Determinants of Female Genital Mutilation/Cutting in Khartoum State - Sudan, 2020: A Cross-Sectional Study

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Abstract

Background: Female genital cutting/mutilation (FGC/M) is deeply rooted and widely practiced in Sudan. Although the trend is slowly decreasing, the magnitude is still very high as the procedure has no known benefit but has many consequences. The aim of this study was to identify the causes and the risk factors associated with FGC/M among reproductive-age women in the country.

Methods: A community based cross-sectional survey was conducted among 902 women in the reproductive age (15-49) years in Khartoum State-Sudan, sampled proportionate to size using multistage clustering and participants were drawn using systematic probability sampling technique. Data were collected using a standardized administered questionnaire. Statistical analysis was done using bivariate and multivariate logistic regression.

Results: Among 902 women who participated in the study, 89% of were married and 48% of them got married for the first time at age less than 20 years. The commonest age for such practice was 6-7 years as stated by about 48% of them. There is a significant association between educational level of participants and practicing FGC/M among their daughters (P value=.0001) with a tendency of the participants who attained a higher educational levels to less subject their daughters to any form of FGC/M. There is a significant association between the type of FGC/M of participants and the type of FGC/M of their daughters (P value=.001) with a tendency of the participants' daughters to be subjected to clitorectomy rather than pharaonic. 39% of the participants stated that they themselves influenced the decision to subject their daughters to FGC/M while 32% of them stated that the grandmothers influence such a decision. The study revealed 45% of the participants believed in customs and traditions as the main reason for the conduct of FGC/M.

Conclusion: The FGC/M was widely practiced by the participants' families indicating the deeply rooted practice as a social norm. Parental education is inversely associated with practicing FGC/M to their daughters. The socio-cultural reason was the main cause of practicing FGC/M among participants. Therefore, a significant change in factors such as education, and social development might cause a gradual decline in FGC/M.

Background

Female genital mutilation (FGM) 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. FGM is mostly carried out on young girls between infancy and age 15 and it is considered as violation of human rights of girls and women [1]. More than 200 million girls and women alive today have been cut in 30 countries in Africa, the Middle East and Asia where FGM is concentrated [2].

World Health Organization (WHO) classified female genital mutilation into four different types. Type I, which is the mildest type, involves partial or total removal of the clitoris and/or the prepuce. Type II involves partial or total removal of the clitoris and the labia minora, with or without excision of the labia

majora. Type III, also known as infibulation, involves the narrowing of the vaginal orifice through the creation of a covering seal by cutting and repositioning the labia minora and/or the labia majora, with or without excision of the clitoral prepuce/clitoral hood and glands. Type IV includes all other harmful procedures to the female genitalia for non-medical purposes, for example, pricking, piercing, incising, scraping, and cauterization of the genital area [1].

Documentation of the prevalence of different types of female genital mutilation began in the early twenties century with reports by European travelers and missionaries [3]. The Faculty of Medicine, University of Khartoum conducted the first national survey on female genital mutilation in Sudan in year 1979 [4].Female genital cutting/mutilation (FGC/M) is deeply rooted and widely practiced in Sudan. The Multiple Indicator Cluster Survey (MICS) 2014 revealed that 86.6% of women aged 15–49 years were subjected to any form of FGC/M [5]. However, reduction in the prevalence of FGC/M is observed in most of states but at different levels. For example if we compared the FGC/M prevalence rate reported by the Safe Motherhood Survey 90.1% [6] with the recent prevalence, rate by the MICS. The reduction is slow and lagging behind what the situation demands. It is worth mentioning that the concerned bodies exerted intensified efforts to reduce FGC/M but the practice continues and expected to continue in the coming decades unless appropriate interventional strategies are implemented across the country. There are various factors that promote the continuation of FGC/M which include the following: religion, tradition, marriageability, sexual morals, health benefits, male preference, and social pressure [7].

The harmful traditional practices were integrated into Sustainable Development Goals (SDGs), specifically Target 5.3 which called for eradication of FGM by year 2030 [8]. The eradication of FGC/M has been included within the national RH and other sectoral policies and strategies and the concerned bodies implemented interventional programs across the country but still the reduction in the prevalence is slow and lagging behind. It is of importance to identify the determinants of FGC/M at the state level to avail updated information for formulation/re-formulation of the current interventional strategies. This study was conducted to identify the determinants of FGC/M in Khartoum State, Sudan.

