

THE MEDICALIZATION OF FEMALE GENITAL MUTILATION/CUTTING: WHAT DO THE DATA REVEAL?

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The Evidence to End FGM/C: Research to Help Girls and Women Thrive generates evidence to inform and influence investments, policies, and programs for ending female genital mutilation/cutting in different contexts. Evidence to End FGM/C is led by the Population Council, Nairobi in partnership with the Africa Coordinating Centre for the Abandonment of Female Genital Mutilation/Cutting (ACCAF), Kenya; the Gender and Reproductive Health & Rights Resource Center (GRACE), Sudan; the Global Research and Advocacy Group (GRAG), Senegal; Population Council, Nigeria; Population Council, Egypt; Population Council, Ethiopia; MannionDaniels, Ltd. (MD); Population Reference Bureau (PRB); University of California, San Diego (Dr. Gerry Mackie); and University of Washington, Seattle (Prof. Bettina Shell-Duncan).



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CONTENTS

Acknowledgments	iii
Abstract.....	iv
Introduction	1
Medicalization of FGM/C: Practices and Debates	2
What is “medicalization” of FGM/C?	2
Less Severe Forms of Cutting.....	3
Medicalization Policies	4
Reframing the Debates: From Health to Human Rights	5
Methods.....	6
Data Sources	6
Results.....	8
Prevalence of FGM/C and Trends in Countries with Data on Medicalization	8
Practitioner of FGM/C.....	10
Association between Medicalization and Prevalence of FGM/C.....	14
Medicalization and Support for the Continuation of FGM/C	18
Type of FGM/C.....	19
Summary and Conclusions.....	22
References Cited.....	25
Appendix: Data Sources on FGM/C and Medicalization.....	29

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ABSTRACT

Medicalization is defined by the World Health Organization as “situation in which FGM is practiced by any category of health-care provider, whether in a public or private clinic, at home, or elsewhere” (WHO 2010: 2). Despite the emergence of international consensus that female genital mutilation/cutting (FGM/C) is a violation of human rights, a focus on medicalization remains salient because of concerns that in certain countries FGM/C continues to be performed by healthcare professionals, and may be impeding progress toward abandonment of FGM/C. In this paper we draw on nationally-representative survey data from 25 countries to address the following questions:

- What are the rates of decline in prevalence and support for FGM/C in countries with data on medicalization of FGM/C?
- What are the major patterns and trends in medicalization?
- What is the association between medicalization and prevalence of FGM/C?
- What is the association between medicalization and rates of abandonment of FGM/C?
- Does the availability of medicalized cutting options result in continued support for the practice of FGM/C?

Drawing on self-reported data on medicalization from women aged 15-49 in 25 countries, we find that 74% of women who have undergone FGM/C report having been cut by a traditional practitioner. 26% of women with FGM/C – totaling nearly 15 million women – report having been cut by a medical professional. Of these, 51% live in Egypt alone, and another 34% live in Sudan. Medicalization rates, defined as the percent of FGM/C performed by a medical professional (doctor, nurse, midwife, or other health care worker), are highest in 5 countries: Egypt (38%), Sudan (67%), Guinea (15%), Kenya (15%) and Nigeria (13%). Comparing data on mothers age 15- 49 and their daughters, rates of medicalization are rising substantially in all of these countries except Nigeria. Comparing data across all 25 countries, there is not a significant correlation between rates of medicalization and rates of decline in prevalence of FGM/C. There is also not a significant correlation between rates of medicalization and support for continuation of FGM/C. Although data are limited, it appears that medicalization is associated with a trend toward less severe forms of cutting (toward nicking). Further research is needed to control for possible confounding factors and explore a possible causal association. Limitations of the current data and directions for future research are also discussed.

INTRODUCTION

Female genital mutilation/cutting (FGM/C) are procedures involving the partial or total removal of the external female genitalia for non-therapeutic reasons. These range from nicking the tissue surrounding the clitoris to the complete removal of the external genitalia. WHO (2008) has classified different types of FGM/C as follows: Type I (clitoridectomy) involves removal of all or part of the clitoris and/or the prepuce; Type II (excision) involves removal of the clitoris and the labia minora with or without removal of the labia majora; Type III (infibulation) involves removal of all of the external genitalia, and appositioning the labia to form a seal, leaving a pinhole opening for the passage of urine and blood; and Type IV, all unclassified forms, including nicking, pricking and piercing the skin covering or near the clitoris, but no removal of tissue (see WHO 2008 for sub-categories, variations, and more details on the WHO typology). The practice has been documented throughout countries extending from West to East Africa, through the Horn of Africa, and in parts of the Middle East, Southeast Asia and Africa. FGM/C has been documented by survey research among girls under the age of 12 living in Indonesia, and has been reported to exist in countries where prevalence data are lacking, including Columbia, Iran, India, Malaysia, Oman, Pakistan, and in migrant communities throughout the world originating from countries where FGM/C is practiced (Shell-Duncan et al., 2016). It has been estimated that worldwide more than 200 million girls and women have undergone some form of FGM/C (UNICEF, 2016), and approximately 3.6 million girls are cut each year (UNICEF, 2014).

