

Original Article

# Prevalence of Female Genital Mutilation, and Women's Knowledge, Attitude, and Intention to Practice in Egypt: A Nationwide Survey

Marwa S.M. Abdou <sup>¶</sup>, Iman M.H. Wahdan, Nessrin A. El-Nimr

Department of Epidemiology, High Institute of Public Health, Alexandria University, Egypt

## Abstract

**Background:** Female genital mutilation (FGM) is a human rights violation of girls and women and quite common in several countries, including Egypt.

**Objective(s):** To estimate the prevalence of FGM among Egyptian females, to assess their knowledge, attitude, and intention to practice FGM, and to determine their possible correlates.

**Methods:** A total of 770 females aged 15 - 49 years attending the family health centers at five randomly selected Egyptian governorates representing the different provinces of Egypt were included. A cross-sectional study design was used. A predesigned structured interviewing questionnaire was utilized to collect data on socio-demographic characteristics, females' knowledge and attitude regarding FGM, and their intention to practice FGM. Special scoring systems were developed regarding knowledge and attitude.

**Results:** The prevalence of FGM was 74.2%. Only 5.7% of females had a good level of knowledge, 65.3% had a favorable attitude regarding (i.e. were against) FGM, and 31.8% reported that they intended to practice FGM. Logistic regression models showed that younger age, rural area of residence, and level of education (illiteracy or just reading and writing) were significantly associated with a poor level of knowledge, and level of education, marital status, exposure to mutilation, and level of knowledge significantly affected their attitude. Significant predictors of females' intention to practice were their mutilation experience, level of knowledge, and attitude and husband's pressure to perform FGM.

**Conclusion:** FGM remains common in Egypt. Poor knowledge and unfavorable attitude had a positive significant correlation, and both were among the predictors of females' intention to practice mutilation. Males played a role in the continuation of practice in the community. Awareness campaigns and law enforcement may help reduce the practice of FGM in Egypt.

**Keywords:** female genital mutilation, prevalence, intention to practice, Egypt

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<sup>¶</sup>Correspondence:

Email:

[marwa.shawky21@gmail.com](mailto:marwa.shawky21@gmail.com)

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## INTRODUCTION

Female genital mutilation (FGM) refers to all the procedures that involve partial or complete removal of female external genitalia or other injuries to the female genital organs for non-medical reasons.<sup>(1)</sup> It has no health benefits; on the contrary, it interferes with normal body functions and has a negative effect on the physical, mental, and sexual health of women. Immediate complications of FGM include hemorrhage, severe pain, infections, shock, and death. Long-term complications include urinary, sexual, menstrual, and obstetric problems and psychological issues. It moreover affects the relationship of women with their families and partners.<sup>(1,2)</sup> The World Health Organization classifies FGM into four

types.

- Type I involves partial or total removal of the clitoral glans and/or prepuce.
- Type II involves partial or total removal of the labia minora with the clitoral glans, and the labia majora might be excised in this type as well.
- Type III involves narrowing of the vaginal opening with the development of a covering seal of labia minora or labia majora.
- Type IV involves all other harmful procedures applied to female genitalia for non-medical reasons: for example, cauterization, scraping, piercing, incising, or pricking.<sup>(2)</sup> In Egypt, the most commonly practiced types of FGM are types I and II.<sup>(3)</sup>

Female genital mutilation is considered a deep-rooted inequality between boys and girls and is seen as gender discrimination against girls and women.<sup>(4)</sup> Despite being internationally recognized as a human rights violation of girls and women, FGM has been performed on at least 200 million girls and women in 31 countries.<sup>(1, 5)</sup> The practice affects approximately 90% in Somalia, Guinea, and Djibouti, whereas it affects no more than 1% of adolescent girls in Cameroon, the Maldives, and Uganda. FGM is even practiced in Europe, North America, and Australia, reflecting the growth in the number of immigrants from countries where the practice still occurs.<sup>(6, 7)</sup> According to the 2015 Egypt Health Issues Survey (EHIS), 87% of all women aged 15–49 years in Egypt had undergone FGM.<sup>(8)</sup> Social norms, religion, ensuring premarital virginity and marital fidelity, increasing marriageability, and cultural ideals of femininity and modesty were among the most commonly cited reasons for performing FGM.<sup>(1)</sup> A survey conducted among Egyptians aged 10–29 years in 2014 indicated that the reasons given for practicing FGM were customs and traditions (56.7%) and religion (35%).<sup>(9)</sup>