Methods

Study design, area and population:

A community based cross -sectional study was conducted in the Khartoum State, which is one of the 18 states of Sudan. It has an area of 22,122 km2. Khartoum, the national capital of Sudan is the capital of the Khartoum State. The study was conducted in three localities namely: Sharg Alneel, Umbadda and Bahri. For the purpose of the study, the study population included women in the reproductive age (15-49 years). According to 2008 population census, projection 2018, the population of Khartoum State is estimated to be 7, 993, 852 million people [9] who are a mixture of tribes and ethnic groups of Sudan. The total census of women in reproductive age (15-49) in Khartoum State, projection 2018 [9] mounted to2,

014,382 (25.2%). The demographic structure was almost similar to the parent population of the state and composed of different Sudanese tribes and ethnic groups.

Sample size & sampling technique:

The sample size for the women in reproductive age (15-49 years) has been estimated using the following formula:

$$n = \frac{N}{1+N(e)^2}$$

Where:

n: sample size

N: Total population = **2,014,382**

e: degree of precision= 0.05

Thus the estimated sample size (n) = **399.9**

Since the sampling technique planned to be used was multi-stage sampling technique rather than simple random technique; then it is necessary to multiply the estimated sample size by the design effect, which is approximately equal to 2 in order to improve representation.

Thus the sample size= 399.9X2=799.8 ≈ 800. On the assumption that the non-response rate is 15%, then the final estimated sample size= **920**. The sample size was collected proportionate to size using multistage cluster sampling and participants were drawn using systematic probability sampling technique. The sample size was distributed proportional to the three selected localities as follows: Khartoum North Locality: **222** , Sharq an-Nīl Locality: **331** and Umbadda Locality: **367**

Data collection:

A standardized administered questionnaire was developed, pre-tested, and used for quantitative data collection from interviewed women. The data collection team was composed of 3 field supervisors and 15 female data collectors. The data collectors were interested and motivated to work with full respect of dignity of the study participants and confidentiality required during data collection process. The data collectors and the field supervisors were trained for 2 days (12 working hours) on the following topics: objectives and justification of the study, contents of the questionnaire, communication skills, mock interview, filling of the questionnaire, sampling technique, editing and cleaning of the collected data, informed consent and ethical issues and field activities. Study variable were the following: Personal & family characteristics i.e. educational level, age, age at marriage, type of FGC/M to which women were ever subjected, age of women when subjected to FGC/M, the percentage of interviewed women who

approve FGC/M for their daughters, the reasons of interviewed women to approve FGC/M for their daughters and the socio-cultural reasons for continuity of FGC/M

Data management and analysis:

Completed questionnaires were checked and signed by the field supervisors for completeness, correctness and consistency of answers at the level of data collections sites. Statistical package for social sciences (SPSS) version 21 was used for analyzing the quantitative data set and generating outputs. Analysis was mostly univariate descriptive in order to generate indicators of interest. In addition, bi-variate analysis was conducted to find associations between variables of interest. Since most of the variables were categorical, associations between variables were determined using non-parametric tests such as Chi Square & Fischer Exact tests. Analysis outputs were displayed as tabular and graphic formats. Multi-variate analysis was conducted to find associations between more than two variables using multinomial regression and Wald test. The study was estimated at 95% confidence level.

Results

Table (1): Personal characteristic of the study participants

Characteristics	Frequency	Percentage
Age in years		
<20	15	1.6
20- 24 years	60	6.5
25-29 years	125	13.6
30-34 years	164	17.8
35-39 years	190	20.7
40-44 years	150	16.3
>44 years	216	23.5
Total	**920**	**100.0**
Marital status		
Married	817	88.8
Divorced	37	4.0
Widowed	60	6.5
Separated	6	0.7
Total	**920**	**100.0**
Age of marriage at first time		
<20	438	47.6
20- 24 years	259	28.2
25-29 years	161	17.5
30-34 years	50	5.4
35-39 years	9	1.0
40-44 years	2	0.2
>44 years	1	0.1
Total	**920**	**100.0**
Religion		
Moslem	918	99.8
Christian	2	0.2
Total	**920**	**100.0**

Current residence		
Urban	713	77.5
Rural	20	2.2
Peri-urban	187	20.3
Total	**920**	**100.0**

Table (2): The age of practice of female genital cutting by the participants' families

Age of female genital cutting practice by participants' families	Frequency	Percentage
Less than 4 years	43	5.3
4-5	155	19.1
6-7	386	47.5
8-9	160	19.7
10-13	64	7.9
More than 13 years	4	.5
Total	**812**	**100.0**

Table (3): Participant's educational level versus participant' daughters ever subjected to any form of female genital cutting

