What do medical students in Alexandria know about female genital mutilation?

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ABSTRACT We explored the knowledge, beliefs and attitudes of 330 5th year medical students in Alexandria University towards female genital mutilation (FGM). The students’ basic knowledge about the practice of FGM was unsatisfactory. Students were unaware of the prevalence of FGM in Egypt and the practices and procedures of FGM. They were also poorly informed about the complications of FGM, and the ethical and legal aspects of FGM in the country. As a result, 52.0% of the students supported the continuation of the practice and 73.2% were in favour of its “medicalization” as a strategy for reducing the risks of FGM. Most students (86.9%) thought that the issue of FGM should be incorporated into the undergraduate medical curriculum.

Quelles sont les connaissances des étudiants en médecine d’Alexandrie concernant les mutilations sexuelles féminines ?

RÉSUMÉ Nous avons étudié les connaissances, croyances et attitudes de 330 étudiants de cinquième année de médecine à l’Université d’Alexandrie concernant les mutilations sexuelles féminines. Les connaissances de base des étudiants sur la pratique des mutilations sexuelles féminines étaient insuffisantes. Les étudiants ne connaissaient ni la prévalence des mutilations sexuelles féminines en Égypte, ni les pratiques, ni les méthodes utilisées pour les mutilations sexuelles féminines. Ils étaient également mal informés des complications des mutilations sexuelles féminines, et des aspects éthiques et légaux qui y sont liés dans le pays. En conséquence, 52,0% des étudiants se prononçaient pour la poursuite de cette pratique et 73,2% étaient en faveur de sa « médicalisation » en tant que stratégie visant à réduire les risques associés aux mutilations sexuelles féminines. La plupart des étudiants (86,9 %) pensaient que la question des mutilations sexuelles féminines devrait être intégrée au programme d’études de médecine de premier cycle.
Introduction

According to the World Health Organization (WHO), “female genital mutilation (FGM), or female circumcision as it is sometimes known, constitutes all procedures which involve partial or total removal of the external female genitalia or other injury to the female genital organs whether for cultural or any other non-therapeutic reasons” [1,2]. The 3 main forms of FGM are:

• Type I - Excision of the prepuce with or without excision of part or all of the clitoris;
• Type II - Excision of the prepuce and clitoris together with partial or total excision of the labia minora;
• Type III - Excision of part or all of the external genitalia and stitching/narrowing of the vaginal opening (infibulation).

Worldwide some 130 million women are affected, and every year another 2 million girls and young women suffer mutilation of this sort [1,2]. Despite the battle over FGM that followed the 1994 International Conference on Population and Development (ICPD) held in Cairo, several national surveys and community-based studies have revealed that FGM remains a highly challenging public health problem in Egypt [3,4]. The Egypt Demographic and Health Survey published in 2001 revealed a nationwide prevalence of 97% among ever-married women. In addition, the survey indicated widespread support for the practice and claimed 81% of women supported its continuation. It is practised at all levels of Egyptian society irrespective of social class, educational background or religious affiliation [4].

The complications of FGM are numerous and women subjected to the more severe forms of FGM are particularly likely to suffer from health complications requiring medical attention throughout their lives. Some complications may occur immediately or shortly after the practice is performed while others may occur years after the event. Furthermore the physical, psychosexual and psychological complications of FGM are sizeable and constitute in some countries a serious public health problem which endangers the life and health of women and children [5–7].

Over the past decade, the issue of FGM has become one of global concern. Health organizations and other advocacy groups in the countries concerned are increasingly active in trying to overcome a traditional practice that threatens the health and violates the human rights of millions of women [8]. WHO “strongly condemns the medicalization of female genital mutilation, that is, the involvement of health professionals in any form of female genital mutilation in any setting, including hospitals or other health establishments". WHO has recognized the need for special attention to be given to the training of health workers at all levels, including health professionals (primary care providers, obstetricians/gynecologists, paediatricians, midwives and nurses) on how to deal with the complications of FGM and how to advise and prevent families from seeking FGM for their daughters [9–11].

Health workers are confronted with the issue of FGM in various ways and can have an important role to play eliminating this practice [12]. However, in order to solicit the active involvement of health workers as advocates against FGM, they should be equipped with appropriate knowledge and skills to enable them to work for its prevention and elimination and to provide clinical and psychological care and support for girls and women who have undergone the procedure, taking due account of sociocultural
and personal sensitivities [11–13]. Despite this, there are still many countries, including Egypt, where FGM is rarely mentioned or covered in detail in the training curricula of health professionals, nurses, midwives and other health workers.

