confidence interval and a P value less than 0.25 in the bi-variable analysis were entered into a multivariable logistic regression analysis to evaluate potential confounders. In multivariable logistic regression, variables with a P value of less than 0.05 at 95% CI were considered statistically significant.

The Hosmer-Lemeshow goodness-of-fit statistics was used to check the assumptions of the model. For this study, the model was fitted (p-value 0.37). A multicollinearity diagnosis was done in order to check the relation between independent variables. The variance inflation factor (VIF) of variables for this study was less than 10, so there was no multicollinearity. The presence of outliers was also checked, and there were no outliers found. The wealth quintile was analyzed using principal component analysis (PCA). A correlation matrix was created for wealth quintile variables with frequencies ranging from 5% to 95%. A correlation matrix was done on 23 variables, and those variables that were correlated with more variables were rejected. Finally, 14 variables were used to do a wealth quintile and the Kaiser-Meyer-Olkin was 0.936.

## Ethical Consideration

Ethical clearance was obtained from the Institutional ethical Review Board committee of Bahir Dar University, College of Medicine and Health Sciences. All of the ethical issues were accepted and approved by the Institutional Ethical Review Board of Bahir Dar University. The permission letter was obtained from Motta health office. Oral consent was obtained from study participants. To maintain confidentiality, study participants' names were not used. A chance was given for participants to ask anything about the study and to refuse or stop the interview at any moment. The study complies with the Declaration of Helsinki.

## Result

### Socio-Demographic and Economic Characteristics of Participants

For this study, a total of 323 participants were included, giving a response rate of cases 64 (98.5%) and controls 256 (99.2%). The mean age of the daughter's mother was  $27.33 \pm 5.95$  SD and 31.3% of cases and 26.6% of controls mother were within the age group of 20–24. About 84.4% of cases and 91.8% of controls were from urban areas. About 79.7% of cases and 84% of controls mother were married, 64.1% of cases and 29.3% of controls mother were circumcised. Around 32.8% of cases and 51.2% of controls mother had a secondary or above education. About 37.5% of cases and 12.5% of controls were in the poorest wealth quintile (Table 2).

**Table 2** Socio-Demographic and Economic Characteristics of Respondents for the Determinants of Female Genital Mutilation Among Children Under the Age of Five in Motta, Northwest Ethiopia, in 2022 (N = 320)

Variables	Category	Cases n (%)	Controls n (%)	Total N (%)
Age of mothers	15–19	5 (7.8)	24 (9.4)	29 (9.1)
	20–24	20 (31.3)	68 (26.6)	88 (27.5)
	25–29	16 (25.0)	88 (34.4)	104 (32.5)
	30–34	16 (25.0)	53 (20.7)	69 (21.6)
	35–39	2 (3.1)	9 (3.5)	11 (3.4)
	40–44	5 (7.8)	14 (5.5)	19 (5.9)
Residency	Urban	54 (84.4)	235 (91.8)	289 (90.3)
	Rural	10 (15.6)	21 (8.2)	31 (9.7)
Religion	Orthodox	26 (40.6)	116 (45.3)	142 (44.4)
	Muslim	34 (53.1)	113 (44.1)	147 (45.9)
	Protestant	4 (6.3)	27 (10.5)	31 (9.7)
Marital status	Married	51 (79.7)	215 (84.0)	266 (83.1)
	Divorced	10 (15.6)	34 (13.3)	44 (13.8)
	Widowed	3 (4.7)	7 (2.7)	10 (3.1)
Father's education	Cannot read and write	6 (9.4)	17 (6.6)	23 (7.2)
	Primary	17 (26.6)	48 (18.8)	65 (20.3)
	Secondary	41 (64.1)	191 (74.6)	232 (72.5)
Mother's education	Cannot read and write	11 (17.2)	19 (7.4)	30 (9.4)
	Primary	32 (50.0)	106 (41.4)	138 (43.1)
	Secondary	21 (32.8)	131 (51.2)	152 (47.5)
Father's occupation	Farmer	3 (4.7)	24 (9.4)	27 (8.4)
	Daily laborer	4 (6.3)	12 (4.7)	16 (5.0)
	Merchant	27 (42.2)	88 (34.4)	115 (35.9)
	Civil servant	30 (46.9)	132 (51.6)	162 (50.6)
Mother's occupation	Farmer	11 (17.2)	22 (8.6)	33 (10.3)
	Daily laborer	6 (9.4)	20 (7.8)	26 (8.1)
	Merchant	13 (20.3)	58 (22.7)	71 (22.2)
	House wife	23 (35.9)	118 (46.1)	141 (44.1)
	Civil servant	11 (17.2)	38 (14.8)	49 (15.3)