Studies on females' knowledge regarding FGM have been carried out in several countries, including Sudan, Ethiopia, and Nigeria.<sup>(10-13)</sup> Girls' and women's attitudes toward FGM vary widely across countries. The highest levels of support for performing FGM can be found in Mali, Sierra Leone, Guinea, and Somalia, where more than 50% of the female population believe the practice should continue.<sup>(4)</sup> Studies performed in Egypt indicated that although females are aware of the possible complications of FGM, the proportion of females still in support of performing FGM remains high.<sup>(14-16)</sup>

The present study aimed to estimate the prevalence of FGM among Egyptian females aged 15–49 years, to assess their knowledge, attitude, and intention to practice FGM, and to identify possible personal, social, and cultural determinants of FGM.

## METHODS

### Data collection

The study was performed on females aged 15–49 years attending the family health centers (FHCs) in different Egyptian governorates. A cross-sectional study design was used. The sample size was calculated using Epi Info 7.2, 2018. On the basis of a 54% prevalence of unfavorable attitudes of females toward FGM,<sup>(8)</sup> a 5% confidence limit, and a design effect of 2, the minimum required sample size at a confidence level of 95% was calculated to be 764 females and rounded to 770.

A multistage stratified random sampling method was used. Egypt was divided into five provinces: Greater Cairo, Alexandria, Canal, Delta, and Upper Egypt. One governorate was randomly selected to geographically represent each province. The selected governorates were Cairo, Alexandria, Port Said, Kafr El Sheikh, and Fayoum. The sample for each governorate was calculated according

to the population size in each province and the proportion of the population in the province of the total population.<sup>(17)</sup> From each governorate, one district was selected randomly; subsequently, one FHC was selected randomly from each selected district. Eligible females attending the FHCs were consecutively recruited until completion of the required sample size.

A predesigned structured interviewing questionnaire was used for data collection. The first section included data on socio-demographic characteristics (age, residence, marital status, level of education, and occupation). The second section included 24 questions pertaining to females' knowledge regarding FGM (its synonyms, types, most common practices used, its short- and long-term health consequences, its occurrence in Arab and African countries, and Egyptian law concerning FGM). Both single and multiple response questions were used. A scoring system was developed, and the total knowledge score was calculated by summing the scores of all questions, with a final knowledge score ranging from 0 to 28 points, which was classified into good ( $\geq 75\%$  or  $\geq 21$  points), fair (50%– $<75\%$  or 14– $<21$  points), or poor ( $<50\%$  or  $<14$  points).

The third section included 26 questions about females' attitude toward FGM using a three-point Likert scale. Internal consistency was tested, and Cronbach's alpha was 0.615. The final attitude score ranged from 26 to 78 points and was classified into favorable ( $\geq 75\%$  or  $\geq 59$  points), neutral (50%– $<75\%$  or 39– $<59$  points), or unfavorable ( $<50\%$  or  $<39$  points).

The final section included 11 questions concerning intention to practice FGM in future. This section included questions regarding females' plans of mutilating their daughters in future, whether they were facing social pressure from family members or neighbors, whether they knew someone who intended to mutilate their daughters, and whether their husbands had the desire to mutilate their daughters.

### Statistical analysis

The collected data were revised, coded, and analyzed using the software SPSS version 20 (IBM, Armonk, NY, USA). Quantitative variables were expressed as mean and standard deviation (SD). Categorical variables were examined using the chi square ( $\chi^2$ ) test. Quantitative variables were tested using Pearson's correlation test, and the Student's *t* test was used for comparing means between groups. Binary logistic regression models were used to identify independent predictors of knowledge (poor = 1; fair and good = 0), attitude (unfavorable/neutral = 1; favorable = 0), and intention to practice FGM (yes = 1; no = 0). Independent variables were chosen based on their significance in univariate analysis. Differences with a probability (*p*) value  $<0.05$  were considered to be statistically significant.

