



Article

Female Genital Mutilation in Nigeria: A Persisting Challenge for Women's Rights

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Abstract: Although considered a violation of human rights, female genital mutilation (FGM) is a commonly accepted practice in Nigeria in the ritual and sociocultural context of the population. In recent years, there have been strong policy actions by Nigerian legislature to curb this practice. Despite that, FGM continues to be a widespread phenomenon. In this study, we aimed to report on the prevalence of FGM, women's attitude towards this practice, and its association with selected sociodemographic factors. **Methods:** Nigeria Demographic and Health Surveys conducted in 2003, 2008 and 2013 provided the data for this study. The participants were married women aged between 15 and 49 years. Owing to the clustered nature of the data, a complex survey plan was created to account for cluster effects and sampling weights. Data were analysed using bivariate and multivariate regression techniques. **Results:** Overall prevalence of FGM was 38.9% (95% CI = 36.4–40.1), and that among their daughters was 17.4% (95% CI = 15.3–19.7). There has been a substantial increase in the prevalence of FGM in 2013 compared to its 2003 level. Respondents who had undergone circumcision were more likely to have their daughters circumcised. In all three surveys, almost all of the circumcisions were performed by traditional practitioners. In the regression analysis, respondent's age, area and region of residency, religious affiliation, educational status, and household wealth appeared to be significant predictors of FGM. **Conclusion:** In Nigeria, FGM remains a widely prevalent phenomenon with an increasing number of women experiencing this practice. Important regional and socioeconomic disparities were observed in the prevalence which merit urgent policy attention.

Keywords: female genital mutilation; female circumcision; human rights; women; Nigeria

1. Introduction

Female genital mutilation (FGM) is an internationally recognized issue owing to its adverse impacts on physical and psychosocial wellbeing and erosion of sexual and reproductive health rights among women (Perron et al. 2013; Reig-Alcaraz et al. 2016; Dawson et al. 2015; Zurynski et al. 2015; Berg and Underland 2013; WHO Study Group on Female Genital Mutilation and Obstetric Outcome et al. 2006). To date, no scientific evidence is available to demonstrate any therapeutic aspects of FGM. On the contrary, FGM has been reported to be associated with a host of complications by numerous studies, including clitoral cyst formation, hemorrhage, fistula, obstetric complications, urinary infections and retention, vaginal tears and psychological trauma (Rymer and O'Flynn 2013; Berg and Underland 2013; Bjälkander et al. 2012; Zurynski et al. 2015; Dare et al. 2004; Osifo and Evbuomwan 2009). Despite that, this ancient tradition continues to be a widespread practice, especially in the developing regions, including the Middle East and South-East Asia, with its highest prevalence in sub-Saharan Africa (Female Genital Mutilation 2018).

FGM is referred to as the procedures that involve partial or complete excision and/or injury (cauterization or elongation of the clitoris and/or labia minora) to the external female genitalia regardless of the reasons (cultural or religious) (Rymer and O'Flynn 2013). FGM represents a major concern to World Health Organization (WHO) agenda, and is identified in any of its forms as a serious violation of internationally accepted human rights for women by WHO, as well as various other advocates of human rights, including UNDP, UNICEF and UN Women (World Health Organization 1998, 2017). FGM is known to well over half of the countries in sub-Saharan Africa with the highest rates being reported in Somalia and Djibouti, where it is practiced virtually universally (Okeke et al. 2012). However, owing to its sheer population size (seventh largest population globally), Nigeria surpasses all other countries with its highest absolute number of women who are circumcised, accounting for about a quarter of all circumcised women worldwide (Okeke et al. 2012).

Several theories have been proposed for the practice of FGM in Nigeria, which commonly highlight the contexts of religio-cultural and superstitious beliefs (Osifo and Evbuomwan 2009; Onuh et al. 2006) among certain ethnicities (Okeke et al. 2012). Some common social grounds for the approval of FGM among men and women were found to be the prevention of early initiation of sexual intercourse, promiscuity, and of premarital sex, which are generally believed to improve marriage prospects among unmarried girls (Yirga et al. 2012; Ashimi and Amole 2015). Some others have reported elements of medical justification, including cleanliness and hygiene, and enhancement of femininity (Serour 2013). Unfortunately, the deep-rooted misperceptions and incorrect medical and sociocultural justification are still widespread, resulting in increasing medicalization of FGM in many countries, including Nigeria (Serour 2013).

