## Impact of female genital mutilation on the millennium goals

Impacto da mutilação genital feminina nos objetivos do milênio Impacto de la mutilación genital femenina en los objetivos del milenio

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#### **ABSTRACT**

**Objective:** To relate the Female Genital Mutilation as a negative factor for the achievement of the Millennium Development Goals 1, 3, 4, 5 and 6

**Method:** Data collection was through review literature review between in the years 2014 and 2015 in the databases Medline/PubMed, Web of Science, LILACS, SCIELO, Tesis Doctorales TESEO and in the webs of WOK, UNICEF, UNAF and WHO using the descriptors: female circumcision, millennium development goals, rights of women. Articles published between years 2010 y 2015, were included and finally 24 articles were selected.

**Results:** The Female Genital Mutilation is based on gender discrimination, and reinforces and encourages the circle of poverty. This practice causes physical complications that may affect the infant mortality and morbidity, complications in pregnancy and childbirth and there is a relationship between the practice and the transmission of human immunodeficiency virus.

**Conclusion:** The fight against Female Genital Mutilation contributes to the achievement of five of the eight Millennium Goals. **Keywords:** Circumcision, female. Millennium Development Goals. Women's rights.

### **RESUMO**

**Objetivo**: Relacionar a MGF como um fator negativo para a realização dos Objetivos de Desenvolvimento do Milênio 1, 3, 4, 5 e 6. **Método:** Foi realizada a coleta de dados por meio da revisão da literatura nos anos de 2014 e 2015 nas bases de dados Medline/PubMed, Web of Science, LILACS, SCIELO, Tesis Doctorales TESEO e nos *sites* da UNICEF, UNAF e WHO utilizando-se os descritores: circuncisão feminina, objetivos de desenvolvimento do milênio e mutilação genital feminina. Foram incluídos artigos publicados entre os anos de 2010 e 2015 e selecionados finalmente 24 artigos.

**Resultados**: A mutilação genital feminina é uma prática baseada na discriminação de gênero que reforça e estimula o ciclo da pobreza. Causa complicações físicas que podem afetar a mortalidade e morbidade infantil, bem como complicações na gravidez e no parto e na aquisição de HIV.

Conclusão: a luta contra a MGF contribui para a realização de cinco dos oito Objetivos de Desenvolvimento do Milênio.

Palavras-chave: Circuncisão feminina. Objetivos de Desenvolvimento do Milênio. Direitos da mulher.

### **RESUMEN**

**Objetivo:** Relacionar la Mutilación Genital Femenina como factor negativo para la consecución de los Objetivos de Desarrollo del Milenio 1, 3, 4, 5 y 6.

**Métodos:** Se ha realizado la recogida de datos a través de una revisión integradora de la literatura en los años 2014 y 2015. Se consultaron las bases de datos *Medline/PubMed, Web of Science*, LILACS, SCIELO, Tesis Doctorales TESEO y en las webs de WOK, UNICEF, UNAF y WHO utilizando los descriptores: circuncisión femenina, objetivos de desarrollo del milenio y mutilación genital femenina. Se incluyeron artículos publicados entre los años de 2010 y 2015, y se seleccionaron finalmente 24 artículos.

**Resultados:** La Mutilación Genital Femenina es una práctica basada en discriminaciones de género que refuerza e incentiva el círculo de la pobreza. Provoca complicaciones físicas que pueden repercutir en la mortalidad y morbilidad infantil, así como en complicaciones en el embarazo y el parto y en la adquisición del virus de la inmunodeficiencia humana.

**Conclusión:** La lucha contra la Mutilación Genital Femenina contribuye a la consecución de cinco de los ocho Objetivos del Milenio. **Palabras clave:** Circuncisión femenina. Objetivos de Desarrollo del Milenio. Derechos de la mujer.