### Ethical considerations

Approval from the Ethics Committee of the High Institute of Public Health, Alexandria University, Egypt was

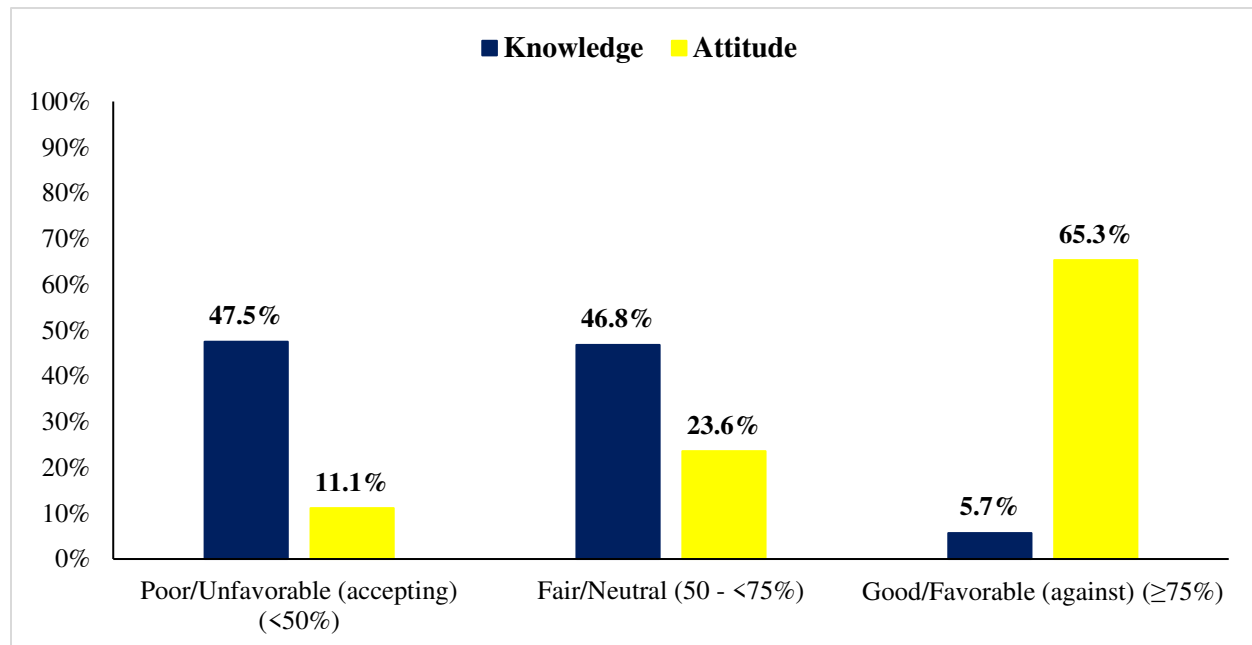
obtained. Researchers complied with the International Guidelines for Research Ethics. Verbal consent was obtained from the participants or from their mothers after an explanation of the purpose and benefits of research. Anonymity and confidentiality of the participants were maintained. There was no conflict of interest.

## RESULTS

The mean age of the study participants was  $30.78 \pm 8.53$  years. About 37% were in the age group of 25–<35 years; 28.8% were 35–<45 years, 27.3% were 15–<25 years, and 7% were 45 years and above. More than half (58.6%) of the participants were from urban areas, and 33.5% and 7.9% were from rural and slum areas, respectively. Females from Fayoum represented 29.6% of the sample, followed by Cairo (25.1%), Kafr El Sheikh (21.8%), Alexandria (12.5%), and Port Said (11%). Most females (80.1%) were married, 83.4% did not work, 12.9% were illiterate or could just read and write, and 27.1% had a higher education.

