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Which type of circumcision is more harmful to female sexual functions?

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Summary

Background: Female genital mutilation (FGM) is common in Sub-Saharan Africa. It has been shown that it can cause sexual dysfunction. *Materials and Methods:* A total of 239 volunteer women were included in the study, which was conducted between April 2014 and January 2015; 210 of these women were circumcised and 29 were uncircumcised. Sexual functions of the women were evaluated by using Female Sexual Functioning Index (FSFI). Statistical analyses were performed by using the Mann-Whitney U-test, Kruskal-Wallis test, and chi-square test. *Results:* The ages of women examined ranged between 17 and 65 years (mean: 33.54 ± 10.25). The ratio of women circumcised was determined as 87.9%. The most commonly performed circumcision type was Type 2 (51%), followed by Type 3 (25.7%); the remaining cases were determined to be Type 1 circumcision (23.3%). Both the total FSFI scores and each individual score of sexual desire, arousal, lubrication, orgasm, satisfaction, and pain differed between the uncircumcised and circumcised women; these differences were statistically significant. When the circumcision types were compared to each other, the difference between Type 1 and 2 was not statistically significant, whereas the differences between Type 1 and 3, and between Type 2 and 3 were statistically significant. *Discussion:* Type 3 FGM is the most severe form of FGM, in which almost all of the female external genitalia is excised, and the remaining parts are sewn together; this procedure narrows the opening of the genital organ. In the current study, the lowest FSFI scores were determined in women with Type 3 FGM. Circumcision, and especially the Type 3, is still an important health problem causing female sexual function disorders in the women living in Darfur, Sudan.

Key words: Female genital mutilation; Sexual function; Type 3 female circumcision.

Introduction

Female genital mutilation (FGM) is defined by the World Health Organization (WHO) as all procedures involving partial or total removal of the female external genitalia for non-medical reasons. Female genital mutilation is concentrated in Africa and Middle Eastern countries [1]. It is generally performed on girls between the ages of five and 12, and sometimes on adult girls after puberty [2]. This procedure is performed with or without local anesthesia, by holding them forcibly, and by using knives, razor blades, or pieces of broken glass. FGM is classified by the WHO in four types: Type 1 – excision of the clitoris prepuce and/or total or partial clitorectomy; Type 2 – total or partial excision of the labium minus and/or clitorectomy; Type 3 – excision of the labium majus and sewing the remaining parts of the outer lips together (infibulation); Type 4 – puncturing, piercing, cutting, or cauterization without extracting any part.

Infibulation is the most severe form of FGM, and it is mainly performed in Djibouti, Eritrea, Ethiopia, Somalia, and Sudan [3]. After infibulation, i.e. after sewing the remaining parts of the outer lips together, the feet of girls are tied together and they are kept in that position for many days in order to support the excised remaining parts to join together [4]. Complications depend on the environmental and procedural hygiene, the tools used, experience of the person who carries out the procedure, or the type of the FGM procedure [1, 5]. In patients who underwent Type 3 FGM, some problems experienced included: inability to have sexual intercourse, infertility, dysmenorrhea, endometriosis, difficulty in urination, and prolonged and difficult labor and delivery because of the narrow openings for urine and menstrual flow [6]. Many previous studies have determined that FGM causes various degrees of sexual function disorders, decrease in sexual pleasure, and feelings of humiliation and inadequacy in women when compared to their congeneric [7, 8].

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Table 1. — *Ratios of circumcised women.*

	Frequency	Percentage	Valid percentage
Circumcised	210	87.1	87.9
Uncircumcised	29	12	12.1
Total	239	99.2	100

Table 2. — *Distribution of circumcised women according to the types of circumcision.*

FGM Type	Frequency	Percentage	Valid percentage	Cumulative percentage
Type 1	49	20.3	23.3	23.3
Type 2	107	44.4	51	74.3
Type 3	54	22.4	25.7	100
Total	210	87.1	100	100

Female circumcision, which is a common procedure in Sudan, is performed in different areas of the country, in differing ratios. FGM is also performed in high ratios in the Darfur district of Sudan. The Female Sexual Functioning Index (FSFI) is used to evaluate sexual functions in women. The present study aimed to evaluate sexual functions in circumcised and uncircumcised women in the Darfur region of Sudan, and to determine if sexual functions differ depending on the type of female circumcision.

