

Formal Education as a Catalyst For Change in Female Empowerment

An Analysis of the Role of Formal Education of Mothers and the Risk of Female Genital Mutilation/Cutting Amongst their Daughters in West Africa



Universiteit Utrecht

Master of Science: Social Challenges, Policies and Interventions

Department of Interdisciplinary Social Science

Thesis Supervisor: Eva Vernooij

Internship Organization: Right to Rise – Change Accelerator for Women’s Rights

Internship Supervisor: Annemarie Middelburg

Channa van Laake, 6546862

June 18th 2024

Word Count: 4877

“This thesis has been written as a study assignment under the supervision of an Utrecht University teacher. Ethical permission has been granted for this thesis project by the ethics board of the Faculty of Social and Behavioral Sciences, Utrecht University, and the thesis has been assessed by two university teachers. However, the thesis has not undergone a thorough peer-review process so conclusions and findings should be read as such.”

Table of Contents

Table of Contents	2
Abstract	3
1. Introduction	4
1.1 Problem Statement and Societal/Scientific Relevance	4
1.2 Literature Review	5
1.2.1 <i>Definitions of Concepts</i>	5
1.2.2 <i>Motivational Factors in the Practice of FGM/C</i>	5
1.2.3 <i>Components of Elimination/Prevention of FGM/C</i>	6
1.3 Theoretical Framework	6
1.3.1 <i>Education and Empowerment</i>	6
1.3.2 <i>Education Targeting Generational Traditions Through Empowerment</i>	7
1.3.3 <i>Disciplinarity</i>	8
2. Method	9
2.1 Study Design, Study Sample and Data Analysis	9
2.2 Data and Measurements	10
3. Analysis and Results	12
3.1 Contingency Tables	12
3.2 Binary Logistic Regression	13
4. Discussion	20
5. Conclusion	22
6. Acknowledgments	23
7. Literature	24

Abstract

This master thesis consists of a secondary data analysis of Demographic Health Survey (DHS) data to assess the level of influence of formal education of mothers on the performance of Female Genital Mutilation/Cutting (FGM/C) on their daughters, which is a form of violence against women and girls. The study uses data from six West African countries that practice FGM/C by using a binary logistic regression model. The underlying reason for conducting this analysis is the inconclusive statistical evidence regarding the impact of a mother's education on reducing FGM/C among daughters. The findings indicate that uneducated mothers are more likely to have at least one cut daughter in comparison to respondents who followed primary, secondary, or higher education, controlling for Wealth Index, Respondent Currently Working, Respondent Circumcised, Female Circumcision: continue or to be stopped and Ethnicity. The most substantial effect is observed between having no education and having primary education, and with each successive increase in the level of educational attainment, the impact of these differences declines. The research shows that primary education in comparison to having no education is most significant in the reduction of the practice of FGM/C which shows that entering primary education at a young age mostly limits the chance of a daughter undergoing FGM/C. A higher attained level of education still significantly affects the chance of daughters being cut, however in a lower amount. Unexpectedly the research shows that mothers who currently work have a higher chance of having at least one cut daughter in comparison to women who do not work. The outcome of this research can inform NGO intervention strategies by being an inspiration to focus more on the formal education of women and girls in the elimination of FGM/C, across a broader (West) African context.

1. Introduction

1.1 Problem Statement and Societal/Scientific Relevance

Female Genital Mutilation/Cutting (FGM/C) is a practice wielded mostly in Africa, Asia, and the Middle East (UNFPA, 2024). FGM/C is a violation of the human rights of girls and women and is identified as a harmful practice that reinforces women's unequal status by repressing their sexual enjoyment (WHO, 2024). It is associated with a high prevalence of physical and psychological consequences, such as PTSD, trauma, and severe medical issues (Shakirat et al., 2020). A recent UNICEF (2022) report reveals that over 230 million girls and women worldwide have undergone FGM/C. This is an increase of 30 million girls and women, compared to the corresponding data released eight years ago (UNICEF, 2022; Hassfurter, 2024). Ending FGM/C by 2030 is part of the Sustainable Development Goals of the UN, which recognizes that eliminating the practice is crucial to achieving gender equality (Joint SGD Fund, 2020).

Recent findings suggest that a mother's level of education might be a contributing factor and that more educated women are less likely to have cut daughters (UNICEF, 2022). The Joint Programme on FGM/C mentions that individual-leveled interventions targeting girls and women's empowerment by educating them are proven to work effectively in the elimination of FGM/C (Diop et al., 2017). "Educating girls leads to improved knowledge and changing attitudes: an important step in the continuum of change towards the abandonment of FGM" (UNFPA - UNICEF Joint Programme, n.d.). According to Orchid Project (2021), the connection between education and FGM/C is two-fold. FGM/C often acts as a barrier to girls' education while at the same time, education is often the key to helping girls escape FGM/C. Education is often named a tool to empower and emancipate women because of a higher possibility of employment and (economic) independence (Curatolo, 2020). At the same time, it generates agency, power and decision-making abilities for women and girls (Jaysawal & Saha, 2023).