The prevalence of FGM among the study participants was 74.2%. A total of 70.5% of females exposed to FGM reported that they had been mutilated when they were between 10 and 15 years old. Mothers were those most commonly responsible for the mutilation decision (49.4%), followed by both mother and father (30.1%). Mutilation was most commonly performed by dayahs (i.e. traditional birth attendance) and physicians (40.1% and 30.5%, respectively). Nearly two-thirds (67.6%) did not know the specific type of mutilation to which they were exposed. All participating females reported that they were aware of the practice of FGM and that it is common in their society.

Figure 1 illustrates that only 5.7% of females had a good level of knowledge on FGM, and 65.3% had a favorable attitude toward (i.e. were against) FGM. The mean knowledge score was  $12.97 \pm 5.55$  points and ranged from 0 to 25 points, and the mean attitude score was  $61.3 \pm 14.2$  points and ranged from 27 to 78 points. The correlation between females' knowledge and attitude regarding FGM was positive, moderate, and statistically significant ( $r = 0.503, p < 0.001$ ).



**Figure 1: Distribution of females aged 15–49 years according to their level of knowledge and attitude regarding FGM (Egypt, 2019–2020)**

Regarding the intention to practice FGM, 31.8% reported that they intended to perform FGM on their daughters, and 80.3% reported that they knew someone who intended to mutilate his/her daughter. Facing pressure from a family member or a neighbor to perform FGM was reported by 41.1% and 23.1%, respectively, and 31% reported that their husbands wanted to perform FGM on their daughters. The rate of FGM was higher among the older age groups than among the younger age groups (27.4% among females aged 15 – <20 years, 57.4% among females aged

20 – <25 years, and 83.8% among females aged 25 – 49 years) (Table 1).

Females from slum areas were more likely to have experienced FGM than females from rural and urban areas. The prevalence was also higher among females from Cairo and Alexandria compared with the other cities. These differences were statistically significant. It could also be noticed that the higher the level of education, the lower the prevalence of FGM, a finding that was statistically significant.

**Table 1: Distribution of females aged 15–49 years according to their mutilation experience and their area of residence, education, knowledge, attitude, and intention to practice FGM (Egypt, 2019–2020)**

Variable	Mutilation experience		Test of significance
	Yes (n = 571)	No (n = 199)	
	No. (%)	No. (%)	
<b>I. Age, residence, governorate, and level of education</b>			
<b>Age (years)</b>			
15–19	17 (27.4)	45 (72.6)	$\chi^2 = 119.158,$ $p < 0.001^*$
20–24	85 (57.4)	63 (42.6)	
25–49	469 (83.8)	92 (6.2)	
<b>Type of residence area</b>			
Slum	53 (86.9)	8 (13.1)	$\chi^2 = 6.564, p = 0.038^*$
Urban	324 (71.8)	127 (28.2)	
Rural	194 (75.2)	64 (24.8)	
<b>Governorate</b>			
Cairo	164 (85.0)	29 (15.0)	$\chi^2 = 29.29, p < 0.001^*$
Alexandria	75 (78.1)	21 (21.9)	
Port Said	48 (56.5)	37 (43.5)	
Kafr El Sheikh	115 (68.5)	53 (31.5)	
Faiyum	169 (74.1)	59 (25.9)	
<b>Level of education</b>			
Illiterate or able to just read and write	86 (86.9)	13 (13.1)	$\chi^2 = 47.98, p < 0.001^*$
Primary and preparatory	121 (84.6)	22 (15.4)	
Secondary and diploma	244 (76.5)	75 (23.5)	
University and postgraduate	120 (57.4)	89 (42.6)	
<b>II. Knowledge, attitude, and intention to practice</b>			
<b>Level of knowledge</b>			
Poor	266 (46.6)	100 (50.3)	$\chi^2 = 0.88, p = 0.65$
Fair	271 (47.4)	89 (44.7)	
Good	34 (6.0)	10 (5.0)	
Mean $\pm$ SD	13.12 $\pm$ 5.48	12.54 $\pm$ 5.75	$t = 1.28, p = 0.20$
<b>Level of attitude</b>			
Unfavorable (accepting FGM)	82 (14.4)	3 (1.5)	$\chi^2 = 62.53, p < 0.001^*$
Neutral	161 (28.2)	21 (10.6)	
Favorable (against FGM)	328 (57.4)	175 (87.9)	
Mean $\pm$ SD	58.70 $\pm$ 14.93	68.57 $\pm$ 8.60	$t = -8.83, p < 0.001^*$
<b>Intention to practice FGM</b>			
Yes	226 (39.6)	19 (9.5)	$\chi^2 = 61.35, p < 0.001^*$
No	345 (60.4)	180 (90.5)	

