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Effect of living conditions on genital mutilation practices among adolescent girls in West Africa: A pooled analysis from demographic and health surveys

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Pacome E. Acotcheou[1,2], Jacques Z. Saizonou[1,2], Alphonse M. Affo[2,3], Justin Dansou[2,4], Patrick Makoutode[1]*

Regional Institute of Public Health Comlan Alfred Quenum (IRS/CAQ), University of Abomey-Calavi (UAC), Benin[1]; Population Health and Development Research Group (PHDRG)[2]; Population Training and Research Center (CEFORP), University of Abomey-Calavi (UAC), Benin[3]; National School of Statistics, Planning and Demography (ENSPD), University of Parakou, Benin[4]

***For Correspondence:** Email: *pacomeacotcheou@yahoo.fr; apacomeacotcheou@gmail.com*; Phone: (229) 97329736

Abstract

Despite commitments and interventions, Female Genital Mutilations (FGM) practice persists in West African countries. This research analyzes the effect of living conditions on FGM practice. Data were sourced from thirty-four demographic and health surveys conducted between 1995 and 2020 in 12 countries. The study sample consisted of 69,971 adolescent girls aged 15-19 years. Meta-regression analysis and binary logistic regression analyses showed the effect and relative contribution of study covariates on the phenomenon. The overall average prevalence of FGM is 40.7%, with a mixed effect of living conditions on FGM practice. The factors associated with FGM practice are, in order of importance, religion, level of education, ethnicity and place of residence. All factors have a direct effect on the studied phenomenon, and the level of education acts as an inhibiter of the effect of living conditions. The study suggests the need to strengthen the involvement of religious, traditional and community leaders in the definition and implementation of actions to combat FGM, as well as girl's education, especially by maintaining them in school till completion of at least secondary school. *(Afr J Reprod Health 2022; 26[12s]: 27-37).*

Keywords: Impact, living conditions, female genital mutilation, West Africa

Résumé

Malgré la lutte contre la pratique des Mutilations Génitales Féminines (MGF), le phénomène persiste dans tous les pays d'Afrique de l'Ouest. La présente étude analyse l'effet des conditions de vie sur le phénomène. Elle recourt à trente-quatre enquêtes démographiques et de santé (EDS) d'Afrique de l'Ouest réalisées entre 1995 et 2020 dans 12 pays et portant sur 69 971 adolescentes âgées de 15 à 19 ans. La méta analyse de régression et la régression logistique binaire ont ressorti l'effet et la contribution de chaque facteur. La prévalence globale moyenne des MGF est de 40,7%, avec un effet mitigé des conditions de vie sur la pratique du phénomène. Les facteurs explicatifs du phénomène de la pratique des MGF sont par ordre d'importance, la religion, le niveau d'instruction, l'ethnie et le milieu de résidence. Tous les facteurs examinés ont un effet direct sur le phénomène étudié, et le niveau d'instruction agit comme inhibiteur d'effet des conditions de vie. Nous recommandons l'implication des leaders religieux, traditionnels et communautaires dans la définition et la mise en œuvre des actions de lutte contre les MGF, ainsi que la scolarisation et le maintien des filles à l'école jusqu'à l'achèvement du cycle secondaire au moins. *(Afr J Reprod Health 2022; 26[12s]: 27-37).*

Mots-clés: Effet, condition de vie, mutilation génitale féminine, Afrique de l'Ouest

Introduction

Gender-based violence (GBV) is a widespread practice and is expressed in practices such as female genital mutilation (FGM), child marriage and polygamy[1,2]. According to the World Health Organization (WHO), FGM encompasses all procedures involving partial or total removal of a woman's external genitalia or other injury to her female genitalia that are performed for non-medical reasons[3]. In terms of adolescent sexual and reproductive health rights, it is classified as a harmful traditional practice that is critically important to prevent.[4] These are internationally recognized human rights violations affecting more than 200 million girls and women in twenty-seven

African countries, Yemen, Iraq, and Indonesia[5]. This practice is widespread in 31 countries across Africa, Asia and the Middle East[6]. But half of the victims live in Egypt, Ethiopia and Indonesia and its presence in developed countries is explained by human mobility and detected among immigrant populations.

