OPINION ARTICLE

Female circumcision: Limiting the harm [version 1; referees: 2 approved]
(Previously titled: ‘Female genital cutting is a harmful practice: where is the evidence’)

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Abstract

Objective: To review the strength of evidence that links many health hazards to female genital cutting.

Material and methods: Literature search in Medline/Pubmed and Google scholar.

Results: Female genital cutting is still practiced secretly in both underdeveloped and developed countries due to prevailing strong traditional beliefs. There is insufficient evidence to support the claims that genital cutting is a harmful procedure if performed by experienced personnel in a suitable theatre with facilities for pain control and anesthesia. Cutting, however, is advised not to go beyond type I.

Conclusion: Law makers around the globe are invited to review the legal situation in relation to female genital cutting. Proper counseling of parents about possible risks is a must in order to make informed decision about circumcising their daughters. The procedure should be offered to parents who insist on it; otherwise, they will do it illegally, exposing their daughters to possible complications.
Introduction
Female genital cutting/mutilation (FGC/M), or circumcision as it was previously described\(^1\), is held responsible for a multitude of health risks. According to WHO, FGC/M is defined 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”\(^2\).

The legislations enacted in most countries to ban FGC had minimal effect on its prevalence\(^3\). In the most recent estimate carried out by the WHO in 2008, an average of between 100 and 140 million women have undergone FGC in the world and every year, 3 million female children are mutilated in Africa\(^4\).

Female genital cutting in medical literature
I searched the English literature in Medline/Pubmed and Google Scholar for female genital cutting/mutilation and circumcision in the period from January 1980 until January 2012. The available studies showed that FGC may result in either physical and/or psychological injuries, immediate and/or late.

 Alleged health hazards
Immediate complications
The three immediate complications are bleeding, pain and infection. They are not unique to FGC. They are liable to occur with any other type of female surgery, whether minor or major. Bleeding is liable to occur with the tiniest injury to the body, not only genitalia, and death may occur if not dealt with. Pain during genital cutting was attributed to non use of anesthesia or pain killers during the procedure\(^3\), something which is expected with any other similar situation. The procedure is illegal in most countries of the world and it is routinely performed at home using non-sterilized instruments. Infection is the normal sequel for any surgical interference performed in such an environment. We should ask ourselves what would be the percentages of these complications if FGC was performed in a well-equipped theatre by experienced personnel. They would probably not be different to any other surgical procedure.

Late complications
The alleged late risks include a wide variety of complications. Scars and keloid formation may occur\(^4\). It is well known that the type of scar depends on the mode of healing, whether by primary or secondary intention. Healing with secondary intention and the formation of ugly scars occurs if the wound is left to heal on its own without repair. This pattern of healing is expected because the procedure is usually performed by the traditional illiterate birth attendant (IBA) at home. Epidermoid cysts may form probably due to cutting with non sharp instruments or imprecise cutting by the traditional IBA or un-experienced surgeon\(^5\). The occurrence of both complications can be minimized if the procedure is performed in a well-prepared theatre. Controversy exists as for sexual pleasure. Although many researchers reported that female genital mutilation interferes negatively with women’s sexual pleasure, others provided contradictory evidence and confirmed that women with types I and II cuttings were able to enjoy their sex lives\(^6\)-\(^9\). Lightfoot-Klein\(^8\) conducted a study on infibulated females “type III cutting” in Sudan and, based on her findings, she stated that nearly 90% of all women said that they experienced orgasm or had experienced it at various periods in their marriage. Thabet et al. showed that women with type II cutting complain of defective sexuality compared to non circumcised women, while women with the more extensive type III cutting are not different to controls\(^10\). This is not logical. If FGC is responsible for defective sexuality, those with type III cutting should have the maximum suffering. The explanation for this contradiction is because sexual arousal is not only dependent upon clitoral stimulation. It involves the stimulation of nerve endings in and around the vagina, vulva, cervix, uterus and clitoris, with psychological response and mindset also playing a role\(^11\),\(^12\).

There are claims that women who have undergone genital cutting may have a feeling of inferiority\(^13\). This is apparent when these women immigrate to western societies which do not practice FGC. This psychological burden probably stems from the fact that their new societies consider FGC as abnormal contradicting the traditions and beliefs they have grown up with. There are other claims that infertility may also complicate FGC. Reasons are anatomic disfigurement due to excessive scarring after infibulation “type III” probably resulting from healing by secondary intention. Another cause is the associated infection; that might arise after FGC, to the internal genitalia causing inflammation and scarring and subsequent tubal block\(^14\). Infection again is due to the improper environment where the procedure was performed.

The WHO reported that obstetric complications are more likely to occur with genital cuttings and the risk increases with more advanced cutting\(^15\). This conclusion was based on a WHO collaborative prospective study which included 28,393 women attending for singleton delivery at 28 obstetric centers in Burkina Faso, Ghana, Kenya, Nigeria, Senegal, and Sudan. The WHO study and few others also showed that a higher percentage of cut women deliver by Cesarean section compared to uncut women due to an increased number of obstructed labors. There is a higher incidence of infant resuscitation, stillbirth, or neonatal death in mothers with FGC\(^16\)-\(^18\).

One of the major drawbacks of the WHO study is that the population studied is not representative for the whole population in the selected countries. In poor societies, only high-risk and complicated pregnancies are referred to hospitals. Such cases are more liable for adverse obstetric outcomes. This may have overestimated the rate of complications in women with FGC who attended hospitals to deliver. Claims for increased Cesarean deliveries in cut women were attributed to obstructed labor most likely due to excessive scarring at the pelvic outlet. The high Cesarean rate in this population cannot be attributed solely to obstruction due to excessive outlet scarring; obstructed labor may occur due to a variety of reasons. In fact, excessive scarring at the pelvic outlet is the easiest reason to deal with, using a generous episiotomy. The reason for increased stillbirth and/or neonatal death in mothers with FGC is probably related to the obstructed labor; whatever the reason is, it is not a direct complication of FGC.

