The Egyptian Journal of Hospital Medicine (October 2017) Vol. 69 (7), Page 2824-2833

Exposure of Early Adolescent Girls to Genital Mutilation\Cutting: "Secondary Analysis of Survey of Young People in Egypt"

Maha Sayed[a], Ghada S. T. Al-Attar[b], Omaima Elgibaly[b]

[a]Directorate of Health Affairs, Assiut, Egypt, [b]Department of Public Health & Community Medicine, Faculty of Medicine, Assiut University, Assiut, Egypt

*Corresponding author: Maha Sayed, Directorate of Health Affairs, Assiut, Egypt, e-mail:dr_mahasayed87@hotmail.com

ABSTRACT

Background: female genital mutilation/cuutting (FGM/C) is one of the main social problems affecting adolescent girls in Egypt. FGM/C has many health hazards affecting adolescents later in their lives. Researches related to FGM/C in Egypt focused mainly on prevalence and causes of FGM/C among women. However, there was little attention in exploring this problem among early adolescent girls. **Aim:** the objectives of this study included determining the prevalence and correlates of FGM/C among early adolescents in Egypt. **Subjects and Methods:** a secondary analysis of a nationally representative stratified multistage cluster sample using early adolescent girls using Survey of Young People in Egypt (SYPE) data 2009. Descriptive analysis was done using univariate & bivariate analysis to identify prevalence of FGM/C in Egypt among early adolescents and associated factors. Correlates of FGM/C were identified using logistic regression analysis with 95% confidence interval and P <0.05 as a significant level. Software used was SPSS version 20**. Results:** nearly two thirds of 10–14 years old girls in Egypt were exposed to FGM/C.FGM/C was carried on the majority of them by medical personnel (70.7%) at home or at private medical facilities. Older age, living in rural areas, and belonging to lowest wealth quintile were the main predictors of FGM\C exposure. **Conclusions:** FGM/C is still a major threat to early adolescent girls in Egypt especially by medical personnel among rural and poor families. Emphasizing strict legal sanctions against physicians performing the procedures as well as against responsible parents is very crucial in Egypt.

Keywords: FGM/C, prevalence, correlates, early adolescent girls, secondary analysis of SYPE.

INTRODUCTION

The World Health Organization (WHO) defined female genital mutilation/cutting (FGM/C) as "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". WHO estimated that more than 200 million girls and women had been cut in 30 countries in Africa, the Middle East and Asia[1]. In Egypt 92% of ever-married women had been circumcised. The highest prevalence was in the Rural Upper Egypt (75%)[2]. FGM/C exposure may lead to extreme pain, excessive bleeding, recurrent urinary and vaginal infections, infertility, difficult labour, psychological impact and abnormalities in the female sexual function[3-5]. Eighty two percent 82% of circumcised daughters were done by trained medical personnel while it was 38% among ever married women[2].

This study aimed at identifying the prevalence and the correlates of exposure to FGM/C among early adolescents in Egypt.

SUBJECTS AND METHODS

This study is a secondary analysis using Survey of Young People in Egypt (SYPE) data 2009. The SYPE sample is a nationally representative, stratified, multi-stage cluster sample. Out of the 11,372 households included in the SYPE samples, a total number of 20,200 young people were in the age group (males and females) aged 10-29.

The current study sample included 2012 adolescent girls aged 10 – 14 years belonged to 2012 households.

Data management: Two main files of data were used; the household file and the individual data files. In the individual data file; eligible study participants were identified and selected while all other data related to other age groups in the original SYPE survey were dropped. Then merging of the new individual file and the household file was done to relate the individual data of each participant to the household data. The merging was done through the following identification variable: (INDSW-1). Population weights were applied prior to the analysis using the weight variable: (eligw_adj_expan).

Variables: The dependent variable was exposure to FGM/C among early adolescent girls aged 10 to 14 years. The question used was: Are you circumcised? A dichotomous variable was constructed with the value of 1 to represent "Yes" if the adolescent girl was circumcised and 0 if adolescent girl said "No". Adolescent girls who "refuse to answer" were excluded from the analysis of FGM/C exposure.