The present study was conducted to explore the knowledge, beliefs and attitudes of medical students in Alexandria (future physicians) about FGM. The study also aimed to explore students’ opinions about the medicalization of FGM, how the issue of FGM is dealt with in the existing undergraduate curriculum, and their suggestions concerning the content of future FGM training curricula. Perceptions of students about their future professional responsibility for combating FGM, and factors associated with support of the continuation of this practice (or being against its abolition) were also investigated.

**Methods**

We conducted a cross-sectional survey of 5th year male and female medical students (Faculty of Medicine, University of Alexandria) during the university year 2003/2004. These students are supposed to have basic knowledge of medical ethics, anatomy, obstetrics and gynaecology and preventive medicine.

The total number of 5th year medical students during the university year 2003/2004 was 1091. Out of the 10 tutorial student groups (which include about 110 students), 3 were selected randomly. Thus 330 students were selected.

Data were collected through an anonymous structured questionnaire given to the study participants. The questionnaire was developed after thorough literature review of available information. The format and wording and accuracy of the translations were revised by the authors in addition to 3 professors of community medicine at the University. Most of the questions were close-ended and precoded. Responses to open-ended questions were sorted and coded during data processing. Incomplete questionnaires were excluded from the analysis. The questionnaire was given during tutorial classes and took about 45 to 60 minutes for the student to complete.

From the questions related to knowledge, the following rating was applied:

- 0–< 50% correct answers denoted poor knowledge
- 50%–< 70% correct answers denoted fair knowledge
- 70%–100% correct answers denoted good knowledge.

For other subjective parameters (attitudes, beliefs and opinions) about FGM and its sociocultural correlates, a 3-point Likert scale was used (agree, disagree, undecided).

Data entry was conducted using Microsoft Excel spread sheets. Statistical analysis was carried out using SPSS, version 10. Descriptive statistics and the chi-squared test were used for analysis. Logistic regression was used to identify significant predictors of supporting the continuation of FGM (or being against its abolition). The 5% level of significance was chosen.

The objectives and purposes of the study, and the expected benefits were explained to the study participants and informed consent to participate was obtained. Approval for the study was obtained from the University.

**Results**

**Personal characteristics of the medical students**

Of the 330 questionnaires distributed, 298 were completed giving a response rate of 90.3%; 32 were either not completed
all or were only partially completed and hence discarded. There were 193 for male students (64.8%) and 105 for female students (35.2%). Of these, 290 (97.3%) of the responders were Muslims, while 8 (2.7%) were Christians. The mean age (standard deviation) of the students was 21.31 (0.81) years (age range: 20–24 years). About three-quarters of the students were urban residents (77.2%). Urban slum residents (of rural origin) and rural dwellers constituted the rest (11.7% and 11.1% respectively).

Knowledge about FGM
Knowledge about structure and functions of female external genitalia
The majority of students (83.6%) gave correct answers about the function of each of the five structures of the female external genitalia asked about (vaginal opening, urethral opening, clitoris, labia minora and labia majora). Out of a total score of 5, the mean (SD) knowledge score was 4.58 (1.05) denoting a good knowledge level.

Definition of FGM
Only a minority of students (5.7%) were able to define correctly what is meant by FGM (i.e. all procedures that involve partial or total removal of the female external genitalia and/or injury to the female genital organs for cultural or any other non-therapeutic reasons).

Opinions about FGM practices in Egypt
Magnitude of the FGM problem
Of all students, 49.3% ranked it as a priority health problem in Egypt, 29.9% thought that it is of minor importance, while the remaining 20.8% did not have any information about its magnitude. Students tended to underestimate the extent of the problem; their estimates about its prevalence ranged from 1% to 100%, with a mean (SD) of 65.6% (28.3%).

Procedures and practice of FGM
The most widely identified cutting instrument or tool for performing FGM was the scalpel (65.8%), followed by razor blade (47.7%), scissors (41.3%); only 12.4% mentioned metal knives.

With regard to cleaning the wound, 42.6% and 37.9% of the students thought that those who performed the procedure usually used antiseptics or alcohol respectively. Other traditional topical preparations were also mentioned, including coffee (20.5%), herbal mixtures (16.1%), ash (13.1%), lemon juice (7.0%), cow dung (6.0%), and cooking oil (5.4%). Forty-one students (13.8%) mentioned that the wound would be sutured, and 18.8% thought that nothing would be done for the wound.

