



Female Genital Mutilation in Benin: Prevalence and Associated Factors Based on Data from the Demographic and Health Survey, 2011-2012

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Abstract: Female genital mutilation has multiple adverse impacts on victims' physical and psychosocial well-being. This study aimed to determine the prevalence and potential factors associated with female genital mutilation in Benin. A logistic regression was performed on the 2011 Benin Demographic and Health Survey dataset, using Stata 12. The dependent variable was based on participants' declaration about the "Cut respondent" question and was dichotomous (Yes/No). Independent variables were sociodemographic characteristics. A total of 11,008 women were selected, with 7.14% (CI 95% = [5.91, 8.60]) reported to be victims of female genital mutilation. The majority of the women were between 25 and 34 years old (34.5%), uneducated (54.6%), and married (51.3%). Women aged 35 to 49 were more likely to be victims of FGM than women aged 15 to 18 (OR = 5.43; CI 95% [3.77-7.82]). The risk of FGM was higher in married women (OR = 7.76) than those who had never been in a union, with the same trend observed for Muslim women (OR = 33.39) compared to followers of voodoo/traditional religion. Female genital mutilation is still practiced in Benin, especially in the north. This study reveals that factors such as marital status, religion, area of residence, level of education, ethnicity, and département of residence are associated with this practice. Therefore, they should be taken into account for effective interventions to eliminate it at national level.

Keywords: Prevalence, Associated Factors, Female Genital Mutilation, Demographic Health Survey, Benin

1. Introduction

Female genital mutilation (FGM) is recognized as an international public health problem because of its adverse impact on the physical and psychosocial well-being of women, and the violation of their sexual and reproductive health rights [1-6]. Many studies have shown that FGM is associated with the formation of clitoral cysts, bleeding, fistulas, obstetric complications, urinary infections and retention, vaginal tears, and psychological trauma [5-10]. Despite these complications, this ancestral tradition continues

to be widespread, particularly in developing regions, including the Middle East and Southeast Asia, with a higher prevalence in sub-Saharan Africa.

FGM refers to procedures that involve partial or total removal and/or injury (cauterization or lengthening of the clitoris and/or labia minora) of the woman's external genitalia, for whatever reason (cultural or religious) [10]. FGM is a major concern for the World Health Organization (WHO) agenda and is identified in all its forms as a serious violation of the human rights of women. It is also a major concern of various other human rights defenders, including

the United Nations Development Programme (UNDP), United Nations Children's Fund (UNICEF), and United Nations Entity for Gender Equality and the Empowerment of Women (UN Women) [11]. FGM is documented in more than half of sub-Saharan African countries, with the highest rates having been reported in Somalia and Djibouti, where it is practiced almost routinely among women [12]. Several theories have been developed to justify the practice of FGM: these theories generally highlight the contexts of religious, cultural and superstitious beliefs [9, 13]. It was found that approval of FGM by men and women was mainly based on the prevention of early initiation of sexual intercourse, promiscuity, and premarital sexuality, which are generally supposed to improve the marriage prospects of non-adult girls and brides [14, 15]. Other authors have reported supposed medical justifications, including cleanliness, hygiene, and increased femininity [16]. Although awareness of the harmful effects of female genital mutilation is now widespread in many countries, a considerable proportion of women who have themselves been circumcised continue to have a positive opinion on this issue [5].

In Benin, this practice was officially prohibited by Law No. 2003-03 of 3 March 2003 on the suppression of the practice of female genital mutilation, which is applied throughout the national territory by non-governmental organizations with the support of international organizations, themselves supported by the Ministry of Family, Social Protection and Solidarity (MPFSS). However, although progressively decreasing in Benin, this practice persists in certain areas of the country, particularly in the north [17].

The purpose of this study was to determine the prevalence and potential factors associated with the practice of female genital mutilation.

2. Methods

2.1. The Data Source

The data in this study came from the fourth Demographic and Health Survey conducted in Benin (DHSB) that provided information on female genital mutilation. In Benin, the Demographic and Health Surveys (DHS) are implemented by the National Institute of Statistics and Economic Analysis (INSAE) with the technical and financial assistance of Inner City Fund (ICF) International, provided in the USAID-funded Demographic and Health Survey (MEASURE DHS) program (United States Agency for International Development). DHSs are representative of the population at the national level and collect information on a wide range of public health topics, such as anthropometric, demographic and socio-economic issues, family planning, domestic violence. This survey (DHS) focused on men (aged 15 to 59), women (aged 15 to 49), and children under 5 years of age. For sampling, a stratified cluster survey was used based on a list of enumeration areas (EAs) from Benin's February 2002 General Population and Housing Census (RGPH3). EAs were used to form clusters called primary sampling units and a

more detailed version of the survey was published [17].