Over the last four decades, global efforts to end female genital mutilation/cutting have intensified through combined efforts of international and non-governmental organizations, governments, religious and civil society groups. The international commitment to ending FGM/C was reaffirmed in 2012 when the UN General Assembly adopted a resolution calling for global efforts to end the practice. A wide range of intervention strategies have been implemented with the goal of accelerating abandonment of FGM/C. Initially, the most common approaches used information and education campaigns that sought to educate people about the adverse health outcomes associated with FGM/C. These approaches rested on the assumption that as people became increasingly aware of negative health risks, they would weigh this against the perceived positive aspects, and become motivated to abandon the practice (Muteshi and Sass, 2005). Increasingly health education campaigns were complemented by other strategies, such as retraining traditional circumcisers and compensating them for “handing over the knife” (Gosselin, 2000; WHO, 1999), along with more comprehensive strategies such as intergenerational dialogue programs that facilitate conversation and critical assessment of FGM/C among elder and younger members of practicing communities (UNICEF, 2010), holistic community education program that culminate in public declarations to abandon FGM/C (UNICEF, 2010), and alternative rites of passage programs that encourage upholding, and in some cases reviving, traditional ceremonial aspects of girls’ initiation, but eliminating the cutting aspect of the ritual (Chege et al., 2001; Hernlund, 2000; for a fuller discussion of key intervention approaches for preventing FGM/C, see Johansen et al., 2013). Most, to some extent, include education on adverse medical risks.

An early comparative overview of data on practitioners of FGM/C from Demographic and Health Survey data drew attention to the “problem” that in certain settings FGM was being increasingly performed by medical personnel (Carr, 1997). It also characterized declines in FGM/C prevalence as “limited and slow,” with the practice still supported by large segments of the population (Carr, 1997; see also WHO, 1999). This led to speculation that health approaches *motivated medicalization* more so than abandonment. Conjectures that medicalization may have counteracted efforts to end FGM/C and impeded progress toward abandonment have been

repeated for decades. This claim has rarely been empirically investigated (Shell-Duncan, 2008; UNICEF, 2005; Christoffersen-Deb, 2005; WHO, 2010). At the same time, the perception that there is unacceptably slow progress toward abandonment of FGM/C has continued to be used to justify proposals calling for medicalization (e.g. Arora and Jacobs, 2016), and in some instances been posited to be a positive step toward abandonment of FGM/C (Gele et al., 2013). A 2001 critical review of the literature on medicalization concluded that there is not adequate reliable data to empirically evaluate these contested claims (Shell-Duncan, 2001; see also WHO 2008, 2010 and Johansen, 2011). In the 15 years since that review was published, this situation has changed, as a rich body of new data on medicalization has been generated.

What do the data reveal?

In this paper we examine the data on medicalization from nationally representative survey data from 25 countries, and examine patterns, trends and associations with changes in prevalence and support for FGM/C. We begin by defining the concepts referred to by the term “medicalization,” updating current debates, and highlighting key questions that can be empirically investigated.

MEDICALIZATION OF FGM/C: PRACTICES AND DEBATES

What is “medicalization” of FGM/C?

Medicalization is defined by the World Health Organization as “situation in which FGM is practiced by any category of health-care provider, whether in a public or private clinic, at home, or elsewhere” (WHO 2010: 2). This definition was first adopted by the United Nations in a joint policy statement issued in 1997 (U.N. Joint Statement, 1997), and reaffirmed in an updated U.N. inter-agency statement from 2008 (WHO, 2008). In the literature, however, the term “medicalization” has been used more broadly, ranging from provisioning medical supplies for the surgical procedure to obtaining operations in clinics or hospitals by trained nurses or physicians (Shell-Duncan, 2001). One form of medicalization involves replacing traditional cutting instruments with sterile, disposable razors (Shell-Duncan, 2000; Shell-Duncan et al., 2010). Years ago in countries such as Kenya, Sudan and Somalia traditional circumcisers or traditional birth attendants were at times provided with surgical supplies such as anesthesia and prophylactic antibiotics (Gruenbaum, 1982; van der Kwaak, 1992; Shell-Duncan et al., 2000). Quite controversially, in several settings training programs for midwives or traditional birth attendants were expanded to include training on performing FGM/C, (UN, 1991 on Djibouti; van der Kwaak, 1991 and Valderrama, 2002 on Somalia). Greatest concern, however, has been voiced over the trend of replacing traditional circumcisers with medical professionals. This sparked debate as to whether FGM could, under certain circumstances, be carried out safely or whether to condemn all forms of the practice, “no matter how minimal” (Toubia and Izett 1998: 33). Additionally, evidence that FGM/C was being performed in healthcare facilities (sometimes referred to as “clinicalization”) led to bans on the use of government-run clinics and hospitals in some countries (Obiora, 1997; Njeru and PATH, 1996).

Less Severe Forms of Cutting

Concerns over health risks associated with FGM/C have also led to advocacy for less severe forms of cutting. Orubuloye and colleagues (2000) reported that health professionals who performed FGM/C in Nigeria promoted nicking in lieu of clitoridectomy in order to reduce the risk of complications and drawing attention to their practice; the same phenomenon was reported in southwest Kenya (Njue and Askew, 2004). Proposals for restricting more severe forms of cutting but allowing less severe forms have had a long history, and have been implemented with varying degrees of success. Legal restrictions on the severity of cutting imposed by colonial governments in Sudan and Kenya were largely unsuccessful (Gruenbaum, 1982; Carr, 1997; Thomas, 2000). Similarly, in the 1970's, a recommendation by the Somali Women's Democratic Organization to replace infibulation with pricking performed in hospitals was not followed due to lack of "prior awareness" (Gele et al., 2013: 3). However, decades later, proposals for "sunna circumcision" preceded by health education, training for TBAs or other practitioners, and endorsements by religious leaders have garnered significant public support (Gele et al., 2013; Kaphle, 2000; Valderrama, 2002). The term "sunna" (Arabic for "tradition" or "duty") does not, however, appear to refer to a single or consistent form of FGM/C. It has been variably reported to describe nicking, piercing or scratching the skin covering the clitoris (Obiora, 1997: 370; Njue and Askew, 2004; WHO 2008), partial clitoridectomy (Shell-Duncan and Hernlund, 2000), or in other cases is appears to refer to all non-infibulating forms of FGM/C (Shell-Duncan, 2001; Gele et al., 2013). Less extensive forms of cutting have at times been endorsed by religious leaders and garnered support from some NGOs and medical practitioners who favor strategies that offer a "compromise for those not wishing to end FGM" (Awaken, December 2002: 6; see also Valderrama, 2000). These propositions have, however, been met with resolute opposition by international and professional organizations.

