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Female genital mutilation and obstetric outcome: A cross-sectional comparative study in a tertiary hospital in Abakaliki South East Nigeria

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ABSTRACT

Background: Female genital mutilation (FGM) is an assault on womanhood.
Objective: To compare the obstetric outcome between parturient with genital mutilation with a cohort that has no genital mutilation.
Materials and methods: This cross-sectional prospective study was done in the labour ward of Federal Teaching Hospital Abakaliki between 1st January 2013 and 31st December 2013. The obstetrics outcome of 260 consenting healthy parturients with FGM in the 1st stage of labour was compared with 260 cohorts with no FGM and also in labour. Data were obtained with a structured questionnaire and analysed using IBM SPSS Statistic version 20. Simple percentage odd ratio and Chi-square were used for data analysis at a p-value of < 0.05.
Results: The mean age and gestational age of the women were 27.9 ± 4.8 years and 38.9 ± 1.5 weeks respectively. Majority of the women, 308 or 77.0%, belonged to social class 4 and 82.0% had Type 2 FGM. More than 90.0% of the women had a vaginal delivery and the 2nd stage of labour lasted more than 2 h in 13.4% of the women (OR = 0.78 95% CI 0.64-0.97). Parturient with FGM had increased odd of perineal tear (OR = 0.76 95% CI 0.63 - 0.91) and episiotomy (OR = 1.69 95% CI 1.17–2.45). The mode of delivery and neonatal Apgar scores were not significantly influenced by the presence of FGM ($P > 0.05$).
Conclusion: The study has shown that FGM in labour increases the odds of developing perineal trauma which may be associated with a host of short- and long-term complications. We recommend continued awareness creation to stop FGM.

Introduction

Female genital mutilation (FGM) is a public health problem which is a violation of the reproductive right of women [1]. It includes all procedure that intentionally alters the female external genitalia for non-medical reasons [2]. Globally, it is estimated that 100–140 million women and girls have experienced the procedure with 3 million girls at risk each year [3,4]. It is a harmful traditional practice that is deep-rooted in sub-Saharan Africa. The prevalence of female genital mutilation varies and a prevalence rate of > 70% have been documented in Burkina Faso, Djibouti, Egypt, Eritrea, Ethiopia, Sudan, and Somalia [5]. In Nigeria and Ghana, a prevalence rate of 19% and 5% respectively have been noted in a World Health Organization (WHO) collaborative prospective study [6]. Nigeria has the highest absolute number of genitally mutilated women throughout the world [7] accounting for about one-quarter of the estimated 115–130 million circumcised women worldwide [8]. There is a geographical variation on the prevalence of FGM in Nigeria, the highest burden is found in southern part of Nigeria [9].

It is classified into four types according to the WHO classification of 1995 [10] (Type I, II, III and IV). Various reasons have been advanced by different societies for the perpetuation of the practice but none is good enough for its rationalization. It is often described as a means to safeguard against the premarital sexual activity and as such prevent female promiscuity and preserve virginity [5]. Female genital mutilation is mainly practiced by traditional/local healers although, in some countries, medical personnel including doctors, nurses and certified midwives perform the procedure [5]. Highest rates of medicalization of female genital mutilation are found in Egypt (61%), Kenya (34%) and Sudan (36%) while in Nigeria and Guinea the rates are 13% and 9% respectively [5]. It is

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performed mainly on girls aged 4–12 years and in some cultures as early as a few days after birth or before marriage.

It has no health benefit only harm. Some of the complications of the procedure include shock, haemorrhage, infection, sepsis, chronic pain, cheloids formation, infertility, and psychological problem [11–13]. Female genital mutilation has a myriad of the adverse obstetric outcome on the maternal and neonatal well-being [6]. The current study will help to add to the body of knowledge on the impacts of FGM on the obstetric outcome and helps also to understand the role of skilled health care in addressing possible health impacts of FGM. This project, therefore, intends to evaluate the effects of different types of Female genital mutilation on a range of maternal and neonatal outcomes during and immediately after delivery. This will help in policy formulation in the study area on the eradication of female genital mutilation. It will also assist in the education of our women as an earlier study has shown that some women still advocate for the perpetuation of the act [14]. We hypothesized that parturient with Female genital mutilation is not associated with adverse maternal and neonatal obstetric outcome.