Koski & Heymann (2017), suggest further investigation is needed into the relationship between education and changing attitudes towards FGM/C practices because it is still unclear if the shift in attitudes caused by education translates into reducing the practice. This research therefore contributes to academic literature and debates regarding the association between a mother's formal education and the probability of their daughter being cut by using a large dataset

consisting of six West African countries in which FGM/C has been practiced for many years. Even though FGM/C is a global issue and is practiced in 92 countries worldwide, Africa holds ‘the largest share of global burden’ with 33 practicing countries (Hassfurter, 2024). The countries selected for the study are Burkina Faso, Gambia, Mali, Senegal, Sierra Leone and Nigeria. A quantitative model is used with secondary data from the Demographic and Health Survey (DHS). The overall research question guiding this study is: *To what extent does a mother's attained level of formal education affect their daughter's risk of FGM/C in the Selected West African Countries?* The hypothesis to accompany this research question is: *The higher the attained level of formal education of a mother, the lower the probability that she has a daughter who has been subjected to FGM/C.*

1.2 Literature Review

1.2.1 Definitions of Concepts

WHO (2024) defines FGM/C as the ‘practice of partial, or total removal of the external female genitalia, or other injuries to the female genital organs for non-medical reasons’. The practice has no health benefits for women and besides it being incredibly painful and often done without anesthetics or the right equipment, the aftermath can carry a significant mental burden (UNFPA, 2024; Shakirat, 2020). Further, education is described as the passing on of knowledge, abilities, and personal qualities (UNESCO, 2018). Formal education takes place within organized institutions like public schools, where a set curriculum is followed. It's divided into various stages, such as primary, secondary, and tertiary education (UNESCO, 2018).

1.2.2. Motivational Factors in the Practice of FGM/C

A common misconception is that FGM/C is an Islamic religious practice (UNFPA, 2024). FGM/C instead is closely connected to ethnicity as a symbol of identity and inclusivity (Shakirat 2020; Sheikh et al., 2023). Several other studies found that traditions, cultural beliefs, and social norms are the leading driving forces behind the continued prevalence of FGM/C (Shakirat 2020). Motivational factors differ from country to community and therefore can be hard to define. However, there are overlapping motives on socio-cultural and traditional levels. Within practicing communities FGM/C often is a social convention, an unquestioned part of becoming a woman.

When the practice is questioned, there is pressure from the community members and families to obey traditional beliefs handed down by generations (Mackie & LeJeune, 2009). FGM/C becomes a necessary part of womanhood, used to prepare a girl for becoming an adult and being chaste for marriage (WHO, 2024).

1.2.3 Components of Elimination/Prevention of FGM/C

Even though formal education is frequently highlighted in NGO strategies, they primarily focus on educating about FGM/C (its harms and consequences), raising awareness, and training health professionals, rather than ensuring girls receive a formal education (Williams-Breault, 2018). Motivational factors for FGM/C often have to do with social norms that rule about the expression of female sexuality which according to Koski & Heymann's (2017) research, can be altered through education. This is also mentioned in a study by Ameyaw et al (2021), where a significantly higher proportion of mothers who had more (educational) knowledge, were older, participated in the labor force and did not accept wife beating, did not intend to cut their daughters as opposed to those who did not. Additionally, as stated in a recent UNICEF (2022, p. 7) report "girls whose mothers have a primary education are 40% less likely to be cut than those whose mothers have no education", with even higher percentages with secondary education. Women's empowerment has been acknowledged to improve women's decision-making capacity and fuel their negotiation skills (Ameyaw et al., 2021). This supports the fact that education affects the prevalence of FGM/C among daughters through empowerment (Ameyaw et al., 2021), discussed further in the next section.

1.3 Theoretical Framework

1.3.1 Education and Empowerment

Women's empowerment is a multi-dimensional concept including gender inequality, prevailing social norms, and a desire to control female sexuality (ICRW, 2019). The concept of women's empowerment is an element in the theory of social change in which the oppressed are key actors in the change process (Stromquist, 2015). Even though women have had more educational opportunities in the last thirty years, in low-income countries women often still follow less schooling than men (King & Hill, 2013). First, education increases the likelihood of

encountering groups that do not practice FGM/C, which challenges traditional views on psychosexual, superstitious, socio-cultural, hygienic/aesthetic, and religious motivations for the practice (Bradley, 2019; Curatolo, 2020). This allows women to make more informed decisions about their bodies and reproductive systems (Bradley, 2019). This is considered social/psychological empowerment where women's social relations and positions are strengthened, giving them more purpose (Curatolo, 2020; Stromquist, 2015). It lets women go beyond what is considered 'normal' or expected of them. Recognizing self-worth and confidence helps women to take back control of their lives (Curatolo, 2020). Knowledge fosters individual thinking and develops social, political, intellectual, and religious consciousness (Curatolo, 2020). The wider range of information available to educated women makes them more likely to adopt healthy behaviors, oppose the practice, choose to discontinue the practice, and therefore, the ability to break through social norms (Ackah et al., 2022; Bradley, 2019).

Secondly, education substantiates and enhances the possibility of a higher socioeconomic status and therefore (economic) independence, making it a boost for women's earning powers (Population Reference Bureau, 2011). Household wealth and whether mothers are in the labor force are predictors of the cutting of a daughter (Yoder, 2004). This suggests that higher socioeconomic status is linked to a lower FGM/C rate, with education often serving as a catalyst of change in this achievement (ICRW, 2016). This is considered economic empowerment by having the resources to close a gap in having more equal possibilities in life. Women gain the ability to have more "control over their material, human, intellectual, and financial resources" (Curatolo, 2020; Stromquist, 2015). Economic independence makes women less subjected to marriage to have a better life, and therefore more able to avoid FGM/C (Alradie-Mohamed et al., 2020).

1.3.2 Education Targeting Generational Traditions Through Empowerment

Even though education improves the capacity to have opposing attitudes amongst mothers, the practical ability to make choices regarding FGM/C for their daughters comes with a challenge. FGM/C is a social practice where decisions are not solely made by parents but with the involvement of the community, often other women such as aunts or grandmothers (Alradie-Mohamed et al., 2020). Because of this, women still feel as if they have no agency over the well-

being of their children. This is where the intersection between education and empowerment becomes applicable (Figure 1). Education derives not only economic empowerment but also “empowers women because it enables them to respond to challenges, confront their traditional roles and change their lives. It assists in bringing equality and works as a means to improve their status within the family, society and politico-economic system” (social/psychological empowerment) (Jaysawal & Saha, 2023, p. 8). Empowerment as defined by Ameyaw et al (2021), is the key to this shift from *decision-making capacity* to *decision-making ability* (Figure 1), enabling women to make autonomous decisions for themselves and their daughters empowered to resist norms and social pressures from both family and community.