Although there are signs of increasing awareness regarding the ill-effects of FGM, a considerable proportion of women who themselves underwent circumcision continue to have a favorable opinion about this issue (Hodges et al. 2001). Misbeliefs and positive attitudes towards this social convention appear to be prevalent not only among the uninformed population, but also among health professionals. Studies conducted on the attitude and knowledge of FGM among nurses reported that the participants perceive of it as purely cultural, and some admitted that they would perform it (Ashimi et al. 2014) and recommend it to their daughters (Onuh et al. 2006; Ashimi et al. 2014). This evidence reflects a trend of intergenerational or vertical transmission of this practice in society that necessitates a multisectoral approach, including modification of the normative beliefs to discourage the population, as well as legislative measures to prevent medicalization of the practice.

For Nigeria, there is evidence of research and policy attention regarding FGM since the early 1990s (Egwuatu and Agugua 1981; Diejomaoh and Faal 1981), however policy concerns against this practice have only become more prominent in recent years. Following the introduction of legal actions in Europe and North America, where FGM is regarded as a criminal offense that makes circumcisers and parents subject to prosecution even if it is performed abroad (Packer et al. 2015), countries in sub-Saharan Africa, including Nigeria, have also delegalized all forms of FGM (Zurynski et al. 2015). Because FGM is not performed by mainstream health practitioners, this translates to the involvement of medically untrained and poorly equipped personnel in almost all cases, which leads to a heightened risk of adverse health consequences, especially among children.

Understanding the time trends, as well as the sociodemographic patterns, constitutes a key tool to combat this unhealthy practice through designing frameworks for action. In Nigeria, FGM has been a subject of several population-based surveys and of systematic reviews so far (Zurynski et al. 2015; Okeke et al. 2012; Mpinga et al. 2016). However, the trends in the prevalence of FGM over time, including the type of service providers for circumcision and opinions of women regarding the continuation of this practice, remain to be known. To this end, we undertook the study with the aims of measuring the trends and interpreting the findings in light of prevailing narratives in sub-Saharan Africa. Data were derived from the three latest rounds of the Nigeria Demographic and Health Survey that included information on FGM, the persons performing this and women's opinion about FGM. Although the subject is essentially qualitative in nature, and thus requires a mixed approach to be

used for research, it was not possible for us to do so due to the data source being secondary. However, we performed a literature review to abstract relevant information from the current body of research to facilitate a comparative discussion of the findings. Apart from the main findings, attempts were also made to recommend policy guidelines to control the practice of FGM. It should be noted that the surveys were cross-sectional, and hence the results cannot ensure any causal relationship. Nonetheless, the findings are expected to be a source of insight for ongoing anti-FGM programs in Nigeria as well as other countries in sub-Saharan Africa.

2. Methods

2.1. Data Source

Data for this study were derived from three rounds of the Demographic and Health Survey in Nigeria (NDHS) that provided information on FGM. In Nigeria, the surveys are implemented by the National Population Commission (NPC) with the financial and technical assistance of Inner City Fund (ICF) International provisioned through the USAID-funded MEASURE DHS program. DHS surveys are nationally representative and collect information on a wide range of public health-related topics, such as anthropometric, demographic and socioeconomic issues, family planning, and domestic violence, to name a few. The survey covered men and women aged between 15 and 49 years and under-5 children residing in non-institutional settings. For sampling, a three-staged stratified cluster design was employed that was based on a list of enumeration areas (EAs) from the 2006 Population Census of the Federal Republic of Nigeria. EAs are systematically selected units from the localities, which constitute the local government areas (LGAs). LGAs are subdivisions of each of the 36 administrative states (including the Federal Capital Territory called Abuja) and classified under six developmental zones in the country. EAs were used to form the survey clusters called primary sampling units. A more detailed version of the survey was published elsewhere ([Macro and National Population Commission 2014](#)).

2.2. Selection and Description of Variables

Variables were selected and included in the analysis based on the availability of information in the datasets, and on relevance to the outcome variables judged in light of published studies on FGM in Nigeria and other countries in sub-Saharan Africa ([Packer et al. 2015](#); [Ashimi et al. 2014](#); [Ashimi and Amole 2015](#); [Okeke et al. 2012](#)). The underlying assumption behind choosing the sociodemographic variables was that FGM, as a contradictory practice, persists among certain social groups as a result of either a lack of adequate information about the adverse effects, or a preference to adhere to the traditional values that define perceptions of health and reproductive well-being. A more popular assumption is that certain households choose not to deviate from the established norm in fear of the high social costs ([Development Impact Guest Blogger 2016](#)). Cultural and ethnic practices that are potentially harmful for health are usually more common among communities with lower socioeconomic status, ([Hernandez et al. 2006](#)) who are also the least likely to acquire a health knowledge ([Bowen and Powers 2005](#)). Beliefs and practices are also likely to vary according to an individual's sociodemographic background, educational experience and financial capacity to access the resources of health and adopt healthy behavior. Indeed, one's socioeconomic standing is a strong marker of health beliefs, self-efficacy and sensitivity to social pressure. In this study we assess the associations of FGM with indicators of socioeconomic status (i.e., education and wealth status; [Table 1](#)) along with other demographic (age, type of residence) and culturally relevant variables (religion, household head's sex) that are likely to interact with people's adherence to FGM.

