



## Maternal Factors Associated with Female Genital Cutting of Daughters in Nigeria: A National Population Based Study

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### Abstract

**Background:** The practice of female genital cutting has negative impacts on reproductive health and this has long term implications on the life of the girl child and the society. The study was aimed to determine the prevalence and maternal factors associated with female genital cutting of daughters in Nigeria.

**Methods:** This was a secondary data analysis of the 2013 Nigeria Demographic and Health Survey. Data on 23,615 respondents were extracted from 38,308 participants. This was based on respondents with complete data on outcome variable of interest. Chi-square test of statistical significance and multivariate analysis using binary logistic regression was used in the analysis and the level of statistical significance was determined by a p value of less than 0.05.

**Results:** The mean age of the respondents was 33.6±7.4 years. The prevalence of female genital cutting of daughters was 23.9%. Traditional circumcisers performed the majority of circumcisions, 79.9% and majority 91.9% were done during infancy. Predictors of circumcision of daughters included mother being circumcised, (AOR; 16.3, 95% CI=14.8-17.9), having no formal education, (AOR; 1.7, 95% CI=1.4-2.1), residing in urban area, (AOR; 0.8, 95% CI=0.7-0.8), and being in the poor wealth index, (AOR; 1.3, 95% CI=1.1-1.5).

**Conclusion:** The prevalence of circumcision of the girl child in Nigeria is still high and majority of the procedure are performed by traditional circumcisers. The non-circumcision of the girl child today is of positive value to the discontinuation of the practice of female genital cutting in future and this should be focus of all stakeholders at present. Adequate attention should be given to the education of the girl child and the economic empowerment of women.

**Keywords:** Prevalence; Maternal factors; Girl child; Female genital cutting; Nigeria

**Abbreviations:** FGC: Female Genital Cutting; WHO: World Health Organization; LGAs: Local Government Areas; NDHS: Nigeria Demographic and Health Survey;

NPC: National Population Commission; PSU: Primary Sampling Unit; EAs: Enumeration Areas; SPSS: Statistical Package for Social Sciences.

## Introduction

Female genital cutting (FGC) is also referred to as female circumcision or female genital mutilation. It is defined by the World Health Organization, (WHO) as all procedures that involves partial or total removal of the female external genitalia or other injury to the female genital organs for non-medical reasons [1]. It is regarded as the surgical removal of parts or all of the most sensitive female genital organs [2]. The WHO further classified female genital cutting into four types; type 1, clitoridectomy; type II, excision; type III, infibulation and type IV classified as others which involves all other harmful procedures to the female genitalia for non-medical reasons. It is practiced mainly in countries of Africa, Middle East and Asia. A total of 30 countries in Africa mostly those in the west, east and north east regions of the continent practice female genital cutting. At present, an approximate 200 million women and girls have undergone genital cutting and every year, an estimated 3 million girls are at risk of undergoing the procedure. Instances abound where FGC is observed in Europe and North America but such cases are attributed to immigrant communities from countries where the prevalence is high.

Female genital cutting is practiced for a variety of socio-cultural reasons and this varies from one country and ethnic group to another. It is presently perceived as a good example of a severe form of discrimination against women based on inequalities between the sexes [1]. The main purpose of the practice is directed at the need for the social control of women's sexuality or with the preservation of virginity, simply as a kind of rite of passage [3,4]. The perceived benefit of FGC which unfortunately reinforces its practice include the belief that it enhances the sexuality of men, regulates female sexual desire, has aesthetic purifying or hygienic values, prevents promiscuity and preserves virginity [5]. In some cultures, it is seen as a way of cleansing the female genitalia. Hence it is performed as a way of ensuring the purity of the woman thus increasing the chances of being married [6,7]. In some of the practicing communities individuals are of the opinion that the procedure guarantees safe labor [8,9].

