

BMJ Open Survey on female genital mutilation/cutting in Jeddah, Saudi Arabia

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ABSTRACT

Objectives The objective of this study was to determine whether female genital mutilation/cutting (FGM/C) exists in Jeddah, Saudi Arabia.

Design A cross-sectional study.

Setting King Abdulaziz University Hospital, Jeddah, Saudi Arabia.

Participants Between December 2016 and August 2017, women attending the obstetrics and gynaecology clinics were asked to participate in a cross-sectional survey. This included questions on demographics, FGM/C status and type and attitudes towards the practice.

Results In a convenience sample of 963 women aged 18 to 75 years, 175 (18.2%) had undergone FGM/C. Compared with women without FGM/C, women with FGM/C were older, married, non-Saudi and had a lower monthly income. Thirty-seven (21.1%) women had had FGM/C with some cutting of body parts (type I or II), 11 (6.3%) with suturing (type III), 46 (26.3%) with no cutting of body parts (type IV) and 81 (46.3%) did not know their type of FGM/C. There was also a significant association between nationality and age at which FGM/C was performed, with Saudi women undergoing the procedure earlier than Egyptian, Somali, Yemeni and Sudanese women.

Conclusions FGM/C is prevalent in Jeddah, Saudi Arabia, among immigrant women from other countries, and it is practised among Saudi women. Further research is needed to determine its prevalence.

INTRODUCTION

Female genital mutilation/cutting (FGM/C) is defined by the WHO 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.¹ According to the WHO, there are four types of FGM/C.¹ Type I (clitoridectomy) involves the partial or total removal of the clitoris and/or the prepuce. Type II (excision) involves the partial or total removal of the clitoris and the labia minora, with or without excision of the labia majora. Type III (infibulation) involves the narrowing of the vaginal opening through the creation of a covering seal with or without removal of the clitoris. Type IV relates to all other harmful procedures to the female genitalia for non-medical purposes.

Strengths and limitations of this study

- Our study reported the nationality breakdown of participants who have undergone female genital mutilation/cutting (FGM/C).
- Most of the FGM/C-specific questions were taken from the Demographic and Health Survey module on FGM/C.
- It is a hospital-based convenience sample.
- It consists of Saudi and non-Saudi women and is likely to be representative of the population in Jeddah, Saudi Arabia, only.
- Another possible limitation is the lack of information about the origin of the Saudi women.

FGM/C is practised most commonly in the western, eastern and north-eastern regions of Africa, as well as in a few Middle Eastern countries such as Iraq and Yemen.² FGM/C is also practised among migrants from these areas. This highlights the global scale of this issue.³ The exact number of girls and women who are subjected to the practice of FGM/C worldwide is unknown. However, the United Nations International Children's Emergency Fund (Unicef) estimates that there are around 200 million victims alive today who have undergone FGM/C.² The Unicef's report includes Oman, Saudi Arabia and the United Arab Emirates as countries where FGM/C exists, but, 'the evidence comes from (sometimes outdated) small-scale studies or anecdotal accounts'.²

FGM/C is not considered to be a prevalent occurrence among Saudi women.^{4,5} A 2016 report on human rights practices from the US Department of State asserts that FGM/C is not a common practice in Saudi Arabia, particularly among the native population. This is due to the Saudi government's interpretation of sharia which prohibits the practice.⁶ However, the lack of national statistics on FGM/C is concerning,⁷ as certain Arab countries present an absence of statistics as equivalent to an absence of the problem.⁸

Ethnically, the majority (90%) of Saudis are Arabs, most of whom are tribal Bedouins,

with 10% being Afro-Asian.⁹ Although FGM/C is considered prevalent among immigrants to Saudi Arabia, there are also reports that FGM/C takes place among residents of the Hejaz,¹⁰ the region in which Jeddah is located. Studies of FGM/C that have taken place in Saudi Arabia often fail to provide a nationality breakdown of the participants who have received FGM/C,^{11–13} unless their sample is drawn from an immigrant population.^{14 15} The lack of credible data on the existence of FGM/C in Saudi Arabia impedes the provision of prevention of harmful practices as well as counselling and support. The objective of this study was to determine whether FGM/C exists in Jeddah, Saudi Arabia.