(Continued)

**Table 2** (Continued).

Variables	Category	Cases n (%)	Controls n (%)	Total N (%)
Mother's circumcision	Yes	41 (64.1)	75 (29.3)	116 (36.3)
	No	23 (35.9)	181 (70.7)	204 (63.7)
Other girls circumcision	Yes	12 (18.8)	42 (16.4)	54 (16.9)
	No	52 (81.2)	214 (83.6)	266 (83.1)
Number of children	1–2	38 (59.4)	142 (55.5)	180 (56.3)
	3–4	17 (26.6)	91 (35.5)	108 (33.8)
	≥5	9 (14.1)	23 (9.0)	32 (10.0)
Wealth quintile	Poorest	24 (37.5)	32 (12.5)	56 (17.5)
	Poorer	12 (18.8)	51 (19.9)	63 (19.7)
	Middle	12 (18.8)	42 (16.4)	54 (16.9)
	Richer	7 (10.9)	69 (27.0)	76 (23.8)
	Richest	9 (14.1)	62 (24.2)	71 (22.2)
Media exposure status	Yes	46 (71.9)	214 (83.6)	260 (81.3)
	No	18 (28.1)	42 (16.4)	60 (18.8)

## Maternal Health Care Utilization Related Factors

About 89.1% of cases and 96.5% of controls mothers had antenatal care follow-up, 93.8% of cases and 91.8% of controls were born at health institutions. About 81.3% of cases and 89.5% of controls mothers had postnatal care follow-up, and 82.8% of cases and 56.6% of controls mother had attended antenatal care three or fewer times (Table 3).

## Knowledge Related Factors

About 73.4% of cases and 82% of controls mother know female genital mutilation is forbidden by law and 39.1% of cases and 73.8% of controls mother had adequate knowledge towards female genital mutilation (Table 4).

**Table 3** Maternal Health-Care Utilization Factors for the Determinants of Female Genital Mutilation Among Children Under the Age of Five in Motta, Northwest Ethiopia, in 2022 (N = 320)

Variables	Category	Cases n (%)	Controls n (%)	Total N (%)
Antenatal care follow-up	Yes	57 (89.1)	247 (96.5)	304 (95.0)
	No	7 (10.9)	9 (3.5)	16 (5.0)
Number of ANC	0–3	53 (82.8)	145 (56.6)	198 (61.9)
	≥4	11 (17.2)	111 (43.4)	122 (38.1)
Place of delivery	Health institution	60 (93.8)	235 (91.8)	295 (92.2)
	Home	4 (6.2)	21 (8.2)	25 (7.8)
Post natal care	Yes	52 (81.3)	229 (89.5)	281 (87.8)
	No	12 (18.7)	27 (10.5)	39 (12.2)

**Table 4** Knowledge-Related Factors for the Determinants of Female Genital Mutilation Among Children Under the Age of Five in Motta, Northwest Ethiopia, in 2022 (N = 320)

Variables	Category	Cases n (%)	Controls n (%)	Total N (%)
Know FGM is forbidden	Yes	47 (73.4)	210 (82.0)	257 (80.3)
	No	17 (26.6)	46 (18.0)	63 (19.7)
Mother's knowledge	Adequate	25 (39.1)	189 (73.8)	214 (66.9)
	Inadequate	39 (60.9)	67 (26.2)	106 (33.1)

## Attitude Related Factors

About 32.8% of cases and 19.1% of controls mother thought FGM is a good practice. Around 50% of cases and 35.5% controls mothers believed that FGM is required by religion. About 23.4% of cases and 16.8% of controls mothers agreed to the continuation of the practice. About 60.9% of cases and 24.6% of controls mother had an unfavorable attitude towards female genital mutilation (Table 5).