In parallel, during the 1990's, as European and North American countries received an increased number of immigrants from countries where FGM/C is practiced, some medical practitioners in host countries were faced with the novel challenge of treating patients who had undergone FGM/C, as well as the quandary of how to respond to parents' requests for "circumcision" not only for their newborn sons, but also daughters (Obiora, 1997; Coleman, 1998). It was in this context that some health care institutions began to draft proposals for offering FGM/C, which involved offering nicking (a form of Type IV FGM) as an intended substitute for Type III (Obiora, 1997; Coleman, 1998). Debates centered on whether this might represent a "compromise," balancing respect for the cultural values of parents and their families, while minimizing the potential medical risks for girls who might undergo this procedure. These proposals have been vehemently opposed by many activists. As these controversies played out in the media, they served to further ignite public outrage about the practice, and fuel heightened political action around the world (Coleman, 1998; Hernlund and Shell-Duncan, 2007; Shell-Duncan, 2001; 2008). Additionally, a voluminous body of literature interrogated numerous aspects of debates surrounding the medicalization of FGM/C, including the quality of the evidence on harmfulness of different forms of the practice (Obermeyer, 1999; 2003), the effects of medicalization on intervention efforts (WHO, 2010), and the bioethics of provision of FGM/C by health care professionals (Serour, 2013).

Medicalization Policies

Egypt appears to be unique in terms of being the only African country to have formulated official policy to regulate, rather than ban, the medicalization of FGM/C. In an effort to improve the safety of what was viewed as an “inevitable practice” (Anonymous, 1996), the Ministry of Health issued a 1994 decree that lifted a 35-year ban on performing FGM/C in public hospitals. The Ministry asked state hospitals to set aside one day a week for performing FGM/C “by trained physicians under hygienic conditions” (Refaat, 2009: 1385). This policy came under intense scrutiny that same year when the news network CNN aired a documentary showing the circumcision of a 9-year-old girl from Cairo (Refaat, 2009). The film spurred an outcry from activists that led to the reversal of this policy, and as a result the policy was reversed to banning FGM/C in both state and private hospitals. A “loophole”, however, allowed for “medically necessary circumcision” (Modreck and Liu, 2013: 922), and was not closed until 2007, in the wake of public outrage over the FGM-related death of an 11-year-old girl. An ensuing Ministerial Decree prohibits doctors, nursing staff or others from performing FGM/C, whether in governmental or nongovernmental hospitals (UNFPA, n.d.). This decree was bolstered by the adoption of a 2008 law making FGM a crime punishable by imprisonment or fine. A hospital-based study revealed that, despite the law, health care personnel have continued to perform FGM/C (Rasheed et al., 2011). The first criminal case, brought against a doctor accused of being responsible for the FGM-related death of a 12-year-old girl, aimed to discourage Egyptian doctors from conducting “the endemic practice” (Kingsley, 2014). The trial ended in an acquittal of the accused doctor, and media reports speculated that the publicity surrounding the trial may have served to drive the medicalized practice underground (Kingsley, 2014). In January 2015, the first successful FGM-related prosecution took place, convicting a doctor of involuntary manslaughter for his role in the death of a 13 year old girl and sentencing him to 2 years and 3 months in prison (Michaelson, 2016). In 2016 the law banning medical professionals from performing FGM in either state or privately-run clinics was amended to raise the maximum sentence from 3 to 15 years in prison (Sirgany, 2016).

Egypt is not alone in specifically criminalizing medicalization of FGM/C. Currently 27 countries in Africa and the Middle East where FGM/C is practiced have banned it by law or constitutional decree (Shell-Duncan et al., 2016). In at least 6 of these countries (Burkina Faso, Cote d’Ivoire, Egypt, Eritrea, Mauritania, and Senegal), the criminal code specifies an elevated penalty (prison and/or fine) specifically for medical personnel who perform FGM/C, in addition to the possibility of suspending their licenses (Shell-Duncan et al., 2013).

Staunch opposition to medicalization is also now supported by professional medical organizations around the world, including the International Federation of Gynecology and Obstetrics (FIGO), which passed a resolution in 1994 at its General Assembly opposing the performance of FGM/C under any circumstances, in health establishments or by health professionals (Budiharsana, 2004, cited in WHO, 2008). A dissenting view was expressed by the American Association of Pediatrics (AAP), who issued a revised policy statement in 2010 that proposed allowing pediatricians to perform the “nicking” form of FGM/C (AAP, 2010). The sharp criticism led to the subsequent retraction of this statement. A media report that the Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) was considering a proposal similar to that of the AAP sparked a public outcry that led to the organization issuing a press release stating unequivocally that they do not support medicalization (Mathews, 2011; Askew et al., 2016). Thus, policy around the globe is now aligned with opposition to all forms of medicalization.

