Post-traumatic Stress Disorder Among Iranian Women With Genital Mutilation

Mahsa Abdollahzadeh

Tabriz University of Medical Sciences

Roghayeh Nourizadeh

Tabriz Medical University: Tabriz University of Medical Sciences

Niloufar Sattarzadeh Jahdi (✉ sattarzadehn@gmail.com)

Tabriz Medical University: Tabriz University of Medical Sciences <https://orcid.org/0000-0003-3135-2909>

Research Article

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Abstract

Background: The conflicting evidence on the relationship between female genital mutilation/ cutting (FGM/C) and post-traumatic stress disorder (PTSD) may be due to the differences in the prevalence and type of FGM/C in different societies. The present study aimed to evaluate the frequency and severity of PTSD and its related factors among Iranian women with genital mutilation.

Methods: This cross-sectional study was performed on 155 women with genital mutilation aged 18-45 years referred to the health centers in Mahabad, located in west of Iran from October 2020 to April 2021. The participants were selected using convenience sampling method. After obtaining the informed consent form from the participants, the first researcher in the presence of a gynecologist determined the type of genital mutilation through the gynecological examination. The data were collected using demographic and obstetric characteristics and post-traumatic stress disorder checklist (PCL5) and analyzed using SPSS₂₁ software. Further, independent t-test, ANOVA, Pearson correlation coefficient, and multivariate linear regression were used.

Result: Six women (3.9%) with genital mutilation had PTSD. The mean (SD) score of the PTSD symptoms among women with genital mutilation was 27.73 (6.79), ranging from 0 - 80. The age of genital mutilation, level of education, and type of residence were considered as the most important predictors of the severity of the symptoms of PTSD among women with type 1 genital mutilation, as explaining 48.1% of the variance.

Conclusion and recommendation: The results indicated that the severity of the PTSD symptoms enhanced among women with genital mutilation by increasing age of genital mutilation and decreasing socio-economic levels. It is recommended to conduct the similar studies among women with other types of FGM/C.

Plain Language Summary

Female Genital Mutilation/cutting (FGM/C) is prevalent in the south and west regions of Iran. Raising awareness on the consequences of FGM/C is essential for its prevention. In some societies, FGM/C triggers post-traumatic stress disorder (PTSD) which is a disorder resulting from an abnormal response to a traumatic event. It is the first research in Iran on PTSD following FGM/C. Our study was conducted among 155 women with genital mutilation referred to the health centers in Mahabad, located in west of Iran from October 2020 to April 2021. The participants were selected using convenience sampling method. The participants were examined for type of genital mutilation and asked to fill post-traumatic stress disorder checklist (PCL5). All 155 women (100%) had type 1 genital mutilation. Six women (3.9%) with genital mutilation had PTSD. The mean (SD) score of the PTSD symptoms among women with genital mutilation was 27.73 (6.79), ranging from 0 - 80. The severity of the PTSD symptoms was higher among women with genital mutilation by increasing age of genital mutilation and decreasing socio-economic levels.

Background

Female Genital Mutilation / Cutting (FGM/C) refers to any procedure involving intentionally cutting, injuring, or removing female genitalia. The World Health Organization (WHO) classifies FGM/C into four distinct categories. Type I involves any procedure that completely removes the clitoris or prepuce. Type II refers to the partial or complete removal of labia minora. Infibulation or type III is defined as narrowing of the vaginal opening by sealing with incision and reposition of the labia minora and labia majora with or without clitoral incision. Type IV is known as the unclassified type and includes other harmful measures that are applied to the external genitalia of women, such as piercing, cauterizing, splitting or tearing the clitoris (1).

The United Nations Children's Fund (UNICEF) estimates that more than 200 million women and girls have been currently undergone FGM/C in 30 countries. Although FGM/C is declining, about 3 million girls are at risk of circumcision each year (2). FGM/C is prevalent in the south and west regions of Iran, often in rural areas and in the suburbs of Hormozgan, Kermanshah, Kurdistan, and West Azerbaijan provinces, varying from 40 - 85% (3).

Removing and damaging healthy and normal female genital tissue interferes with the natural function of body and results in the short- and long-term health consequences (4). The results of some studies demonstrated that women with genital mutilation experienced more anxiety, fear, and the symptoms of a panic attack and have less self-confidence compared to the women without genital mutilation (5, 6). However, some other studies reported no correlation between FGM/C and mental disorders (7–9). In some societies, FGM/C triggers PTSD (4, 5, 10, 11). On the other hand, the integration of FGM/C with tradition and culture may be a protective factor against the PTSD (12).