Table 1. Variables used in the study.

Variables	Categories	Description
Outcome Variable		
Experience of FGM among (1) respondents and (2) respondents' daughters.	Yes No	Prevalence of women reporting having experienced circumcision and other procedures classified as FGM by WHO.
Explanatory variables		
Year	2003 2008 2013	Year of survey
Age groups	15–19 20–24 25–29 30–34 35–39 40–44 45–49	Self-reported age of the respondents
Region	North Central North East North West South East South South South West	Geopolitical region of respondent's residence
Residency type	Urban Rural	Urbanicity of the residence
Educational level	No education Primary Secondary Higher	Level of formal education of the respondent
Religion	Christian Islam Other	Religious affiliation of the respondent
Sex of HH head	Male female	Sex of the head member in the household
HH wealth status	Poorest Poorer Middle Richer Richest	Wealth quintile of the households calculated based on the scores of possessions of durable goods e.g., TV, refrigerator.

2.3. Statistical Analysis

Data were analyzed with SPSS version 24 for windows. Before analysis the datasets were checked for outliers and the variables were recoded to suit the design of the study. Then, the datasets were merged into one to perform pooled analysis. As mentioned earlier, DHS surveys employ cluster sampling techniques, which have disadvantages such as similarity of sample characteristics across the clusters, as well as inflated standard errors. In order to adjust for the cluster effects, the dataset was converted to a plan file accounting for the primary sampling units, sample strata and weight. This allowed complex sample analysis, which is recommended for DHS data. After preparing the plan file, descriptive analyses were carried out to calculate the prevalence rates of FGM. Chi-squared bivariate tests were performed to explore the association between circumcision among respondents and their daughters with the sociodemographic variables. Following that, we performed multivariate logistic regression analysis to assess the independent association between FGM and the explanatory variables.

Explanatory variables that met specified criteria of $p < 0.25$ were included in the regression models (Bishwajit et al. 2017). Two multinomial logistic regression models were run with logit link function to calculate the odds ratios of the association between FGM and the covariates in the model. The level of significance was set at $p < 0.05$ for the regression models. Nagelkerke’s R^2 statistics were reported as an indicator of the total variability explained by the models.

2.4. Ethics Approval

Participants gave informed consent before taking part in the survey. All DHS surveys are approved by ICF international as well as an Institutional Review Board (IRB) in the host country to make sure that the protocols are in compliance with the U.S. Department of Health and Human Services regulations for the protection of human subjects.

3. Results

3.1. Descriptive Characteristics of the Sample

In total, 50,281 participants were included in the study from three rounds of NDHS survey. The selected demographic and socioeconomic characteristics of the women are provided in the Appendix A. The mean age for the combined sample was 28.64 (SD 9.54). A greater proportion of women were aged between 25 to 29 years, located in the North West region, were of rural residences, had a secondary level education, were affiliated with the Christian faith, lived in male-headed households, and lived in households in the highest wealth quintile.

Self-reported prevalence of FGM among participants was 38.9% (95% CI = 36.4–40.1), and that among their daughters was 17.4% (95% CI = 15.3–19.7). Table 2 reveals an increasing trend, with the prevalence being significantly higher among women aged between 25–29 years, coming from North West region, having secondary level education, belonging to Christian faith, living in households that are male-headed, and having higher wealth status. These patterns of FGM were somewhat similar among the daughters, as the prevalence was significantly higher for mothers with no education, coming from the North West region and living in richer households.

Figure 1 shows that mothers who underwent FGM are also likely to have their daughter circumcised, reflecting a vertical effect in the transmission of this practice across generations.

