

Comparison of Sexual Function between Circumcised and Non- Circumcised Women at Reproductive Age

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Abstract Background: Female circumcision is a major public health problem, especially in developing countries. **Aim:** This study aimed to compare of sexual function between circumcised and non-circumcised women at reproductive age. **Design:** A descriptive cross sectional design was utilized to conduct this study. **Setting:** The present study conducted at Family Planning Unit, Mansoura University Hospital, Egypt. **Sample:** A convenient sample of two hundred healthy married women at their reproductive age who are sexually active for the previous six months, either circumcised or not, who attended to the previous setting for utilization of family planning services from the beginning of July to the end of December 2018. **Tools:** Data were collected through **I:** Interviewing schedule to assess socio-demographic characteristics of the married women. **II:** Arabic version of Female Sexual Function Index (FSFI) questionnaire to assess women's sexual function and dysfunction. **Results:** Total mean score of FSFI for the circumcised women (21.69 ±5.7) was lesser than the total mean score of FSFI for the non-circumcised women (29.12 ±4.54) with a highly statistically significant difference. **Conclusion:** Based on the study finding, there was a difference between circumcised and non-circumcised women's sexual function, where majority of the circumcised women had sexual dysfunction according to FSFI compared to only one- third of the non-circumcised women who had sexual dysfunction. **Recommendation:** Raising awareness of parents about the health consequences of female genital mutilation on their daughter future sexual health via periodical community projects.

Keywords: *circumcision, female genital mutilation, sexuality, sexual function and dysfunction*

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1. Introduction

Female circumcision (FC) or female genital mutilation (FGM) is a traditional and cultural procedure in which some or all of the female external genitalia are exposed to ritual cutting or removal for non-medical reasons. Female genital mutilation is mostly carried out for young girls, sometime between infancy and adolescence, and occasionally for adult women. More than 3 million girls are estimated to be at risk for FGM annually [1]. The most prevailed FGM is found in Africa, Asia and the Middle East. It was documented that 200 million women living today in 27 countries in Africa have been circumcised [2].

It is a tradition performed in some patriarchal societies to control female sexuality and chastity, reduce women's sexual pleasure, increase men's sexual pleasure and increase sexual attractiveness of genitalia [3]. Adversely to the opinion that Islam only who prohibit this tradition, not Muslims alone, it is also done by Christians and a minority group of Ethiopian Jews. However, FGM is neither mentioned in the Torah, nor in the Gospels. But, bodily mutilation is condemned by all religious [4]. According to UNICEF., 2013 [5] Egypt has the highest

total number of women that have undergone FGM, it reaches (27.2 million) in the region. This practice is typically carried out by a traditional illiterate circumciser using a blade. Female genital mutilation types differ according to the ethnicities of the countries. Some remove the clitoral hood or the clitoris (type I), some remove the labia minora with or without labia majora (type II) and other remove the labia majora and close of the vulva (type III) which is known as infibulation in which a small hole is left on the vulva for the passage of urine and menstrual fluid. In the last procedure (infibulation), the vagina is opened for intercourse and further for childbirth. Any other harmful procedure to female genitalia is considered the last type which is called uncategorized [6]. While the practice of cutting open in the sealed vaginal opening in a woman who has been infibulated, which is often necessary for improving health and well-being as well as to allow intercourse or to facilitate childbirth is called de-infibulation [7].

Practicing female circumcision expose the circumcised women expose to irreversible lifelong psychological, physical, emotional and psych-sexual health risks. Immediate and long term complications depend on the type of FGM, the medical training of the practitioner, and the utilization of prophylactic antibiotics and sterilization

process. In the last type of FC and other factors can have a direct influence on the occurrence of complications such as the type of circumcision, the size of the hole which left for the passage of urine and menstrual blood at the third type of circumcision, the number of the procedures performed whether it is once or more for readjusting its size either very small or the opposite, and whether surgical thread was used instead of agave or acacia thorns [3].

Immediate complications can include hemorrhage, severe pain, genital tissue swelling, wound healing problems, infection, shock, or even death, while long-term complications include urinary tract infections, vaginal infections, menstrual problems and scar tissue and keloid [8]. Furthermore, circumcised women are at more risk for panic and anxiety disorders, depression and sometimes attempted suicide [9]. According to World Health Organization 2018 [1], circumcised women are at risk of childbirth complications such as obstructed delivery, excessive bleeding, caesarean section, low newborn Apgar score or even newborn deaths.