PTSD is a disorder resulting from an abnormal response to a traumatic event. The person experiences the event frequently through disturbing thoughts or nightmares. These memories come to the individual's mind suddenly or occur when the individual is in a similar situation. The symptoms of PTSD include re-experiencing the event in the mind, making negative alterations in mood and cognition, and reactions, such as restlessness, difficulty concentrating and sleeping, anger, etc. (13).

In a systematic review conducted in 2019, among 16 studies conducted on the psychological consequences of FGM/C, only nine studies examined PTSD and its prevalence varied from 17.5-30.4%. Of these nine studies, only one was of acceptable quality for review and most of the studies did not stratify the results based on FGM/C type. Therefore, it is suggested to conduct more rigorous studies on the psychological effects of FGM/C and its relationship with culture in different societies (14). In another review study, it is recommended to use standard tools in future studies, due to the impossibility of summarizing and evaluating the psychological consequences following FGM/C (15).

Raising awareness on the consequences of FGM/C is essential for its prevention. Given that the type and prevalence of FGM/C in different societies affect its consequences and considering that no study has

been done in Iran on PTSD following FGM/C, the present study aimed to evaluate the frequency and severity of PTSD and its related factors among Iranian women with genital mutilation.

Method

Study design and participants

This cross-sectional study was conducted on 155 women with FGM/C referred to the health centers of Mahabad, located in west of Iran, from October 2020 to April 2021. The inclusion criteria were women with FGM/C aged 18-45 years. The exclusion criteria included pregnancy and breastfeeding, having a history of mental disorders and systemic diseases based on the health record, and experiencing traumatic events during the last six months.

Sample size

The sample size was calculated 155 subjects using the formula
$$n = \frac{z^2 \cdot \frac{\alpha}{2} \cdot \delta^2}{d^2}$$
 and based on the study of Mousavi et al. (16) and considering SD = 7.1, d = 0.05 around the mean = 22.3, α = 0.05 with 95% confidence coefficient.

Sampling method

The sampling was done using the convenience sampling method. The first researcher attended the health centers, extracted the telephone numbers of the women from the health records, checked the inclusion and exclusion criteria during the telephone call, and invited the eligible women to participate in the study. The women willing to participate in the study were invited to attend health centers to complete the written informed consent form. Then, the first researcher in the presence of a gynecologist determined the type of genital mutilation through the gynecological examination. In the following, participants completed the demographic and obstetric characteristics questionnaire and PCL5: PTSD Checklist for Diagnostic and Statistical Manual of Mental Disorders-the fifth version (DSM-5).

Data collection tools

The demographic and obstetric characteristics included the variables of age, duration of marriage, number of children, level of education, occupation, family income, type of residence, type of delivery, etc.

PTSD Checklist for DSM-5 (PCL5)

The symptoms of PTSD were assessed using PCL5, developed in 2013. PCL5 consists of four domains consistent with the diagnostic criteria of DSM-4, including criterion B (re-experiencing symptoms), criterion C (avoidance of stimuli), criterion E (negative alterations in mood or cognition), and criterion D (arousal or reactivity). PCL5 includes 20 items, rating from 0-4 and total score ranging from 0 - 80 (17). The Cronbach's alpha coefficient of this instrument was reported as 0.91-0.94 and the test-retest reliability of the instrument was obtained 0.82 (18).

Data analysis

The data were analyzed using SPSS/21 software. The Kolmogorov-Smirnov test was used to measure the normality of data distribution. The independent t-test, Pearson correlation coefficient, and ANOVA were applied for data analysis. In order to control the confounding variables, the independent variables with P- value lower than 0.2 in the bivariate test were entered into the multivariate linear regression model using Backward strategy.

Results

Sociodemographic characteristics

All 155 women (100%) had type 1 genital mutilation. The mean (SD) age of participants was 31.46 (6.94) year. The minimum age of genital mutilation was two years and the maximum age was ten years with a mean age of 5.78 (1.58). It was done with the highest frequency (78.7%) in 4 - 8 years old. All subjects were married and the level of education of the most of women (49.7%) was high school and diploma and the majority of women (77.4%) were housewives. Most of women (61.9%) reported their family income level as less than enough (Table 1).