Reframing the Debates: From Health to Human Rights

Efforts to reduce the medical risks by improving the sanitary conditions under which FGM/C is performed, improving the competency of practitioners, or by reducing the severity of cutting has been described as “temporary transitional measures” for those not yet ready to abandon FGM/C, also known as harm reduction (Obiora, 1997; Valderrama, 2002; Shell-Duncan, 2001; Gele et al., 2013). The growing consensus surrounding the definition of FGM/C as a human rights violation, however, underscored that concerns are not limited to the degree of harm or minimizing health risks, but rather extend to broader rights claims surrounding child protection, consent, bodily integrity, and discrimination against women. The belief that campaign messages on medical risks may encouraged people to turn to trained medical practitioners rather than abandon the practice contributed to critiques and reappraisal of the health framework for opposing FGM/C. As medicalization debates unfolded through the 1990s, there were fundamental revisions in the framework for opposing FGM/C, shifting from a focus on health to human rights (Boyle, 2002; Shell-Duncan, 2008). This shift was linked to pivotal historical changes in the global movement to fight violence against women (VAW) through international law, and the classification of FGM/C as a form of VAW, alongside rape and sexual abuse in war, trafficking of women, domestic violence (Boyle, 2002; Coomaraswamy, 2004; Shell-Duncan, 2008). Alliance with the violence against women movement has thrown into sharp relief the broader implications of the human rights framework (Shell-Duncan, 2008). Drawing analogies between FGM and domestic violence, one commentator at Radhika Coomaraswamy’s 2004 keynote address on human rights remarked, “How can medicalization of FGM ever be thought of as a solution?...What degree of wife battery would ever be acceptable?” Nonetheless, advocacy for less severe cutting as a “compromise” solution was continued in a recent essay by bioethicists Arora and Jacobs (2014), who argued for acceptance of “*de minimis*” procedures that do not carry long-term medical risks. In a responding commentary, Askew and colleagues (2016:620) noted that “the expectation that a ‘minor’ genital cut will prevent more severe forms of FGM at a later stage is an unproven assumption.”

International consensus has emerged regarding the definition of FGM/C as a human rights violation. African nations have become signatories on regional human rights instruments that explicitly condemn FGM/C (such as the Protocol on the Rights of Women in Africa, also known as the “Maputo Protocol,” ratified in 2005), and the language of human rights became increasingly codified in national laws and constitutions, and as an (Boyle, 2002; Shell-Duncan, 2008; Shell-Duncan, 2013). On December 20, 2012, the United Nations General Assembly adopted a Resolution on Intensifying Global Efforts for the Elimination of Female Genital Mutilation [A/RC.3/67/L.21/Rev.1]. Its adoption reflects universal agreement that FGM/C constitutes a violation of human rights, and that all countries should take action to end the practice “committed within or outside a medical institution, and to take all necessary measures including enacting and enforcing legislation to prohibit FGM and protect women and girls from this form of violence, and to end impunity” [A/RC.3/67/L.21/Rev.1].

Despite international consensus that FGM/C is a violation of human rights, debates have continued regarding how this framework will inform the formulation and implementation of policy or intervention strategies. Nonetheless, a focus on medicalization remains salient because of concerns that in certain countries FGM/C continues to be performed by healthcare professionals, and may be legitimating the practice and impeding progress toward abandonment (Doucet et al., 2017).

The key questions we ask are:

- What are the rates of decline in prevalence and support for FGM/C in countries with data on medicalization of FGM/C?
- What are the major patterns and trends in medicalization?
- What is the association between medicalization and prevalence of FGM/C?
- What is the association between medicalization and rates of abandonment of FGM/C?
- Does the availability of medicalized cutting options resulted in continued support for the practice of FGM/C?
- Is there an association between medicalization and shifts in the severity of cutting?

METHODS

Data Sources

This study analyzes data on FGM/C available from nationally-representative data from 25 countries in Africa and the Middle East that include information on medicalization. In the past 20 years, reliable data have been generated through several major household surveys: the Demographic and Health Surveys (DHS), the Multiple Indicator Cluster Surveys (MICS) and the Sudan Household Health Surveys (SHHS). A module on FGM/C was first developed for the DHS survey administered in northern Sudan in 1989-90. Since that time, the FGM/C module has been refined and standardized for both DHS and MICS surveys, and it has now been administered in 29 countries in Africa and the Middle East. Nearly all surveys ask women of reproductive age (15-49 years) about their own FGM/C status, as well as the type of cutting performed and by whom. Women with at least one living daughter are also often asked the same questions about at least one daughter, usually the most recently cut daughter or, in the most recent surveys, all daughters. The survey also asks women their opinion as to whether the practice of FGM/C should continue. For this paper, we analyze data from 26 countries with complete data on the type of FGM/C performed on women and daughters and/or the person who performed FGM/C. Details of the data sources are summarized in Appendix 1.

Data were drawn from the final reports prepared by UNICEF on MICS data or ORC Macro on DHS data. Additional information on the Sudan 2014 DHS was obtained from a detailed UNICEF (2016) report prepared by Dr. Macoumba Thiam, and data on the practitioner of FGM/C among daughters in Sudan were provided by UNICEF Sudan. Some figures on practitioners of FGM/C or type of FGM/C were not available in final reports, but were obtained from the UNICEF 2013 report; these were Benin DHS 2006, Cameroon DHS 2004, Chad MICS 2010, Guinea-Bissau MICS 2010, Iraq MICS 2010, and Togo MICS 2010. The data reported throughout are the weighted results. Data analyzed here were double-checked for accuracy.

Self-reported data were drawn from a random sample of women between ages 15 and 49; in the Egypt 2014 MICS survey responses were elicited only from ever-married women. Data on daughters were reported by their mothers. Data on support for continuation of FGM/C was obtained from women who positively replied to a question about having ever heard of FGM/C. Questions on practitioners of FGM/C on women or on their daughters vary in form across different surveys, and survey reports compile categories in different forms. In many instances data on health personnel are divided as: doctor and nurse/midwife/other health worker. Data on traditional circumcisers are often categorized as traditional practitioner and other traditional

practitioner. Some surveys have unique categories. For instance, the Egypt 2013 survey asks about the three categories (daya, barber, and ghagarie) that are found only in the Egypt FGC module. Data from The Gambia and Yemen are reported in only two categories: health personnel and traditional practitioners. To allow comparisons across countries, we group practitioners into the two larger categories: traditional practitioners and health personnel. Data on practitioners among daughters were collected in Cameroon (DHS 2004), but figures were based on fewer than 25 unweighted cases and were suppressed from the analysis. Data on type of practitioner of FGM/C was not included in the DHS 2013-14 report for Togo, but figures from the 2010 MICS survey are available for women, but not daughters. The report on the 2015-16 Tanzania DHS/MICS survey does not report information on practitioners of FGM/C. Therefore, we draw on information on practitioners from the 2010 Tanzania DHS.

