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Female Genital Surgeries: The Known, the Unknown, and the Unknowable

This article reviews the literature on female genital surgeries and examines the extent to which available research supports commonly accepted "facts" about the prevalence and harmful effects of these practices, in particular their possible health complications, and their effect on sexuality. While information regarding the prevalence of female genital surgeries is becoming increasingly available, the powerful discourse that depicts these practices as inevitably causing death and serious ill health, and as unequivocally destroying sexual pleasure, is not sufficiently supported by the evidence. The article discusses some of the implications of research on female genital surgeries for the societies that are involved— not merely those where the practices are found, but also those whose gaze has been so intensely focused on the customs of others. [female genital surgeries/mutilation, prevalence, health complications, sexuality]

The traditional surgeries performed on women's genital areas have, in the last few decades, become a major concern of policy makers, activists, and professionals in various fields, eager to mobilize all possible means to end practices that are deemed absolutely intolerable.¹ Medical experts have declared these procedures to be extremely harmful to the physical and mental health of girls and women. Lawyers and ethicists have condemned them as infringements of bodily integrity carried out without the true consent of the victims, and hence as violations of the human rights of women and children. Feminist researchers in several disciplines have argued that female genital surgeries are a manifestation of gender inequalities and "patriarchy" in the societies where they are found. Even among anthropologists traditionally inclined toward a relativist stance, the moral advocacy position has elicited a good deal of support (cf. Gordon 1991),² and the view

that “cultural relativism has its limits, and [that this is] one issue where [one] ought to draw the line” (Konner 1990:5) has tended to prevail over more nuanced positions.

The extensive literature on the subject, the support of international organizations,³ and the emergence of local groups working against the continuation of these practices appear to suggest that an international consensus has been reached. The terminology used to refer to these surgeries has changed, and the clearly disapproving and powerfully evocative expression of “female genital mutilation” has now all but replaced the possibly inaccurate, but relatively less value-laden term of “female circumcision.” The near-universal condemnation that female genital surgeries have received stems from two key elements: first, a perception of their global dimension—the figure of 129 million is now cited as an estimate of the number of girls and women who are affected by the practice (Toubia 1996); and second, the conviction that they have extremely harmful consequences for those who undergo them. The international agenda has, as a result, been defined around a strategy of advocacy, and numerous campaigns have been launched to “eradicate” these practices. Much less attention has been directed toward measuring the magnitude of the problem in terms of both its prevalence and the frequency of its deleterious consequences, or toward understanding the meaning of these practices for those who are affected by them.

The exhaustive review of the literature on which this article is based was motivated by what appeared as a potential disparity between the mobilization of resources toward activism and the research base that ought to support such efforts. The aim was to determine exactly how much was known about the issue, in particular about the prevalence of female genital surgeries, the variations and trends in the practice, the possible health complications of the operations, and their effect on sexuality. Given the prominence of the topic of “female genital mutilation” in shaping Western perceptions, and its frequent depiction as the central—sometimes the only—characteristic of the cultures where the practice is found, it seemed important to examine the extent to which the available research would support commonly accepted “facts” about the prevalence and harmful effects of these practices. The process of evaluating our knowledge in this manner generated insights about the societies that are involved—not merely those where female genital surgeries are practiced, but also those whose gaze has been so intensely focused on the practices of others.

Providing a critical summary about culturally prescribed practices that have potentially grave health consequences requires some familiarity with several disciplinary territories, and therefore makes one vulnerable to the critiques of specialists from each of them. While this article does not explicitly deal with the debates regarding the possibility of integrating the “problem-orientation” of public health with critical medical anthropology, it does represent an effort to effect such a synthesis. The attempt to bring together epidemiology and demography with anthropology is motivated by the conviction that a single approach is not sufficient in itself to understand the issue, that some benefit may accrue to those on each disciplinary turf from efforts to be informed about the other side, and that the synthesis of knowledge from each of the fields will be more than the sum of the parts.

Overview of the Sources

The literature on traditional female genital surgeries is very abundant, and writings on the subject span several disciplinary fields, including literature and humanities, social sciences, law, ethics, and medical sciences, as well as the numerous documents of “advocacy” produced by various organizations. Since a major goal of this review was to gain a clear idea of the prevalence and medical complications of these practices, the available evidence is assessed using standards derived from demography and epidemiology, two disciplines where the evaluation of empirical evidence is a central preoccupation. Less attention is given to discussions of the reasons for, or significance of, the practice, and the ethical debates that occupy a major place in the literature are not directly addressed. The interpretation of the evidence as a whole, however, is very much shaped by the critical perspective and in-depth insights derived from the anthropological literature on the subject.

After searching the medical and demographic literature on “female circumcision” and “female genital mutilation,” all sources in English or French were retrieved. As of April 1996, 435 articles were found: 90 covering the years 1966 to 1996 through the Medline database, and 345 covering years 1970 to 1996 through the Popline database (about 29 additional sources were in other languages). In order to make sure no study was missed that would include information on prevalence and medical complications, the reports of demographic and health surveys were obtained for countries where the practices are thought to be found, and the social science and anthropological literature was searched through Sociofile and the Harvard University AL database. The majority of the sources thus retrieved were general articles on women’s health that mentioned female genital surgeries as harmful practices; next were descriptions of policies, interventions, and activities related to the practice; general articles and historical reviews; reports of personal experiences or opinions; editorials and letters to journals; and discussions of attitudes toward the practices. The results of our searches of published medical and demographic sources are summarized in Table 1. It is quite telling that articles reporting on prevalence or health effects represent just over one-tenth of available sources, and this despite the fact that the two principal databases that we searched (Medline and Popline) cover medical and demographic publications that are usually empirical.

The literature on female genital surgeries includes numerous unpublished reports, which are often difficult to obtain, and there are problems with the quality of some of the reports, both published and unpublished. A number of the sources were found to suffer from shortcomings such as a lack of information about where the data came from and how they were collected, high percentages of non-response to questionnaires, inconsistencies in the calculations, and biased estimates of prevalence due to very small sample sizes or to biased sample selection. Despite their deficiencies, some of the published reports have come to acquire an aura of dependability through repeated and uncritical citations.

Defining Female Genital Surgeries

Comparisons of the prevalence of traditional female genital surgeries are limited by the absence of a uniform system of classification and the fact that different

TABLE 1

Summary of available sources on female genital surgeries, by type, retrieved through the *Medline* and *Popline* databases, April 1996.

Type of report	Number of sources
"Women's health" articles referring to these practices	140
Discussions of policies, reports of activities	70
General review articles, including historical	57
Editorials/letters	35
Reports of personal experiences	32
Health effects	30
Discussion of attitudes and behaviors toward practices	28
Prevalence	17
Case series/case studies	10
Other	16
Total	435

Note: Sources in languages other than English or French are excluded. The subtotals of articles are 90 for *Medline* and 345 for *Popline*. Reports of national surveys which were obtained independently are not included.

studies use different criteria in classifying the operations. The most commonly used terms are "pharaonic circumcision," or "infibulation,"⁴ which refer to complete excision of the clitoris and labia minora and the paring and stitching of the labia majora; "intermediate circumcision," which includes a lesser degree of excision of the labia, with milder or no infibulation; "clitoridectomy," which is the removal of the clitoris; and *sunna*, which refers to the removal of the prepuce of the clitoris. Regarding this latter category, it has been argued convincingly (Toubia 1994a, 1994b) that no operations, in fact, conform to this description because part of the clitoris is always removed. In practice, the different categories are not clearly separate, and each term may cover a broad range of operations. In addition, the techniques of practitioners vary in different regions and practices change over time.⁵ Thus any general classification is to a certain extent inaccurate. In this article, since it was not possible to reclassify the different types, the prevalence of the different surgeries is reported according to the terminology used in the respective articles.

Recently, the World Health Organization (WHO) (1996) has adopted a system that relies on precise examination in order to address some of these classification problems.⁶ This system represents a major advance over previous classifications and will be useful for studies that are carried out in medical settings. For large-scale surveys, however, the application of a system that necessitates a careful physical examination is likely to be limited both by considerations of cost and logistics, and by the willingness of respondents to be examined. It may therefore be useful to think about how such a medical classification can be translated, through verbal explanations and visual aids, in a manner that makes it possible to obtain consistent and reliable reports from respondents. This is especially important since most studies of prevalence rely on questionnaires, and there are indications that the accuracy of women's reports is variable.⁷

TABLE 2
Prevalence of female genital surgeries.

Nationally representative prevalence reports			
Country	Study	Sample Size	Prevalence (%)
Central African Republic	DHS 1994-95	5,884	43
Cote d'Ivoire	DHS 1994	8,099	43
Egypt	DHS 1995	14,779	97
	EFCS 1996	1,339	93
Mali	DHS 1995-96	9,704	94
Somalia	MOH 1983	3,016	100
Sudan	WFS 1979	3,114	96
	El Dareer 1982	3,210 respondents, 3,210 mothers	99
	DHS 1989-90	5,860	89
Prevalence reports from specific populations			
Country	Study	Sample Size	Prevalence (%)
Chad ^a	Leonard 1996	129 women	81
Egypt ^b	Gadallah et al. 1996	402 teachers	91
		380 postsecondary students	85
Kenya ^c	MYWO 1991	1,365 female children	90
Nigeria ^d	Olamijulo 1983	578 women	66
Nigeria ^e	Myers 1985	126 women	93
		660 daughters	75
Nigeria ^f	Odujinrin et al. 1989	181 women	43
Saudi Arabia ^g	De Silva 1989	1,704 Saudi women	0
		178 Egyptian women	< 1
		225 Sudanese women	74
Sierra Leone ^h	Koso-Thomas 1987	300 women	90
Somalia ⁱ	Hussein et al. 1982	562 women	100
Somalia ^j	Dirie and Linmark 1991	290 women	100
Somalia ^k	Gallo and Abdisamed 1985	2,092 women	99
		309 primary school girls	93
Somalia ^l	Gallo 1985	200 women	100
Somalia ^m	Ntiri 1993	859 women	100

^aSarh, southern Chad.

