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ORIGINAL RESEARCH

Female genital mutilation/cutting in The Gambia: long-term health consequences and complications during delivery and for the newborn

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Background: Female genital mutilation/cutting (FGM/C) is a harmful traditional practice deeply rooted in 28 Sub-Saharan African countries. Its prevalence in The Gambia is 76.3%. The objective of this study was to gain precise information on the long-term health consequences of FGM/C in The Gambia as well as on its impact on delivery and on the health of the newborns.

Methods: Data were collected from 588 female patients examined for antenatal care or delivery in hospitals and health centers of the Western Health Region, The Gambia. The information collected, both through a questionnaire and medical examination, included sociodemographic factors, the presence or not of FGM/C, the types of FGM/C practiced, the long-term health consequences of FGM/C, complications during delivery and for the newborn. Odds ratios, their 95% confidence intervals, and *P* values were calculated.

Results: The prevalence of patients who had undergone FGM/C was 75.6% (type I: 75.6%; type II: 24.4%). Women with type I and II FGM/C had a significantly higher prevalence of long-term health problems (eg, dysmenorrhea, vulvar or vaginal pain), problems related to anomalous healing (eg, fibrosis, keloid, synechia), and sexual dysfunction. Women with FGM/C were also much more likely to suffer complications during delivery (perineal tear, obstructed labor, episiotomy, cesarean, stillbirth) and complications associated with anomalous healing after FGM/C. Similarly, newborns were found to be more likely to suffer complications such as fetal distress and caput of the fetal head.

Conclusion: This study shows that FGM/C is associated with a variety of long-term health consequences, that women with FGM/C are four times more likely to suffer complications during delivery, and the newborn is four times more likely to have health complications if the parturient has undergone FGM/C. These results highlight for the first time the magnitude of consequences during delivery and for the newborn, associated with FGM/C in The Gambia.

Keywords: female genital mutilation/cutting, The Gambia, sexual and reproductive health, Africa

Introduction

"Female genital mutilation/cutting (FGM/C) comprises all procedures that involve partial or total removal of the external female genitalia, or other injury to the female genital organs for non-medical reasons".[1] It is recognized internationally as a violation of the human rights of girls and women, and constitutes an extreme form of discrimination against women due to the health consequences, pain, and risks involved. The World Health Organisation estimates that 140 million women and girls in the world have been victims of some form of FGM/C, and each year about three million girls are at risk or are subjected to the practice. It is found essentially in 28 countries in Sub-Saharan Africa, as well as in parts of the Middle East and Asia (Yemen, Oman, United Arab Emirates, Bahrain,

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and Northern Iraq, as well as India, Malaysia, and Indonesia), plus Europe, the USA and Australia, among the many other countries where migrants carry along their culture.[2,3]

In many societies, it is a rite of passage to womanhood, with strong ancestral and sociocultural roots. Rationalizations for the perpetuation of FGM/C include: preservation of ethnic and gender identity, femininity, female purity/virginity, and "family honor"; maintenance of cleanliness and health; and assurance of women's marriageability.[4,5] In The Gambia, FGM/C is carried out in girls aged between birth (7 days) up to preadolescence, and usually before the first menstruation and marriage.[6–9]

The World Health Organisation classified FGM/C into four types in 1995 and revised the classification in 2007, as follows:

- type I, partial or total removal of the clitoris and/or prepuce (clitoridectomy)
- type II, partial or total removal of the clitoris and labia minora, with or without excision of the labia majora (excision)
- type III, narrowing of the vaginal orifice with creation of a covering seal by cutting and appositioning the labia minora and/or the labia majora, with or without excision of the clitoris (infibulation)
- type IV, all other harmful procedures done to the female genitalia for nonmedical purposes, eg, pricking, piercing, incising, scraping, dry sex, and cauterization.