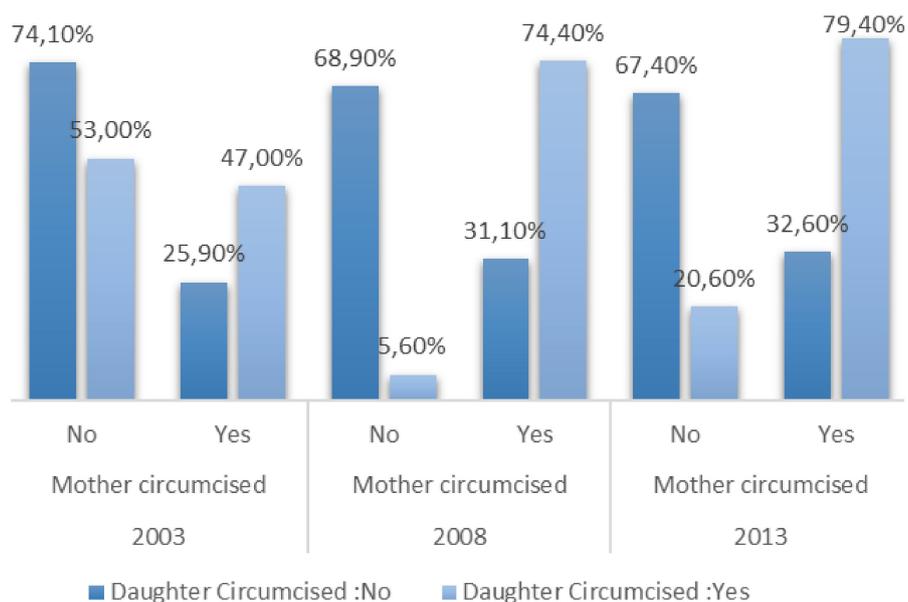


Figure 1. Prevalence of female genital mutilation (FGM) among daughters stratified by FGM status of mothers. (“,” represents decimals).

Figure 2 shows that the majority of women reported being circumcised by a traditional practitioner and only a negligible percentage by a skilled professional.

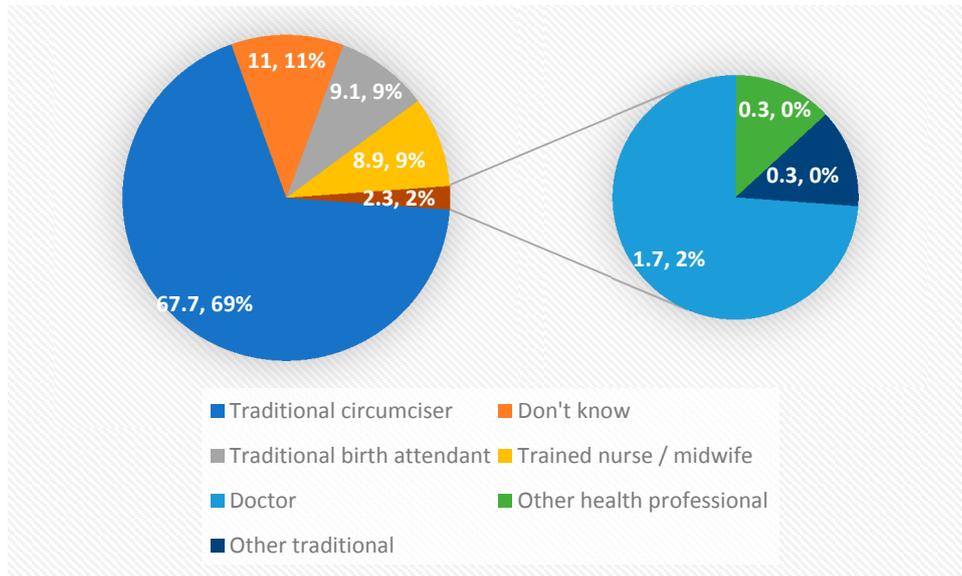


Figure 2. Type of health professional performing circumcision for respondent, Nigeria Demographic and Health Survey (NDHS).

Similar to that scenario among the respondents, Figure 3 shows that almost all of the women reported their daughters to be circumcised by a traditional practitioner.

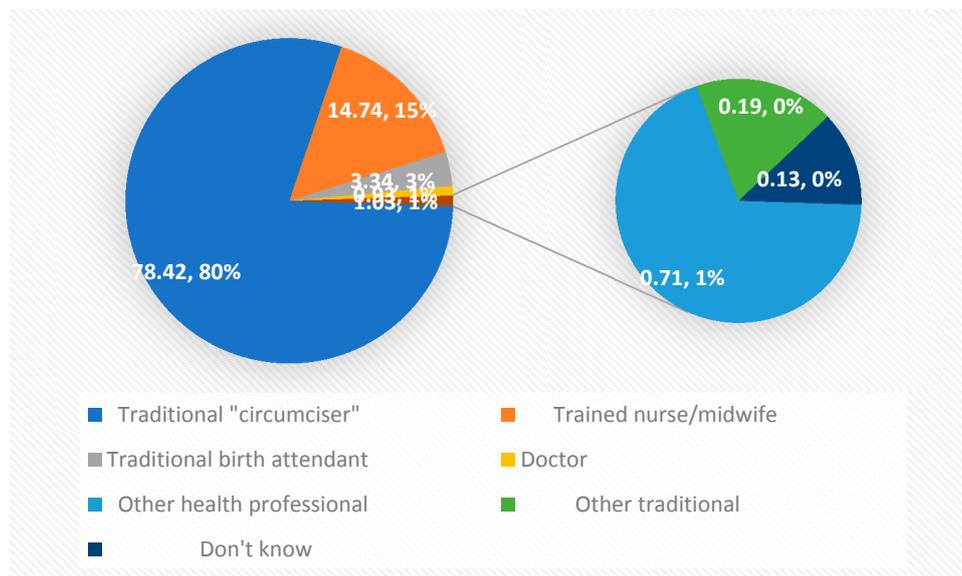


Figure 3. Type of health professional performing circumcision for daughters, Nigeria DHS.