While the practice has been generalized in some African countries such as Djibouti, Guinea, Mali, Somalia, and Sudan, FGM is more than 75% prevalent among women aged 15-49[7]. Although the practice remains common, a teenage girl is now about three times less likely to be cut compared to the situation 30 years ago[8]. According to the WHO, FGM has no health benefits but has immediate and long-term negative consequences for the victims[3]. Some of its consequences include the formation of clitoral cysts, bleeding, fistulas, obstetrical complications, urinary tract infections and retention, vaginal laceration, and psychological trauma. Studies reported that the phenomenon is strongly associated with sociocultural factors some of the which are place of residence, ethnic group, religion, marital status, and education level[9,10]. The persistence of FGM is also related to the parents' specific traits, notably the household's conditions of living, the parents' perception of the benefits of FGM, their feeling of regret for having been affected by FGM and their knowledge of the legislation prohibiting FGM[10]. While there is a great deal of literature available on the practice of FGM, we note that more emphasis has been placed on identifying explanatory factors without assessing the specific effect of each factor in understanding the phenomenon studied. Also, evidence based on aggregate data at the West African sub-regional level are scarce. The explanatory factors and their underlying effects on the phenomenon are required for a better understanding of the practice of FGM which is needed in designing evidence-based decisions for its eradication. Hence the interest of this study, which attempts to analyze the effect of living conditions on the practice of female genital mutilation among adolescent girls from twelve West African countries through a pooled analysis of Demographic and Health Surveys (DHS).

Methods

Study setting

This is a pooled analysis of Demographic and Health Survey data from West African countries. These are the member states of the Economic Community of West African States (ECOWAS), a regional grouping of fifteen (15) countries. Apart from Cape Verde, Liberia and Guinea Bissau, the twelve (12) countries selected are those who had conducted at least one demographic and health survey where data on FGM was collected and for which the data is available for the study period. Evidence showed that FGM is most often performed by traditional practitioners on girls during their childhood (before the age of 15 year) and is considered in many cultures as a prerequisite for marriage in most West African countries. Some of the countries included in this study have the highest FGM prevalence rates in the world (Guinea 96.9%, Sierra Leone 89.6%, Mali 82.7%). The West African area has therefore some important challenges in the fight against FGM[11].

Data source and gathering process

This study used the Macro International website where all Demographic and Health Survey (DHS) data from around the world are stored. The data collection procedure followed six (06) successive steps:

- registration on the DHS program /MACRO ICF website (https://dhsprogram.com/);
- viewing the list of countries involved in the DHS program;
- identifying countries for which data are available;
- submitting the data access request;
- obtaining authorization and the data access code;
- downloading the data sets.

Thus, we had access to individual data from thirty-four (34) DHS that collected data on FGM in twelve (12) countries (Benin, Burkina Faso, Ivory Coast, Gambia, Ghana, Guinea, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo) in West Africa. Datasets were downloaded on February 21, 2021 and were collected between 1995 and 2019. The justification for using these data is their comparability. Indeed, the sampling design used across time and countries was two-stage stratified areal sampling. Similarly, a standardized tool design is used to gather the data. After collection, the selected studies were coded according to country and year of completion before proceeding to data processing using STATA software. This involved the harmonization of the different variables, the

selection of the target (adolescent girls aged 15-19) and the merging of data sets to obtain the overall analysis file for the study. The study was based on a sample of 69,971 adolescent girls aged 15-19 years who participated in the various editions of the Demographic and Health Surveys in West Africa during the study period. Table 1 presents a summary of the studies included in the meta-analysis.

Variables

In the DHS questionnaires, adolescents were asked the following questions: "Are you genitally mutilated? The response to this question enabled the classification of adolescents in two categories: "genitally mutilated adolescents" and "genitally unmutilated adolescents." The dependent variable is the adolescent's FGM status at the time of the survey and is coded as "1" when the adolescent is genitally mutilated and "0" otherwise. Living conditions are represented by a composite indicator that summarizes the conditions in which the respondent lives in her household. It should be emphasized that the indicator was not directly collected during the surveys but is constructed on the basis of indirect information relating to housing (soil material, roof material, source of water and electricity supply, etc.) and the possession of goods (telephone, TV, bicycle, car, fridge). Since this information was available in the DHS databases, we built a living condition indicator using the Principal Component Analysis (PCA) method. The indicator of living conditions thus constructed measures a relative poverty whose classes depend on its distribution in the population as a whole. The indicator was used in this study but split into two categories: "Rich" and "Poor" differentiated at the 50% threshold in the PCA. Independent variables were ethnic group (used as a control variable because of its association with the practice of FGM, without distinction of category due to the multitude of ethnic groups in West Africa), religion (Islam, Christian, and Traditional), area of residence (Urban and Rural), adolescent education level (None, Primary, and Secondary or higher), household living condition (Poor and Rich), official language of the country (English and French), geographic location (Coastal and Sahelian), study period (pre-MDG period, MDG period, and post-MDG period), and country.