All types of FGM/C have health consequences that have been well documented. The immediate health complications include shock, hemorrhage, infection, and psychological sequelae,[10–13] and the long-term health risks include chronic pain, infection, keloids, fibrosis, primary infertility, and psychological consequences.[12–18]

A higher rate of complications during delivery and adverse consequences for the newborn have also been observed in women with FGM/C in Africa and Europe.[17–20] Even FGM/C types I and II, sometimes considered as more innocuous, may involve severe health complications. For example, they have been reported to provoke unequivocal complications like shock, hemorrhage, urogenital infection,[11] obstetric complications,[17] and sexual dysfunction.[14]

In The Gambia, the United Nations Children's Fund multiple indicator cluster survey in 2010 showed that the prevalence of FGM/C remains as high as 76.3% in women aged 15–49 years.[21] A recent study by the present authors[22] revealed that FGM/C was still practiced in all six regions in The Gambia and resulted in various forms of damage/injury in one out of three women and girls examined. All forms of FGM/C, even type I, lead to a high numbers of complications, especially infection associated with hemorrhage.

The objective of this study was to gather precise information on the health consequences of FGM/C in The Gambia by conducting a survey on the long-term effects of this traditional practice as well as complications during delivery and for the newborn that were not considered in the first clinical survey.[22] The study was done in the context of an initiative to integrate knowledge about FGM/C into the academic curriculum for health students, tutors, and health professionals in the country. It was included as part of the practicum of the last year of midwifery training at the School of Enrolled Community Health Nurses and Midwives in Mansakonko, Lower River Region, The Gambia.

Materials and methods

Study design

Previous studies have demonstrated the imprecision of self-reported FGM/C and its health consequences.[23] Thus, the study was designed to enable identification of the types of FGM/C and their associated health consequences during delivery by direct medical observation.

Study population

The study population included women who came to a hospital or health center for antenatal care or delivery in the Western Health Region and were examined by a midwifery student, regardless of whether or not they had undergone FGM/C. The women answered a questionnaire and clinical data were collected during the examination, which took place between December 2010 and March 2011, in hospitals and health centers of the Western Health Region (Royal Victoria Teaching Hospital, Serekunda Hospital, FajiKunda Major Health Centre, Jammeh Foundation for Peace Hospital, and Brikama Major Health Centre), resulting in a total of 588 women being involved.

Data collection

Data were collected by 26 Gambian midwifery students during their practicum at the end of specialization, when they had to perform physical examinations, antenatal care, deliveries, and post natal controls. These students were previously trained by the nongovernmental organization, Wassu Gambia Kafo, in order to be able to clearly identify the different types of FGM/C performed and the possible consequences (eg, fibrosis, keloids, synechia). They were also trained in data collection to develop their research skills. The information was recorded in a clinical form especially designed for the study.

The data collection process was supervised by tutors of the School of Enrolled Community Health Nurses and Midwives and Wassu Gambia Kafo trainers, who regularly visited the students during their four months of practicum. The patients gave their informed consent and the data collection was done anonymously.

Questionnaire

The questionnaire was read to the patient and if necessary translated into the local language. It gathered general data on patients (see patient variables) and included questions about seven chronic gynecological problems (see clinical variables).

Physical examination

The types and complications of FGM/C were assessed by direct clinical observation of the genitalia as part of the medical gynecological examination required for antenatal care and/or delivery. Data on delivery complications and the health of the newborn were also collected during labor and through physical examination of the newborn.

Variables studied

Patient variables collected included age, number of living children, ethnic group (Mandinka, Wolof, Fula, Djola, Sarahole, Serer, others), and reason for coming to the hospital or health center (ie, delivery, antenatal care, other).

Clinical variables related to chronic problems, collected through a questionnaire, included dysmenorrhea, recurrent urinary track infection, vulvar or vaginal pain, vaginal discharge, dyspareunia (painful sexual intercourse), bleeding during or after intercourse, and difficult penetration during intercourse. Those collected through physical examination included presence of FGM/C (none, type I–IV) and problems potentially associated with FGM/C, including fibrosis, keloid of the clitoris and/or labia, synechia of the vulva and/or labia minora, and clitoral neuroma.