As shown in Figure 4, in all three surveys less than one-fifth of the respondents reported religion as a requirement for practicing circumcision.

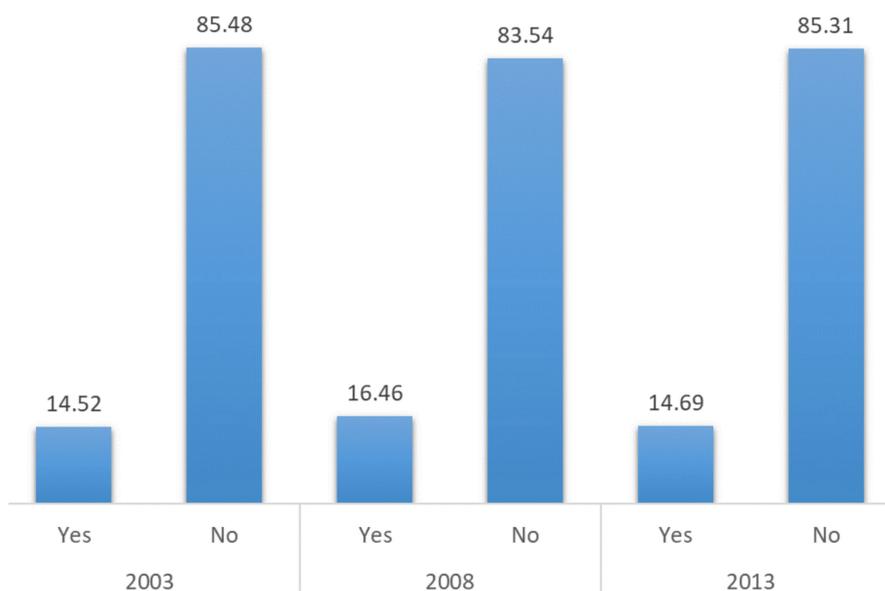


Figure 4. Percentage of women reporting circumcision as a religious requirement.

Figure 5 illustrates that the proportion of women who support the continuation of FGM has slowly declined since 2003, with a small fraction with no specific opinion.

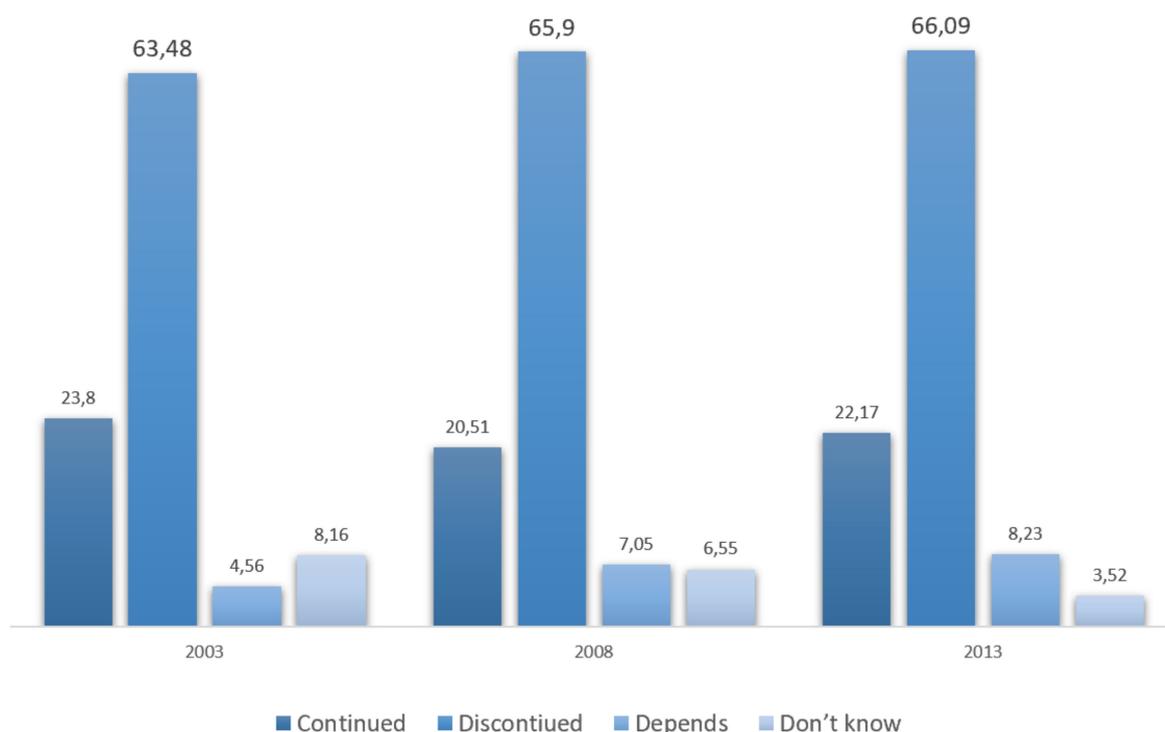


Figure 5. Respondents' perception regarding discontinuation of circumcision.