^bSchools in Assiut Governorate.

^cFour districts in Kenya.

^dWelsey Guild Hospital, Ilesha.

^eFive villages in Bendel State.

^fCollege of Medicine, University of Lagos.

^gKing Abdul Aziz Univeristy Teaching Hospital, Riyadh.

^hWestern Area Clinics.

ⁱQorioli, Wanle Wen, Hodon, Hawlbadag, and Karan districts.

^jSomali Women's Health Centres, Mogadishu.

^kUniversities, schools, clinics, military and refugee camps, Mogadishu and Agresia.

^lSomali National Univeristy and Mogadishu Nursing School.

^mLower Juba, southern Somalia.

The problems of correctly classifying female genital surgeries raise the more general question of the incomplete correspondence between biomedical categories and local terminology. To begin with, terminology poses a thorny issue in the local languages of the societies where the practices are found. In Arabic, for example, the generic term for circumcision (for males and females) is *khitan*, but the most commonly used term in Egypt and Sudan is *tahara/tahur*. These words, which are derived from a verb meaning “to purify,” refer to both the operation and the ceremony surrounding it, and evoke the idea of hygienic and religious purification. The less extensive operations are commonly called *sunna*, the same word that is used to refer to the normative traditions of the prophet Muhammad and the precedent they represent. This tends to associate the practice with religious values, despite the fact that it is not prescribed in the Muslim scriptures. The precise term for clitoridectomy (one that is used in a relatively limited way) is *khifad*, or “reduction,” which emphasizes the notion that the operation smoothes what may otherwise protrude. Clitoridectomy is, in fact, frequently connected to a popular belief that unless it is “reduced,” the clitoris will grow into a penis, and this underscores the symbolism of the operation as reshaping women’s anatomy to emphasize differences between the sexes. Recently, the notion of sexual mutilation, *al-tashwih al jinsi*, has been introduced into the Arabic discourse on female genital surgeries, but its use has not been generalized beyond the spheres of policy discussions. Thus, no expression is entirely satisfactory in accurately representing the practices without either condoning or condemning them.

When it comes to translating the terms into English the difficulties are numerous. The term *circumcision* is inaccurate because it implies that the surgery is equivalent to that which removes the prepuce of the penis, when it is in fact a good deal more extensive, removing as it does part or all of the clitoris, and in the case of infibulation, the totality of the external genitalia. The alternative expression, “female genital mutilation,” emphasizes the extent of the operation and maximizes dramatic impact, while at the same time making a value judgement about the intent of those who carry it out. The frequently used acronym *FGM* telescopes the words, inevitably losing some of their meaning, and at the same time it objectifies the practice as if it were a rare or complicated syndrome—not coincidentally, *FGM* is often paired with the verb *to eradicate*. The word *surgery* wrongly evokes aseptic hospital settings, especially if used in the singular, but has the merit of being descriptive without denouncing the practices a priori. It is in view of all these difficulties that this article adopts the expression “female genital surgeries,” using the plural to emphasize the variability in the practice. It seems, despite its imperfection, to offer a possible compromise (see also Lane and Rubinstein 1996). In addition, using the full expression rather than an acronym is a reminder that there are no easy equivalents and no simple ways to understand. In general, the linguistic difficulties underscore the fact that a great deal of ambiguity surrounds these practices, but available research has been limited in its ability to reveal the ways in which they are perceived, the valuations that are associated with them, or the variability and change that characterize them.

The Evidence on Prevalence

In preparing this summary of data on the prevalence of female genital surgeries 17 articles retrieved from library searches and eight survey reports were considered. Not all the articles are included in the summary because of various problems with data quality or methods,⁸ but the surveys do, despite their limitations, provide some sense of the prevalence of the practice in the countries where they were carried out. Also reviewed is *The Hosken Report* (Hosken 1982, 1993), a standard source of information for many writings on the subject. Perhaps due to the indefatigable advocacy and dissemination work of Hosken herself, her reports are extensively cited, and their prevalence figures and “global maps” frequently reproduced. These reports, however, are not included in the summary because of the poor quality of the evidence they use, and the methodological shortcomings of their estimations.⁹

In general, while the sheer volume of the literature on female genital surgeries might have suggested the existence of an ample base of knowledge to draw on, an examination of the sources reveals that the evidence is limited. The review by Toubia, *Female Genital Mutilation: A Call for Global Action* (1993), was one of the first efforts to systematically summarize the evidence, identifying those estimates of prevalence that are based on studies versus those that come from anecdotal evidence only. It is worth noting that as recently as 1993, the summary table that provided prevalence figures for 27 countries included only 11 sources based on field studies, the rest coming from anecdotal information. In the following three years, more reports came to be available, and in the 1996 edition of the booklet, eight out of 28 figures are said to be based on anecdotal evidence.

That the evidence has been until now long on advocacy and short on empirically based research reflects the prominence of the concerns of activists in guiding the research agenda, and the disproportional allocation of resources toward “intervention studies” aimed at abolishing the practice, rather than toward scientific inquiry. This situation has just begun to change, and in the last year there have been efforts to bring together activists and researchers, and to carry out studies that would provide valuable information to both groups.

Estimating the Prevalence of Female Genital Surgeries

Although the prevalence of female genital surgeries is usually reported by country, most of the figures are not really country estimates. The countries for which national-level data are available are the Sudan (two surveys), Egypt, Cote d’Ivoire (CDI), the Central African Republic (CAR), Eritrea, Mali, and Somalia. For other countries, estimates of prevalence come from studying samples of women that may or may not be nationally representative (see Table 2 for detailed references). The variability that is found in those studies that have covered different regions or ethnic groups underscores the need to exercise care in inferring prevalence figures from small groups to national populations. While many writings on the practice reproduce “global maps” of prevalence, which include estimates for a number of countries, it is only in the past year that we have the data necessary to make estimates for a few countries, and any previously published global figure on the number of women who have undergone female genital surgeries should be used with great caution.

To summarize the information in Table 2, we can say with some degree of certainty that female genital surgeries are performed on the near totality of women (90–100 percent) in Somalia, Egypt, Mali, Sudan, and Eritrea,¹⁰ and on just under half of women in CAR and CDI. Studies conducted on more limited samples indicate that a majority (75–90 percent) of women in parts of Chad, Nigeria, Kenya, and Sierra Leone undergo these operations. In addition, unconfirmed reports suggest that the majority of women in Djibouti, and substantial proportions of women (ranging from 10 to 80 percent) in parts of Burkina Faso, Cameroon, Ghana, Guinea, Nigeria, Senegal, and Tanzania, undergo these surgeries (Toubia 1996).

In considering the evidence that is available on the prevalence of female genital surgeries, it is useful to ponder the case of Egypt, a country where the issue has caused a good deal of controversy and generated numerous public debates. In 1996, when the first draft of this article was written, there were no surveys that would help in obtaining an estimate of prevalence for the country. All the available figures were either from anecdotal evidence or from studies carried out with samples of convenience.¹¹ The only systematic study of Egypt until 1996 was that by Assaad (1980, 1982), which sampled women at a family planning center in a low-socioeconomic area of Cairo, and provided some information about the background characteristics of respondents in terms of age, socioeconomic status, schooling, and religion. The small number of respondents (54), however, reduced the reliability of the estimate.

On the basis of existing studies, it was difficult to estimate, even roughly, the prevalence of female genital surgeries in the country, and very different figures were presented. The lack of information about the practice made it nearly impossible for those concerned, in both governmental and nongovernmental organizations, to assess the situation, and this explains in part why public statements, interventions, and debates between the different parties were somewhat incoherent (for a summary of policy changes in Egypt, see Rainbo 1995a, 1995b). Following the 1994 International Conference on Population and Development, the issue of “female genital mutilation” received a great deal of attention, both globally and in Egypt, and the circumstances surrounding public discourse about the issue changed as a result of a number of factors (which lend themselves to a fascinating analysis of the interaction of gender and health, as well as local and international politics—something that is not attempted here). It became possible to include a module on “female circumcision” in the national Demographic and Health Survey (DHS), subsequently carried out in 1995. The results, presented in late 1996, were stunning to most: 97 percent of Egyptian women reported themselves as having undergone genital surgeries (DHS 1995). The disbelief that met this finding was quickly dispelled by a rigorous, clinic-based study that validated women’s reports by comparing them with medical examinations (EFCS 1996).