Independent and other variables included: Lists of independent variables related to FGM/C were identified based on the literature review and the

Received: 23/08/2017
Accepted: 02/09/2017

DOI: 10.12816/0042573

conceptual framework**.** Socio-demographic variables included age, residence, relation to the household head, educational status, type of school, religion, wealth quintile and geographical regions. They were recoded as follow:

- Residence was recoded into: urban\slums and rural.
- Relation to household head was recoded into: daughter, granddaughter and others.
- Educational status was recoded into: never attend school, primary and preparatory. Type of school was recoded into: governmental and non-governmental schools.

Health conditions of the study population included: having disability, type of disability, having chronic disease, and type of chronic disease.

- Type of disability was recoded into: partially sighted, mentally disabled and others.
- Type of chronic disease was recoded into: heart diseases, bone diseases, lung diseases and others.

Parental characteristics of the study population included: Mother being alive or not, father being alive or not, mother education, father education, mother employment, father employment, mother marital status and father marital status.

- Mother and father educational level variables were recoded into: illiterate, read and write-elementary and middle school, high school (general and vocational) and post-secondary and university.
- Mother and father employment variables were recoded into: governmental /public and others.

Circumstances of exposure to FGM/C included: the person carried FGM/C, the place of FGM/C and age at FGM/C.

- The person carried FGM/C was recoded into: medical personnel, dayas and others.
- The place of FGM/C was recoded into: home, private health facility and governmental health facility
- Age of FGM/C was a continuous variable and it was coded to categorical variable as follows: less than 8, from 8 to less than 10, from 10 to less than 12 and from 12 to 14 years.

The study was approved by the Ethics Board of Assiut University.

Statistical Analysis: Descriptive univariate frequency distribution tables were designed to identify the prevalence of FGM/C among early adolescent girls aged 10 to 14 years in Egypt. Bivariate analysis was followed to explore the association between the dependent variable and the independent variables. Chi-square (X^2)and Fisher's exact tests were used for categorical variables and independent sample t-test was used for continuous variables with a level of significance < 0.05.Multivariable analysis: Variables which were statistically significant in the bivariate analysis in addition to other variables based on the conceptual framework were included in the multivariable analysis. All the results were analyzed once without applying population weights and once after applying weights.Data analyzed using IBM SPSS version 20.

Operational definition for Female genital mutilation/cutting (FGM/C): 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].

Ethical considerations: Reviewing the proposal was carried out via the Ethics Committee of Assiut- Faculty of Medicine.

RESULTS

Table (1): Socio-demographic characteristics of the 10 - 14 years old girls, SYPE 2009

Variable	Unweighted		Weighted
	Frequency N= 2012	Percent	Percent
Age			
• 10	425	21.1	20.3
• 11	372	18.5	19.0
• 12	464	23.1	22.4
• 13	380	18.9	18.9
• 14	371	18.4	19.4
Mean ± SD	11.95 ± 1.398		11.98 ± 1.403
Residence			
• Urban	859	42.7	38.7
• Rural	1153	57.3	61.3
Relationship to HH head			
• Daughter	1890	93.9	94.4

Variable	Unweighted		Weighted
	Frequency N= 2012	Percent	Percent
• Granddaughter	83	4.2	4.3
• Others	39	1.9	1.5
Schooling status			
• Never attended school	76	3.8	3.6
• Primary	1095	54.4	53.8
• Preparatory	841	41.8	42.6
Type of school			
• Governmental	1609	86.3	86.6
• Non-governmental	256	13.7	13.4
Religion			
• Muslim	1944	96.6	96.6
• Others	68	3.4	3.4
Wealth quintiles			
• Lowest	421	20.9	22.0
• Second	401	19.9	20.8
• Middle	412	20.5	20.7
• Fourth	416	20.7	19.6
• Richest	362	18.0	16.9

The total number of the study population was 2012 girls aged 10 to 14 years. Nearly two thirds of them were from rural areas.The mean age of the study population was 11.98 ± 1.403 years. Nearly each year represents one fifth of the studied population.

The majority of the study population were from rural areas (61.3%). Concerning the relation to household head, 94.4% of them were daughters. Regarding the schooling level, all participants were in primary and preparatory schools (53.8%, 42.1% respectively) (Table, 1).

Among those who attended school; 86.6% were in governmental schools and only 13.4% were in non-governmental schools.