Only 51.7% and 29.9% of students recognized that Type I and Type II respectively are the most common forms of FGM practised in Egypt. A minority of students (5.4%) mentioned that Type III (infibulation) is also commonly practised.

The majority of students (85.6%) believed that FGM is practised mainly by Muslims. Only 22.1% and 14.4% of students believed that both Christians and Jews respectively also practised FGM.

Concerning the educational level and residence of those who practise FGM, nearly 73.8% of the students thought that uneducated and rural populations more likely practised FGM compared to educated (34.9%) or urban (33.9%) populations.

Over half (55.7%) of the students believed that the operation is performed by the village barber, a traditional birth attendant (53.7%), a traditional female excisor (49.3%) or a licensed midwife (41.6%).
the other hand, 28.2% thought that physicians and nurses performed this practice.

Concerning the origin of FGM, 43.6% of the students believed that it started in sub-Saharan Africa, prior to the arrival of Islam. Others believed that the practice started in ancient Egypt (26.2%). Some believed that FGM began with the arrival of Islam in some parts of sub-Saharan Africa (22.1%).

Knowledge about complications of FGM

Only 185 (62.1%) of the students were aware that FGM in general can cause complications, while 53 (17.8%) believed that it did not have any complications. About a fifth of the students (20.1%) did not know whether it could cause complications or not.

When complications of FGM were categorized into 4 main groups (Table 1), only 48.0% of students knew that it could cause short-term physical complications, while 38.9% knew that FGM had long-term physical complications. Psychosocial and sexual complications were reported by 62.1% and 59.1% of the students respectively. Students’ knowledge was generally poor regarding different categories of FGM complications.

Attitudes about the “medicalization” of FGM

Although over half of the students (51.3%) knew that there were no medical reasons to perform FGM, 73.2% were in favour of its medicalization. Several reasons were cited by the students to defend this opinion. The majority (90.6%) thought that it reduced the pain as the procedure could be carried out under anaesthesia. They also believed that the procedure would be carried out under hygienic conditions, thus reducing risks to the girl’s health (89.9%). Half of the students (50.0%) thought that it could be a first step towards the prevention of the practice. Another 49.0% stated that if health professionals refuse, people would resort to the traditional circumciser, thus allowing more unhygienic and painful practices to be conducted. Only 43.0% of students believed that it would be unethical for a health professional to damage a healthy body in order

<table>
<thead>
<tr>
<th>Complications of FGM</th>
<th>Students’ response (n = 298)</th>
<th>Knowledge level (mean proportion of correct answers)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes No. (%)</td>
<td>No. (%) Don’t know No. (%)</td>
</tr>
<tr>
<td></td>
<td>143 (48.0) 36 (12.1) 119 (39.9)</td>
<td>Fair (55.3%)</td>
</tr>
<tr>
<td>Short-term physical complications</td>
<td>116 (38.9) 53 (17.8) 129 (43.3)</td>
<td>Poor (30.8%)</td>
</tr>
<tr>
<td>(9 items)</td>
<td>185 (62.1) 26 (8.7) 87 (29.2)</td>
<td>Poor (44.3%)</td>
</tr>
<tr>
<td>Psychosocial complications (9 items)</td>
<td>176 (59.1) 23 (7.7) 99 (33.2)</td>
<td>Poor (43.7%)</td>
</tr>
<tr>
<td>Sexual complications (4 items)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All complications (33 items)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Rating of knowledge scale: 0—< 50% correct answers denotes poor knowledge, 50%—< 70% correct answers denotes fair knowledge, and 70%—100% correct answers denotes good knowledge.
to prevent the potential of more damage if the practice were carried out within the community.

**Knowledge and attitudes about the ethical and legal aspects of FGM**

The majority of the medical students had little knowledge about the ethical and legal aspects of FGM. Only 27.9% of the students recognized that performing FGM by a physician or a nurse violates the medical and nursing ethical principles of “do no harm” and “do not kill”. Furthermore, only a minority (16.8%) were aware that the Egyptian law does not permit the performing of FGM by non-physicians.

Regarding the prevention of FGM by law, 22.8% considered that a specific law was enough to protect girls from the practice, while 24.5% thought that laws alone would not stop the practice. More than half of the students (52.7%) thought that laws must go hand-in-hand with community education about FGM in order to stop the practice.