According to WHO (2002) [10], Human sexuality is a process that involves the integration of different organ systems and requires neurologic, vascular and endocrine coordination. Female sexual functioning defined as a state of ability to achieve the six sexual domains and results in high quality of life and a state of wellbeing [11]. While, Female sexual dysfunction (FSD) is defined as a disorder of sexual desire, arousal, orgasm, and sexual pain that lead to personal distress or interpersonal difficulties [12]. Various factors can influence on FSD such as anatomical, physiological, medical, psychological and social factors. Also, culture can influence on human sexuality which in turn influence on the female sexual dysfunction [13].

1.1. Justification of the Study

The fifth axis of the social dimension of Egypt's 2030 strategy, which is called social justice aims to provide protection mechanisms against the dangers of life, and in parallel supports the marginalized segments of society and achieves protection for the most caring categories. Among the vulnerable groups who need our support and caring are the younger female who expose for a major danger from their parent cultural background to what is called women genital mutilation (female circumcision). Despite all documented negative impacts of female genital mutilation on female quality of life, it still continues to be widely practicing especially in Arab countries. A recent research in Damietta, 2019 found that 72.6% among women participated at the study for assessment of their female sexual dysfunction were circumcised [14]. Also, another survey in Sudan found that the prevalence of female circumcision was 89% among 21947 married women at their reproductive age from 14 to 35 years [15]. Female circumcision have various negative impacts on women's health in leaving a long-lasting mark on the female mind, body and life. In addition, FC increase the prevalence of posttraumatic stress disorder (PTSD) (30.4%) and other psychiatric syndromes (47.9%) than the uncircumcised women and leaving a long-lasting physical impairment in the female reproductive organs and function, so, it is a violation of the female human rights [16]. In the Arab world, FSD is a prevalent health problem that has to be

properly investigated. So, the present study was conducted to assess the effect of female genital mutilation on women's sexual function at their reproductive age.

2. Method

2.1. Aim of the Study

This study aimed to compare of sexual function between circumcised and non-circumcised women at reproductive age.

2.2. Research Questions

Is there any difference in sexual function among circumcised and non-circumcised women during reproductive age?

2.3. Research Design

A descriptive cross section research design was utilized to achieve the study aim.

2.4. Setting

Family planning Unit, Mansoura University, Egypt over a period of six months from the first of July to the end of December 2018.

2.5. Sampling

Participants were recruited by a convenient sampling technique in which all married women attended to the family planning unit at Mansoura University Hospital for utilization of family planning services were involved. Recruited women under the following criteria:

1. At their reproductive years (18 to 35 years).
2. Sexually active for at least the previous six months before the recruitment at the study.
3. Can read and write.
4. Subjected or not subjected to genital mutilation.
5. Free from any medical, psychological or gynecological problems that can influence their sexual function.

Women were invited to participate in the study until the predetermined number of the study sample acquired; one hundred married women for each group of women circumcised and non-circumcised based on the following sample size equation:

2.6. Sample Size Equation

Based on data from literature [17] considering level of significance of 5%, and power of study of 80%, the sample size can be calculated using the following formula: $n = [(Z_{\alpha/2} + Z_{\beta})^2 \times \{2(SD)^2\}] / (\text{mean difference between the two groups})^2$ where SD = standard deviation, $Z_{\alpha/2}$: This depends on level of significance, for 5% this is 1.96, Z_{β} : This depends on power, for 80% this is 0.84, Therefore, $n = [(1.96 + 0.84)^2 \times \{2(5.39)^2\}] / (2.14)^2 = 99.5$. Based on this formula, the sample size required per group is 100.

2.7. Instruments

I: Interview schedule: to assess the married women's socio-demographic characteristics such as age, education level and occupation. Also the interview schedule included characteristics of the circumcised women such as age at FGM, family genital mutilation reasons and the performer of FGM.