3.2. Factors Associated with FGM among Respondents and Their Daughters

Results of the association between FGM and the potential factors are presented as odds ratios and corresponding 95% CIs in Table 2. The odds of FGM in 2013 have increased compared to their 2003 level for the respondents and their daughters. Lower age groups appeared to have lower odds of experiencing FGM compared to the highest age group. Respondents residing in the northern areas had lower odds than those in South West, and those in the rural areas had higher odds of

reporting FGM compared to their urban counterparts. As expected, higher educational status showed a significantly inverse association with FGM among respondents and daughters. Respondents who were Christian and Islam had significantly higher odds of reporting FGM. Surprisingly, respondents living in households with higher wealth status had higher odds of experiencing FGM than those in the poorest ones.

Table 2. Sociodemographic determinants of FGM in Nigeria, NDHS 2003–2013.

	FGM among Mother			FGM among Daughters		
	Odds Ratios	95% CI (Lower limit, Upper limit)		ORs	95% CI (Lower limit, Upper limit)	
Year (2003)						
2008	0.884	0.643	0.928	1.794	1.579	2.038
2013	1.265	1.211	1.321	2.255	2.118	2.400
Age (45–49)						
15–19	0.423	0.39	0.459	0.195	0.167	0.227
20–24	0.548	0.506	0.592	0.399	0.356	0.447
25–29	0.589	0.546	0.635	0.577	0.524	0.637
30–34	0.707	0.654	0.766	0.670	0.607	0.739
35–39	0.752	0.694	0.816	0.764	0.693	0.842
40–44	0.935	0.858	1.019	0.799	0.721	0.885
Region (South West)						
North						
Central	0.199	0.185	0.214	0.279	0.249	0.312
North East	0.017	0.015	0.019	0.059	0.051	0.069
North West	0.114	0.104	0.123	0.426	0.384	0.473
South East	0.98	0.917	1.047	0.735	0.667	0.81
South South	0.375	0.352	0.399	0.305	0.275	0.338
Residency type (Urban)						
Rural	1.268	1.210	1.329	0.741	0.691	0.794
Educational level (Higher)						
Nil	1.315	1.202	1.440	1.330	1.168	1.516
Primary	1.489	1.377	1.611	1.410	1.253	1.587
Secondary	1.358	1.269	1.453	1.143	1.025	1.274
Religion (Other)						
Islam	1.161	1.071	1.258	0.928	0.693	1.067
Christian	1.645	1.427	1.883	0.959	0.854	1.078
Sex of HH head (Male)						
female	1.043	0.992	1.095	0.976	0.813	1.145
HH wealth status (Poorest)						
Poorer	1.580	1.456	1.715	1.172	1.042	1.319
Middle	1.381	1.287	1.481	1.034	0.93	1.15
Richer	1.393	1.313	1.479	1.019	0.93	1.117
Richest	1.609	1.466	1.766	1.151	1.011	1.311
Nagalekerke R-squared				0.59		

The amount of variability explained by the models was 34% for model 1 (model for respondents) and 59% for model 2 (model for daughters).

4. Discussion and Policy Recommendation

FGM represents a significant public health and human rights concern to which the government of Nigeria has shown increasing attention in recent years. Current policies and programs on FGM elimination can benefit from representative evidence on the prevalence and patterns of the issue in the population. In this regard, we undertook the present study by using existing cross-sectional data from

the three latest nationally representative surveys conducted in Nigeria. Several noteworthy messages emerged from the analysis.

The overall prevalence of FGM among the respondents was alarmingly high with well over one-third of the respondents and little less than one-fifth of their daughters having undergone FGM. According to previous reports, the prevalence ranged from 41% to as high as 62.9% at national and subnational levels (Okeke et al. 2012; Obi 2004). These estimates are lower than Ethiopia (74%) (Setegn et al. 2016) and Gambia (75.6%) (Kaplan et al. 2013), but higher than Kenya (28.2%) (Achia 2014) and Tanzania (15%) (Awodele et al. 2011). Apart from the high overall prevalence, there has been an increasing trend in FGM in Nigeria since 2003. Results indicated a sharp increase in the prevalence from 2003 to 2008, which might be due to the updated definition of FGM in 2008 that covered a broader category of procedures compared to the previous survey. Therefore, it is recommended that the trend be interpreted in light of these aspects.