**Knowledge and attitudes about the religious aspects of FGM**

Students were asked to give their opinions about 13 statements giving different views about the religious aspects of FGM. The average percentage of correct answers (for the 13 items) was 55.6% denoting a “fair” level of knowledge. Although 43.6% of the students knew that FGM is a pre-Islamic tradition, a considerable proportion of the students still had some confusion about the religious basis of FGM.

**Knowledge and attitudes about human rights and FGM**

Only 44.6% of the students considered FGM a violation of human rights of girls and women. Table 2 reveals that there were no significant differences between the opinions of male and female students on FGM.
as a violation of the human rights of girls and women.

Sources of knowledge about FGM
A total of 40.6% of the students reported that no specific source of knowledge and information about FGM was available to them. On the other hand, 59.4% of the students cited the mass media (television, radio, newspapers, magazines, etc.) as the source of information, 39.3% cited the Internet, 38.6% cited relatives and 37.6% immediate family members. Existing medical curricula were mentioned as a source of information by only 21.5% of students.

Students’ personal beliefs and attitudes toward FGM
As shown in Table 3, considerable proportions of students had favourable attitudes

<table>
<thead>
<tr>
<th>Statements</th>
<th>Affirmative responses (those who agreed) (n = 298)</th>
<th>Males (n = 193)</th>
<th>Females (n = 105)</th>
<th>χ² (P-value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FGM:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>prevents a baby’s death</td>
<td>17 (5.7)</td>
<td>15 (7.8)</td>
<td>2 (1.9)</td>
<td>4.352 (0.037)*</td>
</tr>
<tr>
<td>ensures a girl’s virginity</td>
<td>61 (20.5)</td>
<td>44 (22.8)</td>
<td>17 (16.2)</td>
<td>1.824 (0.177)</td>
</tr>
<tr>
<td>increases chances of marriage</td>
<td>48 (16.1)</td>
<td>36 (18.7)</td>
<td>12 (11.4)</td>
<td>2.626 (0.105)</td>
</tr>
<tr>
<td>is an essential part of our culture</td>
<td>101 (33.9)</td>
<td>74 (38.3)</td>
<td>27 (25.7)</td>
<td>4.840 (0.028)*</td>
</tr>
<tr>
<td>prevents the external genitalia from growing</td>
<td>72 (24.2)</td>
<td>39 (20.2)</td>
<td>33 (31.4)</td>
<td>4.673 (0.031)*</td>
</tr>
<tr>
<td>helps the genitalia to be kept clean</td>
<td>105 (35.2)</td>
<td>74 (38.3)</td>
<td>31 (29.5)</td>
<td>2.317 (0.128)</td>
</tr>
<tr>
<td>makes a girl more beautiful</td>
<td>59 (19.8)</td>
<td>47 (24.4)</td>
<td>12 (11.4)</td>
<td>7.153 (0.007)*</td>
</tr>
<tr>
<td>prevents promiscuity in girls</td>
<td>147 (49.3)</td>
<td>98 (50.8)</td>
<td>49 (46.7)</td>
<td>0.460 (0.498)</td>
</tr>
<tr>
<td>maintains a girl’s chastity</td>
<td>141 (47.3)</td>
<td>101 (52.3)</td>
<td>40 (38.1)</td>
<td>5.529 (0.019)*</td>
</tr>
<tr>
<td>is a religious obligation</td>
<td>91 (30.5)</td>
<td>60 (31.1)</td>
<td>31 (29.5)</td>
<td>0.078 (0.779)</td>
</tr>
<tr>
<td>is performed to please a husband</td>
<td>53 (17.8)</td>
<td>42 (21.8)</td>
<td>11 (10.5)</td>
<td>5.923 (0.015)*</td>
</tr>
<tr>
<td>improves the fertility of a woman</td>
<td>33 (11.1)</td>
<td>26 (13.5)</td>
<td>7 (6.7)</td>
<td>3.198 (0.074)</td>
</tr>
<tr>
<td>in its mild form (cutting only the clitoris) does not lead to any complications; it is therefore acceptable</td>
<td>153 (51.3)</td>
<td>95 (49.2)</td>
<td>58 (55.2)</td>
<td>0.985 (0.321)</td>
</tr>
<tr>
<td>In its severe form (cutting all external genitalia) is harmless; people should be allowed to continue</td>
<td>32 (10.7)</td>
<td>15 (7.8)</td>
<td>17 (16.2)</td>
<td>5.028 (0.025)*</td>
</tr>
<tr>
<td>is not a health issue</td>
<td>193 (64.8)</td>
<td>57 (29.5)</td>
<td>144 (41.9)</td>
<td>4.645 (0.031)*</td>
</tr>
<tr>
<td>is a violation of human rights</td>
<td>133 (44.6)</td>
<td>78 (40.4)</td>
<td>55 (52.4)</td>
<td>3.941 (0.047)</td>
</tr>
</tbody>
</table>