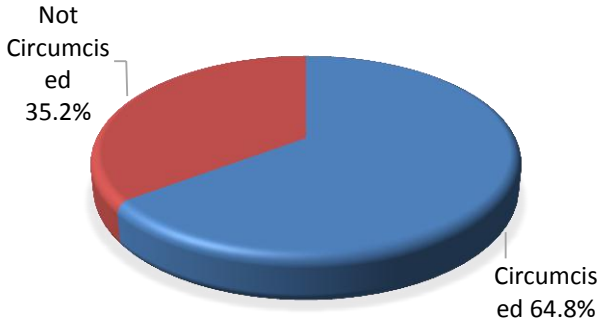

Figure (1): Frequency of FGM/C among the 10 - 14 years old girls, SYPE 2009, weighted

More than two thirds of all the 10 - 14 years old girls were circumcised (64.8%) (Figure, 1). FGM/C was carried out by medical personnel (70.7%) in the majority of cases, followed by dayas (22.4%). Moreover, more than half of circumcised females were subjected to the practice at homes (53.6%) followed by private health facilities (40.4%) and only (6%) were done in governmental health facility. Regarding age at FGM/C more than three quarters were cut between ages 8 and 12 years (77.4 %) (Table, 2).

FGM/C was significantly associated with age, residence, relation to household head, educational status, religion, wealth quintiles and current place of residence ($P \leq 0.001$). Older aged girls (13-14 year) were more likely to have been circumcised compared to the younger 10-11 year girls.

The majority of circumcised girls (73%) were residing in rural. Likewise were the Rural Lower and Upper Egypt regions associated with higher percentages of circumcision compared to urban governorates.Lower levels of circumcision were observed among girls in the fourth and richest wealth Quintiles.Circumcised girls were more likely to have lower level of education (Table, 3).

Table (2): Circumstances surrounding FGM/C practice among the 10-14 year old girls, SYPE 2009

Variable	Unweighted		Weighted
	Frequency	Percent	Percent
FGM/C status			
• Yes	989	62.6	64.8
• No	592	37.4	35.2
Who performed FGM/C?			
• Medical personnel	683	69.1	70.7
• Dayas	235	23.8	22.4
• Others	71	7.1	6.9
Where were you circumcised?			
• Home	531	54.4	53.6
• Private health facility	389	39.8	40.3
• Governmental health facility	57	5.8	6.1
Age at FGM/C			
• Less than 8	132	13.7	13.6
• From 8 to less than 10	392	41	41.2
• From 10 to less than 12	353	36.9	36.2
• 12 to 14	80	8.4	9.0
Mean ± SD	11.49±0.505		11.68±0.01
• Total	1581	100.0	100.0

Having disability or chronic disease is associated with increased exposure to FGM/C. Being partially sighted is the most common form of disability associated with FGM/C exposure (59.7%) compared to the non-exposed group (39.4%) (Table, 4). Parents of non-circumcised girls had higher educational level than circumcised girls. Non circumcised girls had more mothers (46%) and fathers (49.5%) who completed high school or post-secondary/university levels compared to of mothers and fathers of circumcised girls; 23.5% and 36.1% respectively (Table, 5).

Table (3): FGM/C among 10 -14 year old girls by sociodemographic characteristics, SYPE 2009

Variables	Unweighted		Weighted	
	Victims of FGM/C Freq. (%)	Not Freq. (%)	Victims of FGM/C (%)	Not (%)
Age* **				
• 10	116 (11.6)	152 (25.7)	12.1	23.8
• 11	149 (15.1)	122 (20.6)	15.5	20.9
• 12	235 (23.8)	141 (23.8)	22.8	24.7
• 13	249 (25.2)	85 (14.4)	24.6	13.6
• 14	240 (24.3)	92 (15.5)	25	17
Residence * **				
• Urban\slums	298(30.1)	354(59.8)	27	56.1
• Rural	691(69.9)	238(40.2)	73	43.9
Relationship to HH head				
• Daughter	923(93.3)	563(95.1)	93.9***	94.2
• Granddaughter	45(4.6)	20(3.4)	4.5	4.3
• Others	21(2.1)	9(1.5)	1.6	1.5
Schooling status* **				
• Never attended school	48(4.8)	15(2.5)	4.8	2.1
• Primary	433(43.8)	351(59.3)	43.9	58.2