METHODS

Between December 2016 and August 2017, women attending the obstetrics and gynaecology clinics at King Abdulaziz University Hospital were invited to participate in the study. Eligibility criteria included age (between 18 and 75 years old) and the ability to read and speak Arabic. We chose the lower age limit as 18 years because it is the age used conventionally in Saudi Arabia as the age of majority and the upper age limit as 75 years as very few of our patients are above the age of 75 years. An oral and written explanation of the study was given to each woman before she was asked to sign an informed consent form.

Selected clinic staff were trained by study team members to recruit eligible and consenting women, administer the survey, answer any questions and submit the completed surveys to team members for data entry. The self-complete, paper-and-pencil survey included 30 questions and took about 8 min to complete. Most of the FGM/C-specific questions were taken from the Demographic and Health Survey module on FGM/C.¹⁶ The survey asked about demographics (age, nationality, religion, marital status, education), FGM/C status and characteristics (extent of flesh removed or sewing, practitioner, instrument used) and attitudes towards the practice (should be stopped, should be continued, reasons for continuation). We analysed the data descriptively (means, frequencies and percent). We conducted χ^2 analyses and t test to compare the demographic characteristics of women with and without FGM/C, using the Statistical Package for the Social Sciences (SPSS) V. 24.0.

Patient and public involvement:

- ▶ Development of the research question and outcome measures were informed by authors' clinical work over several years with patients with FGM/C.
- ▶ Patients were not involved in the design of the study.
- ▶ Patients were not involved in the recruitment to and conduct of the study.
- ▶ Results will be disseminated to study participants via posters in our clinics and patient workshops.

RESULTS

During the 7 month recruitment period, 1000 women attending the clinics were approached regarding

participation in the study, of which 963 (96.3%) consented. As seen in [table 1](#), the women's average age was 28.9 (range 18 to 75) years, the majority (79.1%) were Saudi, and all were Muslims. Close to half were single (48.1%), 58.6% had some university education or had completed a university degree. Slightly less than half (42.0%) of the women were current students, while about a third (28.5%) were employed, full- or part-time. Close to one in five women (18.2%) self-reported having FGM/C, while 3.3% did not know. Most of the women in this sample had heard of FGM/C (89.6%), but 2.3% were unsure.

There were some sociodemographic differences between women with FGM/C and women with no FGM/C. More women with FGM/C were older (average 5.3 years) and non-Saudi ($p < 0.001$). These non-Saudi women were most commonly from Yemen ($n = 34$), Sudan ($n = 10$), Egypt ($n = 8$), Somalia ($n = 6$) and Ethiopia ($n = 3$). In addition, a greater proportion of women with FGM/C were married and had a lower monthly income ($p < 0.001$).

[Table 2](#) shows the characteristics of women's FGM/C. The 175 women who reported that they had FGM/C reported having the following types: some cutting of body parts (21.1%, ie, type I or II), suturing (6.3%, ie, type III), no cutting of body parts (26.3%, ie, type IV). Almost half (46.3%) of the women did not know which alteration had been done to their genitalia. The age at which FGM/C was carried out was within 1 week after birth in 101 (57.7%) women, at age 6.9 ± 0.1 years (mean \pm SD) in 42 (24%) women, and was unknown in 32 (18.3%) women. There was a significant association between nationality and age at which FGM/C was carried out ($p < 0.0001$). For women who had FGM/C later than 1 week after birth, a Kruskal-Wallis test showed significant differences in the mean age FGM/C was performed in each nationality group ($p = 0.002$). Saudi women had the lowest mean rank of 12.79, and Egyptian women had the highest with 34.5. This corresponds to mean ages of 3.86 ± 2.48 and 10.57 ± 2.3 years, respectively. We asked who had wanted them to have FGM/C done. In more than half of the cases, it was one of their parents (50.8% mother, 4% father), and their grandmother was the decision maker in 22.9% of the cases. Operator, setting and instrument used for the FGM/C procedure varied. People who had carried out the procedure included traditional birth attendant/midwife (37.1%), physician or a nurse (21.7%) and relative (20%). It was most frequently done in the woman's home (56.6%), in a hospital or at a private clinic (15.4% and 8%) or at a midwife's house (4.6%). With respect to type of instrument used, 63.5% did not know, but the 63 women who knew reported it was scissors (17.1%), razor (11.4%) or surgical scalpel (6.9%). Similarly, 50.3% of the women who had FGM/C did not know whether any anaesthesia had been used for the procedure. The 87 women who knew reported no anaesthesia was used (31.4%), and the rest reported that it was local anaesthesia (14.3%) or general anaesthesia (4%). Most of the women (88.6%) stated they did not have complications