Clinical variables related to complications during delivery included perineal tearing, a prolonged active phase of labor (exceeding 12 hours), need for episiotomy, need for cesarean delivery, and fresh stillbirth. Those concerning the health of the newborn included presence or absence of complications, fetal distress (fetal heart rate $<$ 100–160 beats per minute), caput of the fetal head (edematous swelling formed under the presenting part of the scalp in a newborn infant as a result of trauma sustained during delivery), fractures and other complications.

Ethical aspects

The study was approved by The Gambia Government/MRC Joint Ethics Committee (R08002). All women included in this study signed or stamped their informed consent. The information collected by examination was secondary data obtained as a result of spontaneous demand by the patient. The clinical register was kept in the custody of the midwifery students and rigorous confidentiality was maintained.

Statistical analysis

A descriptive analysis was carried out on the main variables, and their prevalences as well as 95% confidence intervals (95% CI) are shown. Prevalences were compared using the Chi-squared test. In order to highlight the effects of practicing FGM/C, we did likelihood-based conformity contrasts for variables related to self-perception, complications during delivery, and health complications in the newborn in terms of whether or not the subject had undergone FGM/C (type I or II). Corresponding odds ratios and 95% CI are presented.

Results

Data were collected from a total of 588 women. Sixteen cases were not included in the analysis because it was not clear whether or not they had undergone FGM/C or which type of FGM/C had been performed. Out of the 572 remaining cases, only two women had undergone type III FGM/C and consequently they were not taken into account in the descriptive analysis. Therefore, the final sample size was 570 women.

The prevalence of FGM/C and the main sociodemographic variables of the 570 patients are shown in Table 1. A total of 24.4% (n = 139) did not have any signs of FGM/C, 57.2% (n = 326) had undergone type I FGM/C, and 18.4% (n = 105) had undergone type II FGM/C. Therefore, the prevalence of FGM/C, defined by patients with type I or II FGM/C, was 75.6%.

For the three groups of women (no FGM/C, type I FGM/C, and type II FGM/C), a number of characteristics, including age, ethnic group, number of living children and reason for coming to the hospital or health center, were recorded. As shown in Table 1, the three groups of women were of similar mean age, ie, 25.6 years for the no FGM/C group, 26.3 years for the type I FGM/C group, and 25.4 years for the type II FGM/C group. The number of living children was also similar, with a mean of 1.9 for the no FGM/C group, 2.4 for the type I FGM/C group, and 2.0 for the type II FGM/C group. Overall, the main reason for coming to the hospital or health center was delivery. With regard to ethnicity, it was found that FGM/C prevalence rates were 17.5% among Wolof and 46.2% among Serer, whereas Mandinka, Fula, Sarahole

Table 1 Characteristics of women with no FGM/C, type I FGM/C, and type II FGM/C

	No FGM/C		Type I FGM/C		Type II FGM/C		Total	
Age (years)								
Range	15–41		12–42		15–45		12–45	
Mean	25.6		26.3		25.4		25.9	
Living children (n)								
Range	0–6		0–9		0–9		0–9	
Mean	1.9		2.4		2.0		2.2	
	n	%	n	%	n	%	n	%
Cases[a]	139	24.4	326	57.2	105	18.4	570	100
Reason for attending hospital or health center[b]								
Delivery	94	71.2	205	68.1	82	80.4	381	71.2
Antenatal care	38	28.8	93	30.9	19	18.6	150	28.0
Other	0	0	3	1.0	1	1.0	4	0.7
Total	132	100	301	100	102	100	535	100
Ethnic group[c]								
Mandinka	10	5.7	139	79.4	26	14.9	175	100
Wolof	99	82.5	16	13.3	5	4.2	120	100
Fula	8	6.9	80	69.0	28	24.1	116	100
Sarahole	1	3.3	12	40.0	17	56.7	30	100
Djola	3	3.9	54	71.1	19	25.0	76	100
Serer	7	53.8	3	23.1	3	23.1	13	100
Other	7	36.8	12	63.2	0	0	19	100

Notes: [a]Of total cases (n = 570); [b]of total cases in each group (no FGM/C, type I FGM/C, type II FGM/C, total); [c]of total cases in each ethnic group (Mandinga, Wolof, Fula, Saraholes, Djola, Serer, other).
Abbreviation: FGM/C, female genital mutilation/cutting.

and Djola ethnic groups practice FGM/C extensively, with prevalences in the range of 94.3%–96.7%.