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### INTRODUCTION

The historic meeting of 190 Heads of State and Government known as the Millennium Summit, held at the UN headquarters in September 2000, was concluded with the commitment made by all participants to reach by 2015 eight development goals, named Millennium Development Goals (MDGs), which included 18 specific goals<sup>(1)</sup>. Their importance lies in the fact that they summarize the priorities of international cooperation aimed at development efforts.

A specific goal regarding gender equality, MDG.3, is set forth, with the purpose of promoting gender equality and the autonomy of women. The goal to assess its achievement refers to the elimination of inequality between men and women in primary and secondary education, something to be achieved preferably by 2005 and by 2015 in all other levels. According to several specialists, these goals are not very concrete and ambitious, especially when one takes into account that MDG.2 already addresses the issue of universal access to primary education.

It is known that discrimination against women is a reality all over the world, and such discrimination originates in a patriarchal social system that assigns responsibilities to men and women in an unequal way. In order to maintain this inequality, several traditions, beliefs and practices are used, and these often are deeply rooted and associated with cultural, social and religious norms.

In this sense, Female Genital Mutilation (FGM) is one of the most harmful traditional practices when it comes to women's health, who, due to the characteristics of the act and its consequences, may have a negative impact in the in the achievement of MDGs 1, 3, 4, 5 and 6, especially due to the characteristics of the act and the strong sexist connotations that define this practice. This practice prevents women from being equal and autonomous, and affects millions of women and girls, especially - though not exclusively - in Sub-Saharan Africa. FGM refers to a set of procedures that implicate in the total or partial elimination of external female genitals because of several non-medical reasons, even with the consent of the victim<sup>(2)</sup>

Therefore, this study aimed at answering the following question: how is Female Genital Mutilation a negative factor for the achievement of MDGs 1, 3, 4, 5 and 6? This is related to the purpose of this study, which is to categorize Female Genital Mutilation as a negative factor for the achievement of MDGs 1, 3, 4, 5 and 6.

### METHODOLOGY

In order to achieve this goal, we carried out data collections by executing an integrative review of literary references between December 2014 and March 2015 found in the Medline/PubMed, LILACS and SCIELO databases, as well as in the Tesis Doctorales TESEO database. The WOK, UNICEF, UNAF, United Nations and the World Health Organization websites were also used to acquire supplementary and pertinent information for the study.

As a search strategy, we used the following health science descriptors: "female circumcision" a "millennium development goals", in an individual way and/or united by the Boolean operator "and", so as to find the largest number of publications. Furthermore, in order to broaden the search, we decided to include the keyword female genital mutilation.

We obtained 1.548 results, to which we applied the following inclusion criteria: articles published between 2010 and 2015, which established a relationship between genital mutilation and MDGs, or articles describing the consequences of FGM.

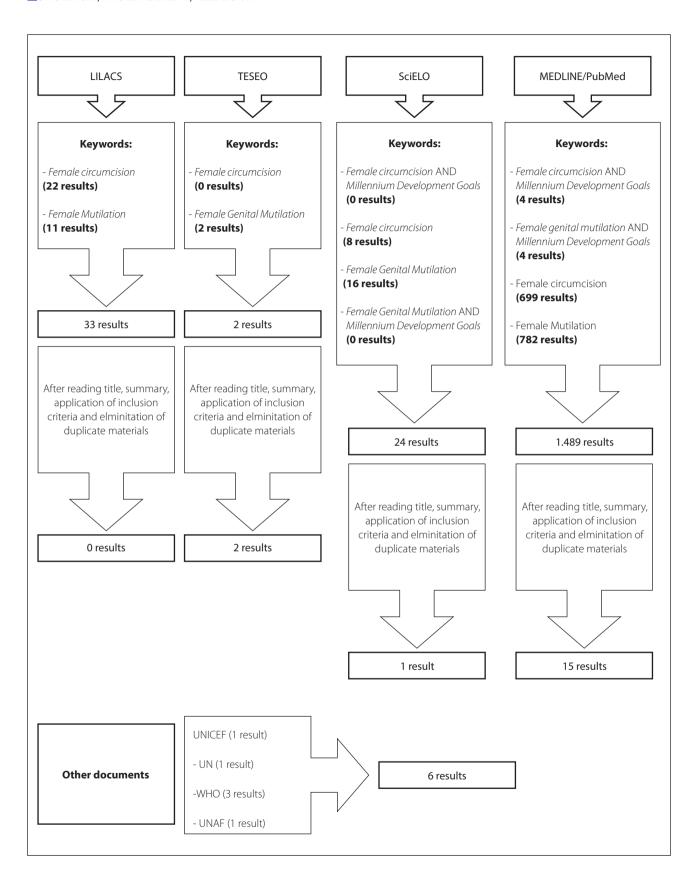
The selection of the articles was carried out as follows: First of all, we carried out an exploratory reading of the material we found in order to determine our level of interest in terms of this investigation. After consulting the summary and the title, we proceeded to a more critical reading of the entire texts, which resulted in the selection of 24 articles (Image 1). The selection of the 24 articles we carried out by applying the goal established for review as s selection criterion. Therefore, we first selected articles that made a direct link between FGM and MDGs. After this preliminary search and the critical reading of the articles found, we broadened our search so as to include articles where we could find a link between FGM and the MDGs, even though no direct mentions were made.