Comments
The decline in FGC practice is not proportionate to the efforts exerted\(^1\). It is not easy to give up your traditions and cultural beliefs for what is considered, by many, to be an attempt to westernize societies in the third world. Many believe that national and international feminist organizations and child rights’ advocates have
propagated misleading or unproven information through the media in order to force governments to prohibit the procedure. In fact, all the above-mentioned health hazards were concluded from studies that showed inconsistent findings. Some of them confirmed the hazards of FGC while others failed to prove them. It is the author’s view that none of these studies hold solid evidence to rely upon. These studies were either of retrospective design or studies depended on self-reported FGC and its health consequences. Such studies are imprecise and have low reliability. Research including reported data about past experiences will always be threatened by the individual’s memory and the influence of exposure status on the recalling process. The strongest evidence comes from randomized controlled trials followed by cohort studies. Data about health hazards linked to FGC were not derived from any of these studies. Such studies were never considered by the WHO or any other international health organization before the ban of FGM takes place in most countries. If a new test or a drug is to be prescribed for a patient, it should pass through a complicated series of tests and randomized comparisons before getting approval. The same occurs with any surgical procedure. No procedure can be considered superior to another or blamed for complications except after randomized controlled trials comparing the new to standard surgery. It therefore seems unrealistic to consider data about FGC not derived from randomized or cohort studies are true and conclusive.

Religious and cultural views
In Islam and Judaism, male circumcision is a must while female is not. In Islam, if female circumcision is desired by parents, it should not go beyond type I FGC (Ia is removal of the prepuce and Ib is removal of the prepuce and clitoris) according to hadith “Sunna type of circumcision”. This type of female genital surgery is equated with male genital surgery. In support of hadith, many studies showed that women with clitoridectomy “type I cutting” are less likely to develop gynecologic or obstetric complications compared to infibulated women “type III”. Considering that the number of Moslems in the world ranks second, it seems logical to reconsider the legal attitude towards female circumcision and probably avoids the ban directed towards Sunna circumcision.

The ban against FGC seems to be gender based, especially because no similar act was taken against male circumcision. If male circumcision is considered safe by anti FGC groups, they should advise how to render FGC as safe as male circumcision instead of enforcing the ban against it.

It therefore seems that the prohibition of FGC for those who strongly believe in circumcision in the absence of solid scientific evidence does not respect their traditions and cultural beliefs. Women in societies which practice FGC and the practicing immigrant minorities living in the west consider that strength and identity partly come from the pain and difficulty which FGC causes, making them ‘strong’ and ‘desirable’ women.

Final remarks
To conclude, law makers all around the globe are invited to review the legal situation of female circumcision. Parents, especially immigrants to the western world from the practicing societies, should be properly counselled for the possible complications, but should also be informed that these data were not derived from randomized controlled trials. Those who insist on circumcising their daughters should be allowed to do so, but advised not to exceed type I cutting; otherwise, they will go for it secretly and illegally by inexperienced personnel in a poorly hygienic environment with the possibility of complications.

Competing interests
No competing interests were disclosed.

Grant information
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✔
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I approve the validity of this opinion article with some minor remarks.

I personally do not approve of female genital cutting as a general routine, however it is commonly practiced in rural areas of third world countries. Due to this, it is important to study how to best deal with the problem rather than totally deny it. The first degree procedure may be a first step towards avoiding further damage.

I think that the final section 'final remarks' should be replaced with the title 'conclusions'.

I have read this submission. I believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Competing Interests: No competing interests were disclosed.

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My own personal stand is against female genital cutting except as a plastic surgery procedure for restricted indications.

I have read this submission. I believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Competing Interests: No competing interests were disclosed.

Discuss this Article
Thank you for the concerns you raise. We consider every article carefully on its scientific merit, not on whether we agree with the view of the scientist. I agree it is a very controversial topic and I also don’t believe the authors of the article are in any way condoning female circumcision. They do however point out that there are strong cultural and religious beliefs about it and hence if the parents insist on it, they have demonstrated scientific evidence that if the female circumcision is done in a clinical setting with appropriate pain control and anesthesia, then the likelihood of physical complications is very low. If the procedure is driven out of a clinical setting by making it illegal, then it will still be done, but in an inappropriate setting by untrained personnel where the risks of complications are very high. The focus of the article is on the comparison of the outcome between when it is done illegally versus when done in a clinical setting with appropriately trained individuals. The article is therefore simply a piece of scientific evidence that can help inform the debate about whether it should be a legal practice or not, which will then occur elsewhere by all those who have an interest in the moral and legal aspects of this complex issue, issues that this article rightly does not attempt to discuss here. If the scientific publishing community and scientists as a whole are to suppress such scientific articles, then it means that such moral and legal debates will be ill-informed on the various scientific issues that relate to this topic.

Rebecca Lawrence, Publisher, F1000 Research

**Competing Interests:** No competing interests were disclosed.

As a member of the scientific community and the editorial board of this journal, I would like to express my total opposition to any attempts to justify female genital mutilation in any form. I believe it is demeaning, spiritually and physically, to women, and it is illegal in most civilized countries. Any attempts to provide a scientific basis for this procedure (academic freedom notwithstanding), in my opinion, are akin to providing scientific basis for eugenics approaches (which has unfortunately been done in the recent history).

**Competing Interests:** No competing interests were disclosed.