The prevalence and 95% CI of the affirmative category of the clinical variables collected by questionnaire and clinical examination are shown in Table 2. For all chronic health problems canvassed in the questionnaire (eg, dysmenorrhea, recurrent urinary tract infection), the percentage of positive answers was significantly higher for the type I and II FGM/C groups than for the group that had not undergone FGM/C ($P < 0.001$ for all Chi-squared tests). For example, vulvar or vaginal pain affected 5% of women who had not undergone FGM/C, 17.4% of women with type I FGM/C, and 39.8% of women with type II FGM/C. Difficult penetration during intercourse was reported by 5.8%, 15.1%, and 50.5% of women, respectively. The 95% CI showed a slight overlap for dysmenorrhea, recurrent urinary tract infection, vaginal discharge, and bleeding during or after intercourse. No overlap was found for the rest of the items in the questionnaire.

With regard to chronic problems detected by clinical examination (eg, fibrosis, keloids), no cases or a very low number of cases (1–2) were recorded in the group that had not undergone FGM/C. Type I FGM/C was associated with a prevalence of fibrosis, keloids, synechia, and clitoral neuroma ranging from 2.5% to 15.8% whereas for type II FGM/C this prevalence ranged from 19.4% to 54.4%. This finding clearly indicates that fibrosis, keloids, synechia, and clitoral neuroma are consequences of FGM/C, and that their prevalence rises progressively from type I to type II.

Table 3 shows the complications during delivery, which affected 11.7% of the group that had not undergone FGM/C, 39.0% of those with type I and 65.9% of those with type II FGM/C. When the different complications were analyzed, rates of perineal tear, need for episiotomy and prolonged labor were significantly increased in women who had undergone type I or II FGM/C. The number of stillbirths followed the same trend. Although the need for cesarean section was low in all groups, it was significantly higher for those with FGM/C type III.

Finally, complication rates in newborns were 5.3% for mothers who had not undergone FGM/C, 15.6% for mothers with type I and 37.8% for mothers with type II FGM/C. Fetal distress was observed in 3.2% of cases for mothers who had not undergone FGM/C, 8.8% for those with type I, and 26.8% for those with type II FGM/C. Caput of the fetal head was found among 1.1%, 14.5% and 34.2% of the groups, respectively. Data were also collected for other types of newborn complications,

Table 2 Prevalence and 95% confidence intervals of the affirmative category of the clinical variables collected by questionnaire and clinical examination

	No FGM/C			Type I FGM/C			Type II FGM/C			χ^2 (*P* value)
	n	%	95% CI	n	%	95% CI	n	%	95% CI	
Cases (n)	139			326			105			
Common symptoms										
Dysmenorrhea[a]	48	34.5	26.3–42.8	188	58.2	52.7–63.7	71	67.6	58.2–77.1	31.4 (<0.001)
Recurrent urinary tract infection[a]	20	14.4	8.2–20.6	63	19.6	15.0–24.0	46	44.2	34.2–54.3	34.6 (<0.001)
Vulvar or vaginal pain[a]	7	5.0	1.0–9.0	56	17.4	13.1–21.7	41	39.8	29.9–49.7	48.1 (<0.001)
Vaginal discharge[a]	40	28.8	20.9–36.7	166	51.4	45.8–57.0	63	60.6	50.7–70.5	28.6 (<0.001)
Painful intercourse[a]	18	12.9	7.0–18.9	95	29.3	24.2–34.4	60	57.1	47.2–67.1	55.6 (<0.001)
Bleeding during or after intercourse[a]	3	2.2	0.5–6.2	17	5.3	2.7–7.9	33	31.4	22.1–40.8	75.3 (<0.001)
Difficult penetration during intercourse[a]	8	5.8	1.5–10.0	49	15.1	12.0–19.2	53	50.5	40.4–60.5	85.3 (<0.001)
Presentation										
Fibrosis[a]	0	0	0–2.7	51	15.8	11.7–19.9	20	19.4	11.3–27.5	26.5 (<0.001)
Keloid of clitoris[a]	0	0	0–2.7	43	13.3	9.4–17.1	37	35.6	25.9–45.3	61.3 (<0.001)
Keloid of labia[a]	1	0.8	0.02–1.1	8	2.5	0.6–4.3	22	21.6	13.1–30.0	61.7 (<0.001)
Synechia of vulva[a]	1	0.8	0.02–1.1	23	7.1	4.2–10.1	31	30.4	21.0–39.8	63.8 (<0.001)
Synechia of labia minora[a]	1	0.8	0.02–1.1	34	10.5	7.0–14.0	56	54.4	44.3–64.5	141.4 (<0.001)
Clitoral neuroma[a]	2	1.5	0.18–5.3	26	8.1	4.9–11.2	21	20.6	12.3–28.9	26.9 (<0.001)