## Determinants of Female Genital Mutilation

In bivariable logistic regression (knowledge of mothers, attitude of mothers, wealth quintile, number of ANC visits, postnatal care, forbidden by law, religious recommendation, thought of as good practice, favor to continue the practice, media exposure status, mother circumcision status, place of residency, mother education, and father education) were eligible for multivariable logistic regression. In multivariable analysis, maternal circumcision status, mother's attitude, wealth quintile, mother's knowledge, and number of ANC visits were the determinants female genital mutilation. The odds of daughters' circumcision were increased by 4.6 among daughters of circumcised mothers (AOR = 4.6; 95% CI: 2.29–9.25) compared with daughters of uncircumcised mothers. The odds of the daughter's circumcision were increased by 4.15 among mothers who had an unfavorable attitude (AOR = 4.15; 95% CI: 1.96–8.82) than among mothers who had a favorable attitude towards female genital mutilation.

This study also showed that the odds of a daughter's circumcision in the household with the poorest wealth quintile were 3.65 times (AOR = 3.65; 95% CI: 1.2–11.54) higher than in the household with the richest wealth quintile. Those mothers who had inadequate knowledge about FGM were 3.31 times (AOR = 3.31; 95% CI: 1.51–7.25) more likely to practice female genital mutilation for their daughters than mothers who had adequate knowledge. Mothers who attended antenatal care three or fewer times were 2.46 times (AOR = 2.46; 95% CI: 1.03–5.83) more likely than mothers who attended antenatal care four or more (Table 6).

## Discussion

This study found that the number of ANC visits; the mother's attitude, the household wealth quintile, the mother's knowledge, and the mother's circumcision status were the determinant factors for female genital mutilation. The likelihood of circumcision was 4.6 times higher for daughters of circumcised mothers than for daughters of uncircumcised mothers. This result is consistent with research done in Ethiopia<sup>18</sup> and Guinea.<sup>20</sup> This is due to a higher preference of circumcised mothers to support the continuation of the practice than uncircumcised mothers.<sup>21,22</sup> Another reason for this is the belief of circumcised mothers that female genital mutilation is required by religion more often than uncircumcised mothers.<sup>17,23</sup> This study's finding is lower than studies done in Iraq's Kurdistan region<sup>24</sup> and Nigeria.<sup>25</sup> The possible reason for this might be the difference in study setting, data source and participants' socio-cultural background. For this study data were obtained from mothers, whereas the referenced population used secondary data.

**Table 5** Attitude-Related Factors for the Determinants of Female Genital Mutilation Among Children Under the Age of Five in Motta, Northwest Ethiopia, in 2022 (N = 320)

Variables	Category	Cases n (%)	Controls n (%)	Total N (%)
Believe FGM as good	No	41 (64.1)	182 (71.1)	223 (69.7)
	Yes	21 (32.8)	49 (19.1)	70 (21.9)
	Do not know	2 (3.1)	25 (9.8)	27 (8.4)
Believe as religious requirement	No	31 (48.4)	147 (57.4)	178 (55.6)
	Yes	32 (50.0)	91 (35.5)	123 (38.4)
	Do not know	1 (1.6)	18 (7.1)	19 (5.9)
Favor to continue the practice	No	45 (70.3)	181 (70.7)	226 (70.6)
	Yes	15 (23.4)	43 (16.8)	58 (18.1)
	Do not know	4 (6.3)	32 (12.5)	36 (11.3)
Mother's attitude	Favorable	25 (39.1)	193 (75.4)	218 (68.1)
	Unfavorable	39 (60.9)	63 (24.6)	102 (31.9)



**Table 6** Bivariable and Multivariable Logistic Regression Analysis of Determinants of Female Genital Mutilation Among Under-Five Year Olds in Motta Town, Northwest Ethiopia, 2022 (N = 320)