Table 1 Sociodemographic characteristics of the study participants, by FGM/C status and total

	Women with FGM/C, n=175	Women with no FGM/C, n=756	Total sample, n=963	Test for difference*
Age, years (average, SD)	33.4±9.95	28.1±8.62	28.9±9.1	t=-90.39 (df=930), p<0.001
Nationality				
Saudi	87 (49.7)	572 (75.7)	683 (70.9)	X ² =81.23, df=1 p<0.001
Naturalised Saudi	23 (13.1)	54 (7.1)	79 (8.2)	
Non-Saudi	65 (37.2)	130 (17.5)	201 (20.9)	
Marital status				
Single	42 (24.0)	403 (53.3)	463 (48.1)	X ² =38.65, df=1 p<0.001
Married	122 (69.7)	330 (43.7)	465 (41.3)	
Divorced	8 (4.6)	18 (2.4)	27 (2.8)	
Widowed	3 (1.7)	5 (1.0)	8 (0.8)	
Education				
No university education	80 (45.7)	307 (40.6)	399 (41.4)	X ² =1.53, df=1 p=0.23
Some or completed university	95 (54.3)	449 (59.4)	564 (58.6)	
Occupation				
Student	30 (17.1)	356 (47.1)	404 (42.0)	X ² =3.18, df=1 p=0.79
Part-time employed	11 (6.3)	23 (3.0)	36 (3.7)	
Full-time employed	49 (28.0)	185 (24.5)	239 (24.8)	
Retired	10 (5.7)	6 (1.0)	16 (1.7)	
Stay-at-home housewife	75 (42.9)	186 (24.6)	268 (27.8)	
Monthly income				
<5000 Saudi Riyal (<≈US\$1330)	74 (42.3)	158 (20.9)	240 (24.9)	X ² =34.74, df=1 p<0.001
5000–10 000 (≈US\$1331–US\$2665)	57 (32.6)	263 (34.8)	330 (34.3)	
>10 000 (≈US\$2665)	44 (25.1)	335 (44.3)	393 (40.8)	

*Statistically significant differences between women with FGM/C and women with no FGM/C were found for age, Saudi nationality versus not, married versus not, income <5000 Saudi Riyal versus >5000. FGM/C, female genital mutilation/cutting; ns, not statistically significant.

after the FGM/C procedure. The 20 women who had complications (11.4%) reported a variety of problems, most commonly oedema and swelling, bleeding, infection, urinary retention and fever.

Respondents' attitudes towards the practice are shown in table 3. The majority (68.7%) of the women thought that FGM/C should stop, and 5.3% thought that it should continue. A greater proportion of women with FGM/C than without believed that the practice should continue (18.3% vs 2.2%). We asked what they believed was the main reason for continuation of FGM/C, to which most answered it was tradition and culture (41.6%), moral reasons (20.6%), religious beliefs (8.7%) or personal hygiene (3.3%). There were some differences between women with FGM/C and those without in believed reasons for the practice. A greater proportion of women with FGM/C believed that personal hygiene was a main reason for the practice (12% vs 1%), while fewer believed that it was tradition and cultural norms (35% vs 44%).

DISCUSSION

There are limited and conflicting reports on FGM/C in Saudi Arabia.^{4–6} A lack of national statistics has made it difficult to quantify the extent of the practice. Indeed, many assert that it simply does not exist among the Saudi population.^{4 6 17} Many studies that have taken place in Saudi Arabia have failed to provide a nationality breakdown of participants who have undergone FGM/C,^{11–13} often only providing a breakdown when the studies are confined to immigrant communities.^{14 15} The present study confirms that FGM/C exists in Jeddah, Saudi Arabia, among immigrant women from other countries, and it occurs also among Saudi women. It is worth noting that Saudi nationality was associated with a lower occurrence of FGM/C than other nationalities, which suggests it is not as common among Saudi women. This may explain the lack of research on this topic. However, the present study shows that although it is a less common practice in Saudi Arabia than in certain African and Middle Eastern countries, it does occur among Saudis in at least one Saudi city and, therefore, should not be considered a problem that is confined to immigrant populations.