Methods of analysis

Given the objective, the study is both descriptive and explicative. From a descriptive point of view, the prevalence of FGM and its variation according to various research by country is established. The forest plot is used to highlight the overall effect of living conditions on the phenomenon as well as the estimated effect size and confidence interval for each study. The indicator used to measure the size effect is the Odd Ratio (OR). Subgroup analyses were done by features such as country, geographic location, study period, and country language. Heterogeneity and publication bias were captured using I2 statistics and the Egger test. The explanatory analysis was performed in two parts: a meta-regression analysis and a logistic regression. The meta-regression analysis is used to highlight the effect of living conditions on the practice of FGM among adolescents and its moderation by the level of education. From the forest plot, the heterogeneity test was performed and the meta-regression model taking into account the moderator allowed us to identify the share of heterogeneity attributable to education. The use of meta-regression analysis is justified by the access to individual data of the respondents on the one hand, and the fact that it is an adequate means to highlight the effect of an intervention on a phenomenon on the other hand[12]. This method was chosen because of the objective of this study, which is to highlight the effect of living conditions on the practice of FGM. Thus, tests of homogeneity and publication bias are mandatory to verify whether the conditions are met for the application of meta-analysis, including the existence of small numbers that could taint the results. We used education as a moderator to reveal the importance of education for the poor and the rich in relation to the practice of FGM and our choice was guided by the literature review and the variables available in the DHS. To identify the explanatory factors of FGM in West Africa, the binary nature of the study variable led us to adopt a binary logistic regression model insofar as all the explanatory variables retained are qualitative. This is a step-by-step model that made it possible to highlight the contribution of each factor as well as action mechanisms in explaining the phenomenon. STATA16 software was used and factors associated

with the practice of FGM on adolescents were presented using Odds Ratios (OR) with a 95% confidence interval (CI).

Results

FGM prevalence among adolescent girls in West Africa over the period 1995-2019

According to Table 1, the average prevalence of FGM is 40.7% in West Africa over the period 1995-2019. The lowest FGM prevalence (1.2%) was recorded in Niger in 2012 while the highest rate (96.5%) was recorded among adolescent girls from Guinea in 1999. Figure 1 shows the combined prevalence of FGM among adolescent girls in twelve west african countries. It shows that the level of the phenomenon ranged from 3.8% in Togo to 94.4% in Guinea, and includes 5.3% in Ghana, 8.1% in Niger, 9.5% in Benin, 17.9% in Togo, 29.4% in Nigeria, 39.9% in Senegal, 51.3% in Ivory Coast, 63.6% in Burkina Faso, 71.5% in Sierra Leone, 74.7% in the Gambia and 88.3% in Mali.

Figure 1 also shows that most of the coastal countries, particularly those on the Gulf of Guinea, have relatively low prevalence (Togo 3.8%, Ghana 5.3%, Benin 9.5%, Nigeria 29.4%; below the average prevalence for the study area) compared to the Sahelian countries (Burkina Faso: 63.6%, Sierra Leone: 71.5%, Gambia: 74.7%, Mali: 88.3%, and Guinea: 94.4%), which have higher levels than the average for the sub-region.

Effect of living conditions on FGM among adolescent girls in West Africa

Figures 2 and 3 show, respectively, the forest plot of the random effect model of living conditions on the practice of FGM among adolescent girls and the result of Egger's test for possible publication bias. The model is significant at the 1% level (p = 0.00) and the I2 statistic is 96.8%, suggesting strong heterogeneity, using Higgins' categorization12. Similarly, the Egger test reports the absence of publication bias (Prob > | Z | = 0.5867). Thus, Figure 3 indicates that there is no bias associated with the presence of small sample size studies in this meta-analysis. The overall Odd-Ratio is 0.70, 95% CI [0.57; 0.86], reflecting that adolescent girls living in a wealthy household are 0.7 times less likely to be genitally mutilated compared to their counterparts living in poor households. The same trend is observed in studies conducted in Benin, Gambia, Ghana, Côte d'Ivoire, Senegal, and Sierra Leone; in contrast, most studies conducted in Mali, Niger, Nigeria, Burkina Faso, and Guinea show a higher risk of FGM (odd ratio greater than 1) among adolescent girls living in wealthy households.

Figure 4 provides the sub-group analysis of the effect of living conditions on adolescent girls' FGM in West Africa. The within-group analysis reveals that the observed trend at the aggregate level holds in Benin (p = 0.000), Ivory Coast (p = 0.015), Gambia (p = 0.000), Ghana (p = 0, 002), Senegal (p = 0.000), Sierra Leone (p = 0.000), coastal countries (p = 0.000), during the MDG period (p = 0.006), and francophone countries (p = 0.003). No sub-group is seen in which adolescent girls living in poor households are at greater risk of FGM. However, no significant difference is observed in Burkina Faso (p = 0.722), Guinea (p = 0.909), Mali (p = 0.487), Niger (p = 0.398), Nigeria (p = 0.107) Togo (p = 0.294), within Sahelian countries (p = 0.936), in the pre-MDG period (p = 0.113), during the SDG period (p = 0.306), and in English-speaking countries (p = 0.119). Looking at inter-group variations, we find significant differences between countries (p = 0.00) and geographical location (p = 0.00), while no significant differences are observed according to the study period (p = 0.95) and the official language of the country (p = 0.79). The effect of living conditions on the practice of FGM among adolescent girls in West Africa remained constant over the study period.