Materials and Methods

A total of 239 volunteer women were included in the study, which was conducted between April 2014 and January 2015; 210 of these women were circumcised and 29 were uncircumcised. The women were from Sudan Nyala Training and Research Hospital, either working or accompanying the patients there, or who attended a department other than Obstetrics and Gynecology. They were questioned about their ages and if they were circumcised. They were examined to determine the type of circumcision, and the results were noted. Their sexual functions were evaluated by using FSFI translated into Arabic. FSFI is an approved, brief, composite, and multidimensional questionnaire measure that evaluates female sexual functions. It consists of a total of 19 questions, and their distributions and items for being evaluated are as follows: 2 for sexual desire (libido), 4 for subjective arousal, 4 for lubrication, 3 for orgasm, 3 for satisfaction, and 3 for pain. Each question is scored between 0 and 5. The scores of each questionnaire item are added individually within itself, and the total score is calculated as previously stated [9].

Statistical analyses were performed by using the Mann-Whitney U-test, Kruskal-Wallis test, and chi-square test. A p value < 0.05 was accepted as significant.

Results

The ages of women examined ranged between 17 and 65 years (mean: 33.54 ± 10.25). The ratio of women circumcised was determined as 87.9% (Table 1). The most commonly performed circumcision type was Type 2 (51%), followed by Type 3 (25.7%); the remaining cases were determined to be Type 1 circumcision (23.3%) (Table 2).

Table 3. — *Total FSFI scores of the women.*

FSFI score	Number of women	Minimum score	Maximum score	Mean score	Standard Deviation
Uncircumcised	29	7.20	32.60	24.4138	5.69177
Type 1	49	8.00	27.90	20.3204	4.15421
Type 2	107	7.80	33.50	20.2421	4.08735
Type 3	54	2.30	27.60	16.6741	5.21891

Table 4. — *Total FSFI scores and the mean scores according to the types of circumcision.*

Type of circumcision		Number of women	Minimum	Maximum	Mean	Std. Deviation
Unc.	FSFI	29	**7.20**	**32.60**	**24.4138**	5.69177
	Desire	29	2.00	10.00	6.5862	1.91828
	Arousal	29	4.00	19.00	13.7241	3.90875
	Lubrication	29	4.00	18.00	13.9310	3.11598
	Orgasm	29	3.00	14.00	10.4828	2.50172
	Satisfaction	29	3.00	15.00	10.0690	2.86520
	Pain	29	3.00	13.00	9.8621	2.24760
Type 1	FSFI	49	**8.00**	**27.90**	**20.3204**	4.15421
	Desire	49	2.00	8.00	5.1429	1.60728
	Arousal	49	4.00	17.00	10.6327	3.16026
	Lubrication	49	4.00	17.00	11.8776	2.98351
	Orgasm	49	3.00	12.00	8.7347	2.01841
	Satisfaction	49	3.00	12.00	7.9184	2.42244
	Pain	49	3.00	15.00	9.5510	2.28274
Type 2	FSFI	107	**7.80**	**33.50**	**20.2421**	4.08735
	Desire	107	2.00	10.00	5.1028	1.47261
	Arousal	107	4.00	20.00	10.7850	3.04069
	Lubrication	107	4.00	18.00	11.9533	2.83969
	Orgasm	107	3.00	14.00	8.7664	1.88129
	Satisfaction	107	3.00	13.00	7.9626	2.06920
	Pain	107	3.00	15.00	9.1682	2.22544
Type 3	FSFI	54	**2.30**	**27.60**	**16.6741**	5.21891
	Desire	54	2.00	8.00	4.3333	1.37361
	Arousal	54	1.00	16.00	8.7778	3.26020
	Lubrication	54	0.00	16.00	9.8148	3.63979
	Orgasm	54	0.00	12.00	7.0556	2.49843
	Satisfaction	54	2.00	12.00	6.8333	2.32906
	Pain	54	0.00	12.00	7.3519	2.70679

Both the total FSFI scores and each individual score of sexual desire, arousal, lubrication, orgasm, satisfaction, and pain differed between the uncircumcised and circumcised women; these differences were statistically significant. In particular, the difference determined between uncircumcised women and Type 3 circumcised cases was extremely prominent (Table 3).

When the circumcision types were compared to each other, the difference between Type 1 and Type 2 was not statistically significant, whereas the differences between Type 1 and Type 3, and between Type 2 and Type 3 were statistically significant.