The expansion of our search was executed due to the low number of readings that explicitly linked FGM and the achievement of the Millennium Development Goals.

After the reading of the selected texts, we cataloged data in a report for each article, including the identification information and analysis of ach article. With all 24 reports prepared, we moved to their analysis, grouping them according to their resemblance and appropriateness, thus giving rise to the thematic categories that relate FGM to Millennium Goals 1, 3, 4, 5 and 6.

### RESULTS AND DISCUSSION

By exposing the results, we were able to observe the negative relationship between the consequences of FGM



**Image 1** – Flow chart for our search strategy Source: Authors

on women and girls who suffer from this practice and the Millennium Development Goals. A study published in 2014(3) states that this custom makes it difficult for countries to achieve Millennium Development Goals 3, 4 and 5, by means of a prospective descriptive study in which parturients in Southeastern Nigeria participated. Another study, published in 2015(4), sets forth, on a theoretical level, the direct relationship between FGM and its negative effect on the achievement of goals 3, 4, 5 y 6.

To eradicate extreme poverty and hunger is the first of the eight MDGs agreed upon by participating countries. In this way, and explicitly approaching the topic of generation of poverty, the preservation of FGM - as pointed out by a study carried out by the WHO<sup>(5)</sup>, presupposes loss of life and low productivity levels due to the loss of physical and mental abilities of women and young girls (Table 1). In this study, the author(s) also emphasize the increase in public health costs as a result of demands associated with the health-related consequences of the practice in mutilated women and girls.

FGM reinforces and incentives the cycle of poverty (Image 2), especially for women. Poverty is thus associated

with disability, illness, vulnerability and low performance levels, problems that are boosted by difficulties in access to basic quality health services. This results in a deterioration in quality of life and in the ability carry out income-generating activities, in addition to daily activities, which implies in low income, difficulties to obtain proper nutrition, and increases in cases of malnourishment.

When we talk about FGM, equality for women and their empowerment appear as concepts that have been clearly eroded. Genital mutilation, in most cases, is carried out without the previous consent of the girls subjected to us; therefore, they are being deprived of their right to make decisions about their bodies. When it is executed with consent, there is a series of contextualized factors revolving around androcentrism (Table 2) that foster women's decision to go through with it, without evaluating the negative consequences in terms of the mental and sexual physical health of the women subjected to the practice. Men refuse to marry non-mutilated women, as female genitals are perceived as dirty, ugly or impure, and they must be extirpated in order to control women's sexuality and maintain polygamy. This patriarchal interests are supported by aesthetic