Moderating the effect of living conditions on adolescent girls' FGM by educational attainment in West Africa

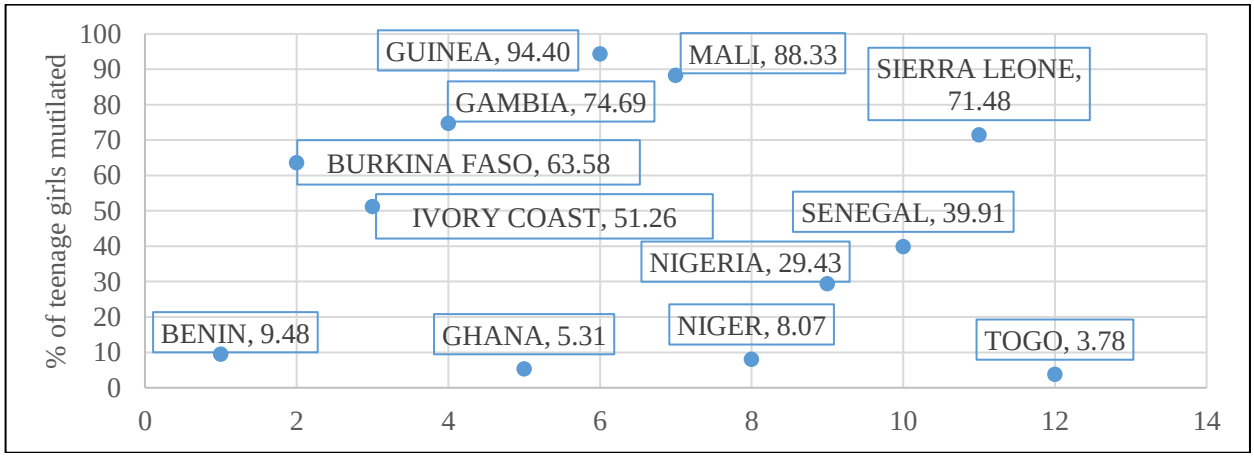
In order to assess the sources of heterogeneity across studies, the meta-regression analysis is performed using the co-variate educational attainment captured by the schooling rate. Table 2 shows the results of the regression meta-analysis. It shows that the I2 statistic is 96.8%, which suggests strong heterogeneity even after including the enrollment rate (tx_alph) as a moderator. In other words, 96.8% of the variability in the residuals is still attributed to between-study variation, while only 3.2% is attributed to within-study variation.

The adjusted R2 statistic is used to estimate the proportion of the inter-study variance explained by education level. The R2 statistic shows that