Materials and methods

This cross-sectional comparative study was carried out in Obstetrics and Gynaecology department of Federal Teaching Hospital Abakaliki (FETHA), Ebonyi. Ebonyi state was created in 1996 with 13 local government areas, one urban, one semi-urban, and the rest rural. It has a population of 2.4 million according to 2006 Nigerian national population commission census and it occupies a land mass of 5932 km. About 75% of the population dwells in the rural areas with farming as their major occupation. FETHA is a tertiary institution which is the only referral center in the state. It was the product of a merger in December 2011 between the former Federal Medical Centre Abakaliki and Ebonyi State University Teaching Hospital, Abakaliki. Apart from FETHA, there are private, primary/secondary health facilities and two Catholic mission hospitals (St Patrick hospital, Abakaliki and St Vincent hospital Ndubia) in the study area. They provide maternal and child health services to numerous patients within and outside Ebonyi state.

The Department of Obstetrics and Gynaecology of the hospital (FETHA) ran an antenatal clinic that is managed by consultants and resident doctors with trained nurses. The antenatal clients who are booked on Wednesday are distributed to the five (5) teams in the department with 30 consultants. The choice for a place for antenatal and labour care by the women is a personal decision but they are encouraged to access care in a center with a skilled birth attendant like FETHA. The average delivery rate is 150 deliveries per month. The ethical committee of the hospital granted approval for the study.

Study participants

The study population was recruited from 1st January 2012 and December 2012 at the labour ward of the hospital. A total of 520 women were recruited (260 on each arm) for study at 95% confidence interval, exposed prevalence of 19% [6] and at a precision of 5%. Ten percent (10%) attrition rate was added. They were recruited by the chief researcher with the help of five trained senior registrar of each team. The study population was healthy consenting women at term with singleton foetus who was in the first stage of labour. High-risk patients, non-consenting women and those in the advanced 1st stage of labour were excluded. They were recruited using the ballot method of the simple random sample. After counseling and obtainment of an informed consent from the parturients, they were asked to pick a card from an opaque bag containing white and blue cards with replacement. The white signified inclusion while blue is for exclusion. The women recruited from above method were examined early in labour to ascertain whether or not they have FGM. The type of FGM was determined using WHO classification, thus:

1 No FGM: No evidence of any genital mutilation
2 FGM I: Excision of the prepuce, with or without excision of part or all of the clitoris
3 FGM II: Excision of the clitoris with the partial or total removal of the labia minora
4 FGM III: Excision of part or all of the external genitalia and stitching or narrowing of the vaginal opening (infibulation).

The participants with FGM were the cases and the control were consenting women at term without FGM who delivered in our facility within 24 h of selection of a case. The participants were interviewed using a structured questionnaire to obtain information about social and demographic characteristics and obstetric history. The social class was classified using the education of the woman and her husband's occupation according to the work of Olusanya et al. [15] the labour and deliveries were done according to the departmental protocol. An individualized partograph was opened for each parturient when in active phase labour (cervical Os = 4 cm) and episiotomy was only given when the perineum threatened to tear. Following admission of a parturient into labour routine investigation done include pack cell volume, urinalysis, blood grouping and typing of blood. Other investigations requested are based on the clinical finding.

Exclusion criteria include refusal to give consent, those booked for the elective caesarean section, unbooked status, women undergoing VBAC, multiple gestations, non-cephalic presentation and pregnancy complicated by medical disease. Pregnancy whose labour's were too advanced to allow vaginal examination and including those with intrauterine growth restriction (IUGR) were also excluded.

Following delivery, the obstetric and neonatal outcome variables collected included: duration of the second stage of labour, mode of delivery, episiotomy, perineal tear, blood loss, Apgar score, and neonatal weight. The degree of the perineal tear was classified at the time of delivery using 9th International Classification of Disease. A first-degree vaginal tear is defined as damage to the superficial vaginal epithelium, a second-degree tear as involving the vaginal epithelium and deeper muscle but excluding the anal sphincter. A third perineal is defined as a partial or complete anal sphincter rupture without the involvement of anal mucosa and a fourth-degree tear as a rupture of the anal sphincter and mucosa. Women and their infants were then followed up until maternal discharge from hospital for details of delivery and health status.