Note: [a]Of the total number of answers for each question and for each group (no FGM/C, type I FGM/C, type II FGM/C), that may be less than or equal to the total number of cases.
Abbreviations: FGM/C, female genital mutilation/cutting; CI, confidence interval.

including fracture (one case) and other type of complications (three cases, type unspecified); however, because the prevalence of these complications was not significant and their type was not well documented, they are not discussed here.

Table 4 presents the odds ratios (and 95% CI) for variables related to self-perception in women who had not undergone FGM/C (n = 139) and in those with type I or type II FGM/C (n = 431), as well as for complications during delivery and in neonates of parturient women who had not undergone FGM/C (n = 94) and in those with FGM/C (n = 287). The corresponding figures were not calculated for variables relating to gynecological examination because, as clear from Table 2, there were very few cases of gynecological problems in women who had not undergone FGM/C (range 0%–0.8%) whereas the figures for women with FGM/C were clearly different (range 7%–21%). The results show significant associations in all cases ($P < 0.001$, except for recurrent urinary tract infection), particularly for vulvar or vaginal pain (odds ratio 5.58; 95% CI 2.52–12.33) and painful intercourse (odds ratio 3.80; 95% CI 2.23–6.48).

Finally, we performed likelihood-based conformity contrasts, with statistical significance levels of $P < 0.0001$ in all

Table 3 Prevalence and 95% confidence intervals of the affirmative category of complications during delivery and in newborn collected by clinical examination

	No FGM/C			Type I FGM/C			Type II FGM/C			χ^2 (*P* value)
	n	%	95% CI	n	%	95% CI	n	%	95% CI	
Delivery cases (n)	94			205			82			
Complications[a]	11	11.7	4.7–18.7	80	39.0	32.1–45.9	54	65.9	55.0–76.7	75.4 (<0.001)
Type of complication										
Perineal tear[a]	9	9.6	3.1–16.1	57	27.8	21.4–34.2	40	48.8	37.4–60.2	51.6 (<0.001)
Prolonged labor[a]	8	8.5	2.3–14.7	32	15.6	10.4–20.8	30	36.6	25.6–47.6	53.5 (<0.001)
Need for episiotomy[a]	3	3.2	0.7–9.1	41	20.0	14.3–25.7	25	30.5	19.9–41.1	35.5 (<0.001)
Need for cesarean section[a]	1	1.1	0.03–5.8	1	0.5	0.01–2.7	5	6.1	2.0–13.7	12.0 (0.003)
Fresh stillbirth[a]	0	0	0–3.9	6	2.9	0.4–5.5	5	6.1	2.7–16.8	17.8 (<0.001)
Neonatal complications (n)[a]	5	5.3	1.8–12.0	32	15.6	10.4–20.8	31	37.8	26.7–48.9	44.5 (<0.001)
Fetal distress[a]	3	3.2	0.7–9.1	18	8.8	4.7–12.9	22	26.8	16.6–37.0	31.6 (<0.001)
Caput of fetal head[a]	1	1.1	0.03–5.8	30	14.6	9.6–19.7	28	34.2	23.3–45.0	46.8 (<0.001)

Notes: [a]Of total number of deliveries for each group (no FGM/C, type I FGM/C, type II FGM/C).
Abbreviations: CI, confidence interval; FGM/C, female genital mutilation/cutting.