In Nigeria, female circumcision occurs mostly during infancy. Four in five women (82%) who have been circumcised had the procedure performed before the fifth birthday while a minor proportion (7%) undergo the procedure at age 15 years and above [10]. Also, traditional agents perform the majority of the procedure. There is evidence that there is no medical benefit inherent

in the practice of FGC, [1] yet this practice has persisted over the years despite advancements in education, health and economic status of the people engaged in the practice [11]. The result is that even though the global prevalence of FGC has reduced in the past three decades, the progress is not evenly spread among the countries and also not in line with the increasing population growth in the world [12].

It has been established that the practice of female genital cutting has negative impacts on reproductive health [13,14] and this has long term implications on the life of the girl child and the society. This has necessitated the call for public education towards discouraging the practice among the people by focusing on its complications [15,16]. This is because there is a negative relationship between knowledge of the consequences of female genital cutting and approval for its continued practice [17]. Also, one of the targets of the Sustainable Development Goals is the elimination of all harmful practices including female genital cutting by the year 2030 [18]. The study was aimed to determine the maternal factors associated with practice of female genital cutting of daughters in Nigeria based on data from the Nigerian Demographic and Health survey of 2013.

## Methodology

### Description of study area

Nigeria occupies approximately 923,768 square kilometers and lies between latitudes 4°16' and 13°53' north and longitudes 2°40' and 14°41' east on the west coast of Africa. It shares land borders with Benin Republic in the west, Chad and Cameroon in the east and Niger in the north while its coast in the south lies on the Gulf of Guinea on the Atlantic Ocean. Administratively, Nigeria is divided into 36 states and Abuja, the Federal Capital Territory which serve as the second tier of Government. Each state consists of a number of Local Government Areas (LGAs) and there are 774 LGAs in the country. The LGAs serve as the third tier of government. Politically, Nigeria is divided into six geo-political zones including North-west, North-east, North-central, South-east, South-west and South-south zones.

Nigeria has a tropical climate and has two main seasons, the wet and dry season. The temperature ranges from 25°C and 40°C and rainfall ranges from 2,650 millimeters in the southeast to less than 600 millimeters in some parts of the north. The climatic differences reflect the different vegetation zones in the country and include mangrove swamp forest in the Niger Delta and the Sahel grassland in the north. The population of Nigeria is estimated at 198,037,710 people based on latest

estimates by the United Nations [19]. Nigeria is made up of several ethnic groups of which Hausa, Igbo and Yoruba are the major ones. It is the most populous country in Africa and accounts for approximately 47% of the population of West Africa. The country has an abundance of natural resources and is Africa's biggest oil exporter and also has the largest natural gas reserves in the continent. There are widely varied regional health indices with southern region being better than the north. Nigeria's urbanization growth rate is estimated at 5.3% per year [10].

### Study design

This is a secondary data analysis involving the 2013 Nigeria Demographic and Health Survey (NDHS). The NDHS is a cross sectional survey executed by the National Population Commission (NPC). This is the fifth and the most recent Demographic and Health Survey carried out in Nigeria. It was a descriptive cross-sectional study. The main objective of the survey is to provide updated estimates of basic social, demographic, economic and health indicators for the country.

### Study population

The 2013 Nigeria Demographic and Health Survey (NDHS) is the fifth in Nigeria. The previous surveys were in 1990, 1999, 2003 and 2008. Nationally representative samples of 40,320 households from 904 primary sampling units were selected. All the women aged 15-49 years who were usual members of the selected households were eligible for individual interviews. In addition to the female survey, a male survey was conducted at the same time in every second household selected for the female survey. For the purpose of this study, only the women surveys were included in the analysis of the data. Basic information was obtained from the women including that on female circumcision of their daughters. In effect, the head of selected household answered questions on the household and provided a listing of household residents as well as visitors who slept over in the household the night before the survey. Hence, all women aged 15-49 years who were either permanent residents of the households or visitors who stayed over the night in the households on the night before the survey and all men aged 15-59 who were either permanent residents of the households or visitors who stayed over the night in the households on the night before the survey were included in the study. The data used for this analysis was the one from the women.

### Sampling technique and sample size

The Primary Sampling Unit (PSU) used in the survey was defined on the basis of Enumeration Areas (EAs) from the

2006 national population census. During the 2006 national population census, local government areas were divided into localities and each locality was further subdivided into census enumeration areas and then clusters for convenience. Household enumeration and mapping in the selected clusters was done to produce a list of households which made up the sampling frame. The final sample size was 36,800 households selected with a minimum target of 950 completed interviews for each state.