Table1: Summary of DHS data included in the analyses

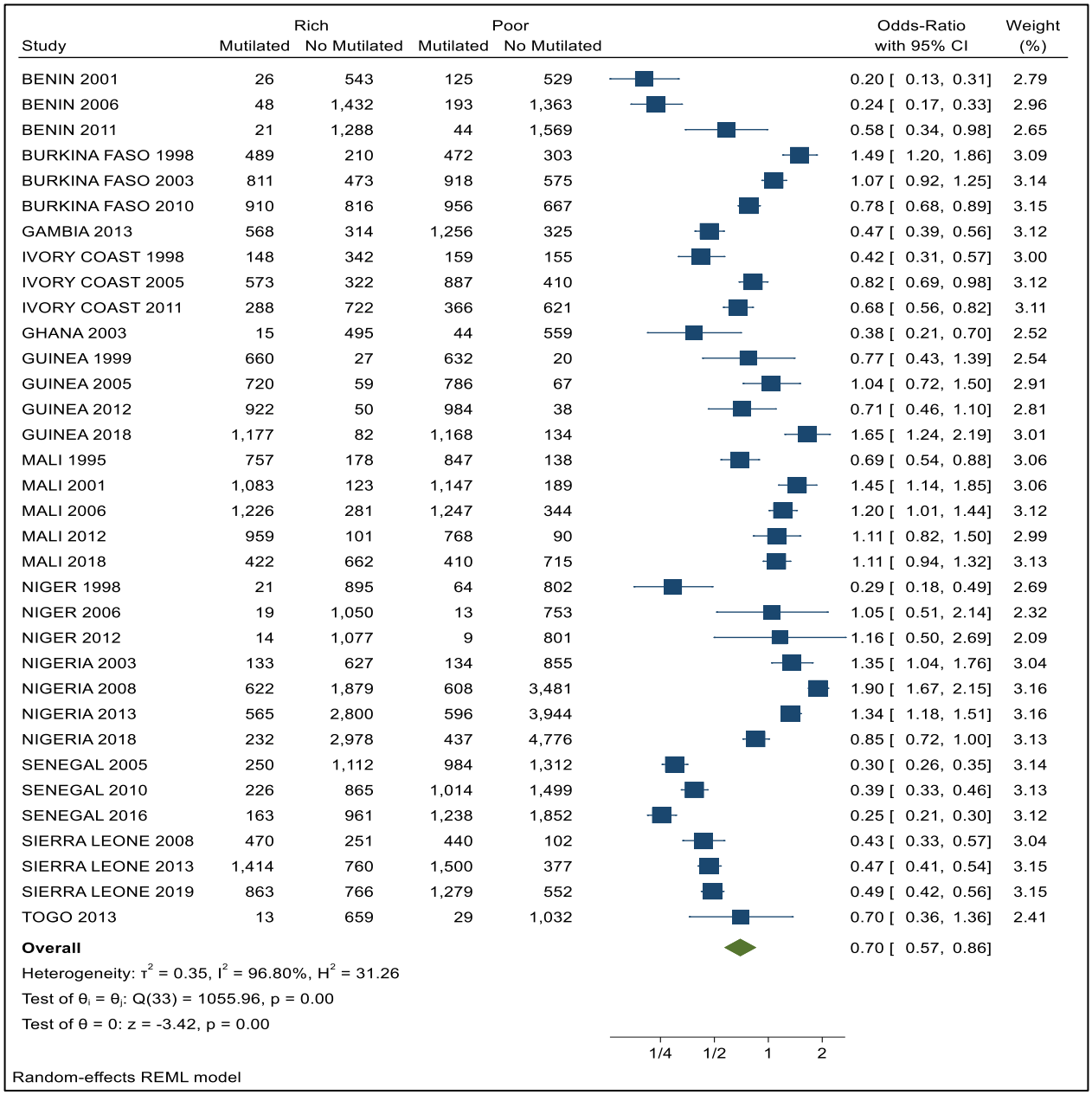
No	Country and year of study	Sample size	Number of mutilate poor	Number of unmutilated poor	Number of mutilated rich people	Number of unmutilated rich people	Percentage of mutilated teenage girls	Percentage of schooled teenage girl
1	BENIN 2001	1223	125	529	26	543	12,35	50
2	BENIN 2006	3036	193	1363	48	1432	7,94	61
3	BENIN 2011	2922	44	1569	21	1288	2,22	70
4	BURKINA FASO 1998	1474	472	303	489	210	65,20	29
5	BURKINA FASO 2003	2777	918	575	811	473	62,26	35
6	BURKINA FASO 2010	3349	956	667	910	816	55,72	47
7	GAMBIE 2013	2463	1256	325	568	314	74,06	74
8	IVORY COAST 1998	804	159	155	148	342	38,18	56
9	IVORY COAST 2005	2192	887	410	573	322	66,61	60
10	IVORY COAST 2011	1997	366	621	288	722	32,75	59
11	GHANA 2003	1113	44	559	15	495	5,30	85
12	GUINEA 1999	1339	632	20	660	27	96,49	33
13	GUINEA 2005	1632	786	67	720	59	92,28	46
14	GUINEA 2012	1994	984	38	922	50	95,59	57
15	GUINEA 2018	2561	1168	134	1177	82	91,57	52
16	MALI 1995	1920	847	138	757	178	83,54	26
17	MALI 2001	2542	1147	189	1083	123	87,73	27
18	MALI 2006	3098	1247	344	1226	281	79,83	39
19	MALI 2012	1918	768	90	959	101	90,04	47
20	MALI 2018	2209	410	715	422	662	37,66	52
21	NIGER 1998	1782	64	802	21	895	4,77	28
22	NIGER 2006	1835	13	753	19	1050	1,74	37
23	NIGER 2012	1901	9	801	14	1077	1,21	45
24	NIGERIA 2003	1749	134	855	133	627	15,27	74
25	NIGERIA 2008	6590	608	3481	622	1879	18,66	73
26	NIGERIA 2013	7905	596	3944	565	2800	14,69	76
27	NIGERIA 2018	8423	437	4776	232	2978	7,94	75
28	SENEGAL 2005	3658	984	1312	250	1112	33,73	52
29	SENEGAL 2010	3604	1014	1499	226	865	34,41	60
30	SENEGAL 2016	4214	1238	1852	163	961	33,25	67
31	SIERRA LEONE 2008	1263	440	102	470	251	72,05	69
32	SIERRA LEONE 2013	4051	1500	377	1414	760	71,93	81
33	SIERRA LEONE 2019	3460	1279	552	863	766	61,91	84
34	TOGO 2013	1733	29	1032	13	659	2,42	86
Total		**94731**	**21754**	**30949**	**16828**	**25200**	**40,73**	**56**