Data on type of FGM/C are routinely obtained regarding women (self-report) and daughters (reported by their mothers). Most surveys record type in 4 categories: 1) cut, no flesh removed (corresponding to nicking, a type IV FGM), 2) cut, flesh removed (corresponding roughly to Type I and Type II FGM), 3) sewn closed (indicating Type III FGM, or infibulation) and 4) don't know/unsure. In French language reports the term fermé (closed) is used, rather than "sewn," and captures a form of Type III FGM known as sealing, where adhesion of the labia minora or majora occurs without suturing. The Nigeria 2013 DHS survey module inquired about three forms of cutting that are categorized as "unclassified" or Type IV FGM in the WHO 2008 typology (angurya, which is scraping the tissue surrounding the genital orifice, gishiri cuts, and use of corrosive substances). Three surveys differentiate only infibulating from non-infibulating forms of FGM (Benin DHS 2011-12, Cote d'Ivoire DHS 2011-12, and Kenya DHS 2014). In Yemen (DHS 2013) "sewn closed" was not offered as a response choice on type for either women or daughters, presumably because it is not practiced in this country. Data on type of FGM/C were obtained from women in Sudan (DHS 2014), but not reported, and were not collected regarding daughters in Sudan. Data on type of FGM/C among daughters were obtained in Central African Republic and Togo, but figures were based on fewer than 25 unweighted cases and were suppressed from the analysis. No data on type were collected on either women or daughters in Egypt (2014 DHS), The Gambia (2013 DHS) and Iraq (MICS 2011), nor among daughters in Burkina Faso (MICS/DHS 2010), Niger (DHS 2013) and Sierra Leone (DHS 2013). In Mali 26% reported that they don't know or are unsure of their FGM/C type, reportedly because they were cut at very early ages (73% of women in Mali reported being cut before age 5). In Nigeria 26% of women reported that they don't know or are unsure of their FGM/C type. It is not clear if these were women who then reported to have undergone an unclassified form of FGM/C.

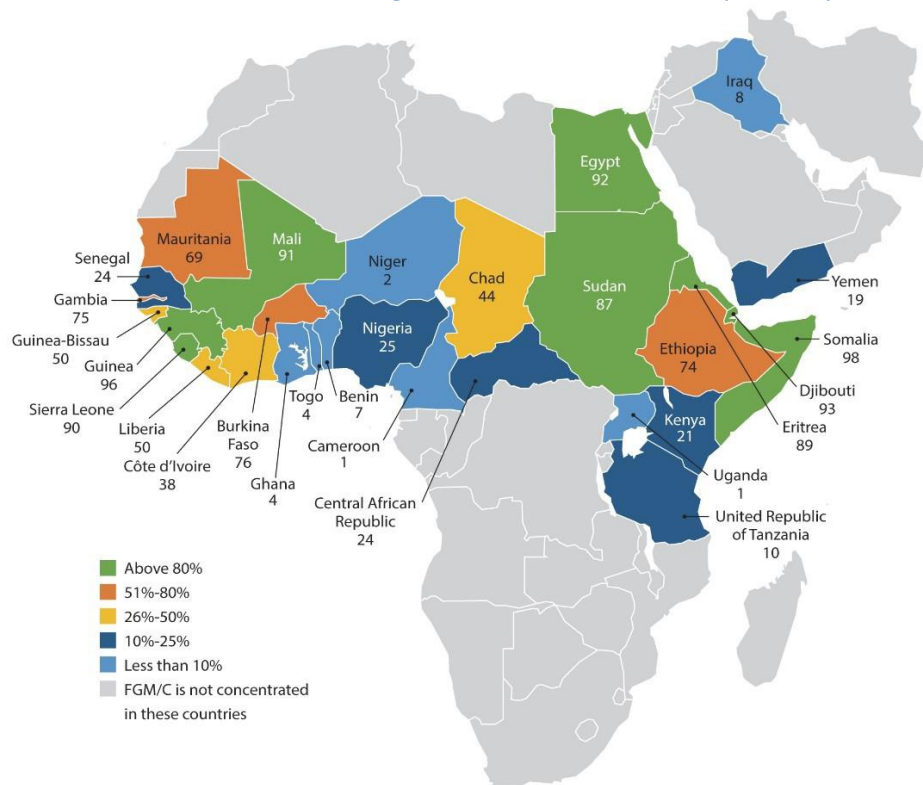
The US Census Bureau's International Data Base provides midyear population estimates by five-year age cohorts by country. To estimate the total number of women between ages 15 and 49 cut in any one country, we tally the total number of women in this age range in the year that the most recent DHS or MICS survey was conducted, and multiply the number by the prevalence of FGM/C among women 15-49 (based on self-reported FGM/C status). The total number of women cut by health practitioners estimated by multiplying the total number of women cut by the medicalization rate. Pearson correlation was computed to assess the significance of the association between rates of medicalization and other key factors: prevalence in FGM/C, rates of change in the prevalence of FGM/C, support for the continuation of FGM/C and trends in change in type of FGM/C between mothers and daughters.