The sample for the 2013 NDHS was a stratified sample and it was selected independently in three stages from the sampling frame. Stratification was based on urban rural classifications. In the first stage, 893 localities were selected with probability proportional to size and with independent selection in each sampling stratum. In the second stage, one EA was randomly selected from most of the selected localities with an equal probability selection. In the third stage of selection, a fixed number of 45 households were selected in every urban and rural cluster through equal probability systematic sampling based on the newly updated household listing. The total number of households sampled was 40,680 including 16,740 from the urban and 23,940 from the rural area.

### Study instrument

Data collected for the 2013 NDHS involved use of questionnaires (household questionnaire, women's questionnaire and the men's questionnaire were used). It was pretested and a standard protocol observed in administering them. These questionnaires were adapted to collect information on relevant demographic, social, economic factors and health status/indicators as well as information on female circumcision of daughters were also ascertained from eligible members of the selected households. The questionnaires were interviewer administered.

### Data management

The female dataset – SPSS file format was used in the analysis and this was obtained from the National Population Commission. The outcome variable was the genital cutting of daughters and this was measured by the question, 'Is daughter circumcised' and yes was coded as 1 and No as zero. The response 'don't know' was classified as No and missing values were interpreted as No information.

For the outcome variable, a total of 23,815 respondents were selected and this represented the number with the outcome variable of interest and also a complete independent variables including age, religion, socio-

economic status, no of living children, place of residence, geo-political zone, educational attainment and gender of household head Data analysis was done using IBM Statistical Package for Social Sciences (SPSS) version 22. Frequency tables and cross tabulations were generated. Chi square test of statistical significance and multivariate analysis using binary logistic regression were used in the analysis and the level of statistical significance was determined by a p value of less than 0.05.

Multivariate analysis using binary logistic regression was used to determine the factors predicting the circumcision of daughters. Variables that had a p value of <0.20 on bivariate analysis using the Chi square test of statistical significance were entered into the logistic regression model to determine the predictors of circumcising the daughter. Logistic regression model results were reported using adjusted odds ratio, 95% confidence interval and level of statistical significance was determined by a p value of <0.05. For the purpose of determining the factors associated with the circumcision of the girl child, wealth index was recoded from five categories into three including rich, middle and poor. Also, the age of

respondents was categorized into two using the mean age of the respondents and religion was categorized into three including Christianity, Islam and Traditional religion.

### Ethical approval

Permission to use the data was obtained from ORC Macro International, the agency responsible for the worldwide Demographic and Health Surveys. The NDHS 2013 was approved by the Nigerian National Health Research Ethics Committee.

### Results

Table 1 shows the socio-demographic characteristics of the respondents. The mean age of the respondents was 33.6±7.4 years and the highest proportion of the respondents, 29.9% were less than 30 years. Majority of the respondents, 60.1% were rural dwellers. The highest proportion of the respondents, 43.2% had no formal education while the least proportion, 7.5% have attained tertiary education.

Variable	Frequency(n=23615)	Percent (%)
<b>Age</b>		
Mean(±SD)	33.6±7.4	
<b>Age of respondents in groups</b>		
<30 years	7069	29.9
30-34 years	5393	22.8
35-39 years	5433	23.0
≥40 years	5720	24.2
<b>Religion</b>		
Christianity	10260	43.4
Islam	13139	55.6
Traditional religion	216	0.9
<b>Daughter's birth history</b>		
First	8052	34.1
Second	5923	25.1
Third	4204	17.8
Fourth and others	5436	23.0
<b>Place of residence</b>		
Urban	9423	39.9
Rural	14192	60.1
<b>Educational attainment of respondent</b>		
No formal education	10196	43.2
Primary education	5466	23.1
Secondary education	6186	26.2
Tertiary education	1767	7.5
<b>Gender of head of household</b>		
Male	20496	86.8
Female	3119	13.2
<b>Geo-political zone</b>		

North Central	1925	8.2
North East	3611	15.3
North West	7992	33.8
South East	2745	11.6
South South	3541	15.0
South West	3801	16.1
<b>Wealth index</b>		
Poorest	4752	20.1
Poorer	4696	19.9
Middle	4555	19.3
Richer	5031	21.3
Richest	4581	19.4

Table 1: Socio-demographic characteristics of respondents.