			Daughters have been subjected to any form of female genital cutting		Total
			No	Yes	
Participant's educational level	Illiterate	Count	25	62	87
		%	28.7%	71.3%	100.0%
	Khalwah	Count	9	13	22
		%	40.9%	59.1%	100.0%
	Basic	Count	63	144	207
		%	30.4%	69.6%	100.0%
	Secondary	Count	106	135	241
		%	44.0%	56.0%	100.0%
	University & above	Count	181	54	235
		%	77.0%	23.0%	100.0%
Total		Count	384	408	792
		%	48.5%	51.5%	100.0%

P value=.00

Table (4): Type of the female genital cutting of the participants versus the type of female genital cutting of their daughters

			Type of female genital cutting ofparticipants' daughters				
			Pharonic	**Clitorectomy**	**I do not know**	**Others**	Total
The type of female genital cutting of the participant	**Pharonic**	**Count**	**86**	**192**	**2**	**11**	**291**
		%	**29.6%**	**66.0%**	**0.7%**	**3.7%**	**100%**
	Clitorectomy	**Count**	**8**	**103**	**1**	**0**	**112**
		%	**7.1%**	**92.0%**	**0.9%**	**0.0%**	**100%**
	I do not know	**Count**	**0**	**3**	**0**	**0**	**3**
		%	**0.0%**	**100%**	**0.0%**	**0.0%**	**100%**
	Others	**Count**	**1**	**0**	**0**	**0**	**1**
		%	**100.0%**	**0.0%**	**0.0%**	**0.0%**	**100%**
Total			**95**	**298**	**3**	**11**	**407**
%			**23.3%**	**73.0%**	**0.8%**	**2.5%**	**100%**

P value=.00

Table (5): Participants' opinion about the person influence the decision to subject their daughters to FGC/M at the family level

The person influence the decision to subject their daughters to female genital cutting	Frequency	Percentage
Me	**359**	**39**
My husband	**116**	**12.6**
Both me & my husband	**10**	**1.1**
My mother	**198**	**21.5**
My father	**5**	**0.5**
Husband's mother	**99**	**10.8**
Husband's father	**13**	**1.4**
I do not know	**11**	**1.2**
Nobody	**90**	**9.8**
Others	**19**	**2.1**
Total	**920**	**100**

Table (6): Multinomial logistic regression estimates of female genital cutting by family, participants and participants' daughters

Variable	B	S.E.	Wald	Df	Sig.	Exp(B)
Participants ever subjected to any form of female genital cutting	-4.366	.636	**47.125**	1	.000	.013
Participants' daughters ever subjected to any form of female genital cutting	-2.573	.445	**33.425**	1	.000	.076
Constant	4.294	.421	103.847	1	.000	73.244

B =Beta level of statistical significance, S.E =Standard Error, df =Degree of freedom

Table (7): The main reasons for conduct of female genital cutting as perceived by the participants

The reasons for conduct of female genital cutting	Frequency	Percentage
Preservation of virginity	232	25.2
Better marriage prospects	51	5.5
Cleanliness/hygiene	102	11.1
Customs & traditions	415	45.1
Religious	52	5.7
Approval demanded by men	27	2.9
I do not know	36	3.9
Other	5	0.5
Total	**920**	**100.0**

Discussion

Despite the efforts and interventions to eradicate FGC/M in Sudan, it remains a major public health problem. This study was prepared to answer questions related to the determinants of FGC/M at the state level to avail updated information for formulation/re-formulation of the current interventional strategies. The study was conducted in three localities in Khartoum state. 39.8% of the study participants were aged above 40 years. About 89% of the study participants were married and 48% of them got married for the first time at age less than 20 years. 99.8% of the study participants were Moslems and 77.5% were currently urban residents. The study revealed that the commonest age for such practice was 6–7 years as stated by about 48% of them. This is indicative of deeply rooted belief of the participants' families about FGC/M. It is accepted that FGC/M acts as social norms in communities where it is widely practiced. Thus families and individuals tend to do so as they believe that their community or groups expect them to practice [10].

The participants' educational level versus participants' daughters ever subjected to any form of female genital cutting yielded statistically significant association (Chi-square value = 119.67, df 4, P value = .0001) with tendency of the participants who attained educational level of university & above to less subject their daughters to any form of female genital cutting. High parental educational level is associated with a lower prevalence rate of FGC/M among daughters. These results emphasize the importance of parental education in combating the continuity of FGC/M. Similar results were reported from studies in Egypt and Nigeria [11, 12, 13].

The type of female genital cutting of the participants versus the type of female genital cutting of their daughters, yielded statistically significant association (Chi-square value = 33.56, df 9, P value = .001) with tendency of the participants' daughters to be subjected to clitorectomy rather than pharonic. However, that indicates FGC/M is still widely practiced with shifting towards the less traumatizing clitorectomy.

Although, almost 30% of the mothers who were subjected to pharonic type inclined towards conduct the same type for their daughters according to their social beliefs. Such a finding indicates that FGC/M is a custom that runs in the family as a continuous practice from mothers to daughters.