*Students’ responses were categorized into agree and disagree.
**Significant at P < 0.05.
toward FGM in general. More than half of the students (55.4%) did not believe that FGM violated the human rights of girls and women, 51.3% believed that mild forms of FGM (cutting only the clitoris) did not lead to any complications and was therefore acceptable. Nearly half of the students (49.3%) believed that FGM prevented promiscuity in girls, 47.3% believed it maintained the chastity of girls and 35.2% believed that it helped the genitalia to be kept clean. Another 33.9% believed that FGM was an essential part of our culture, and a religious obligation (30.5%). On the other hand, 64.8% the students did not consider FGM a health issue but rather a sociocultural issue deeply rooted in our community and hence doctors have no role in its prevention or elimination.

In most of the statements inquiring about students’ personal beliefs, female students significantly expressed a more negative attitude toward FGM compared to their male colleagues (Table 3).

**Opinions on FGM within the medical curricula**
A considerable proportion of the medical students admitted that the existing curricula do not provide them with adequate basic knowledge and skills related to FGM. Hence they lack sufficient knowledge and information about: FGM procedures and complications (66.8%), the underlying sociocultural beliefs behind this tradition (62.1%), and the ethical and legal aspects of FGM (66.8%).

They also mentioned that the existing curricula do not provide them with: sufficient clinical training to manage girls and women with physical complications of FGM (72.5%), sufficient clinical skills to identify psychosocial and sexual complications of FGM (68.1%), sufficient communication skills to counsel girls and women suffering from psychological and sexual problems related to FGM (66.4%), nor sufficient communication skills to educate families and community members against this harmful practice (61.7%).

The majority of students (86.9%) agreed that the issue of FGM should be incorporated into the undergraduate medical curriculum. Out of all the students, 86.6% thought that this would inform future physicians about the complications of FGM and how to manage them. More than two-thirds (67.1%) also believed that incorporating FGM into the curriculum would contribute to the eradication of FGM by providing doctors with the knowledge and skills necessary for educating families and communities, and would motivate future physicians to oppose medicalizing FGM (53.7%). In order to fulfill their role properly as opinion leaders and agents of change, 78.2% of students considered that health workers at all levels should receive appropriate training on the issue of FGM adapted to their specific needs.

**Attitudes toward behaviour change**
Of the 298 students interviewed, 48.0% supported abolishing FGM, while the remaining 52.0% supported its continuation. As shown in Table 4, the percentage of female medical students who were against this custom was insignificantly higher than that of males (52.4% compared to 45.6%, $\chi^2 = 1.556, P = 0.456$).

As future physicians, just over half the students (52.3%) thought that they could contribute to abolishing this harmful practice. However, 31.9% intended (as future fathers/mothers) to subject their daughters to FGM. While still students, 41.9% said they would object to a family member subjecting their daughter to FGM and 46.6% would actively advise them against it.
Statistical analysis

Twenty-eight variables were tested for association with supporting the continuation of FGM (or being against its abolition). Of these, 20 were significantly associated with supporting the continuation of FGM (Table 5).

The 20 variables significantly associated with supporting the continuation of FGM in the bivariate analyses were entered into a multivariate logistic regression analysis. From this, 5 variables were found to be significant predictors of supporting the continuation of FGM (Table 6). These included:

- not believing that medical students (future physicians) could contribute to the abolition of this harmful practice (OR = 21.28),
- disagreeing that FGM was a violation of the human rights of girls and women (OR = 9.49),
- believing that FGM prevented promiscuity in girls (OR = 9.53),
- denying that mild forms of FGM (type I) could lead to complications and was therefore acceptable (OR = 7.01),
- and believing that FGM helped the genitalia to be kept clean (OR = 2.12).

Discussion

Our findings show that students’ basic knowledge about the practice of FGM was unsatisfactory. Students were unaware of the prevalence of FGM in Egypt, types of FGM commonly practised in Egypt, who practises FGM, who are the circumcisers, the procedures of FGM, and the age at which FGM is performed.