Table 2 shows the prevalence of female genital cutting among the daughters of the respondents. A little less than a quarter of the daughters of the respondents, 23.9% have had cutting of their genitals. A minor proportion of the daughters, 3.1% had their genital area sewn. Majority of

the circumcision of the girl child, 79.9% were done by traditional circumcisers while doctors performed 0.9% of the circumcisions. Majority of the girl child circumcisions, 91.9% were performed during the infant period.

Variable	Frequency (n=23615)	Percent (%)
<b>Daughter has been circumcised</b>		
Yes	5644	23.9
No	17971	76.1
<b>Number of daughters circumcised (n= 5644)</b>		
One	1838	32.6
Two	1922	34.1
Three	1311	23.2
Four	464	8.2
Five	85	1.5
Six	24	0.4
<b>Daughter genital area sewn closed</b>		
Yes	174	3.1
No	5371	95.2
No information	99	1.8
<b>Person that performed the circumcision</b>		
Doctor	50	0.9
Trained Nurse/Midwife	765	13.6
Other health professional	39	0.7
Traditional circumcisers	4508	79.9
Traditional birth attendant	167	3.0
Other traditional practitioners	10	0.2
Don't know	6	0.1
No information	99	1.8
<b>Age of daughter at circumcision</b>		
Infancy	5207	91.9
1-4 years	297	5.3
5-15 years	98	1.7
Don't know	11	0.2
No information	52	0.9

Table 2: Prevalence of female genital cutting among the daughters of respondents.

Table 3 shows the factors affecting the circumcision of daughters of respondents. The mothers who were circumcised were 16 times more likely to circumcise their daughters when compared with those who were not circumcised. (95% CI: 14.8-17.9). The mothers who had no formal education were about twice more likely to circumcise their daughters when compared with those who had tertiary education, (95% CI: 1.4-2.1). Also, the

mothers, who reside in the urban area were about 1.3 times less likely to circumcise their daughters when compared with those who live in the rural area, (95% CI: 0.7-0.9). The mothers who were on poor wealth index were 1.3 times more likely to circumcise their daughters when compared with those who were on the rich wealth index, (95% CI: 1.1-1.5).

Variable	Daughter Circumcised (n=23615)		p value on bivariate analysis	**AOR(95%CI) on multivariate analysis
	Yes N (%)	No N (%)		
<b>Mother is circumcised</b>				
Yes	4098 (45.8)	4855 (54.2)	<0.001	16.3 (14.8-17.9)
No	1546 (10.5)	13116 (89.5)		1
<b>Age of Mother in groups</b>				
<35 years	2964 (23.8)	9498 (76.2)	0.659	NA
≥35 years	2680 (24.0)	8473 (76.0)		
<b>Number of living children</b>				
1-4 children	4654 (24.2)	14603 (75.8)	0.043	0.8 (0.9-1.1)
≥5 children	990 (22.7)	3368 (77.3)		1
<b>Educational attainment of respondents</b>				
No formal education	3004 (29.5)	7192 (70.5)	<0.001	1.7 (1.4- 2.1)
Primary education	1221 (22.3)	4245 (77.7)		1.6 (1.3- 1.9)
Secondary education	1215 (19.6)	4971 (80.4)		1.5 (1.2- 1.8)
Tertiary education	204 (11.5)	1563 (88.5)		1
<b>Geo-political zone</b>				
North central	302 (15.7)	1623 (84.3)	<0.001	0.5 (0.4- 0.6)
North east	324 (9.0)	3287 (91.0)		0.5 (0.4- 0.6)
North west	2940 (36.8)	5052 (63.2)		1.9 (1.6- 2.2)
South east	623 (22.7)	2122 (77.3)		0.8 (0.7- 0.9)
South south	283 (8.0)	3258 (92.0)		0.3 (0.2- 0.4)
South west	1172 (30.8)	2629 (69.2)		1
<b>Place of residence</b>				
Urban	2063 (21.9)	7360 (78.1)	<0.001	0.8 (0.7- 0.9)
Rural	3581 (25.2)	10611 (74.8)		1
<b>Gender of household head</b>				
Male	4985 (24.3)	15511 (75.7)	<0.001	1.0 (0.9- 1.1)
Female	659 (21.1)	2460 (78.9)		1
<b>Religion</b>				
Christianity	1595 (15.5)	8665 (84.5)	<0.001	0.9 (0.7- 1.4)
Islam	4007 (30.5)	9132 (69.5)		2.6 (1.8- 3.8)
Traditional religion	42 (19.4)	174 (80.6)		1
<b>Wealth index</b>				
Poor	2808 (29.7)	6640 (70.3)	<0.001	1.3 (1.1- 1.5)
Middle	1000 (22.0)	3555 (78.0)		1.1 (0.9- 1.2)
Rich	1836 (19.1)	7776 (80.9)		1