2.2. Variables

The variables were selected taking into account their use in other published studies on FGM in other sub-Saharan African countries [12, 14, 18]. The underlying assumption in the choice of sociodemographic variables was that female genital mutilation, as a contradictory practice, persists in some social groups because of either a lack of adequate information about adverse effects or a preference for adherence to traditional values of health and well-being. A common misconception was that some households chose not to deviate from the established social norm for fear of the high social costs that could result from non-compliance [5]. Cultural and ethnic practices that are potentially harmful to health are generally more prevalent among "lower" socio-economic status communities who are also less likely to acquire health knowledge [19].

2.2.1. Dependent Variable

The dependent variable is female genital mutilation (FGM) as determined from the "Cut respondent" question from the DHSB, where the woman answered with "Yes" or "No" (This is a dichotomous variable). Those who had been circumcised had been asked questions about cutting, such as whether it was "flesh that was removed from the genital area", if "the genital area was notched only, without removing flesh" or if "the genital area was sewn" [17].

2.2.2. Independent Variables

The independent variables considered were the age of the respondents, categorized as ≤ 24 , 25–34, and ≥ 35 years, and the level of education of the woman. We considered three categories of level of education i) No education, ii) Primary, iii) Secondary or Higher. The marital status of the respondents, i) Never in a relationship, ii) Married, iii) Living with partner, iv) Widowed, v) Divorced, vi) No longer living together. The religion practiced by the respondent; i) Voodoo / Traditional, ii) Islam, iii) Christianity, iv) Other religion, v) No religion. The occupation of the respondent was coded as i) Not working, ii) Professional/technical worker, iii) Clerical/Sales/Services, iv) Agricultural/Household domestic. The respondent's area of residence was i) rural or ii) urban. We took into account the home département of the respondent; these are the twelve départements in Benin. Household income data were not collected, but we had data on household goods (bicycle, motorcycle, car, refrigerator, etc.). We used poverty indices (economic well-being quintile) constructed based on the main correspondence analysis methods [20, 21]. The welfare index variable was categorized as i) very poor, ii) poor, iii) middle, iv) rich, and v) very rich.

2.3. Statistical Analysis

For descriptive analysis, qualitative independent variables were compared with the FGM dependent variable using the Pearson Chi-square test. FGM-related factors were selected at the 20% threshold for univariate analysis and were introduced into a multivariate logistic regression model taking into account

the clustering effect to search for potential risk factors associated with FGM. Associations between FGM and other variables were assessed by odds ratios (OR) followed by their 95% confidence interval (95% CI). For all statistical analyzes, we have taken into account the weight of each cluster [22]. Stata 12 software was used for all statistical analyzes [23].

2.4. Ethical Approval

Ethical approval was granted by the Ethics Committee of the National Institute for Economic Statistics and Statistics (INSAE) of Benin. The 2017-2018 Demographic and Health Survey (DHS) data are available to the general public on demand, in a variety of formats, from the Measure DHS website (www.measuredhs.com).

3. Results

3.1. Descriptive Characteristics of the Sample

Of the 11,008 eligible women who participated in the survey, 3891 or 34.5% were between 25 and 34 years old. The mean age was 29.35 years with 95% CI confidence interval = [29.14; 29.56]. The majority of women were uneducated (54.6%), married (51.3%) and Christian (62.7%). They were from different ethnic groups, most frequently being Fon (52.9%), Adja (14.7%), or Yoruba (14%). About four in ten women were coded as working in Clerical/Sales/Services (39.5%). In addition, 52.3% of them lived in rural areas. The characteristics of these women are summarized in Table 1.

Table 1. Distribution of influencing factors in female genital mutilation (FGM) study in Benin (2012 Benin Demographic and Health Survey).