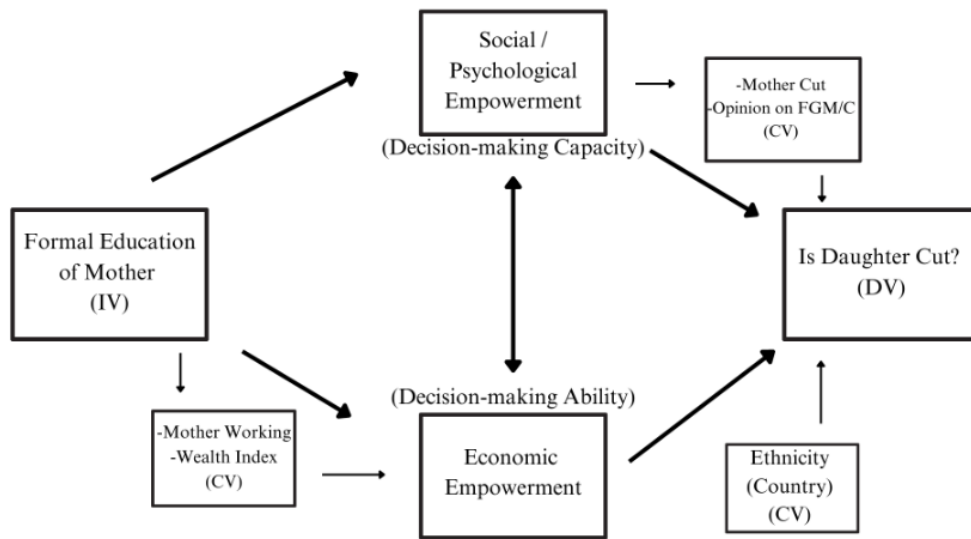


Figure 1. Visualization of the Theoretical Framework

1.3.3 Disciplinarity

This thesis examines FGM/C from sociological and anthropological perspectives, using concepts such as empowerment or community as defined by these disciplines. The practice is deeply embedded in social, cultural, and community norms. By understanding social dynamics, power structures, and cultural beliefs surrounding FGM/C, this study aims to provide insights that can inform policies and interventions. It addresses the underlying social and cultural drivers of empowerment and the impact of formal education on these factors.

2. Method

2.1 Study Design, Study Sample and Data Analysis

This study uses a binary logistic regression analysis which provides information on the strengths and direction of the association between the variables Educational Attainment (of the Mother), and Number of Daughters Circumcised. Binary logistic regression calculates the probability of this binary dependent variable, a cut daughter (1) over the probability of having no cut daughters (0).

The assumptions of binary logistic regression are met. The data is not paired and the observations are independent of each other. Linearity in the logit for continuous variables does not apply as there are no continuous variables used. Additionally, the dependent variable is binary and there can be no strong influential outliers using categorical variables. There is a possibility for mediating/moderating variables. For example, through education, a mother is more likely to have a higher level of wealth which influences the possibility of FGM/C among her daughters (Figure 1). Therefore, the assumption of multicollinearity is tested. Multicollinearity is tested with the variance inflation factor (VIF) for each independent variable. The values for all independent variables are between 1 and 1,5 and therefore there is no multicollinearity detected.

This study uses secondary data from the DHS surveys including the following surveys: Burkina Faso (Standard DHS, 2021), Gambia (Standard DHS, 2019-20), Mali (Standard DHS, 2018), Senegal (Continuous DHS, 2019), Sierra Leone (Standard DHS, 2019) and Nigeria (Standard DHS, 2018). The Individual Recode (IR) files contain data on women of reproductive age (15–49). Women who have daughters and complete cases are included in the analysis making the level of analysis individual. Respondents with missing values are deleted listwise from the dataset to help reduce bias in the analysis. With 65513 cases in both models 1 and 2, the sample size is adequate to achieve sufficient statistical power to detect a meaningful association. The countries are chosen based on their difference in factors such as FGM/C prevalence rates, literacy rates of women, and attitudes against FGM/C. Additionally, they are geographically distributed representing different regions in West Africa (FGM/C Research Initiative, n.d; Statista, 2024). Even though each country has its unique socio-cultural dynamics they also share commonalities in the challenges of FGM/C and gender norms and therefore they enable us to identify common

patterns and differences, and an overall broader understanding of the practice of FGM/C in West Africa.

The datasets from each country are merged into one dataset. To do this, there is an assumption that educational levels are measured equally in every country. I looked at the International Standard Classification of Education (ISCED). ISCED mappings ensure comparable categories for use in international statistics by linking the classification criteria to the properties of the education programs and their related qualifications (UNESCO, 2011). Overall the educational systems are scaled around the same age and duration, with only some small deviations of a maximum of a year between countries.

2.2 Data and Measurements

The main variables analyzed are Educational Attainment and Number of Daughters Circumcised. Control variables used are Ethnicity (linked to country), Wealth Index Combined, Respondent Currently Working, Respondent Circumcised, and Female Circumcision: Continue or be Stopped. Controlling for these variables helps to isolate the individual effect the formal education of a mother has on the probability that she has a cut daughter. The Educational Attainment variable is divided into 4 categories: no education, primary education, secondary education, and higher education. The variable is re-coded so that the categories of incomplete and complete primary education and incomplete and complete secondary education are merged. For the Number of Daughters Circumcised variable women of reproductive age are asked how many of their daughters underwent FGM/C. The responses range from 0 to 7 daughters. To make the variable binary it is re-coded so that those who have at least one circumcised daughter are coded 1 = Yes.