Variables	Category	FGM		COR at 95% CI	AOR at 95% CI	P-value
		Yes	No			
Residency	Rural	10	21	2.07 (0.92–4.65)	0.71 (0.19–2.68)	0.61
	Urban	54	235	1	1	
Mother's education	Cannot read and write	11	19	3.61 (1.51–8.65)	1.33 (0.31–5.84)	0.70
	Primary	32	106	1.88 (1.03–3.46)	1.04 (0.46–2.34)	
	Secondary and above	21	131	1	1	
Father's education	Cannot read and write	6	17	1.64 (0.61–4.42)	0.64 (0.13–3.24)	0.59
	Primary	17	48	1.65 (0.86–3.15)	0.87 (0.34–2.19)	
	Secondary and above	41	191	1	1	
Wealth quintile	Poorest	24	32	5.17 (2.15–12.42)	3.65 (1.2–11.54)	0.02*
	Poorer	12	51	1.62 (0.63–4.15)	2.01 (0.63–6.36)	
	Middle	12	42	1.97 (0.76–5.08)	1.82 (0.55–5.96)	
	Richer	7	69	0.69 (0.24–1.98)	1.01 (0.29–3.46)	
	Richest	9	62	1	1	
Mother's circumcision	Circumcised	41	75	4.30 (2.41–7.66)	4.60 (2.29–9.25)	0.01*
	Not circumcised	23	181	1	1	
Media	Exposed	46	214	1	1	0.67
	Unexposed	18	42	1.99 (1.05–3.77)	1.22 (0.49–3.04)	
ANC number	0–3	53	145	3.69 (1.84–7.39)	2.46 (1.04–5.83)	0.04*
	≥4	11	111	1	1	
Post natal service	Yes	52	229	1	1	0.29
	No	12	27	1.95 (0.93–4.11)	0.57 (0.19–1.63)	
Know the practice is forbidden	Yes	47	210	1	1	0.74
	No	17	46	1.65 (0.87–3.13)	0.86 (0.35–2.12)	
Mother's knowledge	Inadequate	39	67	4.40 (2.48–7.82)	3.31 (1.51–7.25)	0.01*
	Adequate	25	189	1	1	
Believe as religious requirement	No	31	147	1	1	0.11
	Yes	32	91	1.67 (0.95–2.92)	0.54 (0.25–1.15)	
	Do not know	1	18	0.26 (0.03–2.05)	0.17 (0.01–2.01)	
Believe as good practice	No	41	182	1	1	0.73
	Yes	21	49	1.90 (1.03–3.51)	0.86 (0.37–1.99)	
	Do not know	2	25	0.35 (0.08–1.56)	0.55 (0.09–3.17)	
Favor to continue the practice	No	45	181	1	1	0.36
	Yes	15	43	1.40 (0.72–2.75)	1.49 (0.63–3.52)	
	Do not know	4	32	0.50 (0.17–1.49)	0.52 (0.13–2.04)	
Mother's attitude	Unfavorable	39	63	4.78 (2.68–8.51)	4.15 (1.96–8.82)	0.01*
	Favorable	25	193	1	1	

Note: \*P < 0.05.

Mothers who had an unfavorable attitude were 4.15 times more likely to practice female genital mutilation than mothers who had a favorable attitude towards female genital mutilation. This finding is consistent with studies done in Jigjiga district<sup>2</sup> and Hababo Guduru district.<sup>26</sup> The possible reason for this is the favor of mothers who had unfavorable attitudes towards female genital mutilation to continue the practice rather than mothers who had a favorable attitude. It is also due to mothers' fear of social stigma as a result of not circumcising their girls and believing that uncircumcised girls are not faithful and have less of a chance to get married than mothers who had a favorable attitude.<sup>27</sup> This study's findings are lower than those of a study conducted in the Dega Damot district.<sup>5</sup> A different study environment could be the cause.<sup>28</sup> The research areas in the Dega Damot district were in rural areas, but in this study they were in the town. This study's finding is contradicted by a study done in the Keffa zone.<sup>29</sup> This may be due to the difference in study design and the socio-cultural background of participants. The referenced study carried out a cross-sectional study design.