Discussion

The definition of sexual health of the WHO refers to a state of physical, emotional, mental, and social well-being in relation to sexuality [10]. Sexuality for women is a concept that includes desirability, ability to give birth to a baby, and body image, in addition to emotional, intellectual, and sociocultural components [11]. Therefore, the problems experienced related to sexual functions are extremely private, irritable, and physically and socially destructive for women, and may lead to emotional stress, partner disagreements, and divorces. These problems decrease self-confidence and quality of life in women, and affect their mental states [12].

It is essential to have a functioning body for a healthy and happy sex life. FGM involves partial or total removal of the female external genitalia. According to current estimations, approximately 100-140 million women have already been circumcised, and additionally, approximately two million women will be circumcised each year [1]. Type 1 and 2 are commonly performed in West African countries, and Type 3 in Somalia, Djibouti, Ethiopia, Egypt, and Sudan. In the current study, FGM Type 2 was determined to be the most concentrated in Darfur (51%), which was followed by Type 3 (25.7%), and Type 1 (23.3%), respectively (Table 2).

Circumcision is an illegal procedure in Sudan. It is known that the performers and those allowing circumcision will be sentenced or fined if they are caught; therefore, circumcision currently continues to be performed under unsuitable and secret conditions. In central areas where people with high levels of education live, the ratio of circumcision is low (32-45% in Khartoum), whereas this ratio is high in rural areas where inhabitants have low levels of education (87% in Haj Yousif, 99.6% in Shendi) [13, 14]. According to the Sudan Demographic and Health Survey (SDHS) performed in 1989-1990, the circumcision ratio in the Darfur area was reported to be 65%; in the current study, this ratio was 87% [15]. This higher ratio was explained by the intensive migration of people and refugees from the rural areas to the center of Nyala, in which the present study was performed, due to the fire fights and battles that began in Darfur in 2003.

Many studies have determined that damage to the external genitalia negatively affects women's sexual life. In a meta-analysis of the results of 15 studies examining the sexual consequences of FGM in 12,671 cases from seven different countries, performed by Berg and Denison, they determined dyspareunia in 52% of women with FGM, absence of sexual desire in almost half of them, and decreased sexual satisfaction in one-third of them [16]. Additionally, in some studies, anxiety, depression, and post-traumatic stress disorder were reported in women with FGM [17]. When sexual desire, arousal, lubrication, orgasm, sexual satisfaction, pain, and total FSFI scores were compared in the present study between 210 circumcised cases and 29 uncircumcised women, uncircumcised women were determined to possess higher scores (Table 4).

Type 1 is generally called 'sunna' in Sudan, and it refers to removal of the clitoral prepuce only [18]. However, the current study determined total or partial clitorectomy in all cases with Type 1 FGM. The clitoris is important in sexual arousal, sexual satisfaction, and orgasm. Partial or total removal of this organ decreases sexual pleasure in women. This fact was proven by the significant correction of sexual functions in women with FGM after clitoral reconstruction [19]. When sexual function scores were compared between the types of circumcision in the current study, Type 1 and 2 did not differ significantly (Type 1 20.32 ± 4.15, Type 2 20.24 ± 4.087). This result was explained by the removal of the clitoris in both types.

In Type 3,which is the most severe form of FGM, almost all of the female external genitalia is excised, and the remaining parts are sewn together; this procedure narrows the opening of the genital organ. Girls' feet are then tied together and they are forced to stay in that position for many days, in order to support the remaining excised parts to join together. The resultant scars and adhesions in most of them cause pain during sexual intercourse and difficulty in intercourse, and therefore lead to sexual function disorders [20, 21]. In the current study, the lowest FSFI scores were determined in women with Type 3 FGM (FSFI score 16.67 ± 5.218). When the types of circumcision were compared, sexual desire, arousal, lubrication, orgasm, sexual satisfaction, and pain scores, as well as total FSFI scores differed significantly between Type 1 and 3, and also between the Type 2 and 3 (Table 3).

Conclusion

In spite of laws against circumcision, and the intensive studies of the WHO, UNICEF, and various local non-governmental organizations, FGM continues to be performed in high ratios in Sudan. Circumcision, and especially Type 3, is still an important health problem causing female sexual function disorders in the women living in Darfur, Sudan.

References

[1] World Health Organization, Department of Reproductive Health and Research: "Eliminating female genital mutilation: an interagency statement". Geneva: WHO, 2008. Available at: http://apps.who.int/iris/bitstream/10665/43839/1/9789241596442_eng.pdf

[2] Shah G., Susan L., Furcroy J.: "Female circumcision: history, medical and psychological complications, and initiatives to eradicate this practice". *Can. J. Urol.*, 2009, *16*, 4576.