Source: Compiled by the authors, processing of DHS for West Africa from 1995 to 2019



Source: Compiled by the authors, using DHS data from West Africa from 1995 to 2019

Figure 1: Distribution of FGM pooled prevalence among adolescent girls by country from 1995 to 2019



Source: Compiled by the authors, using DHS data from West Africa from 1995 to 2019

Figure 2: Forest plot of the effect of living conditions on adolescent FGM

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H0: beta1 = 0; no small-study effects
            beta1 =     -0.64
      SE of beta1 =     1.179
                z =     -0.54
        Prob > |z| =    0.5867
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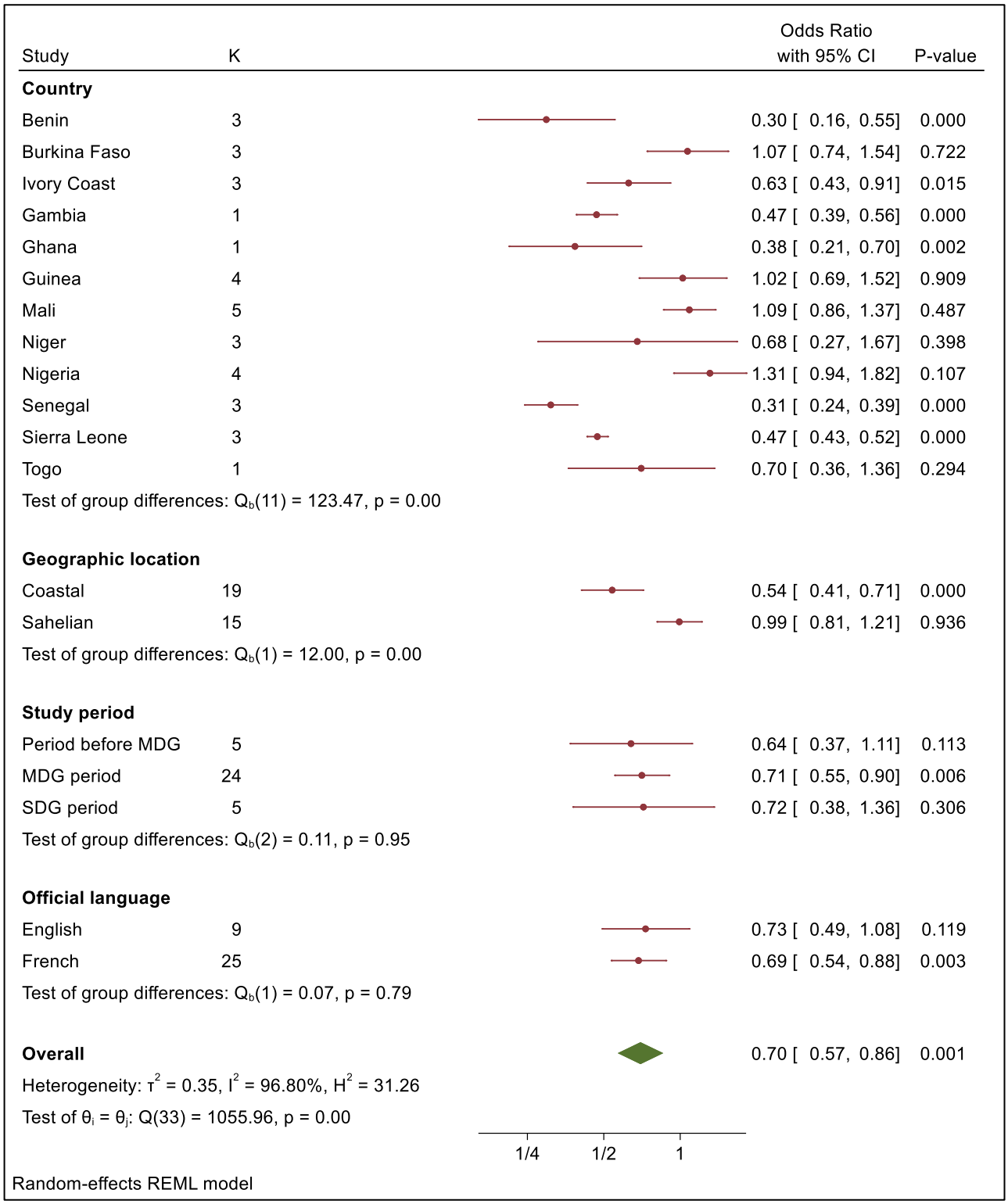
Source: Compiled by the authors, processing DHS from West Africa from 1995 to 2019