RESULTS

Prevalence of FGM/C and Trends in Countries with Data on Medicalization

Figure 1 shows countries where FGM/C has been measured in national-representative surveys of women ages 15-49, revealing national prevalence rates ranging from as low as 1% (Uganda, Cameroon) up to 98% (Somalia).

Figure 1. Prevalence of FGM/C among Girls and Women 15-49, by Country



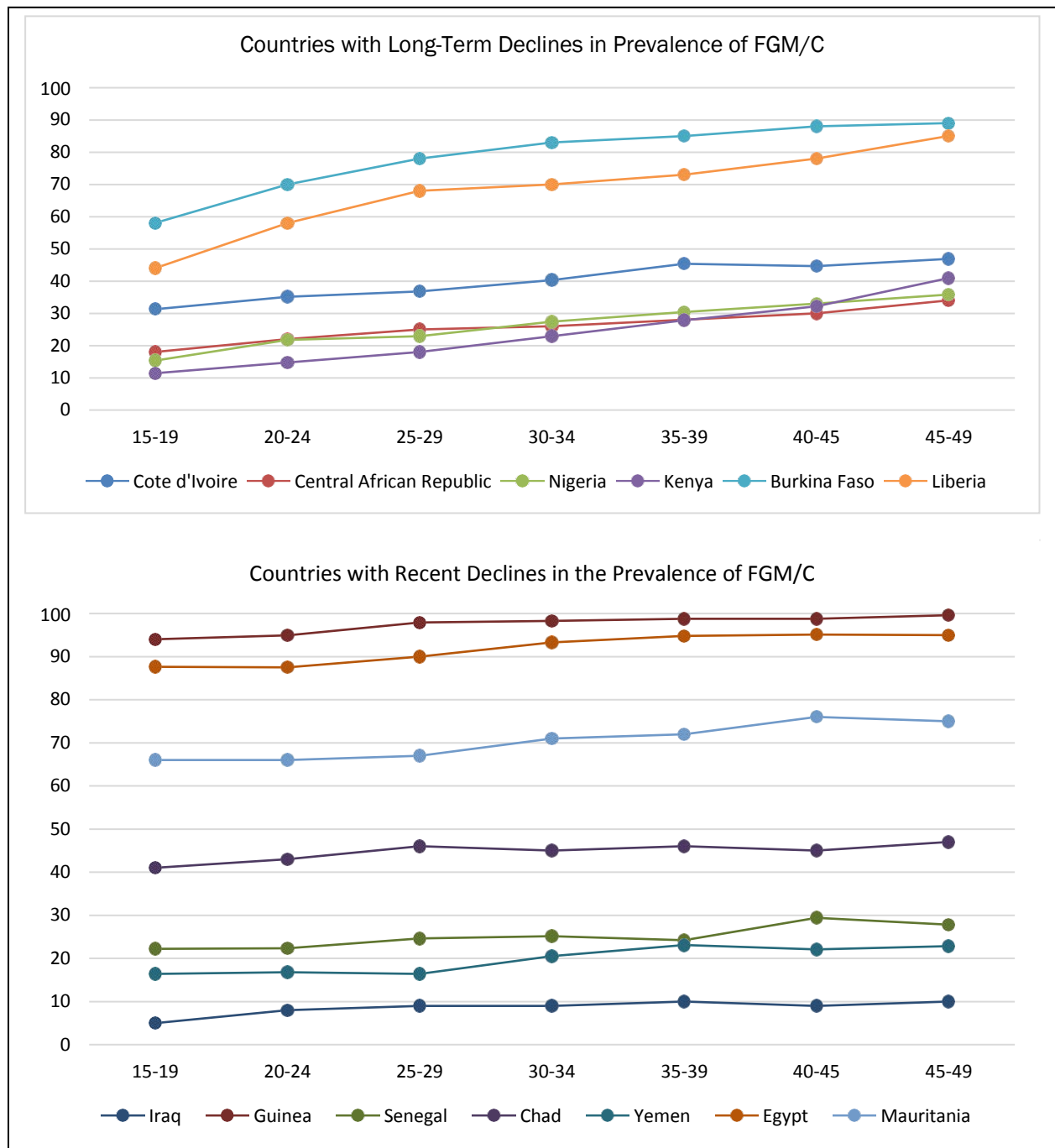
(Updated from Shell-Duncan et al., 2016)

We first ask, is there evidence of reductions in prevalence of FGM/C in countries with data on medicalization? We analyze the data on prevalence of FGM/C in two ways. First, we examine trends across 5 year age cohorts, and second, we calculate the percent change from oldest to youngest cohort.

Examining trends across age cohorts, it is possible to detect trends in the prevalence of FGM/C and identify where the change has begun to take place. Examining data on trends in prevalence in all countries with survey data on medicalization, there are four major patterns. First, there are countries where the national prevalence is 4% or lower: Cameroon (1%), Ghana (3.8%), Niger (2%), Togo (3.9%), and Uganda (1%); in each of these countries the prevalence in the youngest age cohort (15-19 year olds) had dropped below 2%, indicating that the practice en route to being eliminated. Second, in countries where the national prevalence is 5% or higher (ranging from 7.3% in Benin to 96.9% in Guinea), there are 5 countries where there is no detectable change in unadjusted prevalence across age cohorts; these countries are The Gambia, Mali, Guinea-Bissau, and Somalia, Djibouti. In six countries, trends across age cohorts reveal a steady decline in prevalence across age cohorts, dropping (declines of 5 percentage points or more going back 3 or more age cohorts). These countries, shown in Figure 2 (top panel), are Cote d'Ivoire, Central African

Republic, Nigeria, Kenya, Burkina Faso and Liberia. In seven countries there are declines in prevalence in the most recent age cohorts, possibly reflecting the beginning of the process of abandonment. These countries, shown in Figure 2 (bottom panel), are Iraq, Guinea, Senegal, Chad, Yemen, Egypt and Mauritania.