Data analysis

The data were analyzed using IBM SPSS statistic version 20 software (IBM Corp. Armonk, NY, USA). A categorical variable was analysed using simple percentages, Odd ratio, and Chi-square. Mean and Student *t*-test was used for a continuous variable where appropriate. P values less than 0.05 was considered significant

Out of 520 women that were recruited into the study, only 496 women had complete data for analysis. From Table 1, the mean age of the study population was 27.9 ± 4.8 years with a range of 40 years. Majority of the women were within the age bracket of 25–29 years (209, 42%). About one-third of the women were obese and the mean body mass index (BMI) was $28.3 \pm 4.7\ kg/m^2$. An independent sample *t*-test was conducted to compare the maternal age and weight between the two groups of women

Table 1
Social demographic characteristics of the women.

Variables	Female genital mutilation		X^2 / t test	P value
	Yes (%)	No (%)		
Age (years)				
<20	10(4.0)	13(5.2)		
20-24	61(24.6)	32(12.9)	9.27	0.15*
25-29	99(39.9)	110(44.4)		
30-34	53(21.4)	73(29.4)		
≥35	25(10.1)	20(8.1)		
BMI(kg/m^2)				
<18.5	1(0.4)	0(0.0)		
18.5-24.9	67(27.0)	44(17.4)	12.73	0.001*
25.0 -29.9	123(49.6)	112(45.2)		
30.0-34.9	39(15.7)	63(25.4)		
35.0-39.9	17(6.8)	21(8.5)		
≥40.0	1(0.4)	8(3.2)		
Residence				
Rural	112(45.2)	138(55.6)	5.45	0.012†
Urban	136(54.8)	110(44.4)		
Ethnicity				
Igbo	246(99.2)	242(97.6)	2.13	0.28‡
Others	2(0.8)	6(2.4)		
Social class				
1	17(6.8)	31(12.5)		
2	32(12.9)	72(29.0)	38.20	0.001†
3	66(26.6)	72(29.0)		
4	95(38.3)	47(18.9)		
5	38(15.3)	26(10.5)		

* Independent sample *t*-test.
‡ Likelihood ratio.
† Chi-square.

Table 2
Female genital mutilation and obstetric characteristics of the study population.

Variables	Nil	Type of female genital mutilation (n, %)			X^2	P value
		1	2	3		
GA(weeks)						
<37	35(14.1)	10(4.0)	23(9.3)	3(1.2)		
37-39	132(53.2)	23(9.3)	101(40.7)	2(0.8)	7.29	0.27*
>39	81(32.7)	17(6.9)	68(27.4)	1(0.4)		
Parity						
0	84(33.9)	22(8.9)	92(37.1)	4(1.6)		
1-4	130(52.4)	23(9.3)	75(30.2)	2(0.8)	11.33	0.06*
>4	34(13.7)	5(2.0)	25(10.1)	0(0.0)		
Neonatal weight (kg)						
<2.5	5(2.0)	13(5.2)	11(4.4)	0(0.0)		
2.5-3.5	197(79.4)	31(12.5)	161(64.9)	4(1.6)	6.21	0.35*
>3.5	47(18.9)	6(2.4)	20(8.1)	2(0.8)		

In Table 2, the majority of the women that have FGM where classified as type II (192, 77.4%).
* Fisher's Exact Test.

studied (FGM and no FGM). There was no significant difference in the age (M = 27.6 SD = 4.8) of group with FGM and those without FGM (M = 28.4 SD = 4.9) t (494), p = 0.153; for the weight a significance difference exist in the weight (M = 70.7 SD = 11.6) of the group with FGM and those without (M = 75.6 SD = 13.6) t (494) p = 0.001. The odds of a woman having FGM in the cohort of women residing in rural communities is 66% more than in the group in urban communities with the true population effect that is between 46% and 94%. This result was statistically significant (p = 0.012).

Type III FGM was seen in six (6) women accounting for less than three percent of the different type of FGM that was seen. The mean gestational age at delivery was 38.9 ± 1.5 weeks with half of the women delivering at a gestational age of 37–39 weeks.