SD, standard deviation; FGM, female genital mutilation

\*Statistically significant ( $p < 0.05$ )**Table 2: Distribution of females aged 15–49 years according to their intention to practice FGM and their level of knowledge and attitude (Egypt 2019–2020)**

Knowledge and attitude	Intention to practice FGM		$\chi^2 (p)$
	Yes (n = 245)	No (n = 525)	
	No. (%)	No. (%)	
<b>Level of knowledge</b>			
Good	2 (4.5)	42 (95.5)	145.83 (<0.001*)
Fair	49 (13.6)	311 (86.4)	
Poor	194 (53.0)	172 (47.0)	
<b>Level of attitude</b>			
Favorable	35 (7.0)	468 (93.0)	436.63 (<0.001*)
Neutral	126 (69.2)	56 (30.8)	
Unfavorable	84 (98.8)	1 (1.2)	

FGM, female genital mutilation

\*Statistically significant ( $p < 0.05$ )

Table 1 also shows that the mean knowledge score among females exposed to FGM was lower than that among non-mutilated females; however, this difference

was not statistically significant. Most females who were not exposed to FGM had a favorable attitude toward FGM (i.e., were against FGM) compared with nearly half of

those exposed to FGM, with a statistically significant difference. The mean attitude score among females who were not exposed to FGM was higher than that among those who were exposed to FGM; the difference between the two groups was statistically significant ( $t = -8.83, p < 0.001$ ). About 40% of genitally mutilated females intended to practice FGM for their daughters compared with about 10% of non-genitally mutilated females ( $\chi^2 = 61.35, p < 0.001$ ). The proportion of females who intended to practice FGM increased with a decrease in the level of knowledge and with a decrease in the level of attitude (Table 2). For instance, the difference between the intention to practice FGM and both knowledge and attitude was statistically significant.

Table 3 shows the results of the logistic regression analysis of the predictors of knowledge (poor = 1, fair and good = 0) of females regarding FGM (Model a). Three factors significantly affected females' knowledge and included age, area of residence, and level of education. Females with poor levels of knowledge were 4% less likely to be in the older age groups, 1.9 times more likely to be from rural areas, and 2.61 times more likely to be illiterate or able to just read and write compared with females with fair and good levels of knowledge. The model correctly classified 63.2% of cases. Four factors were found to significantly affect females' attitude toward FGM (neutral and unfavorable = 1, favorable = 0; Model

b). The first was the level of education. Females with a neutral and unfavorable attitude were 2 times more likely to be illiterate or able to just read and write compared with females with a favorable attitude. The second factor was marital status. Females with a neutral and unfavorable attitude were 2.8 times more likely to be married compared with females with a favorable attitude. The third was exposure to mutilation. Females with a neutral or unfavorable attitude were 7 times more likely to have been exposed to FGM than females with a favorable attitude. The fourth factor was the level of knowledge regarding FGM. Females with a neutral and unfavorable attitude were 10 times more likely to have a poor level of knowledge than females with a favorable attitude. The model correctly classified 79.7% of cases.

Model c showed that the predictors of females' intention to practice FGM (yes = 1, no = 0) were their previous exposure to mutilation, their levels of knowledge and attitude, and the husband's pressure to perform FGM. Females who intended to practice FGM on their daughters were 3 times more likely to have been exposed to FGM, 4.3 times more likely to have poor knowledge, 23 times more likely to have an unfavorable attitude toward FGM, and 4 times more likely to experience pressure from the husband to perform FGM than females who did not intend to practice FGM. The model correctly classified 88.2% of cases.