Variables	Unweighted		Weighted	
	Victims of FGM/C Freq. (%)	Not Freq. (%)	Victims of FGM/C (%)	Not (%)
• Preparatory	508(51.4)	226(38.2)	51.3	39.7
Religion* **				
• Muslim	974(98.5)	557(94.1)	98.3	94
• Others	15(1.5)	35(5.9)	1.7	6
Wealth quintiles* **				
• Lowest	266(26.9)	83(14.0)	28.2	13.5
• Second	239(24.2)	88(14.9)	24.7	16.1
• Middle	221(22.3)	112(18.9)	22.8	18.3
• Fourth	171(17.3)	149(25.2)	16	25.0
• Richest	92(9.3)	160(27)	8.3	27.1
Current place of residence: * **				
• Urban Governorates	103(10.3)	202(34.1)	9.4	34.9
• Urban Lower Egypt	70(7.1)	73(12.3)	7.2	14.3
• Rural Lower Egypt	321(32.5)	134(22.8)	35.6	26
• Urban Upper Egypt	91(9.2)	28(4.7)	9.7	4.9
• Rural Upper Egypt	338(34.2)	89(15)	36.7	17.3
• Frontier Governorates	66(6.7)	66(11.1)	1.4	2.6

NB. Chi-square test was used *** P-value ≤ 0.001

The positive significant predictors for FGM/C exposure included: older age and being a rural resident. The older girls had one and half time higher probability to be exposed to FGM/C than younger girls (OR=1.451, 95%CI=1.326-1.586). Also girls who were rural residents were nearly two times more likely to be exposed to FGM/C (OR=2.130, 95%CI= 1.595-2.844).

Table (4): FGM/C among the 10 – 14 years old girls by health, SYPE 2009

Variable	Unweighted		Weighted	
	Victims of FGM/C Freq. (%)	Not Freq. (%)	Victims of FGM/C (%)	Not (%)
Having disability				
• Yes	18(1.8)	8(1.4)	1.7***	1.6
• No	971(98.2)	584(98.6)	98.3	98.4
Type of disability♦				
• Partially sighted	10(55.6)	3(37.5)	59.7***	39.4
• Mentally disabled	3(16.7)	1(12.5)	18	9.8
• Others	5(27.7)	4(50)	22.3	50.8
Having chronic disease				
• Yes	30(3)	12(2)	2.7***	2
• No	959(97)	580(98)	97.3	98
Type of chronic disease♦				
• Heart disease	8(26.7)	4(33.3)	25.9***	38.2
• Bone disease	5(16.7)	3(25)	16.9	23.1
• Lung disease	6(20)	2(16.7)	19.7	15.4
• Others	11(36.6)	3(25)	37.5	23.3

NB. Chi-square test was used ♦ Fisher Exact Test *** P-value ≤ 0.001

On the other hand, the 10 – 14 years old girls belonged to richer families (fourth and richest wealth quintiles) had a lower probability to be exposed to FGM/C (OR=0.647, 95%CI=0.425-0.986) and (OR=0.347, 95%CI=0.208-0.580) respectively (Table, 6).

Table (5): FGM/C among the 10-14 year old girls by characteristics of parents, SYPE 2009

Variable	Unweighted		Weighted	
	Victims of FGM/C Freq. (%)	Not Freq. (%)	Victims of FGM/C (%)	Not (%)
Mother's alive**				
• Yes	971(98.2)	581(98.1)	98.5	98.3
• Died	18(1.8)	11(1.9)	1.5	1.7
Father's alive **				
• Yes	905(91.5)	559(94.4)	92.1	93.9
• Died	84(8.5)	33(5.6)	7.9	6.1
Mother education***				
• Illiterate	477(49.8)	168(29.4)	51	28.9
• Read & write-elementary -middle school	248(25.9)	144(25.2)	25.5	25.1
• High school (general & vocational)	183(19.1)	181(31.6)	18.5	32.3
• Post-secondary & university	49(5.2)	79(13.8)	5	13.7
Father education***				
• Illiterate	243(27.9)	88(16.8)	28.2	15.1
• Read & write-elementary -middle school	304(34.9)	178(34)	35.7	35.4
• High school (general & vocational)	223(25.6)	145(27.6)	24.8	26.5
• Post-secondary & university	101(11.6)	113(21.6)	11.3	23
Mother employment***				
• Governmental and public	321(40)	191(39.2)	39.4	39.9
• Others	481(60)	296(60.8)	60.6	60.1
Father employment***				
• Governmental and public	321(40)	191(39.2)	39.4	39.9
• Others	481(60)	296(60.8)	60.6	60.1
Mother marital status(♦)***				
• Married	865(99.3)	519(99)	99.3	99.1
• Widowed	6(0.7)	4(0.8)	0.7	0.9
• Divorced	0(0)	1(0.2)	0.0	0.0
Father marital status(♦)***				
• Married	865(99.3)	519(99)	99.3	99.1
• Widowed	6(0.7)	4(0.8)	0.7	0.9
• Divorced	0(0)	1(0.2)	0.0	0.0