II: Arabic version of FSFI questionnaire

It was adopted from Anis et al., 2011 [18]. It consists of 19 multiple choice questions that measures 6 sexual domains including sexual desire (2questions), sexual arousal (4questions), sexual lubrication (4questions), sexual orgasm (3questions), sexual satisfaction (3questions) and sexual pain (3questions). In which the married woman document in a brief, multidimensional self-administered questionnaire her key dimensions of female sexual function over the past four week.

2.8. Scoring System for FSFI

The six domains of FSFI scored at the same way in which, if the married women respond by no sexual activity it take a score of zero, conversely, a score of five was given if the woman response is suggestive for normal sexual function and a score of one was given if the woman response suggestive of sexual dysfunction. The domain score determined by adding the score of the questions that comprise the domain and multiply the sum by the domain factor (i.e., desire 0.6, arousal and lubrication 0.3, orgasm, satisfaction and pain 0.4). While the full scale score calculated by adding the six domains scores (=2 to 36). Higher score indicate better FSF. A total FSFI score of >28.1 were classified as normal sexual function while 28.1 or less were classified as sexual dysfunction.

2.9. Tools Validity and Reliability

Content validity for the Arabic version of FSFI which translated based on the original FSFI questionnaire and was validated before the study population was recruited. Tool reliability for the Arabic version of FSFI validated for the Egyptian population. The cut off point for the total score of 28.1 for the Arabic version FSFI to distinguish between women with sexual dysfunction and those with normal function (sensitivity 96.7%, specificity 93.2%).

2.10. Ethical Considerations

A written consent obtained from every participant involved in the study after clarification the purpose of the research. After obtaining an ethical approval letter from Research Ethics Committee, Faculty of Nursing, Mansoura University to conduct the research. In addition to, an acceptance letter was obtained from the head of obstetrics and Gynecology Department. All participants reassured about the confidentiality of the collected data. In addition, all participant have the ability to refuse to be involved at the research.

2.11. Research Process

The research process was carried out through two stages; preparatory and operating stages.

1) Preparatory stage

At the preparatory phase, the relevant literature related to the study was collected, the tools were designed, and finally the pilot study was conducted to assess applicability of the study tools. The pilot study carried out to test the objectivity and applicability of the Arabic version of FSFI tool and the feasibility of research process on ten circumcised women and ten uncircumcised women (10% of the study sample size) who attended to Family Planning Unit for utilization of family planning services. Participants in the pilot study were excluded from the research study. This stage last one months.

2) Operating stage

I. Data collection Phase

The required period of data collected from the beginning of July 2018 to the end of December 2018, from Family Planning Unit, Mansoura University Hospital, Egypt after obtaining the official permission from the Unit Director to conduct the study after clarification the aim of the study. The researchers attended the Family Planning Unit three days weekly from 9.00 A.M. to 1.00 P.M. until the predetermined sample size for each group was obtained (100 circumcised women and 100 un-circumcised women). The researchers introduce themselves to the women and explain the aim of the research to the women. Before the baseline assessment, the legible women were invited to participate in the research and who accepted were assessed for their socio-demographic data, history of female circumcision and sexual relation characteristics through interviewing schedule which filled by the woman. Then self-administered questionnaire (FSFI) was filled by the women after brief explanation of the researchers about how to fill the sexual domains according to the last month before the enrolment of the study. The interview took about from fifteen to twenty minutes for each woman.

2.12. Limitation of the Study

Refusal of some women to participate at the study due to the sensitivity of the topic.

2.13. Statistical Analysis

Statistical Package for Social Sciences (SPSS) version 20.0 used for the statistical analysis of the obtained data. Continuous data were normally distributed and were expressed in mean \pm standard deviation (SD) while categorical data were expressed in number and percentage. The comparisons were determined using Student's t test for two variables with continuous data. Chi-square test was used for comparison of variables with categorical data. Statistical significance was set at $p < 0.05$ and a highly significant difference was set at $p < 0.001$.