Variables	Number	% Column	FGM Prevalence (%)	p-value
Age				0.0000
15-18	1468	13.4	2.1	
19-24	2150	20.3	3.8	
25-34	3891	34.5	7.9	
35-49	3499	31.8	10.6	
Level of education				0.0000
No education	6573	54.6	11.3	
Primary	1745	17.5	3.3	
Secondary/High	2690	27.9	1.5	
Marital status				0.0000
Never in a union	2478	24.7	1.6	
Married	6383	51.3	11.5	
Never with partner	1513	18.3	2.9	
Widowed/Divorced/Separated	634	5.7	5.8	
Religion				0.0000
Voodoo/Traditional	1190	11.5	1.1	
Islam	3163	20.7	27.8	
Christianity	5987	62.7	1.6	
Other Religion	202	1.7	2.7	
No Religion	466	3.5	5.6	
Ethnicity				0.0000
Adja	1355	14.7	0.4	
Bariba	1404	5.0	47.9	
Dendi	477	2.9	18.9	
Fon	4499	52.9	0.2	
Yoa	545	5.3	31.1	
Betamari	897	2.7	9.3	
Peulh	532	2.5	51.7	
Yoruba	1299	14.0	5.9	
Occupation				0.0639
Not working	4188	36.9	6.2	
Professional/technical worker	245	2.7	4.5	
Clerical/Sales/Services	3663	39.5	8.1	
Agricultural/Household domestic	2416	21.0	8.5	
Welfare index				0.0000
Very poor	1967	14.2	9.9	
Poor	2094	16.9	9.7	
Middle	2277	21.1	9.5	
Rich	2481	24.7	6.1	
Very rich	2189	23.1	2.5	
Area of residence				0.0076
Rural	5910	52.3	8.8	
Urban	5098	47.7	5.3	
Département				0.0000
Alibori	810	0.4	26.0	
Atacora	1157	2.2	19.5	
Atlantique	1109	4.2	0.5	
Borgou	1148	6.9	46.5	

Variables	Number	% Column	FGM Prevalence (%)	p-value
Collines	1005	7.5	3.1	
Couffo	578	5.2	0.0	
Donga	857	8.7	27.7	
Littoral	1409	16.5	1.9	
Mono	513	7.0	0.8	
Ouémé	888	13.6	1.6	
Plateau	491	8.3	1.0	
Zou	1043	19.4	0.4	

The self-reported prevalence of FGM was 7.14% (95% CI = [5.91, 8.60]) and we found that the vast majority of FGM cases were observed in the northern départements, particularly in Borgou (46,5%), Donga (27,7%), and Alibori (26%), as shown in Figure 1.