NB. Chi-square test was used ♦ Exact Test
** P-value ≤ 0.01 *** P-value ≤ 0.001

Table (6): Logistic regression of FGM/C exposure among 10 - 14 years old girls, SYPE 2009 (unweighted)

Variables	Adjusted OR	P-value	95% C.I.	
			Lower	Upper
Age	1.451	0.000	1.326	1.586
Residency (Ref.= Urban**)**		0.000		
• Rural	2.130	0.000	1.595	2.844
• Slums (Informal)	0.816	0.370	0.523	1.273
Wealth quintiles (Ref.= Poorest**)**		0.001		
• Second	0.931	0.723	0.628	1.381
• Middle	0.807	0.283	0.546	1.194
• Fourth	0.647	0.043	0.425	0.986
• Richest	0.347	0.000	0.208	0.580
Father education (Ref.= Illiterate**)**		0.188		
• Read & write-elementary -middle school	0.786	0.172	0.556	1.111
• High school (general & vocational)	1.124	0.592	0.734	1.722
• Post-secondary & university	1.094	0.746	0.635	1.883
Mother education (Ref.= Illiterate**)**		0.296		
• Read & write-elementary -middle school	0.881	0.449	0.635	1.223
• High school (general & vocational)	0.688	0.076	0.455	1.039
• Post-secondary & university	0.609	0.119	0.327	1.135
Constant		**0.001**		

(R2=0.198)

DISCUSSION

In the year 2009, there were 1.2 billion adolescents worldwide; around 88% of them lived in the developing nations. Adolescence is an important decade in a child's development, marking the period of transition from childhood to adulthood [6]. Adolescents face many risks, especially girls. Across much of the world, families and societies treat girls and boys unequally, with girls disproportionately facing privation, lack of opportunity and lower levels of investment in their health[7], nutrition and education[8]. Moreover, adolescent girls suffer many risks as FGM/C.

FGM/C received growing attention from researchers, governmental and international organizations over the last decades as a result of its impact on women's health[9,10]. It is critical to understand the determinants that affect the practice of FGM\C, particularly among girls aged (10 to14) years. This analysis helps to guide national programming and policy interventions to continue combating FGM/C in Egypt.

Prevalence of FGM\C

The current study demonstrated that the prevalence of FGM\C among early adolescent girls aged (10 to 14) years was (64.8%), which indicates a decline in the practice of FGM/C in Egypt. This is in agreement with another study that was conducted in El-Dakahlia governorate among secondary school girls which found that the prevalence of FGM/C among them was (53.7%) [11]. Also this is in agreement with the earlier report by El-Gibaly ***et al.***[12]who showed that approximately (84.2%) of girls in Egypt would be circumcised, which was lower than practice levels in the ninetieth. This decline is also supported by a study conducted in Minia governorate, Upper Egypt, which concluded that age-specific probabilities of FGM/C are lower among the daughters than mothers, and among younger rather than older daughters [13]. In another study that was conducted by Tag-Eldin ***et al.***[14] in Egypt, it was found that the prevalence of FGM\C among school girls in the age group (10–18) years was (50.3%). Several factors may explain the discrepancy in the

prevalence of FGM/C among the previous studies such as; sampling techniques and research methods in the various communities involved [15].