The case of Egypt is indicative of a general change in the feasibility of carrying out research on a topic that some had believed to be unacceptable, a change that came about because of the efforts of those who are convinced that research is needed to guide policy decisions. Currently there are several countries for which it is (or shortly will be) possible to obtain national-level estimates of prevalence, opening the way to further research regarding the practice.¹² At the same time, however, figures derived from cross-sectional surveys are only “data points,” and give no clue as to the reasons for variability within the population, or to what is

happening to the practice over time. The high prevalence figures raise a number of questions, none of which can be answered except in a speculative manner: What accounts for differences in prevalence among countries and within a given country, among different regions or social groups? Is the high prevalence in some countries a recent development, and if so, is this somehow linked to an increase in manifestations of ethnic or religious affiliation?¹³ Perhaps even more important, what could be the implications of high prevalence for definitions of “normal” bodies, “healthy” sexuality, and the construction of gender?

Trends and Variations in the Prevalence of Female Genital Surgeries

Detecting changes in the prevalence of female genital surgeries is limited by the lack of studies that have followed the same population over time (with the exception of Sudan). It is, however, possible to infer trends by comparing the prevalence of the practices among different age groups. Such analyses can be carried out for the Sudan, Somalia, Egypt, CAR, and CDI (DHS 1989–90, 1994, 1994–95, 1995; El Dareer 1982; Gallo and Abdisamed 1985; WFS 1979). They suggest that in some countries there is a decline in prevalence and a tendency to move away from the severe forms of excision and infibulation toward the more limited operations. In Somalia, Gallo and Abdisamed report a trend toward less severe forms of genital surgeries, although they find no decrease in the overall percentages of women who undergo the operations. In Sudan, between the date of the World Fertility Survey (WFS) (1979) and that of the DHS (1989–90), overall prevalence appears to have declined slightly from 96 percent to 89 percent. The DHS also shows that fewer women aged 15–19 underwent infibulation than women aged 45–49 (74 percent compared with 89 percent); conversely, clitoridectomy increased from 9 percent among the oldest women to 22 percent among the youngest women. El Dareer’s data on respondents and their mothers show a similar decline in extensive operations and increases in both sunna and intermediate operations.¹⁴

In Egypt, the most frequent operations (60 percent) would be classified as intermediate, while 17 percent involve the clitoris only, and the rest are different combinations of operations (EFCS 1996). There is no clear trend in the type of operation across age groups, although the frequency of clitoridectomy among the 15- to 24-year-old age group seems to be higher than among older groups. There are indications that the potential for a rapid decline from the currently very high level of 97 percent may be at present limited. First, 82 percent of Egyptian women state that they support the continuation of the practice (DHS 1995); second, even women who did not themselves undergo a genital operation state that they had, or intended to have, genital operations performed on their daughters (EFCS 1996); third, the prevalence of the practice is not notably lower among groups that are generally thought to be less “traditional,” such as the urban or educated segments of the population (DHS 1995; EFCS 1996; Gadallah et al. 1996).

The average age at which genital surgeries are carried out, a particularly important determinant of observed prevalence in cross-sectional studies, is found to range from infancy to adulthood. Information about age is reported in very different ways in the various surveys: some give medians, others averages, and yet others give percentages within age categories. The available information (summarized in the appendix) shows that in most cases the operations are performed on prepubertal

girls, but the diversity in the practices indicates considerable variations in the circumstances, motivations, and consequences of the operations in the different groups.

Prevalence and Its Social Context

In an effort to discern patterns and trends in the prevalence of female genital surgeries, demographic and health studies frequently report associations between the frequencies of female genital surgeries and characteristics of the woman and her family. The greatest variations in the prevalence and types of genital surgeries appear to be associated with regional and ethnic differences. The Somali Family Health Survey, which sampled five cities, found considerable regional variability in the type of operation. In Nigeria, village of residence and tribal affiliation were found to be important determinants of the type of operation, the age at which it was carried out, and the individual who performed the surgery. In Sudan, the DHS survey reported a prevalence of 65 percent in the Darfur region and 99 percent in the Northern region, and the prevalence of clitoridectomy was much higher in the Darfur region (25 percent) than in the Northern region (2 percent sunna). In the CAR, the overall prevalence of 43 percent masks considerable variation among ethnic groups.¹⁵ Some of these ethnic variations are consistent with ethnographic studies that have linked genital operations to rites of passage and to the marking of membership in a social group such as a tribe or a secret society (Hayes 1975; Kennedy 1970; Myers et al. 1985).

In general, the different studies show that the effects of the various sociodemographic factors are not uniform. Thus, it is not possible to discern a general association between the prevalence of the practices and urbanization. Women living in urban areas in both Sudan and Somalia are more likely to undergo operations than their rural peers (DHS 1989–90; El Dareer 1982; Hussein et al. 1982), but in Egypt the prevalence is slightly lower in urban governorates than in the rest of the country.¹⁶ Regarding religious differences, it is now generally recognized that even though a number of the countries where female genital surgeries are found are predominantly Muslim, the practices are not prescribed by Islam and are, in fact, found among non-Muslim groups such as the Coptic Christians of Egypt, several Christian groups in Kenya, and the Falasha Jews of Ethiopia. In CDI, the prevalence is 80 percent among Muslims, 40 percent among those with no religion, and 15 percent among Protestants, and in Sudan the prevalence among Christian women is lower than among Muslim women (DHS 1989–90). In Kenya, by contrast, prevalence is highest among Catholics and Protestants compared with other religious groups (MYWO 1991). Thus, there is no unequivocal link between religion and prevalence.

An especially intriguing question has been the link between education and the prevalence of female genital surgeries. In the demographic literature, the inverse association between schooling and indicators of high fertility and ill health is one of the most robust statistical correlations. Despite some fascinating explorations of the factors that explain the role of education (LeVine et al. 1991), there is a tendency to assume a simplistic correlation between schooling and “modernization,” and to expect that schooling necessarily implies a rejection of all behaviors that are considered “traditional.” While some of the studies of female genital surgeries appear to support the hypothesis of a negative association between schooling and genital surgery, others provide data that are inconsistent with it.¹⁷ Thus, on the one

hand, studies in Sierra Leone, Sudan, and Nigeria (Dirie and Lindmark 1991; El Dareer 1982; Koso-Thomas 1987) find that education of the woman and her parents is inversely linked to the prevalence of genital surgery, and in both CAR and CDI, fewer women with secondary education undergo the operation (about one-fifth), compared with about half of women with no schooling (DHS 1994, 1994–95). In Egypt, on the other hand, there are only small differences by educational level—prevalence is 99 percent among women without schooling compared with 90 percent among those who studied beyond secondary school (DHS 1995),¹⁸ and in Sudan, the type of operation does not vary by education (WFS 1979).¹⁹

In fact, female genital surgeries are common even among the most educated groups of women in a number of countries (90 percent of women with secondary education or above in Mali, 23 percent in CAR, 23 percent in CDI, and 90 percent in Egypt (DHS 1994, 1994–95, 1995, 1995–96). These findings call into question the relevance of models that assume linear positive correlations among variables such as “modernization,” education, and higher “women’s status,” and expect to find invariant negative associations between these variables and the prevalence of “harmful practices.”

Gazing at the Other

That genital surgeries remain prevalent in a number of countries in the 1990s and are found among groups of educated women is more than an interesting piece of information. It undermines a key presumption: that the spread of formal education, mass media, and “modern” health care entails a convergence in worldviews toward biomedicine and the particular ways in which “universal” values are defined, either implicitly or explicitly, in international human rights documents. The prevalence of female genital surgeries poses a puzzle to the intellect and the imagination, for one must “try to imagine how it might be possible for a moral and rational person . . . to rationally link ritual initiation and the marking and alteration of the genitals to virtues such as civility, loyalty, respect, purity, and self-control” (Shweder 1996:1). This requires that one “suspend beliefs” in the face of what appear to be violations of values such as bodily integrity, health, and informed consent, in order to gain an insider’s view of those societies that practice such surgeries and obtain insights into the meaning attached to them by the individuals involved. As Boddy’s sensitive analyses (1982, 1989, 1996) demonstrate, it is possible for someone who does not condone female genital surgeries to provide such insights and to uncover the symbolic significance of these practices in their cultural context.

In many of the available sources, however—not just in the “advocacy” literature, but also in social science articles (see for example Gordon 1991; Lowenstein 1978; McGarrah 1991; Messing 1980)—a simplistic view of female genital surgeries prevails. Such considerable variations as have been documented here in the prevalence and circumstances surrounding these practices are simply ignored. The fact that they involve some cutting of women’s genital areas is taken as sufficient to conflate a heterogeneous set of practices into a single category, for which explanations are then sought at the global level. While some level of generalization is indispensable in theorizing about the practice, it is important to be mindful of the fact that simplifying views can be part of a process whereby the Other is reduced to a

physical attribute or social characteristic, thus justifying reactions of rejection and contempt.²⁰

The way in which the evidence is presented in many of the publications on female genital surgeries often contributes to this process of objectification. Following the style of medical textbooks, photographs and diagrams of disembodied body parts are presented to illustrate the consequences of the operations, with the result that pathological anatomy assumes, to borrow Foucault's terminology, a fundamental and unquestionable reality (1975:129), and the woman is reduced to the mutilated organs. These visual images elicit contradictory responses. The reader is both voyeur looking at sexual organs and clinician assessing damage. Revulsion at the evocation of the cutting and scraping of an exquisitely sensitive part of the body is somewhat allayed by the clean simplicity of the diagrams. The text is technical, enumerating as it does specific anatomic parts, surgical procedures, and the extensive list of short- and long-term complications, but at the same time emphasizing the unsterile environment, the crude instruments—razor blades, thorns—the untrained operators,²¹ the blood, the pain, and the screams. The mixture of detachment and horror that is thus evoked expresses a profound ambivalence toward an Other that is both human and object.