Table 2 Characteristics of the FGM/C procedure among women with FGM/C

	Women with FGM/C, n=175
Type of FGM/C	
Flesh removed/cutting=type I or II	37 (21.1)
Suturing of body parts/sewn closed=type III	11 (6.3)
No removal of flesh=type IV	46 (26.3)
Do not know	81 (46.3)
Age when FGM/C was done	
Within 1 week after birth	101 (57.7)
Who was the decision maker	
Mother	89 (50.9)
Grandmother	40 (22.9)
Father	7 (4.0)
Two or more close family members	30 (17.1)
Other	9 (5.1)
Who performed the FGM/C procedure	
Doctor or nurse	38 (21.7)
Midwife	65 (37.1)
Relative	35 (20.0)
Do not know	35 (20.0)
Other	2 (1.2)
Where FGM/C was done	
Hospital or clinic	41 (23.4)
Midwife's house	8 (4.6)
Home of participant	99 (56.6)
Home of relative	4 (2.3)
Do not know	22 (12.6)
Other	1 (0.6)
Instrument used for the procedure	
Razor blade	20 (11.4)
Scissors	30 (17.1)
Surgical scalpel	12 (6.9)
Do not know	111 (63.5)
Other	2 (1.1)
Type of analgesia used	
Full anaesthesia	7 (4.0)
Local anaesthesia	25 (14.3)
No anaesthesia	55 (31.4)
Do not know	88 (50.3)
Complications when FGM/C was done	
None	155 (88.6)
Bleeding	2 (1.2)
Oedema and swelling	5 (2.9)
Severe pain	1 (0.6)
Urinary retention	2 (1.2)

Continued

Table 2 Continued

	Women with FGM/C, n=175
Infection	2 (1.2)
Fever	2 (1.2)
Two or more of the above	5 (2.9)
Other	1 (0.6)

Data are number (%).
FGM/C, female genital mutilation/cutting.

Saudi Arabia consists of four main regions: Hejaz, Najd, Eastern Arabia (Al-Ahsa) and Southern Arabia (Asir). Jeddah is the largest city in the Hejaz region of Saudi Arabia. It is the principal gateway to Islam's two holiest shrines in Mecca and Medina. Muslims are obliged to visit Mecca to perform religious duties at least once during their lifetime, if financially feasible. Some may elect to immigrate and live in the Hejaz region. Therefore, the origin of the Saudi population in Jeddah may be different from those in other regions of Saudi Arabia. This may explain the finding that 62.8% of the women who had FGM/C are Saudi and naturalised Saudi women in our sample. This finding suggests that further work on FGM/C in the Hejaz region is warranted to understand the extent of the problem. Future work could also examine other regions in Saudi Arabia to determine if FGM/C is prevalent outside the Hejaz region.

Almost two-thirds (57.7%) of our sample underwent the procedure within 1 week after birth. This is similar to the finding of The Yemen National Health and Demographic Survey, which revealed that most FGM/C in Yemen takes place within the first week after birth.¹⁶ This may suggest an Islamic link, as this mirrors the period in which male circumcision is performed.¹⁸ This can be contrasted with countries such as Egypt and Sudan, where FGM/C is generally carried out before puberty instead of during infancy.¹⁹ Among the women who reported a later procedure, Saudi women reported the lowest mean age at which it was performed (3.86±2.48), with Yemeni women reporting a later mean age (5.33±5.57). This highlights an earlier preferred age for FGM/C in Saudi women compared with immigrant groups. The reason for this finding is unclear. However, it highlights the need for more targeted research on FGM/C in Saudi Arabia, particularly in the Hejaz region, in order to understand the demographic influences on how and when the procedure is carried out.

In the present study, FGM/C was done by a physician or a nurse in 38 (2.7%) women at a hospital or a private clinic in 41 (23.4%) women. It is interesting to note that although FGM/C is not allowed in hospitals or clinics in Saudi Arabia, Saudi women were just as likely as any other nationality group to have had the procedure performed by a physician, nurse or midwife; and just as likely to have undergone the procedure in a hospital or clinic.