### MDG 1. To eradicate extreme poverty and hunger

### Consequences for the health status of women and girls

### Loss of human life

Loss of physical and mental abilities

### Increase in health costs

**Table 1** – FGM and Millennium Development Goal - FGM and MDG.1 Source: <sup>(5-6)</sup>.

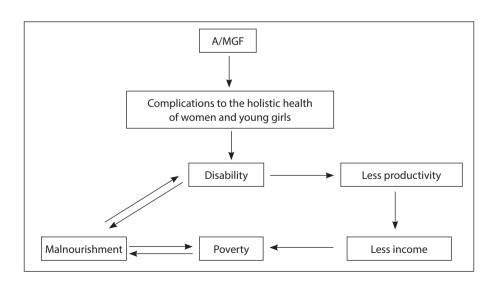


Image 2 – Cycle of poverty

### **Factors that favor FGM** Patriarchal Society Marriage as the only means possible to obtain **Social factors** access to land MDG 3 FGM as a means of inclusion in a community To promote gender equality and **Religious factors** FGM as a divine command empower women Control over female sexuality **Sexual factors** Maintaining polygamy View of female genitals as something "dirty" **Hygienic-Aesthetic factors** View of cut vaginal labia as something beautiful

**Table 2** – FGM and Millennium Development Goal 3 Source: (67)

standards and maintained by the communities, rejecting and excluding non-mutilated women. This social order is also maintained by means of religion, according to interpretations of some religious leaders and popular beliefs, even though this practice is not a religious precept in itself. Even so, genital mutilation in young girls instantly turns them into marriage material - quite often, these girls are underage and removed from their families, prevented from being a child and having an education, becoming one in a list of wives and housemaids, which also contributes to the creation of obstacles to MDG 1, preventing their empowerment so they can break free from this cycle of poverty. This is found in the study that) mentions that most women cannot continue their studies after secondary school, with 5 in primary education, including a 10 year-old girl who had to leave school to become a wife and a housemaid<sup>(7)</sup> . Mutilated women who replied to the survey were mostly housewives (61%), residing in urban areas (85%), married (82%), Muslim (97,2%) and illiterate (40%)(8). Similarly, the authors point out that one of the characteristics shared by these women is their low educational level<sup>(9)</sup>.

In addition to the social and cultural factors that may have a negative impact on the achievement of this MDG<sup>(3)</sup>, there is also a negative repercussion linked to the various long-term health consequences derived from FGM, such as: urinary retention and infections <sup>(10)</sup>, psychological disorders such as post-traumatic stress, or relationship problems with their companion, such as anorgasmia, vaginismus, frigidity, refusal of sexual intercourse and dyspareunia <sup>(4,10-12)</sup>.

Consequently, justifications based on gender discrimination perpetuate this kind of practice, which perpetuates inequality between men and women, to the benefit of the patriarchy.

Mutilation is carried out between ages 4 and 14<sup>(17)</sup>, often coinciding with their first period, although the current trend is to carry this out at a younger age, in order to prevent girls from resisting against the practice and developing traumatic memories that may result in repudiation from the girls.

There is a series of immediate physical complications associated with FGM that may have an impact in mortality rates and in child mortality rates, such as:

Hemorrhage, a consequence of cutting an artery or a secondary effect of a blood clot breaking off <sup>(6,13,15)</sup> hypovolemic hemorrhagic shock, as well as distribute, septic, and neurogenic shock<sup>(14,18)</sup>, hepatitis B and C infections, tetanus and HIV/AIDS<sup>(18)</sup>, and an increase in the number of newborns that require reanimation right after birth<sup>(2,16)</sup>, with this type I and II FGM being linked to 22% of perinatal deaths<sup>(2)</sup>. These consequences of FGM entails a limitation for the achievement of MDG.4 (Table 3).

The negative consequences of FGM that may be experiences by women during pregnancy and labor (Table 4) are direct causes of deteriorations in maternal health, which therefore makes it more difficult for Millennium Goal 5 to be achieved.