3. Results

Table 1 shows that there were no statistically significant differences between the two groups at the baseline assessment. It is obvious from table one that the highest proportion of the participants (28.0 %) of the

non-circumcised women and (36.0%) of the circumcised women were less than 25 years old, half of the study participants (50.0 %) were secondary educated, the highest proportion of the participants' father had basic education (44.0%) of the non-circumcised women and (37.0%) of the circumcised women, while the highest proportion of the study participants' mother (55.0%) of the non-circumcised and (58.0%) of the circumcised women can read and write. Also, slightly three-fifths of the study participants (58.0%) of the non-circumcised women and (59.0 %) of circumcised women were from rural areas. Furthermore, majority of the participants (80.0%) of the non-circumcised women and (77.0%) of the circumcised women had enough family income. Moreover, slightly less than three-fifths of the participants (56.0%) of the non-circumcised women and (57.0%) of the circumcised women were workers.

Table 2 illustrates that slightly more than two-fifths (42.0%) of the women were circumcised before the age of three years. Additionally, slightly less than one-third (31.0%) of the circumcised women perform female genital

mutilation for sexual desire control from the point of view of their family. Furthermore, majority (84.0%) of the circumcised women were circumcised by the local illiterate circumcisers.

Table 3 presents that there was statistical significant differences between both groups regarding selected sexual relation characteristics. It was obvious that more than one-fifth (22.0%) of the non-circumcised women initiate the sexual intercourse by both of couple, either by the husband or by the wife compared to only (8.0%) of the circumcised women. Regarding frequency of sexual intercourse per month, it is clear from table three that, more than half of the non-circumcised women (52.0 %) act sexual intercourse more than eight time at a month compared to (36.0%) of the circumcised women. Also, table three shows that only less than one-third (33.0%) of the non-circumcised women who forced by husband to have sex compared to half (50.0%) of the circumcised women with statistically significant differences ($P<0.05$) for all the selected sexual relation characteristics.

Table 1. Distribution of the socio-demographic characteristics between the circumcised and the non-circumcised women (n=200)

Socio-demographic characteristics	Circumcised Women n=100		Non-Circumcised Women n=100		Chi square test	
	No.	%	No	%	X ²	p
Age (years)						
less than 25	36	36.0	28	28.0		
25- less than 30	15	15.0	23	23.0		
30 - less than 35	17	17.0	25	25.0		
≥ 35	32	32.0	24	24.0	5.351	0.148
Level of education						
Read and write	21	21.0	17	17.0		
Basic education	7	7.0	7	7.0		
Secondary education	50	50.0	50	50.0		
University education	22	22.0	26	26.0	0.754	0.860
Father education						
Read and write	37	37.0	32	32.0		
Basic education	37	37.0	44	44.0		
Secondary education	13	13.0	15	15.0		
University education	13	13.0	9	9.0	1.837	0.607
Mother education						
Read and write	58	58.0	55	55.0		
Basic education	24	24.0	32	32.0		
Secondary education	9	9.0	7	7.0		
University education	9	9.0	6	6.0	2.073	0.557
Residence						
Rural	59	59.0	58	58.0		
Urban	41	41.0	42	42.0	0.021	0.886
Income						
Not enough	11	11.0	8	8.0		
Enough	77	77.0	80	80.0		
Enough and can save	12	12.0	12	12.0	0.531	0.767
Occupation						
House wife	43	43.0	44	44.0		
Working	57	57.0	56	56.0	0.020	0.887

Table 2. History of female genital mutilation for circumcised women

Items	No.	%
Age at FGM		
< 3	42	42.0
3- less than 7	34	34.0
7- less than 11	14	14.0
11 or more	10	10.0
Family reasons for genital mutilation		
Sexual desire control	31	31.0
Tradition	30	30.0
Religion	30	30.0
Don't know	9	9.0
Performer of FGM		
Local circumcisers	84	84.0
Grandmother	6	6.0
Neighbor women	10	10.0

Table 3. Distribution of the women according to selected sexual relation characteristics

Sexual relation characteristics	Circumcised women		Non-Circumcised women		Chi square test	
	n=100		n=100		X ²	P
	No.	%	No.	%		
Initiator of sexual intercourse						
My husband	86	86.0	70	70.0	8.460	0.015*
Myself	6	6.0	8	8.0		
Both of us	8	8.0	22	22.0		
Frequency of sexual intercourse per month						
< 4	29	29.0	14	14.0	8.156	0.017*
4-8	35	35.0	34	34.0		
> 8	36	36.0	52	52.0		
Forced by husband to have sex						
Yes	50	50.0	33	33.0	5.952	0.015*
No	50	50.0	67	67.0		

P<0.05 Statistical significance.