Significant variations were observed in the prevalence of FGM across demographic, geographic and socioeconomic parameters. A larger proportion of the circumcised women were in relatively younger age groups, indicating an upward trend in the overall prevalence. As demonstrated in previous studies, women in the rural and southern regions were more likely to experience FGM than those in urban areas and in the north (Okeke et al. 2012).

Compared with women with the highest level of education, those with no educational experience also had higher likelihood of reporting circumcision for themselves and their daughters. Although the relationship was not linear in the bivariate analysis, the results of regression analysis adjusted for confounders showed a significant increase in the odds of reporting FGM among respondents in the lower educational categories. Evidence of the beneficial effect of educational qualification on FGM were also reported in other studies in sub-Saharan Africa (Setegn et al. 2016; Achia 2014; Kaplan et al. 2013). Oddly enough, although educational level is a strong predictor of wealth status, the results revealed an inverse association between wealth status and reporting of FGM. About one-quarter of the women reporting FGM were in the two lowest wealth quintiles, compared with 55.4% in the two highest quintiles, implying that economic solvency may not necessarily equate to better health awareness and practice.

Almost all the cases of circumcision appeared to have performed by traditional practitioners, which can lead to unexpected health complications (Female Genital Mutilation 2018). The long-term consequences of such complications can be far more devastating due to a lack of affordability and availability of quality sexual and reproductive health care services, and low levels of knowledge about the signs and symptoms. Therefore, attention must be paid to those who have already undergone FGM and are suffering from long-term complications (Nour 2008). It is necessary to consider that prohibiting circumcision services in the healthcare doesn't automatically prevent the population from seeking service from traditional practitioners, who are usually less accountable in both professional and legal terms. A special taskforce needs to be formed in order to limit the presence of traditional practitioners in this service. From the study results it is also clear that the number of women supporting FGM has been decreasingly, albeit slowly. Increasing awareness about the potentially hazardous outcomes associated with traditional methods of circumcision may contribute to reduced uptake of the service.

The above findings have important implications for FGM prevention policies and programs in the country. Considerable research efforts have been made in the past few years by WHO member states to develop community-based interventions to raise awareness about FGM based on the assumption that the programs are more likely to succeed when women are aware of their health rights and the adverse outcomes of this practice. Despite that, however, prevalence rates have increased, raising questions about the effectiveness of the ongoing intervention programs. Results also illustrate that the majority of the respondents reporting circumcision were from male-headed families, and a considerable proportion reported FGM as a religious obligation and were unsure about whether or not this should be continued, which indicates inadequate coverage of the current intervention programs. The issue of FGM is inherently complex owing to its deep-rooted link with norms and value systems, and

hence requires culturally appropriate strategies that can slowly divert from the established norms without causing cultural divisions in the cutting societies (Vogt et al. 2016). According to some social researchers, social counseling programs that treat FGM as a violation of human rights can be an effective strategy against FGM, as social campaigns are often treated as being culturally intrusive (Shell-Duncan 2008). Entertainment media, such as locally produced movies, can also help shape people attitude towards the practice (Vogt et al. 2016).

This study has important policy implications. The increasing prevalence of FGM warrants increased policy attention and interventions to tackle the problem. Addressing the underlying causes by a single policy instrument can be challenging, as the problem is a complex and cross-cutting one, and requires a combined sociocultural, educational, and behavioral policy mix. Despite the growing evidence on the resulting adverse outcomes, the continuance of FGM in sub-Saharan Africa can be seen as an outgrowth of the collective behavior of certain communities who are failing to make an evidence-based decision faced with the pressure of respecting traditional values. There is ample evidence that psychosocial behaviors rooted to traditional values are resistant to general policy instruments and require contextual and culturally tailored interventions. More studies should therefore be carried out to generate evidence on the cultural values that account for the high rate of FGM in Nigeria and other countries in the region. Policy approaches should aim to better inform communities regarding the adverse outcomes of FGM to enable them to break from the traditional way of thinking about the problem, and inform them to take unbiased decisions by taking into consideration the adverse health and societal outcomes of the practice.