Table 3 Participants' perspectives on FGM/C, by FGM/C status and total

	Women with FGM/C, n=175	Women with no FGM/C, n=756	Total sample, n=963
Perspective about continuation of FGM/C			
Should continue	32 (18.3)	17 (2.2)	51 (5.3)
Should stop	91 (52.0)	551 (72.9)	662 (68.7)
It depends	17 (9.7)	30 (4.0)	48 (5.0)
Do not know	35 (20.0)	158 (20.9)	202 (21.0)
Perspective on main reason for continuation			
Religious beliefs	18 (10.3)	61 (8.1)	84 (8.7)
Moral reasons	36 (20.6)	153 (20.2)	197 (20.5)
Tradition and cultural norms	61 (34.9)	331 (43.8)	401 (41.6)
Social convention	0	5 (0.7)	5 (0.5)
Personal hygiene	21 (12.0)	8 (1.1)	32 (3.3)
Sexual pleasure for the husband	5 (2.9)	1 (0.1)	6 (0.6)
Two or more of the above reasons	22 (12.6)	69 (9.1)	91 (9.4)
Not sure	12 (6.9)	129 (17.1)	147 (15.3)

Data are number (%).

FGM/C, female genital mutilation/cutting.

Unfortunately, we did not ask whether the procedure was carried out at a hospital or a private clinic in Saudi Arabia or other countries. Further research could focus on how Saudi women obtain access to a healthcare professional for this procedure.

Complications are common in FGM/C procedures.²⁰ In our sample, 11.4% of women who had undergone FGM/C had complications. Well-documented complications include delivery complications, urinary tract infections, bacterial vaginosis and dyspareunia. Oedema and swelling occurred in 2.86% of women who had received FGM/C. Meta-analytic results have shown that, on average, about 15% of girls suffer oedema, but the occurrence varies from 2% to 27%.²⁰ This wide range highlights the difficulty with accurately measuring complications, as the research often takes place years after FGM/C has been performed. The relatively low rate of complications reported by our sample may be due to their forgetting an event, which occurred during their childhood. This highlights the importance of clinic medical record keeping to facilitate understanding of data on complications. There are also instances whereby complications present themselves several years or decades after the procedure, as reported in a case study of a woman who developed an epidermal clitoral inclusion cyst 30 years after her FGM/C procedure.²¹ This further emphasises the difficulty with gathering accurate data on FGM/C complications.

There are several limitations to the present study. The hospital-based, convenience sample is non-random. It consists of Saudi and non-Saudi women and is likely to be representative of the population in Jeddah, Saudi Arabia, only since the population of Jeddah may be different than other cities in Saudi Arabia. Therefore, the results

of this study cannot be generalised to other parts of Saudi Arabia. The data are based on self-report and may be susceptible to recall bias and low reliability. Studies have shown inconsistencies between self-reported and clinically determined FGM status to different extents.^{22–24}

Another possible limitation is the lack of information about the origin of the Saudi women. This is important because if they came from the southern part of Saudi Arabia (close to Yemen where FGM/C is common), it might explain the high percentages of Saudi women with FGM/C in our study. Another possibility could be considered, such as these women being second-generation migrants, born to mothers from FGM practising countries.

In conclusion, the results of the present study demonstrate that FGM/C exists among Saudi women in Jeddah, Saudi Arabia. Further studies are required to determine its prevalence. Future research should also examine other regions of Saudi Arabia to determine if this issue is regionally defined. More in-depth investigation into the demographics of Saudi women who undergo FGM/C may also illuminate our finding that Saudi women undergo the procedure at an earlier age than other national groups.

Contributors AAR and RB designed and conceived the study. AAR, RA, FA and MS facilitated the data acquisition. AAR and RA supervised the data entry and integrity. AAR, RB and RA analysed the data and prepared the tables. AAR and RB wrote the manuscript. All authors provided input and reviewed the final draft.

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Patient consent for publication Obtained.

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Data sharing statement There are no additional data available.