A study carried out by the WHO<sup>(2)</sup> with 28,393 women in six African countries (Burkina Faso, Ghana, Nigeria, Senegal, Sudan and Kenya) corroborated the existence of a higher frequency of health complications during pregnancy, childbirth and during the postpartum period in the case of women who have undergone FGM practices, when compared to women who have not been mutilated. Also, this study also allowed the establishment of a connection between major health complications to women to have been subjected to the most aggressive kinds of mutilation (type II, or excision, and type III, or infibulation). This was

# Immediate consequences of FGM Hemorrhage<sup>(6,13,15)</sup> Acute posthemorrhagic anemia<sup>(7)</sup> Shock<sup>(14)</sup> Infections<sup>(15)</sup> Increase in number of newborns who require reanimation after labor<sup>(2,16)</sup> Death as a result of complications in previous cases<sup>(14)</sup>

**Table 3** – FGM and Millennium Development Goal 4 Source: Authors, based on the bibliography mentioned

MDG 5. To improve maternal health	Consequences of FGM during pregnancy and labor
	Increase in the number of Cesarean sections and episiotomies <sup>(2,19-20)</sup>
	Increase in the number of cases of postpartum hemorrhages <sup>(21)</sup>
	Increase in maternal death rates <sup>(2)</sup>
	Perineal tears <sup>(2,12,16)</sup>
	Postpartum hemorrhage <sup>(2,12,16,22)</sup>
	Impossibility of natural labor <sup>(12)</sup>
	Primary infertility <sup>(21)</sup>
	Obstetric fistulae <sup>(12,23)</sup>
	Increase in maternal death rates <sup>(2)</sup>

**Table 4** – FGM and Millennium Development Goal 5 Source: Authors, based on the bibliography mentioned

also concluded by a study carried out in 2014 in Southeastern Nigeria<sup>(3)</sup>.

With regard to Millennium Goal 6, to combat HIV/AIDS, malaria, and other diseases, there is a plausible relationship between FGM and the transmission of the human immunodeficiency virus. In this sense, the authors all agree that it is possible that FGM is a risk factor for HIV transmission and that it increases female vulnerability in contracting Sexually-Transmitted Diseases, by means of the hypothetical mechanisms proposed in Table 5. The conditions of absence of characteristics of the procedure and the materials used during this. The traditional, and sometimes clandestine, aspect of this practice increase women's and young girls' vulnerability with regard to HIV/AIDS<sup>(27)</sup>.

### **LIMITATIONS OF THE STUDY**

The number of articles and documents included in the bibliography is extensive; however, unpublished documents have not been reviewed, as well as documents in languages other than English or Spanish, so a few documents may not have been reviewed.

### **CONCLUSION**

According to the articles researched, FGM implies a difficulty that limits the achievement of five of the eight Millennium Development Goals, proposed by the United Nations in 2000 and affects approximately 140 million women and young girls.

The interventions aimed at preventing and eradicating this practice have consequences in several levels of these development goals: they help breaking the cycle of poverty (Goal 1) by decreasing the loss of human potential implied by this tradition. Likewise, this would imply in advances towards gender equality and autonomy for women (Goal 3). The elimination of FGM has a direct impact on the reduction of child mortality rates (Goal 4) and improvements in maternal health (Goal 5), as there is a correlation between FGM and increases in perinatal and maternal mortality rates. Female genital mutilation is associated with major complications during pregnancy, child-birth and postpartum periods.

The conditions under which genital mutilations are most often carried out facilitates the transmission of dis-

## MDG. 6. To combat HIV/AIDS, malaria, and other diseases

### Factors that facilitate HIV/AIDS transmission during FGM

Use of unsterilized materials

### Use of a single tool for several girls

Blood loss decrease the immune system's ability to set reactions

### The presence of lacerated genitals increases contagion risks

The loss of elasticity may result in tears during sexual intercourse

**Table 5** – FGM and Millennium Development Goal 6 Source: (24-26)

eases such as HIV/AIDS or hepatitis. Its eradication will decrease the prevalence of HIV/AIDS (Goal 6).