Table 3 shows that majority of the women studied achieved vaginal delivery (477, 96.2%) with more women on the FGM arm having abdominal delivery. The second stage of labour was prolonged in 13% (65) of women with 60% (37) of it occurring in FGM group. Cohort of women with FGM has increased odd of delayed labour which is significant (OR = 0.78 95%CI 0.64-0.97). Our study also showed that the presence or absence of FGM was not associated with neonatal Apgar score (X^2 (2) = 9.30, P = 0.46). Among the study population, 36% (177) had episiotomy; 58% occurred in women that had genital mutilation. Women with FGM had increased odds of being given episiotomy during delivery (OR = 1.69 95% CI 1.17–2.45) though not significant and significantly not having an intact perineum (OR = 0.76 95% CI 0.63 - 0.91). A chi-square test of independence was performed to examine the relationship between the presence or absence of FGM and duration of the second stage of labour, the risk of episiotomy, intactness of the perineum and volume of blood lost while controlling for possible confounders. The result showed a significant association between presence or absence of FGM and duration of the 2nd stage only among women with BMI of 25.9–29.9 kg/m^2 (P = 0.009) and ≥ 40.0 kg/m^2 (P = 0.003). A significant association was also seen only among women in social class 2 and 4. Even though there was a significant association between the presence or absence of FGM and episiotomy (X^2 (1) = 7.85, P = 0.005); this association remained significant across all the social class and was only significant among women with BMI of 18.5–24.9 and 25.9–29.9 kg/m^2 (P = 0.001). A significant association was seen (X^2 (1) 9.34, P = 0.002) between the presence or absence of FGM and intactness of the perineum. Only women with BMI of 18.5–24.9 kg/m^2 and social class 2 and 3 were significant contributors. The study also

Table 3
Cross-tabulation of the obstetric outcome of the women with the different types of Female genital mutilation.

Variables	Type of Female genital mutilation (n, %)				X^2	P value
	Nil	1	2	3		
Mode of delivery						
SVD	241(97.2)	48(19.4)	182(73.4)	6(2.4)		
C/S	5(2.0)	2(0.8)	6(2.4)	0(0.0)	4.17	0.64*
Vacuum	2(0.8)	0(0.0)	4(1.6)	0(0.0)		
Duration of 2nd stage labour						
≤ 2 hours	220(88.7)	44(17.7)	161(64.9)	0(0.0)	39.48	0.001
>2 hours	28(11.3)	6(2.4)	31(12.5)	6(2.4)		
Episiotomy						
Yes	75(30.2)	14(5.6)	85(34.3)	6(2.4)	20.58	0.001*
No	173(69.8)	36(14.5)	107(43.1)	0(0.0)		
Intact perineum						
Yes	135(54.4)	30(12.1)	71(28.6)	0(0.0)	21.95	0.001
No	113(45.6)	20(8.1)	121(48.8)	6(2.4)		
Blood loss(ml)						
≤500	224(90.3)	48(19.4)	170()	2(0.8)	22.78	0.001
>500	24(9.7)	2(0.8)	22(8.9)	4(1.6)		
Neonatal weight (kg)						
<2.5	5(2.0)	3(1.2)	10(4.0)	0(0.0)	6.21	0.35
2.5-3.5	197(79.4)	41(16.5)	150(60.5)	6(2.4)		
>3.5	46(18.5)	6(2.4)	32(12.9)	0(0.0)		
Apgar						
0	2(0.8)	0(0.0)	5(2.0)	0(0.0)	9.38	0.46*
≤3	2(0.8)	0(0.0)	0(0.0)	0(0.0)		
4-7	12(4.8)	2(0.8)	17(6.9)	0(0.0)		
≥8	232(93.5)	48(19.4)	170(68.5)	6(2.4)		

* Fisher's Exact Test.

showed that being in social class 5 and in FGM arm is the only significant contributor to excessive blood loss (P = 0.023).