In this study, as compared to the household with the richest wealth quintile, the probabilities of circumcision were increased by 3.65 in the household with the poorest wealth quintile. This finding is in line with studies done in Ethiopia,<sup>18</sup> Sierra Leone<sup>20,30</sup> and Guinea.<sup>20,30</sup> Mothers in the poorest wealth quintile might experience this because they are more likely than mothers in the greatest wealth quintile to get knowledge regarding the effects of female genital mutilation in an interrupted manner. In comparison to mothers in the highest wealth quintile, those mothers also lack the ability to make decisions on the cessation of the practice.<sup>25</sup>

According to the study, mothers who had inadequate knowledge about female genital mutilation were 3.31 times more likely to practice female genital mutilation compared with mothers who had adequate knowledge. This finding is consistent with a study done in Keffa zone<sup>29</sup> and Hababo Guduru district.<sup>26</sup> The possible reasons could be due to mothers who had inadequate knowledge about female genital mutilation, lack of awareness of short- and long-term complications of the practice, psychological impacts, physical health problems, and obstetric complications. Those mothers could be affected by misconceptions about female genital mutilation compared with mothers who had adequate knowledge.<sup>31</sup> This study's finding is higher than a study done in Egypt.<sup>32</sup> The possible justification for this might be the participant's socio-cultural background, study setting, and period difference. The study population for the referenced study was both males and females aged above 18 years.

The study's findings also revealed that mothers who attended ANC three times or fewer were 2.46 times more likely to undergo female genital mutilation than mothers who attended ANC four times or more. This conclusion agrees with one from a study conducted in sub-Saharan Africa.<sup>19</sup> This is because mothers who did not receive maternal care (antenatal and postnatal care) had a different perception of the health consequences of female genital mutilation than mothers who did receive maternal care. Those mothers who had maternal care services can have a chance to access health education about the impacts of the practice and have a chance to observe posters and magazines related to the impacts of female genital mutilation.<sup>33</sup>

## Strength and Limitation of the Study

### Strength

There are strengths and weaknesses to every facet of this study. It may be said that the fact that this study employed primary data and took into account some factors that were overlooked, notably in Ethiopia, is a strength.

### Limitation

Due to the sensitivity of female genital mutilation, social desirability bias can be considered as a study limitation. Recall bias is another limitation that could be present. As much as possible, we tried to reduce social desirability and recall bias. All respondents were informed about the objective, relevance, and confidentiality of the study. For those households that have two or more under-five female children, the youngest children were selected as stated in the sampling technique and procedure to reduce recall bias.

## Conclusion and Recommendation

### Conclusion

The study findings showed that a mother's circumcision status, a mother's attitude, household wealth quintile, a mother's knowledge, and the number of antenatal care visits were determinants of female genital mutilation. As a result, concrete efforts need to be made to raise mothers' awareness of the consequences of the practice and to dispel myths about female genital mutilation. Counseling mothers to have antenatal care visit at least four times is crucial to eliminate female genital mutilation.

### Recommendation

Based on the findings of the study, Motta town health office administrators are recommended to facilitate health professionals and health extension workers in order to provide adequate health education and prepare meetings, conferences, role-plays, and posters to increase mothers' awareness and mitigate misconceptions about female genital mutilation. Health-care professionals and health extension workers also recommend educating mothers about the health

consequences of female genital mutilation during antenatal and postnatal follow-up and counseling mothers to have more maternal health-care services. Finally, future researchers are recommended to conduct a mixed study about female genital mutilation.

## Abbreviations

ANC, Ante Natal Care; AOR, Adjusted Odds Ratio; COR, Crude Odds Ratio; EDHS, Ethiopian Demographic Health Survey; FGM/C, Female Genital Mutilation/Cutting; SPSS, Statistical Package for Social Sciences; UNICEF, United Nation's International Children's Emergency Fund; WHO, World Health Organization.

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## Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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