As explained before FGM/C is often linked to ethnicity and is important to include in the analysis. In each dataset (country) the ethnicities differ and therefore this variable is re-coded into one. In this way the Ethnicity variable controls for both country of residence and ethnicity because the respondents are still linked to their complementary country after merging the datasets. The second and third control variables are Respondent Currently Working which is a binary variable answered by yes or no, and Wealth Index Combined which measures the household's wealth level with 5 categories from poorest to richest. These variables are important to include while I state

that education empowers women through a higher socio-economic status. Control variables four and five are Respondent Circumcised and Female Circumcision: Continue or be Stopped (a mother's opinion on FGM/C). When mothers are more aware of the dangers and consequences of FGM/C through their own experiences, this awareness could shape their beliefs surrounding the practice. Their standpoint, whether opposing or supporting it, could impact whether their daughters undergo FGM/C.

Lastly, there should be a reflection that his paper is inspired by an internship at the organization Right to Rise, a consultancy firm with expertise in gender-based violence, especially FGM/C (Right to Rise, n.d.). The internship organization has a clear standpoint on the issue of FGM/C, and advocates for the abandonment of the practice. Therefore, it is crucial to recognize that this focus may influence the foundation of this paper. Together with the organization, there was a preference for the use of DHS datasets and quantitative research due to the quality and extensiveness of the surveys including the large number of cases, important for doing robust quantitative research.

3. Analysis and Results

The null hypothesis (H0) states that there is no relation between the level of formal education of a mother and whether her daughter underwent FGM/C. The alternative hypothesis (Ha) states that the higher the level of formal education of a mother, the lower the probability that she has at least one daughter who experienced FGM/C.

3.1 Contingency Tables

Cross-tabulations are calculated (Table 1) to explore the relationship between the two variables before the logistic regression is conducted. The table shows that the relationship between a mother's educational attainment and FGM/C on daughters is significant ($X^2 = 2571,663$, $p < 0,001$, $df = 3$). When the level of educational attainment increases, the percentage of cut daughters decreases from 20,3% with no education to 4,1% with higher education. When the level of educational attainment increases, the percentage of uncut daughters increases from 78,7% with no education to 95,9% with higher education.

Table 1. Crosstabulations of Educational Attainment of Mother and Daughter Cut

		Educational Attainment					
		No Education	Primary Education	Secondary Education	Higher Education	Total	
Daughter Cut	No	Count	24801	8534	19263	3401	55999
		% within Educational Attainment	78.7%	86.6%	93.5%	95.9%	85.5%
	Yes	Count	6721	1316	1331	146	9514
		% within Educational Attainment	21.3%	13.4%	6.5%	4.1%	14.5%
Total		Count	31522	9850	20594	3547	65513
		% within Educational Attainment	100.0%	100.0%	100.0%	100.0%	100.0%

3.2 Binary Logistic Regression

When conducting logistic regression the odds of having at least one cut daughter is predicted, comparing dummy variables to the baseline category: no education. The Educational Attainment variable significantly predicts if a mother has cut daughters (Educational attainment (1) $W = 298.159$, $p < 0,001$, $df = 1$) (Educational attainment (2) $W = 1882.043$, $p < 0,001$, $df = 1$) (Educational attainment (3) $W = 463.019$, $p < 0,001$, $df = 1$). For Educational Attainment (1), a mother with primary education has 0.569 times lower odds (95% CI = 0.534 - 0.607) of having a cut daughter compared to a mother with no education, a reduction of 43.1%. For Educational Attainment (2), a mother with secondary education has 0.255 times lower odds (95% CI = 0.240 - 0.271), a reduction of 74.5%. For Educational Attainment (3), a mother with higher education has 0.158 times lower odds (95% CI = 0.134 - 0.187), a reduction of 84.2%. Mothers with no education are more likely to have at least one cut daughter than respondents who followed primary, secondary, or higher education. The odds ratio decreases as the education level increases, with the most substantial impact being between no education and primary education. The null hypotheses can be rejected since the model is significant ($p < 0,001$), concluding that as educational levels increase, mothers are less likely to have daughters who underwent FGM/C (Table 2). The model fits the data adequately ($-2LL = 51497.155$).

3.3 Logistic Regression with Controls

In model 2 (Table 2), control variables are added to the logistic regression. The Educational Attainment variable still significantly predicts the Daughter Cut variable (Educational attainment (1) $W = 256,914$, $p < 0,001$, $df = 1$) (Educational attainment (2) $W = 951,759$, $p < 0,001$, $df = 1$) (Educational attainment (3) $W = 213,223$, $p < 0,001$, $df = 1$). For Educational Attainment (1), has 0.531 times lower odds (95% CI = 0.492 - 0.574) of having a cut daughter compared to a mother with no education, a reduction of 46.9%. For Educational Attainment (2), a mother with secondary education has 0.287 times lower odds (95% CI = 0.265 - 0.310), a reduction of 71.3%. For Educational Attainment (3), a mother with higher education has 0.237 times lower odds (95% CI = 0.196 - 0.288), a reduction of 76.3%. Model 2 indicates a slight increase in the odds-ratio coefficient for educational attainment compared to Model 1, where no controls were included. However, this change is not significant, indicating that a mother's education has an individual

impact on a daughter being cut. The null hypothesis is again rejected, and the alternative hypothesis – that the higher the mother's formal education level, the lower the probability of her daughter being subjected to FGM/C – is accepted, controlling for Wealth Index, Respondent Currently Working, Respondent Circumcised, Female Circumcision: continue or to be stopped and Ethnicity. The model still fits the data adequately ($-2LL = 37638,958$).