[3] Yoder P.S., Khan S., USAID: "Numbers of women circumcised in Africa: the production of a total. DHS Working Paper 39". Claverton MD: Macro International, 2004.

[4] Perron L., Senikas V., Burnett M., Davis V., Society of Obstetricians and Gynaecologists of Canada: "Female genital cutting". *J. Obstet. Gynaecol. Can.*, 2013, *35*, 1028.

[5] MacLeod T.L.: "Female genital mutilation". *J. SOGC*, 1995, *17*, 333.
[6] Nour N.M.: "Female genital cutting: clinical and cultural guidelines". *Obstet. Gynecol. Surv.*, 2004, *59*, 272.
[7] Catania L., Abdulcadir O., Puppo V., Verde J.B., Abdulcadir J., Abdulcadir D.: "Pleasure and orgasm in women with Female Genital Mutilation/Cutting (FGM/C)". *J. Sex. Med.*, 2007, *4*, 1666.
[8] Utz-Billing I., Kentenich H.: "Female genital mutilation: an injury, physical and mental harm". *J. Psychosom. Obstet. Gynaecol.*, 2008, *29*, 225.
[9] Rosen R., Brown C., Heiman J., Leiblum S., Meston C., Shabsigh R., *et al.*: "The Female Sexual Function Index (FSFI): a multi-dimensional self report instrument for the assessment of female sexual function". *Sex. Marital. Ther.*, 2000, *26*, 191.
[10] World Health Organization: "Developing sexual health programmes. A framework for action". WHO/RHR/HRP/10.22, 2010. Available at: http://apps.who.int/iris/bitstream/10665/70501/1/WHO_RHR_HRP_10.22_eng.pdf
[11] Shifren J.L., Monz B.U., Russo P.A., Segreti A., Johannes C.B.: "Sexual problems and distress in United States women: prevalence and correlates". *Obstet. Gynecol.*, 2008, *2*, 970.
[12] Laumann E.O., Glasser D.B., Neves R.C., Moreira E.D. Jr., GSSAB Investigators' Group: "A population-based survey of sexual activity, sexual problems and associated help-seeking behavior patterns in mature adults in the United States of America". *Int. J. Impot. Res.*, 2009, *21*, 171.
[13] Islam M.M,. Uddin M.M.: "Female circumcision in Sudan: future prospects and strategies for erradication. *International Family Planning Perspectives*, 2001, *27*, 71.
[14] Al Nagar S., Tønnessen L.: "Sudan Country Case Study: Child Rights". Commissioned by Norad and Sida, 2011:3 UTV Working Paper, 2011: 3. Available at: http://www.sida.se/contentassets/e3a7b0cb84274558afc2720451885d62/20113-sudan-country-case-study-child-rights_3127.pdf
[15] Department of Statistics: "Sudan Demographic and Health Survey 1989/1990" Khartoum, Sudan: Department of Statistics; Columbia, MD, USA: Institute of Resource Development/Macro International, 1991. Available at: http://dhsprogram.com/pubs/pdf/fr36/fr36.pdf
[16] Berg R.C., Denison E.: "Does female genital mutilation/cutting (FGM/C) affect women's sexual functioning? A systematic review of the sexual consequences of FGM/C". *Sexual Res. Social Policy*, 2012, *9*, 41.
[17] Reisel D., Creightonb S.M.: "Long term health consequences of Female Genital Mutilation (FGM)". *Maturitas*, 2015, *80*, 48.
[18] Dareer A.E., Kheir H.M., Kumar S., Cross A.R., Islam M.: "Baseline Survey on Reproductive Health and Family Planning". Khartoum, Sudan: Central Bureau of Statistics; New York: UNFPA, 1999. Available at: https://www.guttmacher.org
[19] Abdulcadir J., Rodriguez M.I., Petignat P., Say L.: "Clitoral reconstruction after female genital mutilation/cutting: case studies". *J. Sex. Med.*, 2015, *12*, 274.
[20] Althaus F.A.: "Female circumcision: rite of passage or violation of rights". *International Family Planning Perspectives*, 1997, *23*, 130.
[21] Shandall A.A.: "Circumcision and infibulation of females" *Sudan Medical Journal,* 1967, *5*, 178.

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