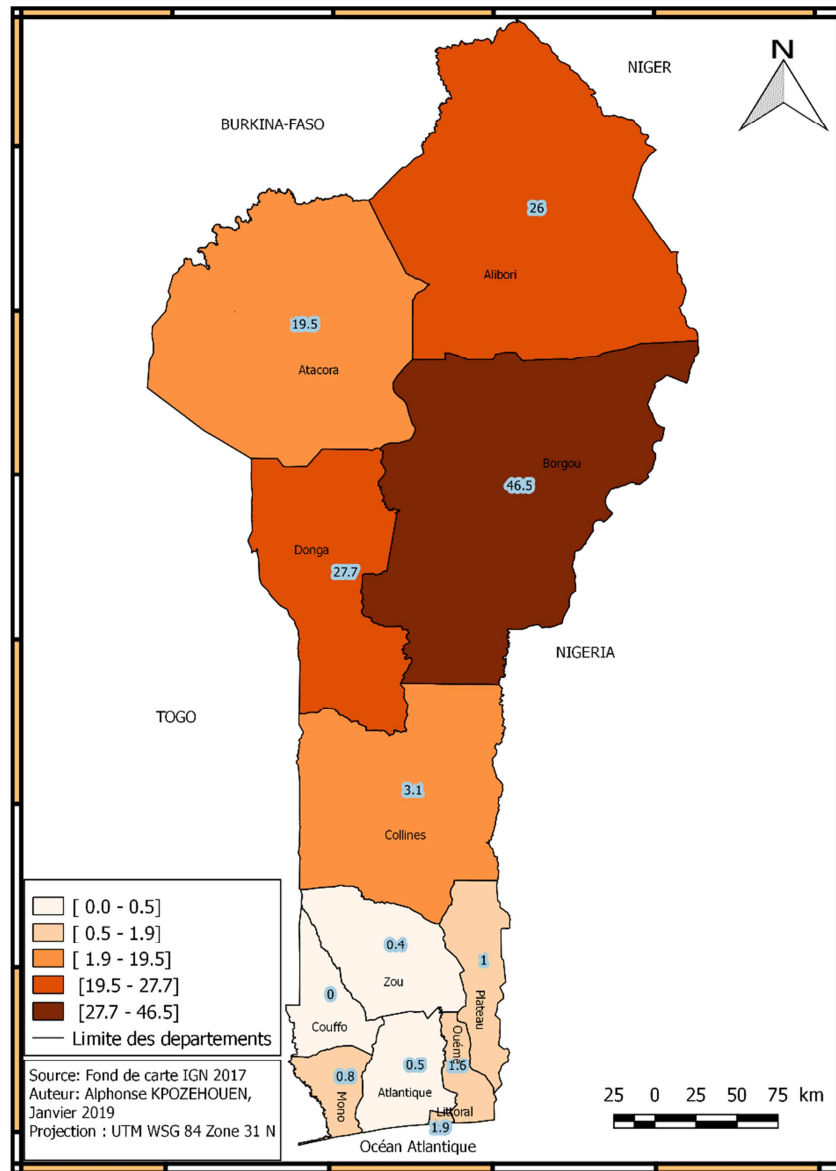


Figure 1. Prevalence of female genital mutilation in Benin, Demographic and Health Survey 2012.

3.2. Factors Associated with Female Genital Mutilation

The univariate analysis showed that FGM varied significantly according to age; women aged 35 to 49 were more likely to be victims of FGM than women aged 15 to 18 (OR = 5.43, CI 95% [3.77-7.82]). The risk of FGM was

lower for women with primary education (OR = 0.26, 95% CI [0.20-0.36]) and secondary/higher (OR = 0.12, CI 95% [0.08-0.17]) compared to those who were not educated. Married women were more likely to be victims of FGM than those who had never been in a union (OR = 7.76, CI 95% [5.50-10.95]). Followers of Islam were more likely to be

victims of FGM than followers of voodoo/traditional religion (OR = 33.39 CI 95% [18.28-60.97]). Peulh women were more at risk of FGM than those of Adja (OR = 243.70 CI [94.54-628.16]). The wealth index and the area of residence of women could be a protective factor against FGM as women living in urban areas were less likely to be victims of

FGM, as were the wealthier. In addition, women in départements other than Borgou were less at risk of FGM than women in the Alibori département. The results of the unified analysis are shown in Table 2. Note that the exposure variables found in univariate analysis were also found in the final multivariate model (see Table 2).

Table 2. Associated factors of female genital mutilation study in Benin (2012 Benin Demographic and Health Survey).

	Univariate Analysis			Multivariate Analysis		
	Crude Odds Ratio	IC 95%		Adjusted Odds Ratio	IC 95%	
Age						
15-18	1			1		
19-24	1.82	1.22	2.70	1.54	0.89	2.68
25-34	3.93	2.78	5.57	2.52	1.46	4.36
35-49	5.43	3.77	7.82	5.98	3.38	10.57
Level of education						
No education	1			1		
Primary	0.26	0.20	0.36	0.54	0.38	0.76
Secondary/High	0.12	.083	0.17	0.38	0.24	0.62
Marital status						
Never in a union	1			1		
Married	7.76	5.50	10.95	1.85	1.13	3.02
Never with a partner	1.78	1.17	2.71	2.24	1.30	3.84
Widowed/Divorced/Separated	3.71	2.42	5.67	1.83	.95	3.52
Religion						
Voodoo/Traditional	1			1		
Islam	33.39	18.28	60.97	2.14	1.055	4.34
Christianity	1.43	.76	2.71	1.26	0.60	2.62
Other Religion	2.42	.76	7.73	1.84	0.50	6.82
No Religion	5.18	2.52	10.65	1.83	0.79	4.20
Ethnicity						
Adja	1			1		
Bariba	209.82	86.60	508.36	26.81	8.55	84.03
Dendi	53.18	20.33	139.11	11.53	3.26	40.69
Fon	0.56	0.12	2.47	0.29	0.06	1.33
Yoa	102.75	40.01	263.91	15.28	4.48	52.14
Betamari	23.46	9.02	60.96	4.11	1.18	14.29
Peulh	243.70	94.54	628.16	29.74	8.94	98.883
Yoruba	14.38	5.43	38.04	7.37	2.42	22.39
Occupation						
Not working	1			1		
Professional/technical worker	0.71	0.28	1.79			
Clerical/Sales/Services	1.33	1.00	1.78			
Agricultural/Household domestic	1.40	1.077	1.83			
Welfare index						
Very poor	1			1		
Poor	0.97	0.75	1.26	1.16	0.81	1.66
Middle	0.94	0.69	1.29	1.75	1.23	2.49
Rich	0.58	0.37	0.91	1.25	0.81	1.93
Very Rich	0.23	0.15	0.35	0.94	0.55	1.60
Area of residence						
Rural	1			1		
Urban	0.58	0.39	0.87	0.63	0.42	0.94
Département						
Alibori	1			1		
Atacora	0.69	0.35	1.35	2.21	1.17	4.18
Atlantique	0.01	0.004	0.04	0.53	0.15	1.87
Borgou	2.48	1.52	4.02	4.50	2.80	7.24
Collines	0.08	0.04	0.20	0.61	0.25	1.49
Couffo	1			1		
Donga	1.09	0.63	1.87	2.19	1.19	4.04
Littoral	0.05	0.03	0.09	1.77	0.83	3.77
Mono	0.02	0.008	0.06	0.57	0.17	1.90
Ouémé	0.04	0.018	0.11	1.56	0.65	3.75
Plateau	0.02	0.01	0.08	0.14	0.04	0.45
Zou	0.01	0.003	0.03	0.49	0.12	2.06