All control variables have a significant relationship with the dependent variable. The Wealth Index (1) variable, which is category 2: poorer, correlates significantly with having a cut daughter ($W = 18,717$, $p < 0,001$, $df = 1$). A respondent in the poorer category has odds of having a cut daughter that is 0.844 times lower (95% CI = 0.782 - 0.912) than a respondent in the poorest category, a reduction of 15.6%. The Wealth Index (2) variable, which is category 3: middle, correlates significantly with having a cut daughter ($W = 10,2267$, $p = 0,001$, $df = 1$). A respondent in the middle category has odds of having a cut daughter that is 0.879 times lower (95% CI = 0.813 - 0.952) than a respondent in the poorest category, a reduction of 12.1%. The Wealth Index (3) variable, which is category 4: richer, correlates significantly with having a cut daughter ($W = 14,966$, $p < 0,001$, $df = 1$). A respondent in the richer category has odds of having a cut daughter that is 0.844 times lower (95% CI = 0.775 - 0.920) than a respondent in the poorest category, a reduction of 15.6%. The Wealth Index (4) variable, which is category 5: richest, correlates significantly with having a cut daughter ($W = 43,033$, $p < 0,001$, $df = 1$). A respondent in the richest category has odds of having a cut daughter that is 0.718 times lower (95% CI = 0.651 - 0.793) than a respondent in the poorest category, a reduction of 28.2%. This shows that as a mother's wealth increases, the probability of her having a cut daughter decreases.

Respondent currently working (1) is significantly correlated with having a cut daughter or not ($W = 298,739$, $p < 0,001$, $df = 1$). A mother who is currently working has odds of having a cut daughter that is 1.671 times higher (95% CI = 1.576 - 1.771) than a respondent who is not currently working, an increase of 67.1%. This is a surprising outcome that is not in line with our expectations, this is further elaborated upon in the discussion. Respondent Circumcised (1) is significantly correlated with having a cut daughter or not ($W = 13,46,829$, $p < 0,001$, $df = 1$). A mother who has undergone FGM/C herself has odds of having a cut daughter that is 5.965 times higher (95% CI = 5.423 - 6.562) than a respondent who has not been cut, an increase of 59,65%. Female Circumcision:

continue or be stopped is significantly correlated with having a cut daughter or not (Female Circumcision: continue or be stopped (1) $W = 1873,640$, $p < 0,001$, $df = 1$). A mother who believes FGM/C has to stop has odds of having a cut daughter of 0.230 (95% CI = 0,215 - 0,245) times lower than a respondent who does believe FGM/C has to continue, a decrease of 77%.

Most of the categories from the Ethnicity variable are significantly correlated with FGM/C among daughters ($W = 4886,028$, $p < 0,001$, $df = 63$). The categories are compared to the baseline category: Bobo (BF). There are 26 ethnicities that significantly ($p < 0,05$) increase the possibility of having a cut daughter for mothers in comparison to the Bobo (BF) ethnicity. Most of these ethnicities come from Mali, Gambia, and the ECOWAS countries and a small number are from Senegal, Nigeria, and Burkina Faso. There are 15 ethnicities that significantly ($p < 0,05$) decrease the possibility of having a cut daughter for mothers in comparison to the Bobo ethnicity. Most of them are from Sierra Leone and just a small number are from Senegal, Burkina Faso, Gambia, and Nigeria.

Table 2. Logistic Regression of FGM/C among Daughters in West Africa

	Model 1	Model 2
(Constant)	0,271***	0,060***
Educational Attainment (1)	0,569*** (0,534 – 0,607)	0,531*** (0,492 – 0,574)
Educational Attainment (2)	0,255*** (0,240 – 0,271)	0,287*** (0,265 – 0,310)
Educational Attainment (3)	0,158*** (0,134 – 0,187)	0,237*** (0,196 – 0,288)
Wealth Index (1)		0,844*** (0,782 – 0,912)
Wealth Index (2)		0,879*** (0,813 – 0,952)
Wealth Index (3)		0,844*** (0,775 – 0,920)
Wealth Index (4)		0,718*** (0,651 – 0,793)
Respondent Currently Working (1)		1,671*** (1,576 – 1,771)
Respondent Circumcised (1)		5,965*** (5,423 – 6,562)
Respondent Circumcised (2)		2,821*** (2,251 – 3,535)
Female Circumcision: Continue or be Stopped (1)		0,230*** (0,215 – 0,245)
Female Circumcision: Continue or be Stopped (2)		0,444*** (0,394 – 0,500)
Female Circumcision: Continue or be Stopped (3)		0,341*** (0,287 – 0,407)
Ethnicity (1)		0,851 (0,306 – 2,368)
Ethnicity (2)		3,003*** (1,953 – 4,618)
Ethnicity (3)		0,251*** (0,116 – 0,544)
Ethnicity (4)		0,174*** (0,071 – 0,427)
Ethnicity (5)		0,614 (0,313 – 1,205)
Ethnicity (6)		1,312 (0,877 – 1,964)
Ethnicity (7)		1,776* (1,082 – 2,916)
Ethnicity (8)		3,158 (0,845 – 11,807)
Ethnicity (9)		1,016 (0,594 – 1,740)
Ethnicity (10)		1,184