Figure 2. Trends in Prevalence of FGM/C across 5-Year Age Cohorts



Data on prevalence in the oldest (45-49 years) and youngest (15-19 years) are also used to compute the percent decrease between prevalence. The data, shown in Table 1, percent change in prevalence of FGM/C varies a great deal, with the largest percent decrease seen in Benin (83%), Togo (82%), Cameroon (80%) and Kenya (72%).

Table 1. Prevalence and Percent Decrease between Oldest (45-49 years) and Youngest (15-19 years) Cohorts of Women

Country	Prevalence of FGC (15-49)	Prevalence FGC 15-19	Prevalence FGC 45-49	Percent Decrease (between oldest and youngest cohorts)
Benin	7	2	12	83.3
Burkina Faso	76	58	89	34.8
Cameroon	1	0.4	2	80.0
Central African Republic	24	18	34	47.1
Chad	44	41	47	12.8
Cote d'Ivoire	38	28	40	30.0
Djibouti	93	90	94	4.3
Egypt	92.3	87.6	95	7.8
Eritrea	89	78	95	17.9
Ethiopia	74	62	81	23.5
Gambia	76	77	79	2.5
Ghana	4	2	6	66.7
Guinea	96	89	100	11.0
Guinea-Bissau	50	48	50	4.0
Iraq	8	5	10	50.0
Kenya	21	11.4	40.9	72.1
Mali	91.4	90.3	92.1	2.0
Mauritania	69	66	75	12.0
Niger	2	2	3	33.3
Nigeria	24.8	15.3	35.8	57.3
Senegal	24	19.3	22.2	13.1
Sierra Leone	88	80	96	16.7
Sudan	86.6	81.6	91.6	10.9
Togo	3.9	1.1	6.7	83.6
United Republic of Tanzania	15	7	22	68.2
Yemen	23	19	25	24.0

These findings support the conclusion of Muteshi and colleagues (2016: 47), who state that the practice of FGM/C is decreasing, but “rates of abandonment are not high enough, and change is not happening as rapidly as necessary.”

Practitioner of FGM/C

Self-reported data on the person who performed FGM/C are available for women aged 15-49 for 25 countries (Table 2). The rate of medicalization is the proportion of cut women who report having FGM/C performed by a medical professional (combining doctor, nurse, midwife, or other health professional). Rates of medicalization are highest in 5 countries: Egypt (38%), Sudan (67%), Guinea (15%), Kenya (15%), and Nigeria (13%).

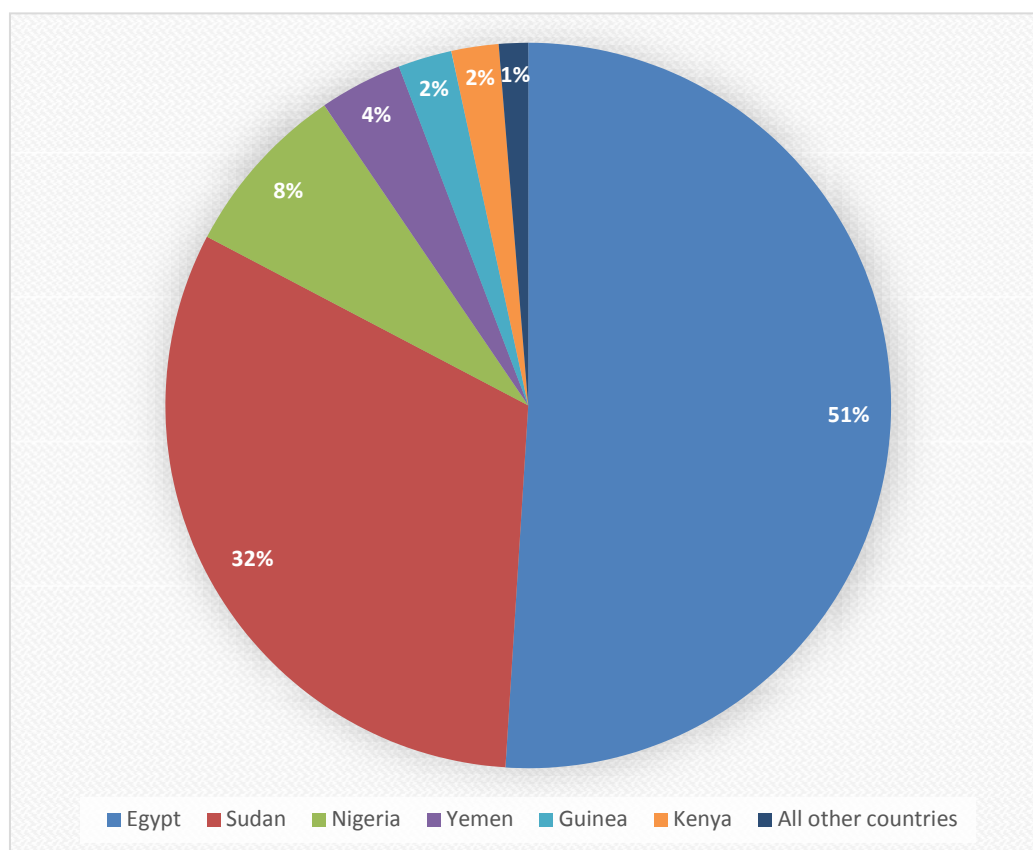
To calculate the total number of women cut by health professionals, data on mid-year population size of women aged 15-49 (in the year the survey was conducted) were obtained from the U.S. Census Bureau International Database. In the 25 countries for which we have data on medicalization, the majority—74%—report being cut by traditional practitioners. 26% of cut women, totaling 15,992,493, were reportedly cut by a health care professional.