The “detachable cultural descriptions” that form the core of many discussions of female genital surgeries create a false sense of knowledge of the Other (Lane and Rubinstein 1996:37). The result is sensationalizing accounts that provide facile proof for widely held stereotypes. In the words of Toubia, herself an advocate against the practice, such reports supply “evidence of barbarism and vulgarity of underdeveloped countries . . . [and validate] the view of the primitiveness of Arab, Muslims and Africans all in one blow” (1988:101). Morsy has criticized some of the anthropological writings on the topic as neocolonial thinking—“the white man's burden medicalized”—and has argued that “female circumcision . . . even qualifies as a central concept in neo-orientalist harem scholarship” (1991:20–21). If female genital surgeries are to be understood, however, they have to be considered in relation to the general conditions of life for men and women in the societies where they are found. The “international chorus of criticism against female circumcision has served as a smoke screen focusing attention and resources on traditions while drawing attention away from disastrous situations of economic exploitation and neglect,” such as has been the case in Sudan (Gruenbaum 1996:456). In addition, the uncritical mobilization against female genital mutilation can also “create . . . further entrenchment among communities where FGM is prevalent . . . and put those fighting against the practice . . . in the awkward position of having to rationalize it in the face of provocations by oversimplified depictions in the West” (Seif al Dawla 1995). Thus, the evidence on female genital surgeries is not simply a collection of objective facts. It is part of ongoing political struggles about legitimacy and authority, at both the local and global levels.

“Harmful Traditional Practices”: The Health Complications of Female Genital Surgeries

In the various documents prepared by international organizations, female genital surgeries are referred to (euphemistically?) as harmful traditional practices (ICPD 1994; WHO/EMRO 1979, 1982). All the writings on the subject reaffirm the inventory of deleterious consequences, which range from psychological distress

to death. A recent compilation by the World Health Organization discusses three sets of complications: first, short-term complications, which include pain, injury to adjacent tissue, potentially fatal hemorrhage and shock, urinary retention, and acute and chronic infections; second, long-term complications, which include difficulty in passing urine, urinary tract infections, pelvic infections, infertility, keloid scars, abscesses and cysts, menstrual difficulties, dyspareunia and sexual dysfunctions, and problems in pregnancy and childbirth; and third, sexual, mental, and social consequences (WHO 1996). This summary list is shorter than many others in the literature, which attribute to female genital surgeries an overwhelming burden of death and suffering. It is rarely pointed out that the frequency and severity of complications are a function of the extent and circumstances of the operation, and it is not usually recognized that much of the information comes from studies of the Sudan, where most women are infibulated. The ill-health and death that these practices are thought to cause are difficult to reconcile with the reality of their persistence in so many societies,²² and raises the question of a possible discrepancy between our “knowledge” of their harmful effects and the behavior of millions of women and their families.

Obtaining irrefutable evidence on the complications of genital surgeries is limited by the logistic as well as the ethical issues that are involved in carrying out prospective epidemiological studies that would follow individuals who undergo the operations and observe the complications they experience over time. As a result, what we know comes from cross-sectional studies. Epidemiologists caution about the limitations of cross-sectional studies, which must simultaneously assess both the “exposure”—in this case, the operation—and the “outcome”—the suspected complication—but cannot always ascertain that the outcome in fact followed the exposure and was caused by it (Hennekens and Buring 1987). This particular methodological point may have little importance in the case of immediate complications such as hemorrhage or fever, which are obviously the result of the surgery, but it may have some relevance for other sorts of health problems such as urinary tract infections or infertility, which may develop over longer periods of time and can result from a number of other factors. It is therefore especially important that studies be able to establish a temporal sequence and also to obtain frequencies of the same complications in a comparison group that did not undergo the procedure.

There are unfortunately few case-control studies of the health consequences of female genital surgeries. Most of the data about complications come from surveys that ask women to report the complications they experienced, and these are limited by women’s ability to accurately determine, for example, whether their pain was due to an infection or whether their bleeding would qualify as a hemorrhage. In addition, answers to questionnaires, which may be administered years after both the operation and the complications have occurred, are subject to recall bias.²³ One has therefore to exercise caution in reviewing the available evidence.

The literature searches that were carried out for this article retrieved 30 studies that investigated the health effects of female genital surgeries. These comprised epidemiological studies, surveys, and case series reports. Some of the studies were excluded from the summary table because of problems of data or methods.²⁴ The studies that are included are of three types: first, those that are based on cases that happened to be seen at various hospitals, which give a range of possible complications

but from which rates of complications cannot be inferred; second, surveys based on women's reports, which can be used to estimate the frequency of complications in the population as a whole, but are limited in the accuracy of the conditions that they cover (Dirie and Lindmark 1992; El Dareer 1982; Gadallah et al. 1996; Leonard 1996); and third, epidemiological studies that use clinical examinations to determine complications and include a comparison group to test the significance of the findings, but are limited by the fact that they are drawn from hospitalized populations (Berardi et al. 1985; De Silva 1989; Shandall 1967).

It is important to note that the evidence on complications is very scarce—only eight of the studies systematically assessed complications—and the findings are not always consistent because of differences in definitions or measurements. Regarding mortality, most of the evidence comes from case studies, which do not give a true sense of the magnitude of the problem. There have been attempts to use demographic data to assess the extent to which genital surgeries are associated with mortality among girls, but it has been difficult to establish the magnitude and significance of excess mortality that may be due to these practices.²⁵ Table 3 presents a summary of the information on the complications of female genital surgeries. Since it was not possible to reclassify the various complications into a uniform system, the categories have been kept as reported in each individual study, but similar complications have been grouped, and some of the figures recalculated on the basis of information provided in each study.

The very detailed information presented in Table 3 can be summarized according to five major sets of complications: those related to bleeding, infections, urinary problems, reproductive problems including infertility and labor/delivery problems, and the adhesions and obstructions that result from surgery. From the available evidence we can say that clitoridectomy is mainly associated with an increased risk of bleeding and infection, whereas the complications of infibulation are both more dangerous and more frequent, and include serious bleeding, infections, urinary problems, and complications of labor, delivery, and infertility. The figures from those sources that report the occurrence of unspecified complications (such as “health problems” following surgery) at around 5 percent (DHS 1995) are consistent with the overall picture that comes out of the more detailed studies.²⁶

Unnecessary and Risky?

On the basis of the vast literature on the harmful effects of genital surgeries, one might have anticipated finding a wealth of studies that document considerable increases in mortality and morbidity. This review could find no incontrovertible evidence on mortality, and the rate of medical complications suggests that they are the exception rather than the rule. This should be cause to ponder, because it suggests a discrepancy between the forceful rhetoric, which depicts female genital surgeries as causing death and disease, and the large numbers of women who, voluntarily or under pressure, undergo these procedures. From the biomedical point of view, which powerfully shapes the evaluation we make of interventions on the body, no matter what the exact numbers are, any pain and suffering that accompany or follow operations that are not medically prescribed are too high to justify their persistence, and even the lowest rates of complications are unacceptable. But

TABLE 3
Complications of female genital surgeries: summary of major findings.

	Complication	Frequency (range)	Study ^a
Bleeding problems	Hemorrhage/shock	0 to 3%	1, 7
	Bleeding	7 to 13%	6, 8
	Septicemia	1%	7
Infections	Infection	2%	6
	Wound infection/fever	0 to 15%	1, 2, 7
	Vulvar abscess/swelling	0 to 5%	1, 2
Urinary problems	Urine retention	0 to 10%	1, 2, 6, 7
	Pain at micturition	20%	7
	Urinary infection	4 to 16%	1, 2
Scars and cysts	Keloid scars	0 to 4%	1, 2
	Inclusion/Bartholin's cysts	0 to 2%	1, 2
	Clitoridal cysts	12%	7
Reproductive problems	Tubal-factor infertility	OR = (0.9, 4.2) ^b	5
	Dyspareunia	0 to 2%	2
Labor and delivery problems	Prolonged labor (stage II)	14%	4 ^c
	Postpartum hemorrhage	5%	4
	Cesarean section	0 to 4%	3, 4
Other	Chronic pelvic infection	4 to 13%	1, 2
	Pain	19%	6
	Psychological complications	8%	6
	"Sexual complications"	22%	6

^a 1, Shandall 1967, hospital study ($n = 4,283$) in Sudan. 2, El Dareer 1982, survey ($n = 3,104$) in Sudan. 3, Beradi et al. 1985, hospital study ($n = 852$) in France. 4, De Silva 1989, hospital study ($n = 2,157$) in Saudi Arabia. 5, Inhorn and Buss 1993, hospital study ($n = 130$) in Egypt. 6, Gadallah et al. 1996, survey ($n = 782$) in Egypt. 7, Dirie and Lindmark 1992, survey ($n = 290$) in Somalia. 8, Leonard 1996, survey ($n = 91$) in Chad.

^b The increase in risk of infertility, expressed as the odds ratio for more, compared to less extensive genital surgeries.

^c The study also found that perineal tears and fetal stress were higher among controls than cases. In the case of tears, this appears to be a reflection of hospital practices rather than of the risk of these complications.

this assessment is not universally shared, and we must try to explain why, without dismissing Others as ignorant, irrational, or cruel.