Ethnicity (11)	(0,740 – 1,894) 0,807
Ethnicity (12)	(0,519 – 1,255) 3,869***
Ethnicity (13)	(2,565 – 5,834) 0,974
Ethnicity (14)	(0,508 – 1,864) 3,524***
Ethnicity (15)	(2,193 – 5,662) 3,332***
Ethnicity (16)	(2,186 – 5,078) 2,148*
Ethnicity (17)	(1,018 – 4,530) 4,483***
Ethnicity (18)	(2,901 – 6,926) 5,872*
Ethnicity (19)	(1,123 – 30,704) 1,577
Ethnicity (20)	(0,199 – 12,524) 2,092*
Ethnicity (21)	(1,042 – 4,201) 4,249**
Ethnicity (22)	(1,610 – 11.211) 4,846***
Ethnicity (23)	(3,208 – 7,322) 5,600***
Ethnicity (24)	(3,560 – 8,807) 4,391***
Ethnicity (25)	(2,849 – 6,768) 5,072***
Ethnicity (26)	(3,235 – 7,951) 3,236***
Ethnicity (27)	(1,977 – 5,298) 3,910***
Ethnicity (28)	(2,432 – 6,286) 1,787
Ethnicity (29)	(0,862 – 3,705) 3,981***
Ethnicity (30)	(2,559 – 6,195) 3,617***
Ethnicity (31)	(1,834 – 7,134) 4,684***
Ethnicity (32)	(2,886 – 7,603) 0,143***
Ethnicity (33)	(0,054 – 0,375) 3,059***
Ethnicity (34)	(2,032 – 4,603) 0,103*
Ethnicity (35)	(0,014 – 0,765) 2,104***

Ethnicity (36)	(1,344 – 3,294) 2,531***
Ethnicity (37)	(1,516 – 4,226) 1,316
Ethnicity (38)	(0,757 – 2,287) 1,479
Ethnicity (39)	(0,824 – 2,654) 0,376
Ethnicity (40)	(0,048 – 2,958) 0,453***
Ethnicity (41)	(0,279 – 0,735) 0,320***
Ethnicity (42)	(0,188 – 0,543) 0,467***
Ethnicity (43)	(0,300 – 0,729) 0,503*
Ethnicity (44)	(0,277 – 0,914) 0,510*
Ethnicity (45)	(0,303 – 0,860) 0,204***
Ethnicity (46)	(0,134 – 0,311) 0,138***
Ethnicity (47)	(0,066 – 0,285) 0,368***
Ethnicity (48)	(0,244 – 0,557) 0,292***
Ethnicity (49)	(0,182 – 0,466) 0,495**
Ethnicity (50)	(0,314 – 0,780) 0,503
Ethnicity (51)	(0,063 – 4,007) 7,917***
Ethnicity (52)	(5,146 – 12,180) 7,819***
Ethnicity (53)	(5,202 – 11,755) 1,504
Ethnicity (54)	(0,626 – 3,613) 0,909
Ethnicity (55)	(0,114 – 7,219) 3,278***
Ethnicity (56)	(2,155 – 4,986) 0,000
Ethnicity (57)	(0,000 - .) 3,640***
Ethnicity (58)	(2,151 – 6,157) 0,258
Ethnicity (59)	(0,034 – 1,939) 3,594***
Ethnicity (60)	(2,360 – 5,474) 3,321***

Ethnicity (61)		(2,180 – 5,059) 4,648**
Ethnicity (62)		(1,639 – 13,186) 2,626***
Ethnicity (63)		(1,696 – 4,066) 13,173
		(0,870 – 199,484)
-2LL	51497,155	37638,958
Cox & Snell R Square	0,042	0,224
Nagelkerke R Square	0,074	0,398
N	65513	65513

Note: odds ratio's with 95% confidence intervals in brackets.

*** $p < 0,001$, ** $p < 0,01$, * $p < 0,05$

4. Discussion

The research question guiding this study states: To what extent does a mother's attained level of formal education affect their daughter's risk of FGM/C in the Selected West African Countries? The overall key findings show that formal education significantly influences the prevalence of FGM/C among daughters. The increase in a mother's formal educational level decreases the possibility of her having at least one cut daughter. It is a strength that this research is conducted with a dataset of 65513 cases. Larger datasets provide more reliable results due to smaller error margins and lower standards of deviation. The decrease in cut daughters is seen per educational level in comparison to having had no education. Entering primary education has the most substantial effect. The influence of formal education on FGM/C among daughters decreases with each higher level. The eventually attained level of education does still significantly affect the chance of daughters being cut but in a lower amount. This supports the argument that entering education at a young age (6-7) mostly prevents FGM/C among daughters (Orchid Project et al., 2021; Plan International, 2023; ICRW, 2016). The data significantly supports the hypothesis: The higher the attained level of formal education of a mother, the lower the probability that she has a daughter who has been subjected to FGM/C. The control variables: Ethnicity, Wealth Index Combined, Respondent Currently Working, Respondent Circumcised, and Female Circumcision: Continue or be Stopped, significantly affect FGM/C among daughters showing other factors influence the practice as well. The individual effect of the relationship between the education of mothers and FGM/C among daughters is established and reasonably large, proving the internal validity of the research.

As stated by an ICRW (2019) report 'Education allows the introduction of new concepts and the exchange of ideas, along with access to sources and information, technology and programming in spaces that foster critical thinking and social relations'. The social/psychological empowerment that education derives thus can cause anti-FGM/C attitudes (Curatolo, 2020). The outcome of the study shows that the variable controlling for opinions of mothers on the practice, significantly causes them to be less likely to have cut daughters. Additionally, education improves the independence of mothers from the community and family through economic empowerment. As shown in this research, more wealthy women are significantly less likely to have cut daughters. Liberating women from cycles of poverty and assigned social roles by giving women the resources

to be more independent. This independence empowers them to make decisions that may not be in line with the social norm and therefore the physical ability to actually oppose traditions, family, or community (Curatolo, 2020). The findings are consistent with the established relationship between formal education, social/psychological and economic empowerment, and FGM/C among daughters. Surprisingly this study does show that mothers who currently work, are more likely to have cut daughters. This can be explained by that mothers might work jobs that require no or little education or are not paid sufficiently to reach this higher socio-economic status. The type of work mothers do has not been looked into, which is recommended for future research. Lastly, almost all ethnic groups (countries) were significantly linked to the probability of a mother having a cut daughter, supporting the argument that ethnicity and nationality are strongly connected to FGM/C. Ethnic groups from Mali, Gambia, and the ECOWAS countries are most recurrent in increasing the possibility of having a cut daughter. Ethnicities from Sierra Leone are most recurrent in decreasing the possibility of having a cut daughter. These ethnicities are compared to the Bobo (BF) ethnicity rather than to a neutral category, which is a limitation of the study.