This study has several strengths and limitations to note. Amongst the strengths, the sample size was large and pooled, which allowed measuring the overall prevalence of FGM for the past three surveys. Data were analyzed using appropriate techniques for cluster samples. We have shown the trend in FGM during the past ten years as well the sociodemographic patterns in prevalence. While previous studies have mainly highlighted the combined prevalence, a particular contribution was the comparative analysis of FGM among both mothers and their daughters. We have also presented important qualitative data, including women's perceptions regarding the practice and whether it is a religious obligation, and should be continued. Data on women's lived experiences are critical for understanding the barriers and to stop the practice completely. From this perspective, the present findings can be of special interest among researchers and policy makers. The findings were reported in light of the existing evidence to provide a comparative understanding of the scenario in Nigeria. Although there was no scope to include qualitative analysis, we quantitatively reported women's opinions on relevant factors, such as the influence of religion on practicing FGM, and women's opinions regarding the continuation of the practice. Limitations of the study include the cross-sectional nature of the surveys that prevents making any causal inference about the association. As the data were secondary, we had no control over the selection and measurement of the variables. Last but not least, as the variables were self-reported, there are chances of reporting bias in the measurements.

5. Conclusions

The study concludes that FGM is widely prevalent in Nigeria, with an increasing proportion of women reporting to have experienced this practice. Important regional and socioeconomic disparities were observed in the prevalence of FGM. Further research should be carried out to clarify the sociocultural grounds of women's endorsement or disapproval of FGM, which might help develop strategies to counsel individuals and families against the practice. At the policy-making level, there is an urgent need to strengthen the national framework to limit the involvement of traditional practitioners, who are largely responsible for the adoption and medicalization of FGM. A multi-strategy human rights-based approach should be introduced to prevent the continuation of this harmful practice.

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Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. Sample characteristics, NDHS 2003–13.

	N = 50,281	%	% of Respondent Undergone FGM (38.9%)			<i>p</i>	% of Daughters Undergone FGM (17.4%)			<i>p</i>
Year										
2003	7321	14.6	8.4	7.6	9.4	<0.0001	7.0	6.1	8.2	<0.0001
2008	18,487	36.8	43.4	41.0	45.8		45.1	41.7	48.6	
2013	24,473	48.7	48.2	45.9	50.5		47.8	44.5	51.2	
Age										
15–19	8342	16.6	13.5	12.8	14.2	<0.0001	4.0	3.5	4.6	<0.0001
20–24	8709	17.3	15.5	14.9	16.2		10.2	9.3	11.2	
25–29	9456	18.8	17.5	16.8	18.2		18.4	17.3	19.6	
30–34	7305	14.5	15.0	14.4	15.6		18.0	16.9	19.2	
35–39	6436	12.8	13.7	13.1	14.2		18.4	17.3	19.6	
40–44	5059	10.1	12.2	11.6	12.7		15.3	14.3	16.4	
45–49	4974	9.9	12.7	12.1	13.3		15.6	14.5	16.8	
Region										
North Central	5892	11.7	8.6	7.3	10.2	<0.0001	8.3	6.5	10.6	<0.0001
North East	6938	13.8	1.7	1.2	2.4		3.8	2.9	5.0	
North West	10,307	20.5	14.6	12.7	16.7		16.8	14.6	19.1	
South East	7902	15.7	24.9	23.0	26.9		31.9	28.5	35.6	
South South	9485	18.9	18.0	16.4	19.7		10.0	8.4	11.8	
South West	9757	19.4	32.2	30.3	34.2		29.2	26.6	31.9	
Residency type										
Urban	21,625	43.0	48.9	46.6	51.2	<0.0001	38.8	35.7	42.0	<0.0001
rural	28,656	57.0	51.1	48.8	53.4		61.2	58.0	64.3	
Educational level										
No education	15,483	30.8	21.6	20.0	23.4	<0.0001	40.8	38.0	43.7	<0.0001
primary	10,070	20.0	23.8	22.8	24.9		25.9	24.2	27.6	
secondary	19,041	37.9	43.3	41.9	44.8		28.0	26.1	30.0	
higher	5687	11.3	11.2	10.4	12.1		5.3	4.5	6.2	
Religion										
Christian	54.2	27,258	62.2	59.9	64.5	<0.0001	41.3	38.2	44.4	<0.0001
Islam	37.1	18,653	34.0	31.7	36.4		55.1	51.8	58.3	
Other	8.7	4370	3.8	3.2	4.5		3.7	3.0	4.5	
Sex of HH head										
Male	40,234	80.0	76.6	75.5	77.6	<0.0001	83.9	82.6	85.1	<0.0001
female	10,047	20.0	23.4	22.4	24.5		16.1	14.9	17.4	
HH wealth status										
Poorest	7404	14.7	10.2	8.9	11.7	<0.0001	17.5	15.3	20.0	<0.0001
Poorer	8335	16.6	14.7	13.3	16.1		20.7	18.7	23.0	
Middle	9833	19.6	19.7	18.5	21.0		18.8	17.2	20.6	
Richer	11,930	23.7	27.6	26.1	29.1		23.1	21.2	25.1	
Richest	12,779	25.4	27.8	26.1	29.7		19.8	17.9	21.9	

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