Table 4. Comparison of FSFI domains and total mean score between the circumcised and the non-circumcised women

FSFI domains	Circumcised women	Non-Circumcised women	Student's t test	
	n=100	n=100	t	P
	Mean ±SD	Mean ±SD		
Desire domain	3.43±1.91	4.14 ±1.50	2.911	0.004*
Arousal domain	3.58 ±1.96	5.09 ±1.48	6.160	<0.001**
Lubrication domain	3.59 ±2.15	4.56 ±1.66	3.572	<0.001**
Orgasm domain	3.16 ±2.07	4.68 ±1.36	6.164	<0.001**
Satisfaction domain	3.42 ±2.01	4.95 ±1.46	6.141	<0.001**
Pain domain	4.51 ±1.52	3.70 ±1.96	3.295	<0.001**
Total FSFI mean score	21.69 ±5.7	29.12 ±4.54	10.196	<0.001**

P<0.05 Statistical significance

P < 0.001 Highly statistical significant.

Table 4 denotes that all mean score of FSFI of the circumcised women were lesser than mean score of FSFI of the non-circumcised women especially in all sexual domains orgasm, satisfaction, arousal and lubrication sexual domains with highly statistically significant differences (P<0.001) and for desire domain with a

statistically significant difference (P<0.05) between the two groups. Also table four illustrates that, the total mean FSFI scores of the circumcised women (21.69 ±5.7) was lesser than the non-circumcised women (29.12 ±4.54) with a highly statistically significant difference (P<0.001).

Figure 1. Shows that majority (79%) of the circumcised group had sexual dysfunction compared to only one-third (34%) of the non-circumcised group who had sexual dysfunction with a highly statistically significant difference (P<0.001).

Table 5. Demonstrates that advanced age (36.7%) of circumcised women had a lesser FSFI compared to young age (66.7%) women with normal FSFI. Also, decrease the level of father education of circumcised women

(41.8%) who can read and write had a lesser FSFI daughter compared to highly educated father (33.3%) with normal FSFI daughter. The same for decrease the level of mother education which adversely influence on FSFI of their daughter. Furthermore, a circumcised women residing in a rural areas (81.0%) had a lesser FSFI compared to women residing in urban areas (46.8%) with normal FSFI with statistically significant differences (P<0.05).

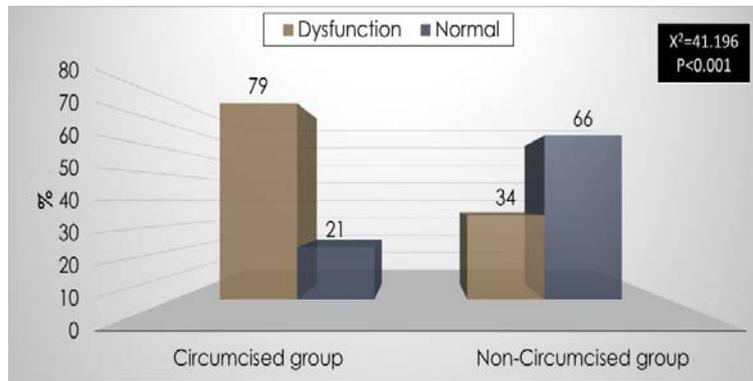


Figure 1. Comparison between circumcised and non-circumcised women according to their sexual function and dysfunction n=200

Table 5. Comparison of the socio-demographic characteristics between women with sexual dysfunction and women with normal sexual function for the circumcised group (n=100)

Socio-demographic characteristics	Circumcised group according toFSFI score (n=100)				Chi square test	
	Circumcised women with sexual dysfunction (n=79) ≤28.1		Circumcised women with normal sexual function (n=21) >28.1			
	No.	%	No.	%	X ²	P
Age (years)						
less than 25	22	27.8	14	66.7		
25 - less than 30	14	17.7	1	4.8		
30 - less than 35	14	17.7	3	14.3	11.524	0.009*
≥ 35	29	36.7	3	14.3		
Father education						
Read and write	33	41.8	4	19.0		
Basic education	29	36.7	8	38.1	11.025	0.012*
Secondary education	11	13.9	2	9.5		
University education	6	7.6	7	33.3		
Mother education						
Read and write	49	62.0	9	42.9		
Basic education	20	25.3	4	19.0	12.644	0.005*
Secondary education	7	8.9	2	9.5		
University education	3	3.8	6	28.6		
Residence						
Rural	17	81.0	42	53.2		
Urban	4	19.0	37	46.8	5.296	0.021*
Income						
Not enough	11	13.9	0	0.0		
Enough	62	78.5	15	71.4	9.114	0.010*
Enough and can save	6	7.6	6	28.6		
Occupation						
House wife	36	45.6	7	33.3		
Working	43	54.4	14	66.7	1.013	0.314