Part of the answer can be sought in the fact that the most severe complications are actually rare events that few individuals encounter directly themselves, or indirectly through the experience of relatives or acquaintances. They are thus able to disregard the risks that they represent. Moreover, while we would consider female genital surgeries as both unnecessary and hazardous—unnecessary because they

have no health benefit, and hazardous because the risks they are associated with are considered high—these two convictions, in fact, constitute fundamental points of disagreement. In the societies where they are practiced, female genital surgeries may be considered necessary for reasons that have nothing to do with health but that are thought to be crucial to the definition of a beautiful feminine body, the marriageability of daughters, the balance of sexual desire between the sexes, or the sense of value and identity that comes from following the traditions of the group (Boddy 1982, 1989, 1996; Gruenbaum 1996; Hayes 1975; Kennedy 1970; Van der Kwaak 1992).

In that sense, these operations may be compared to some of the “unnecessary” surgeries that men and women undergo in other societies, a topic on which much has been written. The parallels have been made, and readily come to mind: what about the circumcision of male infants? and what about breast implants, nose jobs, and other plastic surgeries? Are female genital surgeries different from the former because of what they excise—an organ whose sole purpose is sexual enjoyment, compared to a somewhat less indispensable piece of skin? Do they differ from the latter because of who makes the decision—the person herself versus her parents? And if so, then is the harm less in the exact consequences of the operations than in the fact that they are carried out without the true consent of the individual? It becomes clear from these questions that unequivocal answers cannot emerge from applying objective criteria, and that scientific assessments are inseparable from subjective judgments and ethical principles.

In addition, female genital surgeries would not be perceived to be especially risky by the population if it is, in fact, true that most women go through them without severe complications, and because the extent to which discomfort is expected and thought to be unavoidable varies greatly among different groups. The actuarial notion of health risk that is familiar to most individuals in societies with high literacy and numeracy, as well as extensive health systems and insurance coverage, is not as likely to be found in societies where schooling is limited, life expectancy is lower, health systems are rudimentary, and pain must often be confronted. Hence, modifying the evaluation that individuals make of the risks of genital surgeries entails not merely education about the possible health damage, but also changes in a whole set of factors that shape the demography, economy, and health care of the population.

Female Genital Surgeries and Sexuality

Our knowledge of the consequences of female genital surgeries on sexuality is derived primarily from two sorts of information: the effect of the operations on the anatomy of the genital organs, and case reports. All female genital surgeries remove part or all of the clitoris, and are therefore believed to impair or destroy the ability to derive pleasure from sex; in addition, infibulations reduce the vulvar opening, sometimes to a pinhole, making it necessary to cut or tear tissue before sexual penetration can take place, and as a result sex is thought to cause pain rather than pleasure. The second type of information consists of the case reports of women who have undergone genital surgeries and who have spoken about their sexual experience. Although it is not possible to establish to what extent these case reports are representative of a majority of women,²⁷ and despite the fact that most

of them concern women who have undergone the more extensive operations, the details of these stories are so intense that they lead to a generalization about all genital surgeries: that women can feel only sexual indifference at best, and excruciating pain at worst. In fact, studies that systematically investigate the sexual feelings of women and men in societies where genital surgeries are found are rare,²⁸ and the scant information that is available calls into question the assertion that female genital surgeries are fundamentally antithetical to women's sexuality and incompatible with sexual enjoyment.

Although none of these studies are able to address the difficulties inherent in all sexuality research, it is useful to mention their findings. One study (Lightfoot-Klein 1989) is based on interviews with Sudanese men and women, and while its methods are questionable, its findings are quite provocative.²⁹ According to the author, women at first professed a total absence of sexual desire, and gave "institutional answers" reflecting passivity and lack of interest. It was only after she learned to use the local idiom of the "smoke ceremony"³⁰ that Lightfoot-Klein began to obtain what she regarded as more accurate answers. Of her sample, 90 percent of women reported that they experienced orgasm regularly or at some point; variations in the frequency of sexual enjoyment among women and at different stages in the life of the same woman are attributed to the relations women had with their husbands and to the circumstances of their lives. Other researchers who specifically asked women about sexual functioning also found that substantial proportions reported that they enjoy sex: 94 percent in Assaad's sample of Egyptian women (Assaad 1980) and 27 percent in El Dareer's sample of Sudanese women (El Dareer 1982). Boddy's informants were divided, some regarding sex as an obligation, others enjoying it (1996). Khatlab (1996) says that the majority of the married Egyptian village women she spoke to enjoyed sexual relations and expressed a sense of entitlement to them. Gruenbaum (1996) found that the effect of the operations on sexual functioning was not uniform: while for some of her informants sex was unsatisfying except insofar as they made their husbands happy, others gave her vivid descriptions of orgasm.

Several hypotheses have been put forward to explain variations in sexual enjoyment among women who have undergone genital surgeries. The first is that the operations vary a great deal in the extent of tissue that is removed (most Sudanese women are infibulated, while most Egyptian women undergo less extensive operations). Moreover, it is possible that even in cases of infibulation the clitoris is not excised. For example, Gruenbaum notes that "many midwives, fearing hemorrhage, leave much of the clitoral (erectile) tissue intact beneath the infibulation when they perform the surgeries. This probably explains how some women have orgasmic response despite the scarring" (1996:462). It is also possible that the remaining erogenous zones of the body are enhanced to compensate for the reduction or absence of the clitoris, that women's endurance for pain and their lack of awareness of other options make it easier for them to accept their situation, or that women's "emotionally secure childhoods, within strongly cohesive families and strong bonding in marriage," provide balance to their lives (Lightfoot-Klein 1989:391). Further studies could examine some of these hypotheses, but the substantial differences in the extent of genital surgeries, and in the contextual factors that mediate their effect on sexuality, are sufficient to challenge some key assumptions, namely,

that the capacity for sexual enjoyment is dependent on an intact clitoris, and that orgasm is the principal measure of “healthy” sexuality.

More importantly perhaps, the existence of counterfactual evidence regarding the possibility of sexual enjoyment among women who have undergone genital surgeries raises a key question: could there be fundamental differences among cultures regarding notions of the link between genital organs and sexual enjoyment? Some clues to answering this question can be found by reflecting on the circumstances in which the issue of female genital mutilation emerged in the West. It is no coincidence that the outrage at these practices intensified just at the time when the importance of the clitoris to women’s sexual enjoyment had come to be generally acknowledged. In this context, the clitoris had also come to represent “a metaphor for women’s power of self-determination” (Lane and Rubinstein 1996:35), and its amputation a “violation of female essence, emblematic of all women’s suffering under global patriarchy” (Boddy 1996:16–17). Western models of gender and anatomy are said to be “binary,” that is, characterized by either presence or absence (of a penis/of agency), and the clitoris (as presence) comes to be a symbol of emancipation. Other systems of gender are constructed from a continuum of differences, and the operations performed on both males and females are designed to remove all traces of anatomical ambiguity—the “masculine” clitoris and the “feminine” foreskin. Thus, anatomical sex is made to conform to gender, contrary to the Western tendency to map gender values onto anatomical sex (Boddy 1996:18).³¹

The possibility that female genital surgeries are not designed to obliterate sexual enjoyment is evident in some of the beliefs and practices surrounding them. In Egypt, for example, it has been argued that reducing the clitoris helps balance the progression of partners during intercourse and makes for more harmonious sexual relations (Workshop on Reproductive Health 1994). At the time of the operation in rural Egypt, the female relatives of the girl caution the gypsy woman against completely excising the clitoris, identified as the locus of sexual enjoyment, by telling her “Go easy on her, sister” (Morsy 1993:84). Among Nubians, the chants that are sung in the course of the ceremony celebrate womanhood and the beginning of sexual activity: some of the verses include “Come you are now a woman,” “You became a bride,” “Bring her the groom now,” “Bring her a penis, she is ready for intercourse” (Kennedy 1970:180). Such ethnographic evidence suggests a very different conception of the link between an intact clitoris and orgasm, and the questions it raises can be unsettling because they imply that what is presented as an indisputable physiological reality may itself be socially constructed.³²

Thus, the assertion that female genital surgeries unequivocally function to destroy sexual pleasure appears to be scientifically inaccurate, as well as superficial from a symbolic point of view. The diversity of the practices and their consequences on sexuality would be better understood by examining the physical reality of the operations in relation to the meaning they have for individuals and the interpretations they are given at the societal level. It is important to acknowledge that in both those societies that follow these practices and those that strongly condemn them, ideas about sexuality—women’s and men’s—often include contradictory elements, and the vast differences in this area are a function of the powerful role that culture plays in the determination of pleasure, pain, and the expression of sexuality.

Conclusion

This review of the evidence on female genital surgeries has shown that while information regarding the prevalence of these practices is becoming increasingly available, research on their consequences for reproductive health and sexuality is clearly insufficient. The powerful discourse that depicts female genital surgeries as inevitably causing death and serious ill health is not sufficiently supported by the evidence, which includes no incontrovertible data on mortality, and suggests that severe complications are relatively infrequent. While the deficiency of the research base may have some practical explanations—it is more difficult to design studies to systematically measure the complications that result from genital surgeries than it is to add a few questions to large demographic surveys in order to estimate prevalence—other reasons must be invoked to explain why the harmful effects of female genital surgeries are so often assumed to be indisputably true that they are rarely posed as questions to be investigated. While this article does not directly analyze these reasons, it does suggest that they have to do with political, economic, and ethical factors at both the local and international levels.