Circumstances of exposure to FGM/C

- **The person who performed FGM\C**

Unfortunately, although the medicalization of FGM/C has been condemned in Egypt, the majority of FGM/C in the current study were done by medical personnel (70.7%) followed by Dayas (22.4%). This is in agreement with the results of Tag-Eldin***et al.***[14] who found that medical personnel performed the majority of FGM\C (67.7%), while Dayas performed (29.3%) of the procedure. Egypt is a country with the highest rate of using medical personnel in performing FGM/C [17], and the rate has increased in the last 10 years. According to EDHS, 2014[2], trained medical personnel performed FGM/C in (82%) of the daughters and Dayas performed the majority of the remaining percentage. The argument favouring medical involvement for FGM/C says that there are less injuries and a lower risk of bleeding with the use of skilled medical management of FGM/C rather than unskilled traditional practitioners [17].

Correlates of exposure to FGM\C

- **Age:**

The results of this study found that older age of the participants was a significant factor for FGM/C. However, other studies in Egypt revealed that percentage of FGM/C decreases among late adolescents and among university students. A secondary analysis study on the EDHS 2005, 2008 and 2014 reported that among girls aged (18-20) years, there is a decline in prevalence of FGM/C, as it was (77%) in 2005 and (61%) in 2015 [18]. Barakat and Mosleh [19]in Egypt, reported that the prevalence of FGM/C among university students was (50.9%). Decrease in the prevalence of FGM/C could be attributed to health awareness campaigns through media and non-governmental organizations.

A study of the prevalence of FGM/C in Giza governorate showed 63.9% of females aged 5-30 years were circumcised. The prevalence was classified according to age groups to 33.3% among those aged <10 years, 55% among those aged 10-20 years and 71.1% among those aged >20 [20]. In Upper Egypt, prevalence of FGM/C is higher among girls aged 10-14 years to be 84.9%, is even higher in rural areas (92.5%) [21]. A study was conducted in Sohag (2008) interviewing female students in preparatory schools (aged 10–14 years) asking them if they were exposed to FGM/C within the last 6 years prior to the study or not. The study included three schools from Sohag city representing urban areas and three schools from villages around the city representing rural areas. It found that (84.9%) were exposed to FGM/C [21].

- **Residence**

Urban-rural residence played a significant role in whether girls undergo FGM/C. In the current study, the prevalence of FGM/C is lower among urban girls (27%) than rural girls (73%). This is in agreement with the results of other studies [2,19,21,22]. Other studies also found that the prevalence rate was higher in rural schools compared to urban schools (61.7% versus 46.2%, respectively)[14] and (65.5% versus 42.3% respectively) [11]. Moreover, the odds of a girl undergoing the procedure are twice among rural compared to urban residents (OR; 2.456, 95% CI=1.595 - 2.844). This is also in agreement with previous evidence [11,17,23-25]. This may be because of the strict tradition and loose legal concern for the practice in the rural areas. Also, rural areas may become a convenient place for the practice due to increased availability of traditional practitioners.

- **Socio–Economic determinants**

The relationship between exposure of adolescent girls to FGM/C and wealth quintile is clearly significant in this study. The odds of exposure of early adolescent girls to FGM/C decreased as the level of wealth increased. This is in agreement with results found in EDHS 2014[2]. However, this relation was not clear in EDHS 2005 and 2008 [26,27]. The effect of wealth could be explained by the fact that those who are in the lowest wealth quintile have the least education and exposure to information about FGM/C. Also in other countries like Nigeria and Sudan, FGM/C practice reduced as social status and level of education increased [28-30].

- **Parental education**

Mother education

The analysis of the current study indicated that the low educational level of the mother appeared to be a positive predictor for the occurrence of FGM/C. Mothers who did not attend formal education were more likely to perform the procedure for their daughters when compared with those who completed secondary education and above. However, this significant relationship was only evident when controlling for socio - demographic variables only, but, this effect disappeared when all other independent

variables were added to the model. Other studies emphasized the effect of mothers' education on FGM/C [2,13]. Another study that was conducted in Amhara and Oromia, in the Ethiopia region showed that maternal education was a significant predictor of FGM\C practice [31,32]. Education is likely to enhance female autonomy so that women develop greater confidence and capability to make decision regarding their daughter`s FGM/C. Moreover, educated women are more likely to be aware of the risky effect of FGM\C and, as a result, they are more likely to fight against the practice [33]. However, the odds of FGM/C practice decreased as the educational level of the mother increased in EDHS 2008 and 2014 [18]. This association with lack of education may reflect difficulty in understanding the impact of FGM/C and in adherence to deeply-rooted traditions [33]. FGM/C in Egypt still needs a lot of efforts in order to improve women's lives.