P<0.05 Statistical significance.

4. Discussion

Female sexual functioning; the woman's ability to achieve specific sexual domains like arousal, lubrication, orgasm and satisfaction is a basic health need for any female. Certain cultural practices such as female genital mutilation is still widely applicable despite all efforts to forbid it. So, the present study aimed to compare of sexual function between circumcised and non-circumcised women at reproductive age.

The present study findings that, majority of the circumcised women had sexual dysfunction according to FSFI compared to only one-third of the non-circumcised women who had sexual dysfunction. This study finding is barrel to a descriptive cross sectional study carried out in Suez Canal University Hospital which conducted to assess associated risk factors for sexual dysfunction for 509 married women at their reproductive age. They found that the circumcised women's sexual function is lesser than non-circumcised women's sexual function [19].

The present study finding revealed that female circumcision affected all domains of female sexual function index with highly statistical significant differences between the circumcised and non-circumcised. In which, the circumcised group had lesser mean FSFI score than the non-circumcised group starting with orgasm, then satisfaction, desire, pain, arousal and lubrication sexual domains respectively. This present study finding is congruent with the finding of a case-control study which conducted by [20] at Alexandria on a convenient sample of 544 married women half of them were circumcised and the other half were not, the author collected the data from 4 randomly selected primary health care centers. She found that all mean score of sexual function were lesser at the cases group than the control with highly statistically significant differences.

Also the present study finding is consistent with the finding of another descriptive cross-sectional study conducted to assess the impact of FGM on the psychosexual function of circumcised versus uncircumcised Egyptian women on 220 married women either circumcised or not by [21] who found that all sexual domains scores were higher in the uncircumcised group than those in the circumcised group. The total FSFI score showed a significant difference between the circumcised group compared with the uncircumcised group and all domains were affected. Accordingly, the research question was answered.

The present study finding revealed that advanced age, rural residence, lower parents' education and lower economic status correlate significantly with high prevalence of female circumcision and female sexual dysfunction. These study finding may be due to decline in the ovarian function with advanced age, decrease the frequency of sexual intercourse in addition to the sexual dysfunction related to the effect of female circumcision scar and decrease the lubrication and satisfaction and increase the pain. Also low -economic status and low educational parents' level influence their perception to follow old tradition without regarding to the thinking reasoning or consulting a specialized professionals.

Concerning high prevalence of female circumcision for women with sexual dysfunction index and their statistical

significant relations with parents' low educational level and low socio-economic state among the circumcised women as the present study findings evident. Such study findings are at the same line with an Egyptian demographic health survey [22] which clarified that lower social strata had more incident cases of FGM than other strata which expose the low-socio-economic and low educational level individual to be a victim for a non-beneficial harmful traditional practice and its consequences.

The present study findings revealed that slightly more than two-fifths of the women were circumcised before the age of three years. Also, approximately one-third of the circumcised women had been cut for sexual desire control from the point of view of their family. Additionally, majority of them were circumcised by the local illiterate circumcisers. So, from the authors' point of views, female circumcision is an illegal practice against female, the first criminal in it is the female parents who expose their little daughter to such crime by even a non-professional practitioner and at a very young age. Even, the future husband for their daughter will be affected by diminishing all FSFI of his wife instead of having a normal sexual function.

5. Conclusion

Based on the study findings, there was a difference between circumcised and non-circumcised women's sexual function, where majority of the circumcised women had sexual dysfunction according to FSFI compared to only one- third of the non- circumcised women who had sexual dysfunction.

6. Recommendation

Raising awareness of parents about the health consequences of female circumcision on their daughter future sexual health via periodical community projects.

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