Table 3: Factors associated with the circumcision of daughters.

\*\*Adjusted odds ratio (95% confidence interval)

NA Not applicable

## Discussion

The prevalence of genital cutting of daughters was 23.9%. This finding is higher than the 17% obtained from the national survey [10]. It is also higher than that obtained from an analysis of 2003 Nigeria Demographic and Health Survey where 22.4% of the respondents circumcised their daughters [20]. This points to an increase in prevalence of circumcision of the girl child in Nigeria and is not encouraging. This trend is different from that observed in Burkina Faso where from the results of 2003 Demographic and Health Survey of Burkina Faso 30.2% of respondents had a circumcised daughter [21]. However, from a national survey which took place later in the same country, 18.7% of mothers had a circumcised daughter [22]. An indication of the prospects of decreasing interest in female circumcision was however revealed from the results of a study in Oroma region of Ethiopia where only a minor proportion of the respondents, 12.8% wanted the practice of female genital mutilation to be continued [23].

These findings notwithstanding, the results of various studies carried out in Ethiopia [24,25] and Sudan, [26] indicate a higher prevalence of circumcision of daughters when compared with that obtained in this study. It is expected that with the adoption of the Sustainable Development Goals that the practice of female genital cutting will come to an end in all corners of the world. This is because the SDG has one of its targets for the 5th goal focused on the elimination of all harmful practices including female genital cutting by the year 2030. This has been applauded as the greatest political will of the International community towards ending the practice of female genital cutting globally [27]. The results of the study revealed that majority, (79.9%) of the circumcisions were done by traditional circumcisers. This is in line with the observations of the World Health Organization and UNICEF that majority of circumcisions is done by traditional circumcisers [1,12]. A similar result has been obtained previously [28]. The results also indicated that doctors and other health professionals (15.2%) were also involved in the circumcision of the girl child in Nigeria. Even though the arguments in support of using trained health workers to perform female circumcision are to minimize the adverse effects of the procedure, it does not receive the support of the World Health Organization.

This is because many are of the opinion that the practice should be eradicated [28]. Also, the WHO perceives female genital cutting as a violation of the rights of women and girls, [1] Furthermore, physicians are considered as having a good role to play towards the abandonment of the practice by educating the populace hence no need for their involvement in performing female

circumcision [29]. Majority of the respondents, 91.9% were circumcised during the infant period. The WHO and UNICEF are of the view that most female circumcisions are carried out on young girls between infancy and those aged 15years [1,12].

From the results of this study, the mothers who were circumcised were 16 times more likely to circumcise their daughters when compared with those who were not circumcised. Similar results were obtained from studies in Africa [26,30] and in Iraq [31]. Similarly, the circumcision status of mothers has been found to be closely related to the intention of the mother to circumcise her daughter and the continuation of the practice of female genital cutting. For example, in a study in Egypt it was found that the circumcision status of the mother was positively associated with her intent and decision to circumcise the daughter [32]. Similarly, from a study in Enugu, Nigeria, the absence of history of female circumcision in the family makes a mother three times more likely of having no intention of circumcising her daughters [33]. Also, the result of a study in Kenya revealed that the circumcision status of a woman was a predictor of support for the continuation of the practice of female genital mutilation [34].