### ■ PRACTICAL IMPLICATIONS

Even though the MDGs have been assessed, Nurses, supported by the International Council of Nurses and as the providers of services guided by the observance and defense of human rights for all the people they care for, must develop prevention strategies and research projects with regard to the several harmful practices that are damaging to people's health, freedom and dignity, which includes FGM.

The establishment of a negative relationship between FGM and the achievement of the MDGs may help generate a greater sense of awareness regarding the fight aimed at eliminating this practice.

### **REFERENCES**

- United Nations (US). The Millennium Development Goals report. New York: United Nations; 2006.
- 2. World Health Organization (CH), Study Group on Female Genital Mutilation and Obstetric Outcome. Female genital mutilation and obstetric outcome: WHO collaborative prospective study in six African countries. Lancet. 2006 [retrieved 2015 March 15];367(9525):1835–41. doi: http://dx.doi.org/10.1016/S0140-6736(06)68805-3.
- 3. Lawani L, Onyebuchi A, Iyoke C, Okeke N. Female genital mutilation and efforts to achieve Millennium Development Goals 3, 4, and 5 in southeast Nigeria. Int J Gynecol Obstet. 2014;125(2):125–8.
- 4. Jiménez Ruiz, I. Enfermería y cultural: las fronteras del androcentrismo en la ablación/mutilación genital femenina [thesis]. Murcia: University of Murcia, School of Nursing; 2015.
- Adam T, Bathija H, Bishai D, Bonnenfant IT, Darwish M, Huntington D, et al. Estimating the obstetric costs of female genital mutilation in six African countries. Bull World Health Organiz. 2010 [retrieved 2015 March 15];88:281-8. Available at: http://www.who.int/bulletin/volumes/88/4/09-064808.pdf?ua=1.
- 6. Jiménez Ruiz I, Almansa Martínez P, Pastor Bravo MM, Pina Roche F. Aproximación a la ablación/mutilación genital femenina (A/MGF) desde la enfermería

- transcultural: una revisión bibliográfica. Enfermería Global. 2012 [retrieved 2015 May 21];11(4). Available at: http://revistas.um.es/eglobal/article/view/155751.
- 7. Pastor Bravo M. La voz de las mujeres sometidas a mutilación genital femenina: saberes para la disciplina enfermera [thesis]. Murcia: University of Murcia, School of Nursing; 2014.
- Vanegas Estrada RO, Fatou A, Valdez Álvarez O. Mutilación sexual femenina, características de esta práctica. Rev Cubana Obstet Ginecol. 2009 [retrieved 2015 April 20];35(3):9. Available at: http://scielo.sld.cu/scielo.php?script=sci\_art-text&pid=S0138-600X2009000300009&lng=es&nrm=iso&tlng=es.
- 9. Sipsma HL, Chen PG, Ofori-Atta A, Ilozumba UO, Karfo K, Bradley EH. Female genital cutting: current practices and beliefs in western Africa. Bull World Health Organiz. 2012 [retrieved 2015 March 13]; 90(2):120–7F. Available at: 10.2471/BLT.11.090886.
- 10. Berg R, Underland V, Odgaard-Jensen J, Fretheim A. Effects of female genital cutting on physical health outcomes: a systematic review and meta-analysis. BMJ Open Global Health. 2014 [retrieved 2015 March 13];4(11).
- 11. Ballesteros C, Almansa P, Pastor M, Jiménez I. La voz de las mujeres sometidas a mutilación genital femenina en la Región de Murcia. Gac Sanit. 2014 [retrieved 2015 April 12]; 28(4):287–91.
- 12. Berg R, Underland V. The obstetric consequences of female genital mutilation/cutting: a systematic review and meta-analysis. Obstet Gynecol Int. 2013 [retrieved 2015 May 18];2013:496564. doi: 10.1155/2013/496564.
- Bjälkander O, Bangura L, Leigh B, Berggren, V, Bergström S, Almroth L. Health complications of female genital mutilation in Sierra Leone. Int J Women's Health. 2012 [retrieved 2015 March 16];4:321–31. http://dx.doi.org/10.2147/JJWH.S32670.
- 14. Abdulcadir J, Margairazb C, Boulvaina M, Iriona Ö. Care of women with female genital mutilation/cutting. Swiss Med Wkly. 2011 [retrieved 2015 May 22];140:w13137. doi:10.4414/smw.2011.13137.
- Kaplan A, Hechavarría S, Martín M, Bonhiure I. Health consequences of female genital mutilation/cutting in the Gambia, evidence into action. Reprod Health. 2011 [retrieved 2015 April 08];8:26. Available at: http://www.reproductive-health-journal.com/content/8/1/26
- 16. World Health Organization (CH), Department of Reproductive Health and Research. Effects of female genital mutilation on childbirth in Africa. Geneva; 2008 [retrieved 2015 April 08]. Available at: http://www.who.int/reproductive-health/publications/fgm/policy brief/en/.
- 17. Unión de Asociaciones Familiares (SP). La MGF en España: prevención e intervención. Madrid: UNAF; 2012.
- Kaplan Marcusan A, Torán Monserrat P, Bedoya Muriel MH, Bermúdez Anderson K, Moreno Navarro J, Bolíbar Ribas B. Las mutilaciones genitales femeninas: re-