**Table 3: Predictors of knowledge and attitude of females aged 15–49 years regarding FGM (Egypt 2019–2020)**

Independent variable	Coefficient B	p value	Odds ratio	95% confidence interval	Sensitivity of the model
<b>Model a: Knowledge regarding FGM</b>					
Age	-0.038	0.001*	0.963	0.942–0.984	
Residence (rural vs urban and slum)	0.659	0.005*	1.933	1.221–3.059	63.2%
Level of education (illiterate/able to just write and read vs others)	0.961	<0.001*	2.615	1.649–4.146	
<b>Constant</b>	<b>0.602</b>	<b>0.084</b>			
<b>Model b: Attitude toward FGM</b>					
Level of education (illiterate/able to just write and read vs others)	0.651	0.015*	1.918	1.134–3.242	
Marital status (married vs others)	1.047	<0.001*	2.849	1.656–4.901	79.7%
Exposure to mutilation (yes vs no)	1.961	<0.001*	7.103	4.067–12.404	
Level of knowledge (poor vs good and fair)	2.321	<0.001*	10.185	6.872–15.095	
<b>Constant</b>	<b>-3.599</b>	<b>&lt;0.001</b>			
<b>Model c: Intention to practice FGM</b>					
Exposure to mutilation (yes vs no)	1.097	0.019*	2.997	1.200–7.483	
Level of knowledge (poor vs good and fair)	1.478	<0.001*	4.384	2.516–7.640	
Level of attitude (unfavorable and neutral vs favorable)	3.138	<0.001*	23.047	13.297–39.946	88.2%
Pressure from husband (yes vs no)	1.426	<0.001*	4.161	1.971–8.784	
<b>Constant</b>	<b>-6.891</b>	<b>&lt;0.001</b>			

\*Statistically significant ( $p < 0.05$ )

Model a: Seven factors were used to build the model (age, area of residence, governorate, marital status, level of education, work, and mutilation experience).

Model b: Eight factors were used to build the model (age, area of residence, governorate, level of education, marital status, work, exposure to mutilation, and level of knowledge).

Model c: Twelve factors were used to build the model (age, area of residence, governorate, level of education, marital status, work, exposure to mutilation, level of knowledge, level of attitude, pressure from family, pressure from neighbor, and pressure from husband).

## DISCUSSION

FGM is a major social problem in Egypt. It is a deep-rooted tradition that is still practiced in all governorates. The overall prevalence of FGM in the present study was lower than that observed in the latest EHIS (74.2% vs 87%).<sup>(8)</sup> With respect to the different age categories, the prevalence of FGM in females in the present study was also noticed to be lower than that reported in the EHIS (27.4%, 57.4%, and 83.8% compared with 70%, 80%, and 89%–97% among females aged 15–<20 years, 20–<25 years, and 25–49 years, respectively).<sup>(8)</sup> This finding suggests that FGM practice might be declining among younger aged females.

The prevalence of FGM in the present study was comparable with that reported in southern Iran (68.5%),<sup>(18)</sup> Iraqi Kurdistan (70.3%),<sup>(19)</sup> and Sudan (73.4%).<sup>(20)</sup> It was lower than the prevalence reported from different regions in Ethiopia (range, 78.5%–87.1%),<sup>(21-23)</sup> Mauritania (77%),<sup>(24)</sup> and Somalia (99.7%).<sup>(25)</sup>

The current work found that the prevalence of FGM was highest in slum areas, whereas the EHIS (2015) found that the prevalence of FGM was highest (>90%) in rural areas.<sup>(8)</sup> This difference is due to the different classification of residency adopted in the EHIS, where slum areas were classified as part of urban areas. The study carried out in Iraqi Kurdistan showed that all the mutilated participants were from rural areas.<sup>(19)</sup>

The prevalence of FGM was higher in Cairo than in other governorates. This high prevalence might be overestimated, as most mutilated females residing in Cairo reported that they were not mutilated while residing in the governorate but that the practice took place in their home governorates, mainly in Upper Egypt and in rural governorates.