Thus it has been postulated that having an uncircumcised girl child is a strong positive investment towards the discontinuation of the practice of female genital cutting [35]. Hence, in communities where FGM is almost universal, mothers do not oppose the practice for their daughters [12]. This has necessitated a suggestion that intervention programs towards decreasing female genital cutting should be focused on changing the attitude of mothers towards the practice and to reduce the perceived social pressure on the women to circumcise their daughters [36]. The results of this study also indicated that the odds of circumcising one's daughter decreases as the educational attainment of the mother increases. As a result, respondents who had no formal education, primary and secondary education were all more likely to circumcise their daughters when compared with those who attained tertiary education. This is similar to results obtained from other studies [25,26,31,37]. There is evidence that investments made in female education a generation earlier reduce the circumcision risk of the girl child in the next generation [38].

Expectedly, the influence of education on the practice of female genital cutting is also extended to men as it has been found that the level of education of men strongly determines the support for the abandonment of female genital cutting [39]. Also, higher paternal and maternal education is associated with decreased odds of women's support for the continuation of the practice of female

genital cutting [37]. Thus the relevance of education of the girl child cannot be over-emphasized hence the suggestion that it should be prioritized [15].

Education has also been found to influence the intention of a woman not to circumcise her daughter. For example, a study in Egypt showed that as the educational attainment of the mother increases, the intent and decision to circumcise a daughter decreases [32]. Also, a study in Nigeria revealed that the mothers that attained post-secondary education were three times more likely to have no intention of circumcising their daughters [33]. The respondents who resided in the urban area were 1.3 times less likely to circumcise their daughters when compared with those who lived in the rural area. This is similar to the result from Ethiopia [32]. However, it is at variance with that obtained from a national population study of women in Nigeria [15]. It has already been observed that prevalence of FGC in Nigeria is more in the urban when compared with the rural areas [10]. Perhaps, since female genital cutting is said to be rooted in culture, it is expected that its prevalence will be more in the rural area thus justifying the results of this study. This is further supported by the results of other studies. For example, from a study in Iran, it was found that mothers in the rural area feel more social pressure to permit the practice of female genital mutilation among their daughters [36]. And in Ethiopia, it was found that the odds of favoring the continuation of the practice of female genital mutilation were more among rural dwellers [40].

This study also showed that respondents in the poor wealth index were 1.3 times more likely to circumcise their daughters when compared with those in the rich wealth index. Suffice it to say that socio-economic status has been identified as a key element in the circumcision risk of the girl child [38]. In line with this observation, similar results were obtained from the Iraqi Kurdistan region [31] and the Sudan Multiple Indicator Cluster Survey which included women aged between 14 and 49 years [26]. Wealth in this regard tends towards the empowerment of women. This supports the position that factors associated with the empowerment of women like family wealth discourage the practice of female genital cutting thus making it possible that the girl child in such families are not circumcised, [41] hence the need for the empowerment of women.

### Limitation of the study

Primary data collected directly by a researcher may be considered more appropriate and representative than secondary data since there could have been changes in data or findings due to time difference between when the data was collected and now that it is analyzed. Also,

emphasis in this analysis was on respondents who had complete information concerning both the outcome variable of interest and also the important socio-demographic characteristics. It is however important to note that the NDHS data is representative of the whole country which could have been difficult to achieve on an individual level and the sample size is large even when respondents with incomplete information were excluded. Consequently, the results of this study could be considered relevant and of essence as it concerns circumcision of the girl child in Nigeria.

### Conclusion

The prevalence of circumcision of the girl child in Nigeria is still high and majority of the procedure are performed by traditional circumcisers. The non-circumcision of the girl child today is of positive value to the discontinuation of the practice of female genital cutting in future and this should be focus of all stakeholders at present. Adequate attention should be given to the education of the girl child and the economic empowerment of women.

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