Limitation of the study

Using secondary analysis technique limits the scope of the analysis to the available data and variables that the survey offered. Moreover, for the educational level variable, there were few cases (only 11) who reported being in secondary school. As being in secondary school and aged 14 years may be non-logic, and they may have been a reporting or a data entry mistake, so, we added them to the level of preparatory school.

CONCLUSION

Nearly two thirds of 10 – 14 years old girls in Egypt were exposed to FGM/C. FGM/C was carried on the majority of them by medical personnel (70.7%) at home or at private medical facilities. FGM\C exposure was associated with higher odds of being older in age, living in rural areas, belonging to lowest wealth quintile.

RECOMMENDATIONS

The present study recommends emphasizing the legal sanctions against medical personnel performing FGM/C as well as against private institutions at which this violation occurs.More primary research needs to be carried out to address qualitative aspects related to exposure of early adolescent girls to FGM/C.

REFERENCES

1. **WHO (World Health Organization) (2017):** At: http://www.who.int/ mediacentre/ factsheets/fs241/en.
2. **El-Zanaty F, Associates (2015):** Egypt demographic health survey (2014). Ministry of Health and Population, Cairo, Egypt, and Rockville, Maryland, USA, Ministry of Health and Population and ICF international: At: https://dhsprogram.com/pubs/pdf/PR54/PR54.pdf.
3. **WHO (2001):** A systematic review of the health complications of female genital mutilation including sequelae in childbirth. Geneva, 2001. Available from: http://whqlibdoc.who.int/hq/2000/WHO_FCH_ WMH_00.2.pdf.
4. **Momoh C (2015):** Female genital mutilation. Trends Urol Gynecol Sexual Health, 15:11–4.
5. **Abdulcadira J, Margairaz C, Boulvain M, Irion O (2011):**Effectiveness of interventions designed to prevent female genital mutilation/cutting: a systematic review. Studies in Family Planning, 43(2):135-46.
6. **Steinberg L, Morris AS (2001):** Adolescent development. Annual Review of Psychology,52(1):83-110.
7. **Patton GC, Coffey C, Cappa C, Currie D, Riley L, Gore F, Degenhardt L, Richardson D, Astone N, Sangowawa AO, Mokdad A (2001):** Health of the world's adolescents: a synthesis of internationally comparable data. The Lancet, 379(9826):1665-75.
8. **Barcellos SH, Carvalho LS, Lleras-Muney A (2014):** Child gender and parental investments in India: are boys and girls treated differently? American Economic Journal: Applied Economics, 6(1):157-89.
9. **Shell-Duncan B, Ylva H (2000):** Female circumcision in Africa: Dimensions of the practice and debates. In Female Circumcision in Africa: Culture, Controversy, and Change. Eds. Bettina Shell-Duncan and YlvaHernlund. Boulder, CO: LyneReinne, p. 1–40.
10. **Schroeder P (1994):** Female genital mutilation; a form of child abuse. N Engl J Med, 331(11): 739-40.
11. **Yasin YA (2014):** Prevalence of female genital mutilation among school girls in El Mansoura Center, El-Dakahlia Governorate, Egypt. IOSR Journal of Dental and Medical Sciences, 13:11-76.
12. **El-Gibaly O, Ibrahim B, Mensch BS, Clark WH (2002):** The decline of female circumcision in Egypt: evidence and interpretation. Social Science & Medicine, 54(2):205-20.
13. **Yount KM (2002):** Like mother, like daughter? Female genital cutting in Minia, Egypt. Journal of Health and Social Behavior, 1:336-58.
14. **Tag-Eldin A, Gadallah A, Al-Tayeb N, Abdel-Aty M, Mansour E, Sallem M(2008):** Prevalence of female genital cutting among Egyptian girls, Bulletin of the World Health Organization, 86:269–274.
15. **Yirga WS, Kassa NA, Gebremichael MW, Aro AR (2012):**Female genital mutilation: prevalence, perceptions and effect on women's health in Kersa district of Ethiopia. International Journal of Women's Health, 4:45.
16. **Yoder PS, Abderrahim N and Zhu-ZhuniA (2004):** Female Genital Cutting in the Demographic and Health Survey: a Critical and Comparative Analysis, DHS Comparative Reports No.7

(Calverton, MD: ORC Macro): At: https://dhsprogram.com/pubs/pdf/cr7/cr7.pdf.