The scarcity of evidence regarding the complications of female genital surgeries is probably due to the lack of concerted efforts to investigate harmful effects rather than to the relative safety of these operations, and further studies may be able to document the health impact of the operations with greater certainty. But further research should not be justified solely on the grounds that it will provide activists with more convincing arguments against the continuation of the practices. (In fact, an overly simplistic “health argument” approach can backfire, and as Toubia has cautioned, it can be used to suggest limited operations as safer alternatives, or to advocate that physicians rather than traditional specialists be entrusted to perform them.³³) As should be clear from this article, it is precisely the role of research to show that these practices are unlikely to be challenged by a simple argument or to be changed by a single intervention. And while it may not be possible to fully understand the complex forces that account for the persistence or decline of these practices, research is needed to uncover at least some of these factors, and push the boundaries of the “known” relative to the “unknown,” thus making it possible for people who are affected by the practices to make informed choices.

Not all of the questions that emerge from an examination of the evidence on female genital surgeries, however, can be fully addressed within a purely empirical “scientific” framework. Two such questions concern the symbolic valuations of these practices in relation to the assessment of their perceived risks and benefits, and the social construction of the links between the anatomy and physiology of the genital organs on the one hand, and sexuality and gender on the other. Some of the differences in these two areas between the cultures that practice female genital surgeries and those that are horrified by these customs may be so fundamental that they belong in part to the realm of the “unknowable.” But comparative studies that would link objective measures with subjective judgments about the practices, at both the individual and the societal level, may be able to shed light on some of these differences and suggest potential points of convergence, thus moving the limits of the “known” relative to the “unknowable.”

NOTES

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1. The expression “the known, the unknown, and the unknowable,” from the 1996–97 theme of the *Anthropology Newsletter*, seems especially relevant, since this paper reviews the extent to which the evidence supports prevalent “knowledge” regarding the issue of “female genital surgeries” and deals with a practice that sorely tests the limits of our ability to understand (Shweder 1996).

2. Interestingly, the advocacy position has been more common among anthropologists without firsthand knowledge of the practice; those with fieldwork experience have tended to hold more moderate opinions.

3. Currently there are numerous organizations and groups working to eliminate female genital surgeries. These include the Commission of Human Rights of the United Nations Economic and Social Council; the Working Group on Slavery of the Subcommittee on the Prevention of Discrimination and the Working Group on Traditional Practices, both at the United Nations; the World Health Organization Division of Family Health; the InterAfrican Committee on Harmful Traditional Practices; and several nongovernmental organizations in Europe and the United States, and on the African continent. The issue of female genital mutilation is the major focus of the work of Rainbo, a New York-based organization established in 1993 to deal with the links between health and human rights, with particular attention to women’s bodily integrity.

4. Both terms are said to reflect the fact that the practice is ancient: “pharaonic,” tracing it to ancient Egypt, and “infibulation,” tracing it to the “fibula,” which was a kind of pin worn on Roman togas said to have been used by jealous husbands to close their wives’ genitals when they had to be absent (Taba 1979).

5. Boddy (1996) reports that an intermediate form of the operation was introduced in Sudan in the 1920s–30s by British midwives, and the data of El Dareer (1982, 1983) appear to confirm that a different form of the operation began to be practiced within the lifetime of some of her respondents. Gruenbaum (1991) also mentions the case of a devout Sudanese nurse midwife who devised an operation that left the clitoris intact, because of her belief that Islam meant for women to enjoy sexual relations.

6. The system defines four types of surgeries: Type I consists of the removal of part, or the whole, of the clitoris; Type II covers a broader range of surgeries, involving the removal of the clitoris and the excision of the labia minora; Type III consists of the excision of all external genitals and the stitching of the labia majora, thus covering the urethra and most of the vaginal orifice, and leaving a small opening for the release of urine and menstrual blood; Type IV includes a range of rare forms of surgeries and manipulations performed on female external genitals (Toubia 1994b; WHO 1996).

7. For example, a study of Nigeria found different prevalences for the same sample depending on whether women’s responses (56 percent) or medical examinations (43 percent) were used, but a recent study of Egypt found a 94 percent agreement between women’s reports and clinical examinations (EFCS 1996; Odujinrin et al. 1989).

8. Some of the articles fell short of the minimal standards we had established because they did not report how the data were collected, had a very small sample size (on the basis of statistical guidelines regarding appropriate sample sizes for estimating prevalence 100 was selected as a cutoff point), had a low response rate, or because the use of indirect reporting obfuscated the denominator and made it impossible to calculate prevalence (Badri 1982; Megafu 1983; Nabia 1991; Odebiyi 1985; Sami 1986).

9. Hosken frequently does not cite her sources, nor does she indicate whether they come from anecdotal evidence, primary case reports, or population-based studies; she mentions responses to letters written to governmental and nongovernmental organizations, "field reports," and "hospitals which are the most reliable sources of information" (Hosken 1982:33). In addition, there are numerous methodological shortcomings in her extrapolations from samples to national populations (including simplistic assumptions about the age and sex distribution of the populations), and her calculations of the global estimates of female genital mutilation are flawed as a result.

10. A national Demographic and Health Survey carried out in Eritrea indicates that most women are subjected to female genital surgeries. At the time this article was written, however, the report had not yet been officially released and could not be cited.

11. These include Saadawi's series of interviews with "160 women between the ages of 20–29, of whom 75 percent were from the middle class" (n.d.); Baasher's "70 females between the ages of 18 and 55 interviewed in Alexandria" in 1977; or the 135 nurses interviewed by Smith in Alexandria (n.d.), of whom 63 percent did not know about the possible types of the operation, and 32 percent of whom refused to answer some of the questions (reported in Assaad 1982). It is clear that the usefulness of such data is greatly limited by sampling bias, by the quality of the interviewing, and by the percentage of nonresponse.

12. Most of the national-level data have resulted from the efforts of individuals in several organizations (including Rainbo, the Agency for International Development, and the Demographic and Health Surveys, as well as the governments of particular countries) to add a special module on female genital surgeries to national surveys.

13. Gruenbaum's study (1991) suggests that the increase she observed in one region of Sudan reflected ethnic rivalries between two groups and the fact that female genital surgeries are used to define one group as "purer" than the other. In Egypt, it has been argued that prevalence has increased as a result of Muslim fundamentalism, but one should not assume that all such groups are in favor of these operations. In fact, some radical fundamentalist groups who are known to support women's veiling are vehemently opposed to the practice of female genital surgeries. Similarly, Gruenbaum (1991) mentions that some of her informants in the Sudan were opposed to the practice because of their religious convictions.

14. El Dareer's data show that the oldest group of respondents to report intermediate surgeries were aged 35–44, indicating that intermediate operations began 30 years before the survey. Intermediate operations account for 10 percent among these women, compared with 16 percent among women aged less than 24 years (El Dareer 1982).

15. In Hargeisa, Somalia, 78 percent were intermediate and 21 percent pharaonic, while Mogadishu had 21 percent intermediate and 70 percent pharaonic, and Burco had 99 percent pharaonic (MOH 1983). In Nigeria, the prevalence ranged from 52 percent among the Yoruba to 77 percent among the Edo (Myers et al. 1985), and 100 percent of the Efik operations involved only clitoridectomy (Odujinrin 1989). In CAR, prevalence ranges from 83.9 percent among the Banda to 71 percent among the Mandjia and 3 percent for the Yakoma-Sango and the Mboum (DHS 1994–95).

16. This does not apply to frontier governorates, where the prevalence is substantially lower (75 percent) than the rest of the country (over 90 percent) (DHS 1995).

17. There is the additional problem of separating the effect of a respondent's education from that of her mother, which is believed to be the determining factor, since decisions regarding genital surgeries are likely to be made by the girl's female relatives.

18. Stronger educational differentials are found in the EFCS study (1996), but the smaller sample size (especially in the categories with higher education) limits the representativeness of the finding.

19. In both Egypt and Sudan, however, schooling appears to change attitudes toward genital surgeries. Fewer of the more educated respondents—57 percent in Egypt and 44 percent

in Sudan—supported continuation of the practice compared with those with no formal education—98 percent in Egypt and 82 percent in Sudan (DHS 1989–90, 1995).

20. The notion of female genital mutilation “forges a single decontextualized object out of diverse practices and meaning and imbues it with a specific moral and ideological significance” (Boddy 1996:9).

21. The latter include traditional practitioners, untrained midwives, barbers, and church elders; mentioned less frequently is the fact that medical professionals do in fact account for considerable percentages of the operations in several studies: 48 percent in Somalia (Dirie and Lindmark 1991; Hussein et al. 1982) and 21 percent in Nigeria (Olamijulo et al. 1983).

22. See the discussion of female genital surgeries as *maladaptive practices in Gruenbaum* (1996).

23. For example, in the study by El Dareer (1982) the recall period ranged from several years to six decades, depending on the age of the respondent.

24. The reasons for exclusion include: (1) sampling and/or methods were not described; (2) the sample was too small to make inferences; (3) the study reported on a single case without information about the population from which it came; (4) the study could not ascertain whether women had undergone genital operations; (5) information about complications was vague; or (6) different sample sizes were reported in the study, making results difficult to interpret (Arbesman et al. 1993; Assaad 1982; Asuen 1977; Aziz 1980; Baker et al. 1993; Egwuatu and Agugua 1981; Iregbulem 1980; Ismail 1982; Onuigbo 1976).