Prior to the 1995 and 2000 Egyptian Demographic and Health Surveys, it was believed that FGM was on the decline, prevailing mainly among illiterate populations and the lower and lower-middle classes [14–16]. However, the 2000 Egyptian Demographic and Health Survey (DHS) found that the practice was nearly universal among women of reproductive age (15–49 years) in Egypt. Preliminary analysis of the 2000 findings showed that 97% of women surveyed had been subjected to FGM, which represented no change from the 1995 DHS findings [4, 14–16]. However, in 2000, there was some decline in support for the practice,
where 75% of surveyed women thought that the practice should continue compared to 82% in 1995 [4,17].

According to the 2000 DHS findings, the most commonly given reason (58%) for supporting the practice was the belief that this was a “good tradition”. Almost three-quarters of Egyptian women felt that husbands would prefer their wives to undergo the procedure. More than one-third

<table>
<thead>
<tr>
<th>Significantly associated variable</th>
<th>$\chi^2$ (P-value)</th>
<th>Odds ratio</th>
<th>95% confidence intervals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical students (future physicians) cannot contribute to the abolition of FGM</td>
<td>93.66 (&lt; 0.001)*</td>
<td>21.28*</td>
<td>10.18–44.46</td>
</tr>
<tr>
<td>FGM prevents promiscuity in girls</td>
<td>70.90 (&lt; 0.001)*</td>
<td>9.53*</td>
<td>5.44–16.71</td>
</tr>
<tr>
<td>FGM is not a violation of the human rights of girls and women</td>
<td>64.48 (&lt; 0.001)*</td>
<td>9.49*</td>
<td>5.23–17.22</td>
</tr>
<tr>
<td>FGM maintains a girl’s chastity</td>
<td>60.53 (&lt; 0.001)*</td>
<td>7.53*</td>
<td>4.41–12.86</td>
</tr>
<tr>
<td>FGM does not cause psychosocial complications</td>
<td>32.46 (&lt; 0.001)*</td>
<td>4.12*</td>
<td>2.50–6.80</td>
</tr>
<tr>
<td>FGM makes a girl more beautiful</td>
<td>19.21 (&lt; 0.001)*</td>
<td>3.61*</td>
<td>1.99–6.53</td>
</tr>
<tr>
<td>FGM ensures a girl’s chastity</td>
<td>16.84 (&lt; 0.001)*</td>
<td>3.27*</td>
<td>1.83–5.84</td>
</tr>
<tr>
<td>FGM makes a girl more beautiful</td>
<td>14.69 (&lt; 0.001)*</td>
<td>3.35*</td>
<td>1.77–6.37</td>
</tr>
<tr>
<td>FGM improves the fertility of a woman</td>
<td>12.88 (&lt; 0.001)*</td>
<td>2.86*</td>
<td>1.59–5.14</td>
</tr>
<tr>
<td>Original family residence (rural and urban slum)*</td>
<td>16.60 (&lt; 0.001)*</td>
<td>2.72*</td>
<td>1.67–4.43</td>
</tr>
<tr>
<td>Current residence (rural and urban slum)*</td>
<td>12.08 (0.001)*</td>
<td>2.62*</td>
<td>1.51–4.55</td>
</tr>
<tr>
<td>FGM does not cause sexual complications</td>
<td>14.60 (&lt; 0.001)*</td>
<td>2.53*</td>
<td>1.57–4.10</td>
</tr>
<tr>
<td>FGM is an essential part of our culture</td>
<td>11.94 (0.001)*</td>
<td>2.37*</td>
<td>1.44–3.88</td>
</tr>
<tr>
<td>FGM helps the genitalia to be kept clean</td>
<td>9.27 (0.002)*</td>
<td>2.12*</td>
<td>1.30–3.46</td>
</tr>
<tr>
<td>FGM does not cause long-term complications</td>
<td>5.98 (0.014)*</td>
<td>1.85*</td>
<td>1.13–3.04</td>
</tr>
<tr>
<td>FGM is not a health issue</td>
<td>28.86 (&lt; 0.001)*</td>
<td>0.21*</td>
<td>0.12–0.39</td>
</tr>
</tbody>
</table>

* Urban slum dwellers refer to those residents of rural origin.

* Significant at P < 0.05.
cited cleanliness as a reason, while a smaller number saw it as a way to prevent promiscuity before marriage and unfaithfulness within the marriage [4,17].

The most common forms of female genital mutilation still widely practised throughout Egypt are type I and type II. The 2000 DHS survey also indicated that two-thirds of girls had undergone the procedure when they were between the ages of 7 and 10 years. Fewer than 5% were under the age of 5 years and fewer than 3% were over the age of 13 years [4].