17. **British Medical Association (2011):** Female genital mutilation: Caring for patients and safeguarding children. BMA, London: At: https://www.bma.org.uk.
18. **El-Zanaty F, UNICEF (2015):** Factors and determinants of FGM/C of girls aged 0-17 years: a secondary analysis of the Egypt Demographic and Health Surveys, 2005, 2008 and 2014: At:https://www.unicef.org/egypt/FGM_Secondary_analysis_edited_5-08-2016_FINAL.pdf.
19. **Barakat AA, Mosleh H (2012):** Prevalence of Female Genital Cutting among University Students in Egypt. Journal of American Science, 8(11):15-21.
20. **Zayed AA, Ali AA (2012):** Abusing female children by circumcision is continued in Egypt. J Forensic Leg Med., 19(4):196-200.
21. **Hassanin IM, Saleh R, Bedaiwy AA, Peterson RS, Bedaiwy MA (2008):** Prevalence of female genital cutting in Upper Egypt: 6 years after enforcement of prohibition law. Reproductive Biomedicine Online, 16:27-31.
22. **Dalal K, Lawoko S, Jansson B (2010):** Women's attitudes towards discontinuation of female genital mutilation in Egypt. J Inj Violence Res., 2(1): 41-7.
23. **Exterkate M (2013):** Female genital mutilation in the Netherlands: Prevalence, incidence and determinants. PharosCentre of Expertise on Health for Migrants and Refugees: At: http://www.pharos.nl/documents/doc/webshop/vrouwelijkegenitaleverminkinginnederland-finalreportfgminnl1.pdf.
24. **Inungu J, Tou Y (2013):** Factors associated with female genital mutilation in Burkina Faso, Journal of Public Health and Epidemiology, 5:20-28.
25. **Bogale D, Markos D, Kaso M (2014):** Prevalence of female genital mutilation and its effect on women's health in Bale zone, Ethiopia: a cross-sectional study. BMC Public Health, 14(1):1076.
26. **El-Zanaty F, Way A (2006):** Egypt Demographic and Health Survey (2005). Ministry of Health and population, National Population Council, Cairo, Egypt, El-Zanaty and Associates, and ORC Macro: At: https://www.dhsprogram.com/pubs/pdf/FR176/FR176.pdf.
27. **El-Zanaty F, Way A (2009):** Egypt Demographic and Health Survey (2008). Ministry of Health, El-Zanaty and Associates, and Macro International: At: https://dhsprogram.com/pubs/pdf/fR220/fR220.pdf.
28. **Anuforo PO, Oyedele L, Pacquiao DF (2004):** Comparative study of meanings, beliefs, and practices of female circumcision among three Nigerian tribes in the United States and Nigeria. Journal of Transcultural Nursing, 15(2):103-13.
29. **Nkwo PO, Onah HE (2001):**Decrease in female genital mutilation among Nigerian Ibo girls. International Journal of Gynecology & Obstetrics, 75(3):321-2.
30. **Satti A, Elmusharaf S, Bedri H, Idris T, Hashim MS, Suliman GI, Almroth L (2006):** Prevalence and determinants of the practice of genital mutilation of girls in Khartoum, Sudan. Annals of Tropical Paediatrics, 26(4):303-10.
31. **Allam MF, de Irala-Estevez J, Navajas RF, Del Castillo AS, Hoashi JS, Pankovich MB, Liceaga JR (2001):** Factors associated with the condoning of female genital mutilation among university students. Public Health, 115(5):350-5.
32. **Abu-Bakr I, Iliyasu Z, Kabir M, Uzoho CC, Abdulkadir MB (2004):** Knowledge, attitude and practice of female genital cutting among antenatal patients in Aminu Kano Teaching Hospital. Niger J Med., 13(3):254–258.
33. **Gebremariam K, Assefa D, Weldegebreal F (2016):** Prevalence and associated factors of female genital cutting among young adult females in Jigjiga district, eastern Ethiopia: a cross-sectional mixed study. International Journal of Women's Health, 8:357.