Further limitations are discussed: first, the possibility of biased answers in the self-reported DHS surveys needs to be addressed. FGM/C is a sensitive subject and mothers might not have felt comfortable revealing if their daughters underwent FGM/C (DHS, n.d.). Secondly, even though the assumption that the datasets could be merged was derived from the over-stemming ISCED measurements discussed before, there are small deviations between educational classification criteria in the included countries. This can impact the outcome of the influence of the different levels of education. Additionally, individuals who did not complete a specific level of education were still included as respondents in the analysis. Separating these individuals from respondents who did complete a certain level of education in future research is beneficial. Furthermore, investigating the educational levels of husbands, fathers, or community leaders and their roles within the community and family in connection to the cutting of daughters is interesting. What is the effect of educating men on the prevalence of FGM/C among daughters? Incorporating a larger qualitative component to the study in combination with the quantitative outcomes is valuable since the topic of FGM/C is sensitive and entrenched. A nuanced understanding of the traditional, cultural and social dynamics at play is important.

5. Conclusion

The results of this study indicate that formal education of mothers reduces the probability of their daughters being subjected to FGM/C. The most significant difference is observed between those with no education and those with primary education. Education thus acts as a protective factor for girls at risk of FGM/C (Plan International, 2023). Awareness about the connection between formal education and FGM/C is growing, but it is not yet a standardized approach among NGOs. Education lacks the focused attention it deserves and addressing it in programs would significantly advance efforts to combat the practice. This study initiates a debate on the relationship between formal education and FGM/C through empowerment, both socially/psychologically and economically, and hopes to inspire future research, policy-making, and intervention strategies. The entrenched characteristics of FGM/C including tradition, family, community, culture, and ethnicity make it a challenging practice to address.

Nonetheless, continued formal education of women and girls can significantly reduce the prevalence of FGM/C. Since FGM/C is part of tradition it sometimes is questioned if this practice can be condemned. Culture and tradition provide a framework for human well-being, but they cannot serve as a justification for violence against women and girls (UNFPA, 2024). Behavioral change is feasible when individuals recognize that harmful practices can be abandoned without sacrificing essential cultural elements. Therefore approaches for the elimination of FGM/C should be developed and implemented with sensitivity to the cultural and social background of communities. Additionally, education systems should be gender transformative, integrating information on gender equality and human rights, including women's rights and empowerment (Orchid Project et al., 2021).

6. Acknowledgments

I want to thank everyone who contributed to this thesis project. I would like to express my gratitude to our thesis instructor Eva Vernooij for her time and the efforts she provided throughout this semester. Her ideas and comments were more than helpful in the completion of the project. Additionally, I would like to express my special thanks to Annemarie Middelburg, founder of Right to Rise, where I interned. Her willingness to make the time to share her experiences working in the field of FGM/C and her guidance through the process of writing about this topic was especially valuable. Her immense knowledge of FGM/C inspired and encouraged me in this research.

7. Literature

Ackah, J. A., Ayerakwah, P. A., Boakye, K., Owusu, B. A., Bediako, V. B., Gyesei, M., Ameyaw, E. K., & Appiah, F. (2022). Circumcising daughters in Nigeria: To what extent does education influence mothers' FGM/C continuation attitudes? *PLOS Global Public Health*, 2(11), e0000660. <https://doi.org/10.1371/journal.pgph.0000660>

Alradie-Mohamed, A., Kabir, R., & Arafat, S. M. Y. (2020). Decision-Making Process in Female Genital Mutilation: A Systematic Review. *International journal of environmental research and public health*, 17(10), 3362. <https://doi.org/10.3390/ijerph17103362>

Ameyaw, E. K., Anjorin, S., Ahinkorah, B. O., Seidu, A. A., Uthman, O. A., Keetile, M., & Yaya, S. (2021). Women's empowerment and female genital mutilation intention for daughters in Sierra Leone: a multilevel analysis. *BMC women's health*, 21(1), 200. <https://doi.org/10.1186/s12905-021-01340-2>

Bradley, O. (2019). *The Link Between FGM and Education*. The Borgen Project. Retrieved from: <https://borgenproject.org/the-link-between-fgm-and-education/>

Curatolo, J. (2020). *Five Types of Female Empowerment*. Thrive Global. Retrieved from: <https://community.thriveglobal.com/five-types-of-female-empowerment/>

Demographic Health Survey. (n.d.). *DHS Survey Design: Frequently Asked Questions about Modules*. Retrieved from: <https://dhsprogram.com/pubs/pdf/DHSM17/DHSM17.pdf>

Diop, N. J., Jubero, M., Legesse, B., & Jensen, J. (2017). *17 WAYS TO END FGM/C: LESSONS FROM THE FIELD*. In Companion Booklet To The 2016 Annual Report Of The UNFPA-UNICEF Joint Programme To End Female Genital Mutilation/Cutting: Accelerating Change. Retrieved from: <https://addis.unfpa.org/sites/default/files/resource-pdf/17ways-singlepages-24july-lowres%20%281%29.pdf>

FGM/C Research Initiative. (n.d.). *Research & Resources - A Curated Library Bringing Together the Latest Evidence and Practice-Based Knowledge*. Retrieved from: <https://www.fgmcri.org/research-resources/>