Recently, the growing recognition of the many potential adverse health consequences of the practice has resulted in people increasingly enlisting doctors rather than traditional birth attendants to perform the procedure [4,17]. According to the 2000 DHS survey, the use of medical practitioners (doctors or trained midwives) has tripled to 55% in recent years, with a concomitant drop in the use of traditional birth attendants [4,17].

To understand fully the health consequences of the different types of FGM, it is important to have a basic understanding of the functional anatomy of the female genitals [11]. In the present study, although the students’ awareness of the anatomical structure and function of the female external genitalia was satisfactory, they were poorly informed about the complications of FGM. This lack of awareness was reflected in their support of continuation of the practice (52.0%), and having an encouraging attitude toward its medicalization as a risk reduction strategy (73.2%).

In the present study, a considerable proportion of students supported FGM in general. Students’ personal beliefs, values and attitudes toward FGM were consistent with their attitudes toward reasons cited by the community for performing this procedure. Family members and relatives were a major source of information about FGM for the students. The latter finding denotes that the traditionalist society, in which these students live, played an important role in shaping their attitudes toward FGM. This could mean that the pressure from religious, cultural, and social beliefs to continue the tradition is stronger than any perception of danger caused by the practice of FGM.

The majority of medical students were in favour of medicalization of FGM (73.2%) as it could reduce the risk of health complications. Medicalization of FGM presents a

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>P-value</th>
<th>R</th>
<th>Exp (B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical students (future physicians) cannot contribute to the abolition of FGM</td>
<td>3.1346</td>
<td>&lt; 0.001</td>
<td>0.2769</td>
<td>22.9800</td>
</tr>
<tr>
<td>FGM is not a violation of the human rights girls and women</td>
<td>1.7627</td>
<td>0.0006</td>
<td>0.1561</td>
<td>5.8284</td>
</tr>
<tr>
<td>FGM prevents promiscuity in girls</td>
<td>1.5808</td>
<td>0.0049</td>
<td>0.1223</td>
<td>4.8591</td>
</tr>
<tr>
<td>Mild forms of FGM (type I) do not lead to any complications; it is therefore acceptable</td>
<td>1.1629</td>
<td>0.0134</td>
<td>0.1020</td>
<td>3.1993</td>
</tr>
<tr>
<td>FGM helps the genitalia to be kept clean</td>
<td>-1.3399</td>
<td>0.0460</td>
<td>-0.0708</td>
<td>0.261</td>
</tr>
<tr>
<td>Constant</td>
<td>-4.1258</td>
<td>(&lt; 0.001)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Model $\chi^2 = 222.138, df = 21, P < 0.001.$
moral dilemma. Should we protect women’s health, and risk legitimizing a destructive practice, or should we focus on the elimination of the practice which may push the practice underground and result in women dying from preventable conditions [18,19]?

In Egypt, physicians now undertake more than half of all FGM procedures and girls now are 3 times more likely to be excised by physicians (55%) than were their mothers (17%) [20].

WHO has consistently and unequivocally advised that no form of FGM should be practised by health professionals in any setting, including hospitals or other health establishments. WHO’s position rests on the basic ethics of health care whereby unnecessary bodily mutilation cannot be condoned by health providers. Genital mutilation is harmful to girls and women and medicalization of the procedure does not eliminate the harm. Furthermore, medicalization is also inappropriate as it reinforces the continuation of the practice by seeming to legitimize it [1,2,9,11]. Medical ethical standards should make it clear that the practice of FGM on children or non-consenting women violates professional standards. Medical practitioners who engage in the practice should be subject to disciplinary proceedings and should lose their licence to work in the medical field [20].

Our results show that our medical students were poorly informed about the ethical and legal aspects related to FGM. Egypt does not have a specific law prohibiting the practice of FGM. However, performance of FGM is a violation of Act 240, a law that prohibits any individual from injuring another person or beating him/her in a way that leads to cutting or severing, or impairing the function of any body part [2,17]. For doctors, the right of medical intervention, which allows them to injure or cut body parts in surgery, is inapplicable to FGM because it is not an intervention to diagnose or treat a disease or stop pain. In addition, FGM cannot be legally justified by parental approval, since parental custody does not involve the right to mutilate the child. The legislative background has, however, changed over the years. In 1959, a ministerial decree forbade the practice and made it punishable by fine and imprisonment. A series of later ministerial decrees allowed certain forms but prohibited others. Doctors were also prohibited from performing the procedure in government health facilities. Non-medical practitioners were forbidden from practicing any form [2,3,17].