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REFERENCES

- World Health Organization. WHO guidelines on the management of health complications from female genital mutilation. 2016 http://apps.who.int/iris/bitstream/10665/206437/1/9789241549646_eng.pdf?ua=1 (Accessed 28 May 2018).
- United Nations International Children's Emergency Fund. Female genital mutilation/cutting: a global concern. 2016 https://www.unicef.org/media/files/FGMC_2016_brochure_final_UNICEF_SPREAD.pdf (Accessed 28 May 2018).
- World Health Organization. Female genital mutilation. 2016 <http://www.who.int/mediacentre/factsheets/fs241/en/> (Accessed 28/05/2018).
- Gray CS. A case history based assessment of female genital mutilation in Sudan. *Eval Program Plann* 1998;21:429–36.
- International Association for Maternal and Neonatal Health. Female circumcision. *Mother and Child International Newsletter* 1991;17:4–5.
- United States Department of State. Bureau of democracy, human rights and labor. Country Reports on Human Rights Practices for 2016. Saudi Arabia 2016 Human Rights Report. <http://www.state.gov/j/drl/rls/hrrpt/humanrightsreport/index.htm?year=2016&dclid=265518> (Accessed 28 May 2018).
- Berg RC, Denison EM, Fretheim A. *Psychological, social and sexual consequences of female genital mutilation/cutting (FGM/C): a systematic review of quantitative studies. Report from Kunnskapssenteret nr 13–2010*. Oslo: Nasjonalt kunnskapssenter for helsetjenesten, 2010.
- Von der Osten-Sacken T, Uwer T. Is female genital mutilation an Islamic problem? *Middle East Q*, 2007;29–36. <http://www.meforum.org/1629/is-female-genital-mutilation-an-islamic-problem>.
- Central Intelligence Agency. The world factbook. <https://www.cia.gov/library/publications/the-world-factbook/geos/sa.html> (Accessed 28 May 2018).
- United States Department of State. Prevalence of female genital mutilation. <https://2001-2009.state.gov/g/wi/rls/rep/9276.htm> (Accessed 28 May 2018).
- Rouzi AA, Sindi O, Radhan B, *et al*. Epidermal clitoral inclusion cyst after type I female genital mutilation. *Am J Obstet Gynecol* 2001;185:569–71.
- Rouzi AA. Epidermal clitoral inclusion cysts: not a rare complication of female genital mutilation. *Hum Reprod* 2010;25:1672–4.
- Milaat WA, Ibrahim NK, Albar HM. Reproductive health profile and circumcision of females in the Hali semi-urban region, Saudi Arabia: A community-based cross-sectional survey. *Ann Saudi Med* 2018;38:81–9.
- Rouzi AA, Aljhadali EA, Amarin ZO, *et al*. The use of intrapartum defibulation in women with female genital mutilation. *BJOG* 2001;108:949–51.
- Rouzi AA, Al-Sibiani SA, Al-Mansouri NM, *et al*. Defibulation during vaginal delivery for women with type III female genital mutilation. *Obstet Gynecol* 2012;120:98–103.
- Ministry of Public Health and Population (MOPHP), Central Statistical Organization (CSO) [Yemen], Pan Arab Program for Family Health (PAPFAM) and ICF International. *Yemen National Health and Demographic Survey 2013*. Rockville, Maryland, USA: MOPHP, CSO, PAPFAM, and ICF International, 2015.
- Abu Daia JM, Daia JA. Female circumcision. *Saudi Med J* 2000;21:921–3.
- Abu-Sahlieh SA. To mutilate in the name of Jehovah or Allah: legitimization of male and female circumcision. *Med Law* 1994;13:575–622.
- DeJong J, Jawad R, Mortagy I, *et al*. The sexual and reproductive health of young people in the Arab countries and Iran. *Reprod Health Matters* 2005;13:49–59.
- Berg RC, Underland V, Odgaard-Jensen J, *et al*. Effects of female genital cutting on physical health outcomes: a systematic review and meta-analysis. *BMJ Open* 2014;4:e006316.
- Asante A, Omurtag K, Roberts C. Epidermal inclusion cyst of the clitoris 30 years after female genital mutilation. *Fertil Steril* 2010;94:1097.e1–1097.e3.
- Klouman E, Manongi R, Klepp KI. Self-reported and observed female genital cutting in rural Tanzania: associated demographic factors, HIV and sexually transmitted infections. *Trop Med Int Health* 2005;10:105–15.
- Snow RC, Slinger TE, Okonofua FE, *et al*. Female genital cutting in southern urban and peri-urban Nigeria: self-reported validity, social determinants and secular decline. *Trop Med Int Health* 2002;7:91–100.
- Elmusharaf S, Elhadi N, Almroth L. Reliability of self reported form of female genital mutilation and WHO classification: cross sectional study. *BMJ* 2006;333:124–7.