Table 4 Prevalence and OR (95% CI) of the affirmative category of the clinical variables and of the delivery and newborn complications, for the no FGM/C and FGM/C (type I and II) groups

Maternal symptoms	n (%)		OR (95% CI)	*P* value
	No FGM/C	Type I and II FGM/C		
Dysmenorrhea[a]	64 (34.5)	260 (60.5)	2.91 (1.95–4.33)	<0.001
Recurrent urinary tract infection[a]	20 (14.4)	109 (25.5)	2.05 (1.21–3.45)	0.07
Vulvar or vaginal pain[a]	7 (5.0)	99 (22.8)	5.58 (2.52–12.33)	<0.001
Vaginal discharge[a]	40 (28.8)	230 (53.6)	2.86 (1.89–4.33)	<0.001
Painful intercourse[a]	18 (12.9)	156 (36.1)	3.80 (2.23–6.48)	<0.001
Bleeding during or after intercourse[a]	3 (2.2)	51 (11.7)	5.99 (1.84–19.54)	<0.001
Difficult penetration during intercourse[a]	8 (5.8)	103 (24.0)	5.12 (2.42–10.79)	<0.001
Complications during delivery[b]	11 (11.7)	134 (46.9)	6.70 (3.42–13.1)	<0.001
Perineal tear[b]	9 (9.6)	97 (33.8)	4.82 (2.33–10.00)	<0.001
Prolonged labor[b]	8 (8.6)	62 (21.6)	2.96 (1.36–6.44)	0.003
Need for episiotomy[b]	3 (3.2)	66 (24.7)	9.06 (2.78–29.56)	<0.001
Need for cesarean[b]	1 (1.1)	6 (2.3)	–	–
Fresh stillbirth[b]	0 (0.0)	11 (3.8)	–	–
Neonatal complications[b]	5 (5.3)	63 (22.5)	5.17 (2.01–13.28)	<0.001
Fetal distress[b]	3 (3.2)	40 (13.9)	4.91 (1.48–13.27)	0.005
Caput of fetal head[b]	1 (1.1)	58 (20.6)	–	–

Notes: [a]Of total number of answers for each question and for each group (no FGM/C, type I and II FGM/C), that may be less than or equal to the total number of cases; [b]of the total number of deliveries for each group (no FGM/C, type I and II FGM/C); (–) not calculated because of insufficient number of cases.
Abbreviations: CI, confidence interval; FGM/C, female genital mutilation/cutting; OR, odds ratio.

cases. This confirms the strength of the associations observed using odds ratios and their 95% CI.

Discussion

Clinical examination showed a prevalence of 75.6% for type I and type II FGM/C. This finding is consistent with that of the United Nations Children's Fund multiple indicator cluster survey in 2010 where the prevalence of FGM/C in women aged 15–49 years was found to be 76.3%.[21] Moreover, in that study, out of 431 women with FGM/C, 75.6% (n = 326) were found to have type I FGM/C and 24.4% had type II FGM/C. These percentages are comparable with the results of a previous study by the same authors,[22] where type I and type II FGM/C accounted for 66.2% and 26.3% of cases, respectively, in a nationwide study. Therefore, it can be concluded that the group of women analyzed is fully representative of the adult female population in The Gambia with regard to prevalence and types of FGM/C practiced. Our findings do differ significantly from those reported by a study conducted in 2001 by Morison et al[15] in which 98% of women with FGM/C had type II. However, that study was performed in the specific area of Farafenni (Northbank East), where there is a predominance of one ethnic group, the Mandinka, so direct comparison with the present work, which covers the Western Health Region and all major ethnic groups, is not feasible.