4. Discussion

Female genital mutilation is a major concern for public health and human rights that the Government of Benin is interested in. Current policies and programs for the elimination of FGM can benefit from evidence that is representative of the prevalence and factors associated with FGM in the Beninese population. The overall prevalence of female genital mutilation among respondents was 7.1%: this prevalence was lower than that in Ethiopia (74%) [24], Gambia (75.6%) [25], and Kenya (28.2%) [26]. Our study showed that the prevalence of FGM was low among women under 25, which might suggest a decline in this practice in Benin among young people: women aged 25 and over were more likely to be circumcised than women aged 15 to 18. Odjo et al had made the same observation in Nigeria [27]. The low prevalence of FGM among people under 25 could be explained by the greater public attention to the phenomenon and interventions aimed at reducing or eliminating this practice in recent years. As demonstrated in other studies, women in rural areas were more likely to be subjected to FGM than those in urban areas [12] as urban women would be more educated and informed about the harms of this practice. Like other authors [5, 24-26], educational attainment was a protective factor against female genital mutilation in Benin according to the 2011-2012 DHS; thus women who had no education were the most frequently cut. Our study showed, as did the study conducted by Karmaker et al. [28], that compared to women practicing traditional religion or voodoo, Muslim women were more likely to be circumcised, although no religion prescribes this practice [29]. Married, divorced, separated, or widowed women were more likely to have experienced FGM than women who had never been in a union. This could be explained by the fact that in some communities, cutting was perceived as a rite of passage into adulthood or an obligation before getting married [27, 30, 31]. Cultural factors might explain why women of the Bariba, Dendi, Yoa, Betari, and Peulh ethnic groups (all of whom are from northern Benin) were more likely to be victims of FGM than Adja (an ethnic group from southern Benin). We noticed in our study, as in that of Odjo et al. [27], that Yoruba were more likely to have experienced FGM. According to Mandara, in some Yoruba communities in Nigeria, the clitoris would be cut off because according to the culture, neonatal death could occur during childbirth if the mother's clitoris comes into contact with the child's head [32]. An important reason for the persistence of FGM appears to be social pressure from family members and potential husbands. The départements of Atacora, Borgou and Donga have continued to be those where women are more likely to be victims of FGM, compared to the Alibori département. Women in the Plateau département appear to be less exposed to the phenomenon compared to the Alibori département.

Strengths and Weakness of the Study

The study was conducted throughout the national territory of Benin and with a large sample size. The people surveyed were selected to ensure the representativeness of women of childbearing age. The collection instrument used was a standardized questionnaire from the DHS and was also used in other countries, which allowed comparison of the results obtained. Despite the strengths of our study, it nevertheless has some weaknesses: for example, the identification of the cutting was self-reported by the women, so could be subject to issues relating to recall, however the event studied (genital mutilation) would be difficult for a woman to forget, so the recall bias seems minimal. Moreover, since cutting has been prohibited in Benin since 2003 and punishable if practiced, there may also be under-reporting of cases. Since the survey was transversal, it was impossible to establish temporal relationships between the variables. Due to the complexity of cutting in our societies, future studies should aim to link qualitative research to quantitative research.

5. Conclusion

The self-reported prevalence of FGM was 7.14% and the vast majority of FGM cases were observed in the northern départements, particularly in Borgou (46.5%). The south of the country is less affected. This study showed that women's age, educational level, marital status, ethnicity, religion, area and département of residence were associated with the experience of FGM in women of reproductive age in Benin. These factors should be taken into account when developing planning policies and effective interventions to eliminate this practice in Benin at the national level. Although various interventions are already being carried out, these actions need to be more focused on these identified factors.

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