Discussion

Female genital mutilation is one of the social vices against women which are associated with obstetrics complication [1,6]. This study compares obstetrics outcome between women with and those without Female genital mutilation. The prevalence of Female genital mutilation is high in the study area [16] which is higher than the National prevalence rate [17]. The prevalence of the different type of Female genital mutilation that was seen among the study population was: type I FGM (20.2%), type II FGM (77.4%) and type III FGM (2.4%). Majority of the women in our study had type I or II genital mutilation which agrees with the earlier finding in Nigeria [14,18]. The results also agree with Morison's survey, in which more than 99% of the cohort of women in their survey had type II FGM.[19] It is however different from the work of Kaplan et al. in Gambia; they reported a higher rate of type I and type III FGM [3]. The difference from our study could be ascribed to a difference in study design and population. Type III FGM of 2.4% seen in our survey is, however, higher than the WHO collaborative finding in Nigeria [6]. It is a worrisome finding (type III FGM) because of increase complication associated with this type of mutilation. Our finding also suggests that the prevalence of type III FGM might be high in the study area and concerted effort is needed to eradicate the obnoxious procedure.

Amongst the obstetric outcome that was evaluated in our study, only the rate of episiotomy and whether the perineum was intact or not were significantly associated with the presence of FGM. Our study suggests that the presence of FGM increases the odd of these occurring in parturient in labour. The mode of delivery and the neonatal outcome measures were not significantly associated with the presence or absence of genital mutilation. It is however evident from our study that a majority of the parturient on the FGM arm had delayed labour, assisted delivery and abnormal Apgar score. A causal effect, however, cannot be established as this is subject to variegate of labour. From our study, parturient that are overweight or obese are significantly affected by delayed labour and astute labour care is needed to circumvent it. This could be effected by second stage augmentation of labour, as this group is prone to dysfunctional labour or by assisted vaginal delivery. Some studies gave credence to some of our findings. A collaborative prospective study by WHO summarises that women with FGM are significantly more likely than those without FGM to have adverse obstetric outcomes [6]. The episiotomies rate and perineal tear were significantly more on the group with FGM in their work which is similar to our findings. It is apparent from our study that women who are overweight or obese are more likely to suffer this which might result from challenges of conducting delivery in this class of parturient. Support for increased perineal tear among women with FGM was reported by Varol et al. in Australia [20].

Previous studies had reported a significant association between FGM and stillbirth [6,21] which was not seen in our study. The difference in the study population and design might be a plausible reason for this difference. In one of the studies mentioned above, the study population was recruited from probably primary, secondary and tertiary health centre with different accoucheurship which might affect labour care and neonatal outcome. This differs from our study, as only booked patients in our hospital were evaluated and labour managed only by qualified personnel. Postpartum haemorrhage is a major contributor to maternal mortality in developing world like Nigeria [22]. Even though uterine atony is the commonest cause; genital laceration contributes significantly to it in our environment. FGM is associated with excessive blood loss via bleeding from episiotomy site, genital tract laceration and amongst other. In our study, women with FGM had average blood loss of 497 ml 95% CI 446.8–547.6 ml which is not significantly different from the cohort of women with no FGM although they are at increased risk of excessive blood loss (OR = 0.91 95% CI 0.70–1.20). Our finding did not agree with earlier report [6] and could be attributed to the level of skill birth attendant that attended to these women. Cohort of women in our study had Active management of the third stage of labour with prompt repair of their episiotomies and genital lacerations to avert primary post-partum haemorrhage. In this study, the mode of delivery is not associated with the presence of FGM and those that were delivered by caesarean section were for other obstetrics reason and not because of FGM. This finding is in tandem with the finding in Australia [19].

In conclusion, the current study has highlighted the obstetric complications of female genital mutilation. It shows increased odd of these women been given episiotomies and having a genital laceration. It calls for astute labour care to help prevent the possible complication of PPH, major perineal tear with its late possible squealer. We recommend continued awareness creation to stop FGM. The finding from this study will help in advocacy and the continued fight on the eradication of this act.

Declarations

Authors' contributions

CCA & BCO: Study design, data collection/analysis, and interpretation of finding and drafting of manuscript. JAO: participated in the interpretation of findings and data analysis. BNE & NJO: interpretation of findings and drafting of the manuscript. LOA & FAO: participated in the interpretation of findings, data collection, and drafting of the manuscript. All participated in the review of the final manuscript. All the authors approved the manuscript.

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Ethics approval and consent to participate

Ethical approval for the study was obtained from the Research and Ethics committee of the hospital and only consented mothers were recruited for the study.

Consent for publication

Not applicable.

Availability of data and material

All data generated or analysed during this study are included in this published article.

Competing interests

The authors declare that they have no competing interests.

Conflict of interest

The authors have no conflicts of interest to declare.

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