Table 1
The demographic and obstetric characteristics of the participants and its relationship with PTSD, 2021 (n=155)

Characteristics of Disease	No. (%)	PTSD Mean (SD)	p-value
Age* (year)	31.46(6.94)	27.73(6.79)	0.50a
Mutilation age* (year)	5.78(1.58)	27.73(6.79)	0.016a
Duration of marriage*(year)	9.33(5.68)	27.73(6.79)	0.94a
Number of children*	1.83(0.9)	27.73(6.79)	0.215a
BMI*	25.98(1.88)	27.73(6.79)	0.038a
Occupation			0.25b
Housekeeper	120(77.4)	28.71(6.71)	
Working outdoors	21(13.5)	26.95(6.84)	
Working at home	14(9)	27.80(7.23)	
Level of education			0.015b
Illiterate	-	-	
Elementary/ Guidance	16(10.3)	29.02(7.42)	
High School/ Diploma	77(49.7)	28.13(8.05)	
Academic	62(40)	25.23(7.80)	
Family income level			0.92b
Less than enough	96(61.9)	30.11(10.21)	
More than enough	3(1.9)	20(8.18)	
Enough	56(36.1)	26.74(9.91)	
Birth type			0.77c
NVD	86(55.5)	27.80(13.21)	
C/S	46(29.7)	27.66(11.53)	
Type of residence			0.002b
Private	42(27.1)	24(9.19)	
Leased	79(51)	28.16(10.45)	
a: Pearson Correlation, b: ANOVA, C: Independent t test			

Characteristics of Disease	No. (%)	PTSD Mean (SD)	p-value
Parental home	34(21.9)	30.02(9.44)	
a: Pearson Correlation, b: ANOVA, C: Independent t test			

Type of FGM and Magnitude of PTSD

In this study, six women (3.9%) with genital mutilation had PTSD. The mean (SD) score of PTSD symptoms among women with genital mutilation was 27.73 (6.79), ranging from 0 - 80. The mean (SD) of the domain of re-experiencing symptoms was 6.12 (2.7), ranging from 0 - 20. The mean (SD) of the avoidance of stimuli was 4.78 (2.24), ranging from 0 - 8. The mean (SD) of the negative alterations in mood or cognition was 9.38 (3.38), ranging from 0 - 28. Further, the mean (SD) of the arousal domain was 7.45 (2.62), ranging from 0 - 24. Then, the average standard score of the different domains was estimated based on the following formula:

$$\text{Standard score in dimensions} = \frac{(\text{Total score of each dimension} - \text{Minimum score of that dimension})}{(\text{Maximum score of each dimension} - \text{Minimum score of that dimension})} \times 100$$

Accordingly, the lowest complaint was related to the re-experiencing symptoms with a modified mean of 30.6 and the highest complaint was associated with the avoidance of stimuli with a modified mean of 59.75 (Table 2).

Table 2
Mean (SD) of the PTSD and its domains, 2021 (n=155)

Variable	Mean (SD)	Obtainable range	Adjusted Mean (0-100)
Re-experiencing	6.12 (2.7)	0_20	30.6
Avoidance	4.78 (2.24)	0_8	59.75
Negative mood	9.38 (3.38)	0_28	33.5
Arousal	7.45 (2.62)	0_24	31.04
Total PTSD score	27.73(6.79)	0_80	34.66

Factors associated with PTSD

The bivariate tests showed a significant relationship between PTSD score and mutilation age (P=0.016), body mass index (P=0.038), education (P=0.015), and type of residence (P=0.002) (Table 1).

After entering variables with $p < 0.2$ in the multivariate linear regression model, the predictors of PTSD severity included mutilation age, education, and type of residence, which generally explained 48.1% of the variance (Table 3).

Table 3
Predictors of PTSD in women with FGM/C, 2021 (n = 155)

Variable	β (CI 95%)*	P#
Age mutilation	1.95(0.009to 1.461)	0.043
Education (Reference: MSc/PhD)		
Elementary/ Guidance	1.43(1.445to 8.946)	0.015
High School/ Diploma	1.28(1.741to 8.165)	0.020
Associate Degree/ Bachelor	1.23(-1.907to 8.224)	0.220
Type of residence (Reference: private)		
Leased	0.60(2.046to 3.806)	0.013
Parental home	1.41(0.997to 5.938)	0.036
Adjusted R²	48.1	
*Confidence interval 95%; # Multivariate Linear Regression		

Discussion

The present study aimed to evaluate the frequency and severity of PTSD and its relevant factors among Iranian women with genital mutilation.