Comparison of sociodemographic factors (age, number of living children, reason for coming to the hospital or health center) showed that the three groups (no FGM/C, type I FGM/C, type II FGM/C) were homogeneous, suggesting that these factors cannot be responsible for the differences observed regarding clinical variables. However, the three goups of women differed in terms of ethnic group distribution, with the Mandinka, Fula, Sarahole and Djola practicing FGM/C extensively, whereas the remaining ethnic groups, particulalry the Wolof, do not. This reflects the fact that FGM/C has deep sociocultural roots and that its practice is strongly associated with belonging to a given ethnic group, as mentioned previously by several investigators.[6–9,15]

The results of the questionnaire and medical examinations indicate that type I and II FGM/C are responsible for the increased prevalence of various long-term health problems. Higher rates of dysmenorrhea have been documented previously in women with type I and II FGM/C, and attributed to chronic pelvic infection, pelvic congestion due to the small vaginal opening, and genital infection, all being late sequelae of FGM/C.[24–26] The higher rates of recurrent urinary tract infection and vaginal discharge in women with FGM/C are linked with genital infections and chronic pelvic inflammatory disease, as previously stated.[25,26] The higher rates observed for vulvar or vaginal pain in women with FGM/C have also been documented previously and attributed to trapped or unprotected nerve endings as a result of cutting.[24]

Clinical examination confirmed that FGM/C can lead to anomalous healing,[22,24,27] generating a variety of

consequences, including fibrosis, keloid of the clitoris (type I and II FGM/C), and keloid of the labia (type II FGM/C). Consistent with the definition of FGM/C types, keloid of the labia was rarely observed for women with type I FGM/C (2.5%) and commonly observed for women with type II FGM/C (21.6%).

Problems during healing can cause adhesion (synechia) of the two portions of the labia minora, and were observed in women with type I or II FGM/C. Although it is clear that cutting of the labia minora and/or majora can potentially lead to synechia in women with type II FGM/C, it is unclear how type I FGM/C can cause synechia of the labia or vulva (seen, respectively, in 7.1% and 10.5% of cases). To explain these results, it is probably necessary to take into account the fact that FGM/C is often practiced by an old woman using an instrument that does not facilitate high precision in cutting (eg, a knife), without anesthesia, and therefore the anatomical extent of the cutting can easily exceed the region of the clitoris for type I FGM/C. The two cases of synechia of the vulva and labia minora in women without FGM/C were probably of the naturally occurring variety, as reported in the literature.[28]

Clitoral neuroma was observed in 8.1% of women with type I FGM/C and in 20.6% of women with type II FGM/C, indicating that clitoral neuroma may be a more frequent complication in women with FGM/C than previously thought.[29,30]

The present results also show that type I and II FGM/C have a negative impact on women's sexual lives when compared with women who have not undergone FGM/C, as previously reported.[14,25,31] Rates of painful intercourse (dyspareunia), bleeding during or after intercourse, and difficult penetration were increased by a factor of 4–9 compared with women who had not undergone FGM/C. The presence of these sexual problems is consistent with the higher rates of vulvar or vaginal pain, clitoral neuroma, and healing pathologies seen in these women.

The results shown in Table 2 demonstrate that FGM/C has permanent health consequences for women and that it negatively affects their sexual life in comparison with women who do not undergo FGM/C. Our results confirm those of our previous study,[22] in which significantly higher rates of late complications related to FGM/C were found, especially abnormal scarring and infection. However, again, our present results differ from those reported by Morison et al,[15] where it was found that women with FGM/C have a higher prevalence of bacterial vaginosis and herpes simplex virus 2, and no other late associated complications.

FGM/C also has negative repercussions for delivery and the health of the newborn. Complication rates increased dramatically in women with type I or II FGM/C (39.0% and 65.9%, respectively) compared with women who had not undergone FGM/C (11.7%). The obstetric complication most often found in all three groups was perineal tearing, but with a prevalence three times higher for women with type I FGM/C (27.8%) and five times higher for women with type II FGM/C (48.8%) compared with women who had not undergone FGM/C (9.6%). The higher frequency of perineal tear among women with FGM/C, which has also been observed by other researchers,[19,25,32] is attributed to loss of elasticity of the perineal tissue because of scar tissue and abnormal scarring (fibrosis and keloids). This loss of elasticity of the perineum is also thought to be related to the much greater prevalence of episiotomy observed for women with type I (20.0%) and type II (30.5%) FGM/C, in comparison with women who had not undergone FGM/C (3.2%). Prolonged labor was also more frequent among women with FGM/C.