Figure 3: Results of Egger's test for publication bias

2.14% of the inter-school variance is explained by the level of schooling. However, the Chi-square statistic is equal to 1.64 but is not significant (Prob > chi2 = 0.1999), which does not allow us to look at the regression coefficient of the schooling rate, which is not significant (P > |Z| = 0.200), and the same is true of the coefficient of the model constant (P > |Z| = 0.846). The residual homogeneity test is presented at the bottom of the table. The Q_res test statistic based on Cochran's Q test is 1025.59 with a



Source: Compiled by the authors, using DHS data from West Africa from 1995 to 2019

Figure 4: Subgroup analysis of the effect of living conditions on adolescent FGM

Table 2: Meta-regression analysis of educational attainment to capture sources of heterogeneity across studies

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Random-effects meta-regression                  Number of obs  =        34
Method: REML                                    Residual heterogeneity:
                                                           tau2 =   .3399
                                                         I2 (%) =   96.67
                                                            H2 =   30.06
                                                R-squared (%) =    2.14
                                                Wald chi2(1)  =      1.64
                                                Prob > chi2   =    0.1999
------------------------------------------------------------------------------
     _meta_es |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      tx_alph |  -.0075873   .0059192    -1.28   0.200    -.0191887    .0040142
        _cons |   .0677331    .349803     0.19   0.846    -.6178681    .7533343
------------------------------------------------------------------------------
Test of residual homogeneity: Q_res = chi2(32) = 1025.59 Prob > Q_res = 0.0000
```

Source: Compiled by the authors, processing of DHS for West Africa from 1995 to 2019

Table 3: Results of the stepwise binary logistic regression

Variables	Odd - Ratio					Chi-square of saturated model (χ_{mg})	Chi-square of the model with no variable (χ_{sv})	Contribution C (%)	Rank
	M1	M2	M3	M4	M5				
Ethnicity	**0.998***	**0.998***	**0.995***	**0.995***	**0.996***	7 372.26	7 198.70	2.35	3
Place of residence		*	*	*	*				
Urban		Ref	Ref	Ref	Ref	7 372.26	7 268.50	1.41	4
Rural		1.415*	1.399*	1.319*	1.245*				
Religion			*	*	*				
Muslim			Ref	Ref	Ref	7 372.26	2 258.96	69.36	1
Christian			0.237*	0.238*	0.263*				
Traditional / Vodoun			0.414*	0.409*	0.408*				
Household living conditions				*	ns				
Very poor				Ref	Ref				
Poor				0.988 ns	1.014 ns	7 372.26	7 363.20	0.12	5
Middle				0.945*	1.002 ns				
Rich				0.959 ns	1.046 ns				
Very rich				0.872*	0.974 ns				
Level of education					*				
None					Ref	7 372.26	7 039.28	4.52	2
Primary					0.787*				
High school or more					0.688*				

Note: * = Significative ; ns = Non significative ; Ref = Reference modality
Source: Compiled by the authors, processing of DHS for West Africa from 1995 to 2019

p-value of 0.0000, suggesting the presence of heterogeneity among the residuals.

Factors associated with FGM among teenage girls in West Africa

The stepwise logistic regression results for the identification of the determinants and the underlying mechanisms of actions are presented in Table 3. The model (M5) allowed us to pinpoint the determinants of the phenomenon studied. It can be seen that, with the exception of the household's living conditions, all the explanatory variables selected are determinant in explaining the phenomenon and, in order of importance, we have:

religion, level of education, ethnicity and place of residence.

Religion: Compared to a Muslim teenage girl, a follower of traditional religions and a Christian are 0.408 and 0.263 times less likely to be genitally mutilated, respectively.

Education: A teenage girl who has attended elementary school is 0.787 times less likely to be a victim of FGM than her uneducated counterpart. This risk drops to 0.688 when the adolescent reaches secondary school or higher.

Residence: Adolescent girls living in rural areas are 1.245 times more likely to be genitally mutilated than those living in urban areas.

Analyzing the M1 to M5 models revealed the mechanisms of action. We note that, apart from living conditions, all the factors have a direct effect on the studied phenomenon, insofar as they all remained significant from their introduction until the final model. However, the introduction of the level of education in the M5 model presents the latter as an inhibiting variable. The household living conditions, which was significant in model M4, became insignificant in model M5 after the introduction of the level of education, which acts as an effect inhibitor, completely cancelling out the disparities created between the poor and the rich in terms of exposure to the practice of FGM among adolescent girls in West Africa.

Discussion

FGM is any procedure that results in partial or total removal of a girl/woman's external genitalia or any other injury to the female genitalia performed for non-therapeutic purposes. According to the WHO, they are classified as harmful traditional practices[4]. Such practices are an internationally recognized human rights violation and their prevention is of paramount importance to the sexual and reproductive health rights of adolescent girls.