- flexiones para una intervención desde la atención primaria. Aten Primaria. 2006 [retrieved 2015 April 08];38(2):122-6. doi:10.1157/13090438.
- 19. Frega A, Puzio G, Maniglio P, Catalano A, Milazzo G, Lombardi D, et al. Obstetric and neonatal outcomes of women with FGM I and II in San Camillo Hospital, Burkina Faso. Arch Gynecol Obstet. 2013 [retrieved 2015 May 09];288(9):513–9. doi: 10.1007/s00404-013-2779-y.
- BIBLIOGRAPHY \l 3082 Gibson-Helm M, Teede H, Block A, Knight M, East C, Wallace E, et al. Maternal health and pregnancy outcomes among women of refugee background from African countries: a retrospective, observational study in Australia. BMC Pregnancy & Childbirth 2014 [retrieved 2015 March 10];14:392. doi: 10.1186/s12884-014-0392-0.
- 21. Khaled K, Samy S, Abed El-Aziz E, Haytham,H. Impacts of female genital mutilation on women's reproductive health. J Comumunity Med Health Edu. 2012 [retrieved 2015 April 09];2:3. doi: 10.4172/jcmhe.1000137.
- 22. Bogale D, Markos D, Kaso M. Prevalence of female genital mutilation and its effect on women's health in Bale zone, Ethiopia: a cross-sectional study. BMC Public Health. 2014 [retrieved 2015 April 09];14:1076. doi: 10.1186/1471-2458-14-1076.

- 23. Chibber R, El-Saleh E, El Harmi J. Female circumcision: obstetrical and psychological sequelae continues unabated in the 21st century. J Matern Fetal Neonatal Med. 2011 [retrieved 2015 April 09];4(6):833-6. doi: 10.3109/14767058.2010.531318.
- 24. Kinuthia R. The Association between female genital mutilation (FGM) and the risk of HIV/AIDS in Kenyan girls and women (15-49 years) [thesis]. Georgia: Public Health Theses; 2010.
- 25. Diouf K, Nour N. Female genital cutting and HIV transmission: is there an association? Am J Reprod Immunol. 2012 [retrieved 2015 March 13];69(Suppl 1):45–50. doi: 10.1111/aji.12028.
- Olaniran A. The relationship between female genital mutilation and HIV transmission in Sub-Saharan Africa. Afr J Reprod Health. 2013 [retrieved 2015 April 06];17(4 Spec No):156-60. Available at: http://www.ajol.info/index.php/ajrh/article/view/99768.
- 27. Fondo de las Naciones Unidas para la Infancia (SP). La mutilación/excisión genital de la mujer. UNICEF; 2006 [retrieved 2015 May 12]. Hojas Informativas sobre la protección de la infancia. Available at: http://www.unicef.org/spanish/protection/files/FGM sp.pdf.

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