Type of FGM and Magnitude of PTSD

The results indicated that six women (3.9%) with type 1 genital mutilation had PTSD. The mental health status of 66 circumcised women migrating from Africa to the Netherlands was investigated in a study conducted in 2012. Based on the results, 54% of participants had type III FGM, 14% type II and 32% type I. About 16% of women with genital mutilation had the symptoms of PTSD (19). In another study, 17.5% of African women with genital mutilation had PTSD symptoms (20). The results of a study performed in Egypt indicated that 19% women with genital mutilation exhibited symptoms of PTSD (21). Further, the prevalence of PTSD among circumcised women was reported to be 30.4% in a study conducted in Senegal (12). In most of studies, the frequency of PTSD was not reported separately based on the type of FGM/C and only a few studies stratified the results based on FGM/C type (4, 20, 22). The frequency of PTSD in the present study is much lower than the frequency reported in various studies, which may be due to the high prevalence of type I of FGM/C in the study area. On the other hand, the acceptance of FGM/C among the study population may be acted as a protective factor against PTSD. Early studies also

reported that the prevalence of psychological trauma and PTSD increases in societies with low prevalence of FGM/C and its social rejection (12, 14).

In the present study, the mean of the severity of PTSD symptoms among women with genital mutilation was 27.73 (6.79). In a study in north of Iraq (23), the mean (SD) score of PTSD among circumcised girls aged 8-14 years was 44.3 (13.73) and the severity of symptom was very high compared to the findings of the present study, which may be attributed to the study population and the difference in the age groups. The study population in the aforementioned study was girls with genital mutilation with a mean age of 12.2 years and in the present study was married women with a mean age of 31.46 years. Further, in a study conducted in Kenya(24), the mean score of PTSD symptoms among women with genital mutilation migrating from Somalia was 41.16 (16.1), as these refugee women had experienced many difficulties and challenges before, during, and after migration, they were more likely to experience higher levels of PTSD. Furthermore, the high prevalence of FGM/C, especially type I in the study population, is considered as one of the possible reasons for the low severity of PTSD symptoms in the present study.

Associated factors of PTSD

In the present study, the age of FGM/C was regarded as the most important predictor of PTSD among women with genital mutilation. Namely, individuals who were older at the time of genital mutilation exhibit more PTSD symptoms. Consistent with the findings of the present study, the results of a study conducted on Somali women revealed a positive relationship between the age of FGM/C and PTSD symptoms (24). Vloeberghs et al. (19) also reported that the severity of PTSD symptoms was higher among women who were older at the time of genital mutilation.

In addition, the level of education and type of residence were considered as other important predictors of PTSD in the present study, so that the severity of PTSD symptoms increased among women with lower level of education and those who live in the house of the father-in-law. In fact, circumcised women with low social and economic status demonstrated more PTSD symptoms. Knipscheer et al. (20) reported that the low economic status was significantly associated with psychological trauma among circumcised girls and women, which is in line with the results of the present study. Further, Vloeberghs et al. (19) addressed that housekeeper women experienced more anxiety and depression compared to the employed circumcised women.

Strength and limitation of the study

The strengths of the present study included the use of standard questionnaire, adequate sample size, and reporting the results in detail for type 1 FGM. One of the limitations of the present study was the high prevalence of type I FGM/C among the study population, which limits the generalization of results to other types of FGM/C. Also, the results of the present study cannot be generalized to other contexts or cultures, since it was conducted in one geographical area with specific ethnicity.

Conclusion And Recommendation

In the present study, the frequency and severity of PTSD among women with genital mutilation were relatively low, which may be due to the limited injury in genitalia and the social acceptance of the practice. Based on the results, the severity of PTSD symptoms increased among circumcised women by enhancing the age of genital mutilation and decreasing socioeconomic levels. Conducting similar studies in societies with high prevalence of other types of FGM/C is strongly recommended.

Abbreviations

FGM/C: Female genital mutilation/cutting; PTSD: Post-traumatic stress disorder; DSM-5: Diagnostic and statistical manual of mental disorders-the fifth version; PCL5: Post-traumatic stress disorder checklist for DSM-5; WHO: World Health Organization; UNICEF: United Nations Children's Fund; CI: Confidence interval; SD: Standard deviation

Declarations

Acknowledgements

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Authors' contributions

MA: designed methods, collected the data, and wrote the paper. RN: conducted data entry, and data analysis, and edited the paper. NS: designed methods, translated and edited the paper. All authors read and approved the final manuscript.

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Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Ethics approval and consent to participate

Ethical clearance was obtained from ethics committee of Tabriz University of Medical Sciences (IR.TBZMED.REC.1398.1240). Written consent was obtained from study participants.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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