In 1994, due to public outcry over a CNN television broadcast of the procedure performed on a 9-year old girl by a barber, the Minister of Health decreed that the procedure should be performed one day per week in government facilities but only by trained medical personnel and only if they failed to persuade the parents against it. He rescinded his decision in 1995, however, after various protests and international outcry deploring the “medicalization” of the practice [2,3,17].

Then in 1996, the Minister of Health issued a decree that banned all medical and non-medical practitioners from performing FGM in either public or private facilities, except for medical reasons certified by the head of a hospital’s obstetric department. Medical practitioners carrying out FGM would lose their medical licence and could face criminal prosecution, as could non-medical practitioners. In cases of death, they could also face charges of manslaughter [17]. In December 1997, the Court of Cassation (Egypt’s highest court of appeal) upheld this government ban.

While the impact of this last ruling is positive and empowers those working to end FGM, bringing about behavioural change is not guaranteed. The decision to subject a
daughter to FGM is not likely to be affected by a ministerial decree. Furthermore, while the ban could be enforced in government hospitals and health units, most excisions in Egypt are currently performed in homes and private clinics by male doctors, traditional birth attendants or in some cases by barbers [14].

Passing laws is not enough on its own to protect girls and women from FGM. There is a danger that the fear of prosecution will inhibit people from seeking help for complications. Thus laws must go hand in hand with community education to raise awareness of the harmful effects of FGM, its implications on human rights and to change attitudes.

Although 43.6% of the students believed that FGM was a pre-Islamic tradition, our findings show the students’ knowledge about the religious background of FGM is confused. Although high officials in both the Muslim and Christian religious establishments have voiced opposition to the practice, it is still supported by some local religious authorities. Moreover, many Egyptians believe that it is an important part of maintaining female chastity, which is part of religious tradition [17].

There is no strong evidence in Islamic texts to suggest that Islam favours the practice of FGM. People often confuse traditions rooted in local culture with religious requirements [21–23]. Unfortunately, individual interpretation in various places has turned this cultural tradition into a religious doctrine that commands FGM as a basic element of religious faith [24,25]. To ensure the abolition of the practice, government, educationalists and religious leaders have a moral obligation to address these issues.

Not recognizing that FGM violates human rights was a significant contributing factor behind students’ support for the continuation of FGM. In fact, FGM violates a number of human rights of women and girls. Since FGM involves the removal of healthy sexual organs without medical necessity and is usually performed on adolescents and young girls, often with harmful physical and psychological consequences, it violates the rights to non-discrimination, health and bodily integrity. Although FGM is not undertaken with the intention of inflicting harm, its damaging physical, sexual and psychological effects make it an act of violence against women and girls. FGM sometimes threatens the lives of girls and women, thereby violating their human right to life, liberty and security [1].

The present study revealed that the issue of FGM is not adequately covered in the undergraduate curricula of our medical students. The majority of students agreed that the issue of FGM should be incorporated into their curriculum and such action could contribute to the elimination of the practice.

However currently, a large proportion of the students supported the continuation of FGM and the 2 factors most significantly associated with this were the students’ perception that they could not contribute (as future physicians) to the abolition of the practice and their denial that FGM is a violation of the human rights of girls and women. A variety of sociocultural myths, religious misbeliefs, hygienic and aesthetic concerns, as well as psychosexual reasons were cited by students to defend their opinions.

The proportion of students in favour of abolishing female circumcision (48.0%) is a hopeful sign that the situation may change in the future. However, the opposing opinions of the other 52.0% of students and the lack of basic knowledge about FGM, especially concerning its complications, suggest that action is needed. Thus medical students (future physicians) should receive appropriate training on the issue of FGM.
within the medical curriculum in order
to raise their awareness, and solicit their
active involvement as advocates against
FGM. Training should equip the students
with the appropriate knowledge and skills to
enable them to work for the prevention and
elimination of FGM and to provide clinical
and psychological care and support for girls
and women who have undergone the pro-
cedure, taking due account of cultural and
personal sensitivities, as well as ethical and
legal aspects. In our community, as FGM
is closely associated with culturally en-
trenched values, it is vital to provide clear,
accurate and consistent information on the
practice and its physical and psychological
consequences in ways that will be culturally
acceptable.

Through further education, students’
beliefs about FGM can be changed and its
medicalization will be opposed, thus help-
ing to bring an end to this custom in Egypt.

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