The study revealed the family practice of FGC/M is predictor of prevalence of FGC/M among the study participants and their daughters. The result indicates the role of the family to influence the conduct of FGC/M although the influence is less observed on the participants' daughters to be subjected to FGC/M (table 6).

Regarding the decision for FGC/M, 39% of the participants stated that they themselves influence the decision to subject their daughters to female genital cutting while 32% of them stated that the grandmothers influence such decision. The result revealed that the influence of the decision to subject daughters to FGC/M is shouldered mainly by the mothers and grandmothers. The results are comparable with a recent study in Sudan where 38.8% of the respondents stated that mother's girls initiated the discussion on the need to conduct FGC/M and 37.6% of them identified the mother as the person involved in decision of FGC/M type [14]. Similar results were reported from Ethiopia where the decision to have FGC/M was made by respondents' mothers, followed by grandmothers although the percentages were different [15].Another study from Somali Region, Eastern Ethiopia reported that 70.3% of the respondents stated that FGC/M was decided by mother and 28.4% of them stated that both mother and father made the FGC/M decision and none of the participants mentioned that only father could decide by himself to conduct FGC/M for daughters [16].

The study revealed that FGC/M is socio-cultural practice as 45% of the participants believed in customs and traditions as the main reason for conduct of FGC/M while 25% of them mentioned preservation of virginity and 6% mentioned religious reason (table 7). A study from Ghana documented the important reasons for conduct of FGC/M as traditions (44%), control sexual desire (29%) and social acceptance 20% [17]. Another study from Easter Ethiopia reported important reasons for continuity of FGC/M as preservation of virginity (61.8%), religious reasons (18.1%) and avoidance of sex-related problems 13.4% [16].

Conclusions

The results of the present study revealed that FGC/M is deeply rooted belief of the participants' families and thus most of the participants' families accepted it as social norms in communities where it is widely practiced. As revealed by the current study, a high parental educational level is associated with decrease practicing of FGC/M among daughters. These results emphasize the importance of parental education in combating the continuity of FGC/M. The participants had a tendency to subject their daughters to clitorectomy FGC/M type rather than pharonic. However, that indicates FGC/M is still widely practiced with shifting towards the less traumatizing clitorectomy. Such a finding indicates that FGC/M is a custom that runs in the family as a continuous practice from mothers to daughters. Moreover, the participants who were subjected to pharonic type inclined towards conduct of the same type for their daughters

according to their social beliefs. However, the vast majority of the participants stated that they themselves and the grandmothers influenced the decision to subject their daughters to FGC/M indicating that the FGC/M of daughters is shouldered by the mothers and grandmothers. Social and cultural traditions were the main reason for conduct FGC/M. The social pressure associated with FGC/M was a key determinant of the persistence of the practice. Therefore, a significant change in factors such as education, and social development might cause a gradual decline in FGC/M. The available findings mainly suggest that it is necessary to adopt wide community-based interventions that address FGC/M holistically rather than health issue but as a violation of girls' and women's rights and gender-based violence. In addition, it is of importance to shift the interventional strategies at the community level towards behavioral communication change (BCC) with the involvement of families and individuals to abandon the FGC/M practice.

List Of Abbreviations

FGM: Female genital mutilation

FGC/M Female genital cutting /mutilation

MICS Multiple Indicator Cluster Survey

SDGs Sustainable Development Goals

SPSS Statistical Package for Social Sciences

IEC Information, education & communication

df degree of freedom

SD Standard deviation

WHO World Health Organization

BCC Behavioral communication change

Declarations

Ethics approval and consent to participate:

An ethical approval was obtained from the Research Ethics Committee at Federal Ministry of Health. In addition, permissions were obtained from the authorities of the selected localities, administrative units and popular committees. An informed consent was obtained from each study participant prior to the interview. The collected data were kept confidential and accessed only by the research team members. If participants were children (under 16 years old), written informed consent for participation in the study was obtained from their parent or legal guardian before the interview was conducted.

Consent for publication:

Not applicable.

Availability of data and materials:

The data are available from the corresponding author on reasonable request.

Competing interests:

The authors declare that they have no competing interests.

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Authors' contributions:

MKE conceptualized the study. MKE and RM participated in designing the study. RM , DA and TM collected the data and carried out data analysis. RM and MKE drafted and finalized the manuscript. MKI, SS, DA, and TM extensively reviewed and edited the manuscript. All authors contributed to interpreting study results and writing the manuscript. All authors read and approved the final manuscript.

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Supplementary Files

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- Questionnaire.docx
- STROBEchecklistcrosssectional.doc