25. Mohamud (1991), for example, uses indirect methods to estimate mortality for girls in Somalia. His finding that girls aged 5–15 suffer excess mortality is consistent with medical evidence regarding possible severe complications, but there are a number of problems with the study, including the quality of the information about ages and whether girls have undergone genital surgery, and the difficulty of separating the effect of genital surgery on mortality from other discriminatory practices against girls that may also put them at greater risk of death. In addition, his finding that the increase in neonatal mortality is greater for intermediate rather than for sunna operations is incompatible with the notion that the more severe surgeries will be associated with more severe complications.

26. A survey in Assiout, Egypt, found higher percentages of complications, but these referred to general and possibly transitory consequences of the surgeries: 19 percent of women reported “pain,” 8 percent reported “psychological complications,” while 22 percent of married women reported “sexual complications” (Gadallah et al. 1996).

27. It is, in fact, likely that many case reports tell the stories of women who are somewhat unusual, in terms of schooling or contacts with women’s organizations. In addition, case reports usually emphasize the abnormal and tell us little about normative concepts of sexuality in a particular society.

28. This is partly a function of the difficulty of carrying out sexuality research in general, especially given ongoing theoretical debates regarding the definition of sexuality and how it ought to be studied (Vance 1991).

29. The author says she interviewed more than 100 Sudanese men and 300 women, and had detailed discussions about sex with 97 women and 34 men. The study suffers from some fundamental problems of design (including the fact that the interviews were carried out via interpreters) but the author reports that, to make sure that what women reported was actually an orgasm, she asked them to provide descriptions of what they felt.

30. For this “ceremony,” the woman squats naked over the embers, wrapped in a tentlike robe, so that her skin absorbs the volatile oils of burning spices, sandalwood, frankincense, and myrrh. By doing this, a woman signals her desire and receptivity for sexual intercourse (Lightfoot-Klein 1989:382–383).

31. This is consistent with Hayes's argument that "in Sudan, virgins are made, not born" (1975:622), and with Boddy's argument that male and female genital operations are culturally, if not anatomically, the same.

32. In a provocative essay on sexuality, Vance asks, "Is female orgasm constructed? what are the conditions for it? is it necessary? . . . or is the construction of female orgasm open-ended with no imperative for it to happen? can sexual pleasure be constructed totally without orgasm for women? . . . can women in an entire culture experience sexual pleasure though they rarely or never experience orgasm?" (1989:25–26).

33. This is, in fact, what happened in Egypt following the 1994 International Conference on Population and Development, when the Minister of Health issued a decree that the operations were to be carried out by physicians in government facilities in order to reduce their health risks. The measure elicited a great deal of public outcry and debate and was never enforced. In the words of an Egyptian activist, "No action will entrench FGM more than legitimating it through the medical profession. If doctors and hospitals start to perform it rather than condemn it, we will have no hope of ever eradicating the practice" (Aziza Kamil, cited in Toubia 1993:16).

REFERENCES CITED

Arbesman, Marian, Lucinda Kahler, and Germaine Buck

1993 Assessment of the Impact of Female Circumcision on the Gynecological, Genitourinary and Obstetrical Health Problems of Women from Somalia: Literature Review and Case Series. *Women and Health* 20(3):27–42.

Assaad, Marie

1980 Female Circumcision in Egypt: Social Implications, Current Research, and Prospects for Change. *Studies in Family Planning* 11(1):3–16.

1982 Female Circumcision in Egypt: Current Research and Social Implications. *In Traditional Practices Affecting the Health of Women and Children*. Technical Publication No. 2, Volume 2. Alexandria, Egypt: World Health Organization, Regional Office for the Eastern Mediterranean.

Asuen, M. I.

1977 Maternal Septicaemia and Death after Circumcision. *Tropical Doctor* 7:177–178.

Aziz, F. A.

1980 Gynecologic and Obstetric Complications of Female Circumcision. *International Journal of Gynaecology and Obstetrics* 17:560–563.

Badri, G.

1982 The Views of Sudanese Gynecologists, Midwives, and College Students on Female Circumcision. *In Traditional Practices Affecting the Health of Women and Children*. Technical Publication No. 2, Volume 2. Alexandria, Egypt: World Health Organization, Regional Office for the Eastern Mediterranean.

Baker, Cathy, George Gilson, Maggie Vill, and Luis Curet

1993 Female Circumcision: Obstetric Issues. *American Journal of Obstetrics and Gynecology* 169:1616–1618.

Berardi, J., J. Teillet, J. Godard, V. Laloux, P. Allane, and M. H. Franjou

1985 Consequences obstetricales de l'excision feminine. *Journal de Gynecologie, Obstetrique et Biologie de la Reproduction* 14(6):743–746.

Boddy, Janice

1982 Womb as Oasis: The Symbolic Context of Pharaonic Circumcision in Rural Northern Sudan. *American Ethnologist* 9:682–698.

1989 *Wombs and Alien Spirits: Women, Men and the Zar Cult in Northern Sudan*. Madison: University of Wisconsin Press.

- 1996 *Violence Embodied? Female Circumcision, Gender Politics, and Cultural Aesthetics*. Paper prepared for the Interdisciplinary Panel on Violence against Women, H. F. Guggenheim Foundation, New York, February.
- Carr, Dara
1997 *Female Genital Cutting: Findings from the DHS Surveys Program*. Calverton, MD: Macro International.
- De Silva, S.
1989 *Obstetric Sequelae of Female Circumcision*. *European Journal of Obstetrics and Gynecology and Reproductive Biology* 32:233–240.
- DHS (Demographic and Health Surveys)
1989–90 *Sudan, 1989–90*. Calverton, MD: Macro International.
1994 *République de Cote d'Ivoire, 1994*. Calverton, MD: Macro International.
1994–95 *République Centrafricaine, 1994–95*. Calverton, MD: Macro International.
1995 *Egypt, 1995*. Calverton, MD: Macro International.
1995–96 *Mali, 1995–96*. Calverton, MD: Macro International.
- Dirie, Mahdi, and Gunilla Lindmark
1991 *Female Circumcision in Somalia and Women's Motives*. *Acta Obstetrica et Gynecologica Scandinavica* 70:581–585.
1992 *The Risk of Medical Complications after Female Circumcision*. *East African Medical Journal* 69(9):479–482.
- EFCS (Egyptian Fertility Care Society)
1996 *Clinic-Based Investigation of the Typology and Self-Reporting of FGM in Egypt, Final Report*. Paper presented at a Rainbo workshop on female genital mutilation, November, Cairo.
- Egwuatu, V. E., and N. E. N. Agugua
1981 *Complications of Female Circumcision in Nigerian Igbos*. *British Journal of Obstetrics and Gynaecology* 88:1090–1093.
- El Dareer, Asma
1982 *Woman, Why Do You Weep?* London: Zed Press.
1983 *Epidemiology of Female Circumcision in the Sudan*. *Tropical Doctor* 13(1):41–45.
- Foucault, Michel
1975 *The Birth of the Clinic*. New York: Vintage Books.
- Gadallah, A., A. H. Zarzour, O. M. El-Gibaly, M. A. Abdel Aty, and I. M. Monazea
1996 *Knowledge, Attitude, and Practice of Women Teachers on Female Circumcision in Assiut Governorate, Final Report*. Paper presented at a Rainbo workshop on female genital mutilation, November, Cairo.
- Gallo, Pia Grassivaro
1985 *Views of Future Health Workers in Somalia on Female Circumcision*. *Medical Anthropology Quarterly* (o.s.) 17(3):71–73.
- Gallo, Pia Grassivaro, and Marian Abdisamed
1985 *Female Circumcision in Somalia: Anthropological Traits*. *Anthropologische Anzeiger* 43(4):311–326.
- Gordon, Daniel
1991 *Female Circumcision and Genital Operations in Egypt and the Sudan: A Dilemma for Medical Anthropology*. *Medical Anthropology Quarterly* 5:3–13.
- Gruenbaum, Ellen
1991 *The Islamic Movement, Development, and Health Education: Recent Changes in the Health of Rural Women in Central Sudan*. *Social Science and Medicine* 33(6):637–645.
1996 *The Cultural Debate over Female Circumcision: The Sudanese Are Arguing This One Out for Themselves*. *Medical Anthropology Quarterly* 10:455–475.

Hayes, Rose

1975 Female Genital Mutilation, Fertility Control, Women's Roles, and the Patrilineage in Modern Sudan: A Functional Analysis. *American Ethnologist* 2:617–633.

Hennekens, C., and J. Buring

1987 *Epidemiology in Medicine*. Boston: Little, Brown.

Hosken, Fran

1982 *The Hosken Report: Genital and Sexual Mutilation of Females*. 3rd edition. Lexington, MA: Women's International Network News.

1993 *The Hosken Report: Genital and Sexual Mutilation of Females*. 4th edition. Lexington, MA: Women's International Network News.

Hussein, F., K. Shah, S. Nasir, K. Igal, A. Mukhtar, A. Abbas, and P. Shah

1982 Community Study on Female Circumcision in Somalia. *In Traditional Practices Affecting the Health of Women and Children*. Technical Publication No. 2, Volume 2. Alexandria, Egypt: World Health Organization, Regional Office for the Eastern Mediterranean.