All participants in the present study had heard about FGM and of its practice in society. This result was in agreement with other studies from Sudan, Ethiopia, Mauritania, and Nigeria where 90%–100% of the participants were aware of FGM and its practice.<sup>(10, 12, 13, 24)</sup>

The level of knowledge of females in the current study was much lower than that of females reported in other studies.<sup>(10, 12, 13, 26)</sup> A possible explanation is that FGM knowledge in the current study covered more topics, including FGM synonyms, types, occurrence, and FGM in Egyptian law, compared with the other studies, which concentrated mainly on FGM health consequences. A study among female members of the International Federation of Medical Students' Associations - Egypt (2015) showed that the level of knowledge was also not satisfactory.<sup>(14)</sup> The poor knowledge of females in the present study suggests the need for further educational programs to raise their awareness regarding FGM.

A decline in the proportion of females with unfavorable attitude toward FGM (i.e., accepting FGM) could be observed by comparing the current findings with those reported in other studies carried out in Egypt: 54% in the 2015 EHIS,<sup>(8)</sup> 29% in a study among female students in

Sohag University in 2017,<sup>(16)</sup> and 11.1% in the current study. This finding is supported by a study of the attitude toward FGM after its criminalization in Egypt in 2008, which indicated that there was a significant decline in the unfavorable attitude toward FGM from 2005 till 2014.<sup>(27)</sup> Such an improved attitude among females toward FGM continuation might help in the possible decline of the prevalence of FGM in Egypt in future, especially when accompanied by strict enforcement of the law to ensure that all physicians, nurses, medical facilities, and dayahs who perform FGM be prosecuted.

The proportion of females who had an unfavorable attitude toward FGM in the present study was also lower than that reported from Kurdistan, Iraq (36.6%),<sup>(19)</sup> Sudan (71.5%),<sup>(12)</sup> and Ethiopia (76.7%).<sup>(28)</sup> In their study in Nigeria, Ibekwe et al. (2012) found that 82% of the respondents did not support continuation of FGM.<sup>(13)</sup>

In the present study, less than one-third of females intended to mutilate their daughters in future, which was comparable with the findings from Kurdistan, Iraq (35%),<sup>(19)</sup> A lower proportion was reported in Ethiopia (26.7%),<sup>(22)</sup> and a higher proportion was reported in Somalia (52%).<sup>(25)</sup>

In the current study, level of education was one of the significant predictors of females' knowledge of and attitude toward FGM, and both knowledge and attitude were among the significant predictors of females' intention to practice FGM in future. An important observation was that females with an unfavorable attitude were more likely to be married than females with a favorable attitude. Moreover, pressure from husbands was one of the significant predictors of females' intention to continue practicing FGM. These findings emphasize the important role of females' education and the significant impact of men's expectation to support the continuation of this practice. Raising awareness about the harmful consequences of FGM should include not only females but also males.

A significant association between education, knowledge, attitude, and intention to practice was reported in other studies.<sup>(10, 28)</sup> A systematic review, which included 21 studies, concluded that continuation of FGM practice arises from a complex belief involving cultural traditions integrated within sexual-moral and religious reasons that prevail inside communities.<sup>(29)</sup>

## CONCLUSION AND RECOMMENDATIONS

Although there is a decline in the prevalence of FGM in Egypt, the extent to which FGM is practiced is still high. The study participants' knowledge on FGM was not satisfactory, and the majority of females had a favorable attitude against FGM. Education was one of the predictors of females' knowledge and attitude regarding FGM. Poor knowledge and unfavorable attitude were positively correlated, and both were among the predictors of females' intention to practice mutilation on their daughters. Males played an important role in the continuation of FGM practice in the Egyptian community.

Public health campaigns are still required to raise awareness regarding FGM and its health consequences. These campaigns should include both males and females. Public health interventions should focus on women empowerment and girls' education. Strict enforcement of the FGM law against all parties, whether parents seeking to perform FGM or healthcare workers participating in performing FGM, will help reduce its rate in Egypt. To have a slum-free Egypt by 2030, the government has launched a project aimed at urbanizing slum areas that are suitable for living and evacuating those that are not. Assessment of the impact of such urbanization on the prevalence of FGM is recommended.

### CONFLICT OF INTEREST

The authors have no conflict of interest to declare.

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