The findings indicate a mixed effect of living conditions on FGM practice. The meta-analysis shows a significant effect of living conditions on the practice of FGM. Recall that this is a method that only takes into account the living conditions and the phenomenon studied with a lower risk among adolescent girls living in wealthy households. This result is consistent with Andro and Lesclingand's finding which reported that economic affluence remains a factor clearly associated with reduced risk of FGM in several countries[13]. The logistic regression findings confirm the spurious nature of this effect, which, although apparent in the stepwise model, disappears in the presence of educational level. As opposed to the work done in Conakry, which emphasizes the need for sufficient economic capital to be able to act individually and be financially independent in order to oppose the practice of FGM, the present study does not establish any direct effect of living conditions on the practice of FGM[14].

On the contrary, it shows the importance of education, which inhibits the effect of living conditions on the practice of FGM, highlighting the complex nature of social facts[15].

Adolescent girl's schooling has a favorable impact on the reduction of mutilation[13]. Indeed, the most educated women present a lower risk than uneducated women. Findings from the present study are also in agreement with these results, which positions education as a powerful tool in the fight against FGM in West Africa. Most African women consider FGM to be a ritual of femininity, playing a key role in child socialization, access to adult female status, and the construction of an ethnic female identity[16]. Our results confirm a significant relationship between the ethnic group to which one belongs, one's place of residence and the practice of FGM. Similar findings were reported in the literature[17-19].

Religion was found to be the main factor in explaining the practice of FGM among adolescent girls in West Africa. Results show a lower risk for Christian and traditional religion girls compared to Muslim girls. While recent studies[9,20,21] link Islam to the practice of FGM, Andro and Lesclingand insist that it appears to be a fact that the practice of FGM predates the origins and expansion of Islam in Africa, even though religious justifications may have been put forward to legitimize the practice, as evidenced by the existence of FGM in Christian (Coptic, Catholic, and Protestant), Jewish, and animist communities[13,22]. According to Thiam, this widespread connection between Islam and FGM may have its origins in popular beliefs related to the story of the Prophet Ibrahima and his two co-wives Sarata and Haidara, whose conflicting relationships led the former to cut the latter[23]. The findings confirm the cultural and social nature of FGM and the fact that it is a practice that is not only practiced in the Islamic world, but also in the world of the

Muslim world. The results confirm the cultural and religious character of FGM.

It is worth recalling the declarative, cross-sectional and behavioral nature of the DHS surveys whose data are used in this study. Other variables, such as the socialization environment, would have been more interesting to take into account in explaining FGM, since it reflects the environment in which the adolescent spent her childhood. The current place of residence may not reflect the context of FGM practice because of mobility. These are limitations that should be taken into account when using these results. Interventions could be aimed at accelerating universal education, particularly in rural areas. Furthermore, sensitization for behavior change should involve religious, traditional and community leaders.

Conclusion

The objective was to analyze the effect of living conditions on FGM among adolescent girls in West Africa, to identify its determinants, their contribution to the explanation of issue and the mechanisms of action. Findings indicate a mixed effect of living conditions on the practice of FGM. The explanatory factors of the phenomenon are, in order of importance, religion, level of education, ethnicity and place of residence. All the factors have a direct effect on the phenomenon under study, and the level of education acts as an inhibitor of the effect of living conditions. In view of the obtained results, we recommend the involvement of religious, traditional and community leaders in the definition and implementation of actions against FGM. Benchmarking can be used to enable countries with high levels of FGM to learn from those who have made progress. Thus, the enrollment and retention of girls in school deserves to be strengthened.

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Conflicts of interest

None

Authors contributions

Pacôme Evènakpon ACOTCHEOU participated in designing the study, conducting the literature search, obtaining authorization to use the data, selecting the study tools and managing the data, analyzing the statistical data, interpreting the data, and writing the manuscript. Jacques Zinsou SAIZONOU was responsible for the overall coordination of the study and participated in the design and selection of the study tools. Alphonse Mingnimon AFFO was responsible for the documentary research and participated in the interpretation of the data and the writing of the manuscript. Justin DANSOU participated in the analysis of the statistical data, the interpretation of the data and the writing of the manuscript. Patrick MAKOUTODE participated in the interpretation of the data and drafting of the manuscript. All authors critically reviewed the manuscript and approved the final version for submission.

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