International Conference on Population and Development (ICPD)

1994 Conference Document. Cairo: International Conference on Population and Development.

Inhorn, Maria, and Kimberly Buss

1993 Infertility, Infection, and Iatrogenesis in Egypt: The Anthropological Epidemiology of Blocked Tubes. *Medical Anthropology* 15:217–244.

Iregbulem, Lawrence

1980 Post-Circumcision Vulval Adhesions in Nigerians. *British Journal of Plastic Surgery* 33:83–86.

Ismail, E.

1982 Female Circumcision—Physical and Mental Complications. *In Traditional Practices Affecting the Health of Women and Children*. Technical Publication No. 2, Volume 2. Alexandria, Egypt: World Health Organization, Regional Office for the Eastern Mediterranean.

Kennedy, John

1970 Circumcision and Excision in Egyptian Nubia. *Man* 5(2):1975–1991.

Khattab, Hind

1996 Women's Perceptions of Sexuality in Rural Giza. *Monographs in Reproductive Health*, 1. Cairo: The Population Council.

Konner, Melvin

1990 Prisoners of Ritual: An Odyssey into Female Genital Circumcision in Africa. *The New York Times Book Review*, April 15: 5.

Koso-Thomas, O.

1987 *The Circumcision of Women: A Strategy for Eradication*. London: Zed Books.

Lane, Sandra, and Robert Rubinstein

1996 Judging the Other: Responding to Traditional Female Genital Surgeries. *Hastings Center Report* 26(3):31–40.

Leonard, Lori

1996 Female Circumcision in Southern Chad: Origins, Meaning and Current Practice. *Social Science and Medicine* 43(2):255–263.

LeVine, Robert, S. LeVine, A. Richman, M. Tapia Uribe, C. Sunderland Correa, and P.

Miller

1991 Women's Schooling and Child Care in the Demographic Transition. *Population and Development Review* 17(3):459–496.

Lightfoot-Klein, Hanny

1989 The Sexual and Marital Adjustment of Genitally Circumcised and Infibulated Females in the Sudan. *Journal of Sex Research* 26(3):375–392.

Lowenstein, L.

1978 Attitudes and Attitude Differences to Female Genital Mutilation in the Sudan: Is There a Change on the Horizon? *Social Science and Medicine* 12:417–421.

MYWO (Maendeleo Ya Wanawake Organization) and PATH (Program for Appropriate Technology in Health)

1991 Study of Three Harmful Traditional Practices in Kenya. Kenya: Maendeleo Ya Wanawake Organization and Program for Appropriate Technology in Health.

McGarrahan, Peggy

1991 The Violence in Female Circumcision. *Medical Anthropology Quarterly* 5:269–270.

Megafu, U.

1983 Female Ritual Circumcision in Africa: An Investigation of the Presumed Benefit among Ibos of Nigeria. *East African Medical Journal* 60(11):793–800.

Messing, Simon

1980 The Problem of “Operations Based on Custom” in Applied Anthropology: The Challenge of the Hosken Report of Genital and Sexual Mutilations of Females. *Human Organization* 39(3):295–297.

MOH (Ministry of Health), Somalia, and Westinghouse Public Applied System

1983 Fertility and Family Planning in Urban Somalia, 1983. Mogadishu: Ministry of Health.

Mohamud, O.

1991 Female Circumcision and Child Mortality in Urban Somalia. *Genus* 47(3–4):203–223.

Morsy, Soheir

1991 Safeguarding Women’s Bodies: The White Man’s Burden Medicalized. *Medical Anthropology Quarterly* 5:19–21.

1993 *Gender, Sickness, and Healing in Rural Egypt*. Boulder, CO: Westview Press.

Myers, Robert, Francisca Omorodion, Anthony Isenalumhe, and Gregory Akenzua

1985 Circumcision: Its Nature and Practice among Some Ethnic Groups in Southern Nigeria. *Social Science and Medicine* 21(5):581–588.

Nabia, A.

1991 L’excision feminine: Rapport d’enquête. Njamena, Chad: Ministere du Planet de la Cooperation and UNICEF Tchad.

Ntiri, D.

1993 Circumcision and Health among Rural Women of Southern Somalia as Part of a Family Life Survey. *Health Care for Women International* 14:215–226.

Odebiyi, A.

1985 Child-Rearing Practices among Nursing Mothers in Ile-Ife, Nigeria. *Child: Care, Health and Development* 11:325–335.

Odujinrin, O., C. Akitoye, and M. Oyediran

1989 A Study on Female Circumcision in Nigeria. *West African Journal of Medicine* 8(3):183–192.

Olamijulo, Samuel, Kabba Joiner, and Gabriel Oyedeji

1983 Female Child Circumcision in Ilesha, Nigeria. *Clinical Pediatrics* 22(8):580–581.

Onuigbo, Wilson

1976 Vulval Epidermoid Cysts in the Igbos of Nigeria. *Archives of Dermatology* 112:1405–1406.

Rainbo

1995a *Female Genital Mutilation in Egypt*. New York: Rainbo.

1995b *Intersections between Health and Human Rights: The Case of Female Genital Mutilation*. New York: Rainbo.

Sami, I.

1986 Female Circumcision with Special Reference to the Sudan. *Annals of Tropical Paediatrics* 6:99–115.

Seif Al Dawla, Aida

1995 **The Political and Legal Struggle over FGM in Egypt Before and After the International Conference on Population and Development.** Paper presented at Rainbo workshop, **Female Genital Mutilation: The Intersection of Health and Human Rights.** New York, November 6.

Shandall, Ahmed

1967 **Circumcision and Infibulation in Females.** *Sudan Medical Journal* 5(4):178–212.

Shweder, Richard

1996 **The View from Manywheres.** *Anthropology Newsletter* 37(9):1.

Taba, A.

1979 **Female Circumcision.** *World Health*, May: 8–12.

Toubia, Nahid

1988 **Women and Health in Sudan.** *In Women of the Arab World: The Coming Challenge.* N. Toubia, ed. Pp. 98–109. London: Zed Press.

1993 **Female Genital Mutilation: A Call for Global Action.** New York: Ink.

1994a **Female Genital Mutilation and the Responsibility of Reproductive Health Professionals.** *International Journal of Gynecology and Obstetrics* 46:127–135.

1994b **Female Circumcision as a Public Health Issue.** *New England Journal of Medicine* 331(11):712–716.

1996 **Female Genital Mutilation: A Call for Global Action (in Arabic).** Cairo: Task Force on Female Genital Mutilation.

Vance, Carole

1989 **Social Construction Theory: Problems in the History of Sexuality.** *In Homosexuality, Which Homosexuality?* International Conference on Gay and Lesbian Studies. D. Altman et al., eds. Pp. 13–34. London: GMP Publishers.

1991 **Anthropology Rediscovered Sexuality: A Theoretical Comment.** *Social Science and Medicine* 33(8):875–884.

Van der Kwaak, Anke

1992 **Female Circumcision and Gender Identity: A Questionable Alliance?** *Social Science and Medicine* 35(6):777–787.

Workshop on Reproductive Health

1994 **Presentation by Sheikh Abdel Ghaffar Mansour.** Cairo: Egyptian NGO Steering Committee for the International Conference on Population and Development.

WFS (World Fertility Survey)

1979 **Republic of Sudan, 1979.** Voorburg, The Netherlands: International Statistical Institute.

WHO (World Health Organization)

1996 **Female Genital Mutilation: Report of a WHO Technical Working Group.** Geneva: World Health Organization.

WHO/EMRO (World Health Organization/Eastern Mediterranean Regional Office)

1979 **Seminar on Traditional Practices Affecting the Health of Women and Children.** Khartoum: World Health Organization, Regional Office for the Eastern Mediterranean.

1982 **Traditional Practices Affecting the Health of Women and Children.** Technical Publication No. 2, Volume 2. Alexandria, Egypt: World Health Organization, Regional Office for the Eastern Mediterranean.

APPENDIX

Following is a summary of the available information on the age at which genital surgeries are performed.

Central African Republic	53% between 9–12 years.	DHS 1994
Cote d'Ivoire	Median age: 9.7.	DHS 1994
Egypt	Median age: 9.8 for both respondents and daughters. 85% of operations between 7–12 years.	DHS 1995
Somalia	Mean age: 6.9 Average age: 7.9 for infibulation, 5.7 for excision. Mean age: 7.6 for nursing, 6.8 for medical students. Mean age: 8.3 for urban, 6.3 for rural girls. Before age 5: no surgeries in urban; 13.5% in rural sample.	Ntiri 1993 Gallo & Abdisamed 1985 Gallo 1985 Hussein et al. 1982 Hussein et al. 1982
Sudan	64.3% of operations between ages 5–8 years. More than 90% operated on by age 11.	WFS 1979 El Dareer 1982
Chad	Average age: 12.3	Leonard 1996
Nigeria	89% circumcised by three months. Bini and Esan tribes: infancy; Etsako, Ukwuani, Ijaw: teens; variations within ethnic group; children of respondents earlier than parents. Ibo and Yoruba: infancy, Efik: puberty. Yoruba: 91% as babies and 9% in puberty; Edo 35.8% as babies, 39.1% at puberty, and 26.1% as adults; Ibo as babies.	Olamijulo 1983 Myers 1985 Odujinrin et al. 1989

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