The practice of cesarean section was low in all cases, which can be related to the poor sanitary conditions found in The Gambia, where only 2.2% of births in the four main hospitals are delivered by cesarean section, with 79% of these procedures being performed at the Royal Victoria Teaching Hospital.[33] However, rates of cesarean section were significantly higher for women with type II FGM/C (6.1%). Although FGM/C does not directly affect the main factors responsible for cesarean section (inability of the head of the baby to pass throughout the pelvis), it can be hypothesized that cesarean section was done preventively in women with severe abnormal scarring and/or synechia, which is more frequently observed in women with type II FGM/C.

Finally, higher rates of fresh stillbirth were observed for women with type I or II FGM/C, as previously observed by other researchers.[18,19,34] These stillbirths are linked to a prolonged second stage of labor, because of obstruction and loss of tissue elasticity. Macerated stillbirth was not considered because it cannot be related to FGM/C.

Complications during delivery also have serious repercussions for the health of the newborn. Fetal distress was more commonly observed in the babies of women with type I or II FGM/C, confirming the fact that prolonged labor as a result of FGM/C affects the health of the newborn, as reflected in the stillbirth rates. In addition, the frequency of caput of the fetal head increased from 1.1% (n = 1) during deliveries for women without FGM/C to 14.6% and 34.2% for women with FGM/C types I and II respectively, again as a consequence of prolonged labor.

These results highlight the strong relationship between FGM/C and a higher rate of maternal and fetal complications. This finding needs to be discussed in relation to the poor sanitary conditions of The Gambia.[35,36] Cham et al[35] have demonstrated that the availability and quality of emergency obstetric care is deficient, and that there is an endemic lack of blood for transfusion and shortage of essential medicine, even in the Royal Victoria Teaching Hospital in Banjul, which is the main referral hospital in the country. The maternal-fetal complications reported here are probably not managed with all the necessary materials and resources, possibly resulting in a worsening of health for both mother and baby in the days following delivery.

In addition, the present study only involved pregnant women who delivered in a health facility, whereas it has been reported that 70% of deliveries in The Gambia occur at home, supervised by a traditional birth attendant or a relative.[35] This is especially relevant in the rural Central and Upper River regions, where the prevalence of FGM/C has been documented to be higher[21] and where emergency obstetric care is seriously deficient, resulting in high maternal mortality.[37] For this rural population, it can be hypothesized that the obstetric consequences related to FGM/C are even worse.

There is no doubt that the maternal-fetal complications directly attributable to the practice of FGM/C significantly worsen the health of women and their babies in a country where maternal mortality is ranked among the highest in Africa, estimated at 1050 per 100,000 live births,[37] and where the infant mortality rate is 57 per 1000 live births.[38]

Conclusion

This survey, the first on FGM/C obstetric outcomes in The Gambia, highlights the fact that complications during delivery are markedly increased for women with FGM/C in comparison with women who have not undergone FGM/C, as are the rates of stillbirth and health complications for newborns. This study is unique in the sense that the data were collected by Gambian midwifery students during their practicum at the end of specialization, thus contributing to building the capacities of both the students and their tutors on FGM/C and social research skills. Our results, apart from their intrinsic scientific value, are also very useful for transferring medical knowledge regarding the harmfulness of FGM/C to Gambian health professionals, and reinforce the need for implementation of a national training programme for health professionals and students regarding the issue of FGM/C, that highlights the health consequences observed in The Gambia.

These clinical results also have a high social value, as proved in 2011 when they were presented at the Colloquium of West African Imams and Oulemas, in Mauritania, leading to a Fatwa (resolution) recognizing FGM/C as a harmful practice and confirming the commitment of Muslim authorities to avoid its perpetuation.

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Disclosure

The authors report no conflicts of interest in this work.

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