Hassfurter, K. (2024). *Female Genital Mutilation: A global concern*. UNICEF DATA. Retrieved from: <https://data.unicef.org/resources/female-genital-mutilation-a-global-concern-2024/>

International Center for Research on Women. (2016). *Leveraging education to end female genital mutilation worldwide*. Retrieved from: <https://www.icrw.org/publications/4240-2/>

Jaysawal, N., & Saha, S. (2023). Role of education in women empowerment. *International Journal Of Applied Research*, 9(4), 08–13. <https://doi.org/10.22271/allresearch.2023.v9.i4a.10710>

Joint SDG Fund. (2020). *Ending Female Genital Mutilation By Achieving SDG 5*. Retrieved from: <https://jointsdgfund.org/article/ending-female-genital-mutilation-achieving-sdg-5-gender-equality>

King, E. M., Hill, M. A. (1993). Women's education in developing countries. Barriers, benefits, and policies. *World Bank Group*. <https://doi.org/10.1596/0-8018-4534-3>

Koski, A., Heymann, J. (2017). Thirty-year trends in the prevalence and severity of female genital mutilation: a comparison of 22 countries. *BMJ Glob Health*, 2(4). <https://doi.org/10.1136/bmjgh-2017-000467>

Mackie, G., J. LeJeune. (2009). Social Dynamics of Abandonment of Harmful Practices: A New Look at the Theory. *Innocenti Working Papers*, No. 2009/06, UN, New York, <https://doi.org/10.18356/9813d82b-en>

Orchid Project, Global Partnership for Education, UNICEF, UNFPA, International Centre for Research on Women, The Commonwealth, & Magangi, M. (2021). *INTERSECTION BETWEEN FEMALE GENITAL CUTTING AND EDUCATION*. In *A Discussion Brief For The Global Education Summit*. Retrieved from: <https://www.orchidproject.org/wp-content/uploads/2021/07/Intersection-Between-Female-Genital-Cutting-and-Education-Final-Draft.pdf>

Plan International. (2023). *Female Genital Mutilation / Cutting Policy Brief 2023*. Retrieved from: https://plan-international.org/uploads/2023/02/GLO-FGMC_Policy_Brief-FINAL-io-ENG-jan23.pdf

Population Reference Bureau. (2011). *The Effect of Girls' Education on Health Outcomes: Fact Sheet*. Retrieved from: <https://www.prb.org/resources/the-effect-of-girls-education-on-health-outcomes-fact-sheet/>

Right to Rise. (n.d.). *Right to Rise - Change accelerator for women's rights*. Retrieved from: <https://www.right-to-rise.com/>

Shakirat, G. O., Alshibshoubi, M. A., Delia, E., Hamayon, A., Rutkofsky, I. H. (2020). An Overview of Female Genital Mutilation in Africa: Are the Women Beneficiaries or Victims? *Cureus*, 12(9). doi: 10.7759/cureus.10250

Sheikh, M. M., Cheptum, J. J., & Mageto, I. G. (2023). Factors Linked to Female Genital Mutilation Practice Among Women Living In Alungu Village of Mandera County, Kenya. *The East African Health Research Journal*, 7(1), 109–115. <https://doi.org/10.24248/eahrj.v7i1.716>

Statista (2024). *Female adult literacy rate in West Africa 2018, by country*. Retrieved from: <https://www.statista.com/statistics/1122662/female-adult-literacy-rate-in-west-africa-by-country/>

Stromquist, N. P. (2015). Women's Empowerment and Education: linking knowledge to transformative action. *European Journal of Education*, 50(3), 307–324. <https://www.jstor.org/stable/26609280>

United Nations Educational, Scientific and Cultural Organization (UNESCO). (2011). *Country Diagrams*. Retrieved from: <https://isced.uis.unesco.org/visualizations/>

United Nations Educational, Scientific and Cultural Organization (UNESCO). (2018). *UNESCO SDG Resources for Educators – Quality Education*. Retrieved from: <https://web.archive.org/web/20220121083949/https://en.unesco.org/themes/education/sdgs/material/04>

UNFPA-UNICEF Joint Programme. (n.d.). *Effectiveness of Interventions Designed to Prevent or Respond to Female Genital Mutilation*. Retrieved from: <https://www.unfpa.org/sites/default/files/resource-pdf/FGM-State-of-evidence-brief.pdf>

United Nations International Children’s Emergency Fund. (2022). *The power of education to end female genital mutilation*. Retrieved from: <https://data.unicef.org/resources/the-power-of-education-to-end-female-genital-mutilation/>

United Nations Population Fund. (2024). *Female genital mutilation (FGM) frequently asked questions*. Retrieved from: https://www.unfpa.org/resources/female-genital-mutilation-fgm-frequently-asked-questions#practice_origins

Williams-Breault B. D. (2018). Eradicating Female Genital Mutilation/Cutting: Human Rights-Based Approaches of Legislation, Education, and Community Empowerment. *Health and human rights*, 20(2), 223–233. <https://doi.org/10.1186/s12889-015-2373-2>

World Health Organization: WHO. (2024). *Female genital mutilation*. Retrieved from [https://www.who.int/news-room/fact-sheets/detail/female-genital-mutilation#:~:text=Female%20genital%20mutilation%20\(FGM\)%20comprises,organs%20for%20non%2Dmedical%20reasons.](https://www.who.int/news-room/fact-sheets/detail/female-genital-mutilation#:~:text=Female%20genital%20mutilation%20(FGM)%20comprises,organs%20for%20non%2Dmedical%20reasons.)

Yoder, P. S. (2004). *Female genital cutting in the demographic and health surveys: a critical and comparative analysis*. Retrieved from <https://dhsprogram.com/publications/publication-cr7-comparative-reports.cfm>