Table 2. Prevalence of Medicalization and Total Women (age 15-49) Cut by Health Professionals

Country	Prevalence (%)	Rate of Medicalization	Total Number of Women (15-49)	Total Number of Women Cut	Total Cut by Health Professionals
Benin	7.3	0.2	2144241	156530	313
Burkina Faso	75.8	0.2	3688866	2796160	5592
Cameroon	1.4	4.0	4098869	57384	2295
Central African Republic	24.2	2.3	1172050	283636	6524
Chad	44.2	6.0	2505043	1107229	66434
Côte d'Ivoire	38.2	0.3	5293915	2022276	6067
Djibouti	93.1	6.0	193365	180023	10801
Egypt	92.3	37.9	23331079	21534578	8161605
Eritrea	88.7	0.6	977370	869559	5219
Gambia	74.9	0.3	486629	364485	1093
Ghana	3.8	1.2	6041140	229563	2755
Guinea	96.9	15.4	2518996	2440907	375900
Guinea-Bissau	49.8	0.2	381216	189846	380
Iraq	8.1	6.3	7623574	617509	38903
Kenya	21.0	14.7	10877750	2284328	335796
Mali	91.4	0.7	3524985	3221836	22553
Mauritania	69.0	2.0	841940	580939	11619
Niger	2.0	0.0	3423589	68472	0
Nigeria	24.8	12.7	39466768	9787758	1243045
Senegal	24.2	0.0	3529653	854176	0
Sierra Leone	89.6	1.1	1391263	1246572	13712
Sudan	86.6	66.8	8752649	7579794	5063302
Togo	3.9	0.0	1618084	63105	0
Tanzania	14.6	2.3	10156090	1482789	34104
Yemen	18.5	3.0	6040827	1117553	33527
Total				61137307	15992493

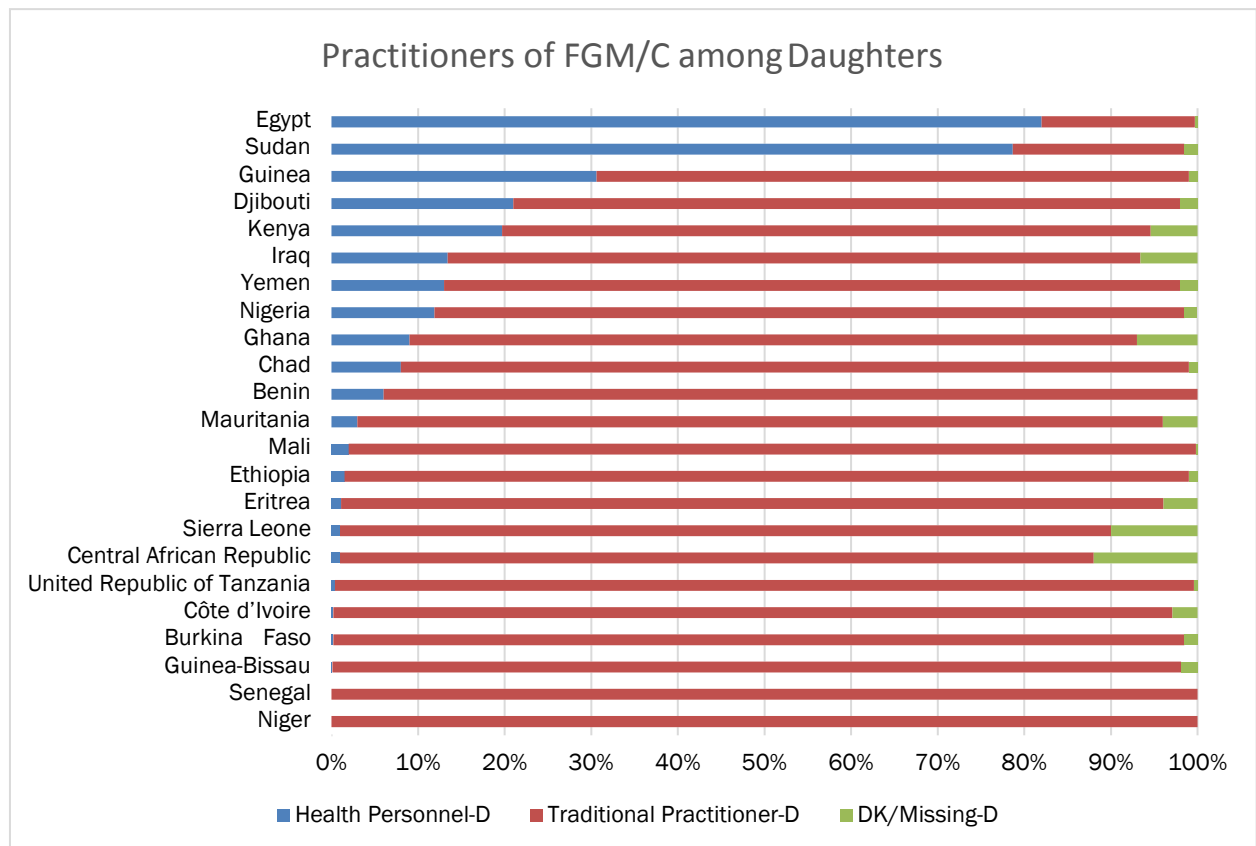
Of women who report having been cut by a health care professional, more than half (51%) reside in Egypt alone, and overall 99% of women with who reportedly experienced medicalized FGM/C live in just three countries: Egypt, Sudan and Nigeria (Figure 3).

Figure 3. Geographic distribution of women who report having been cut by a medical professional



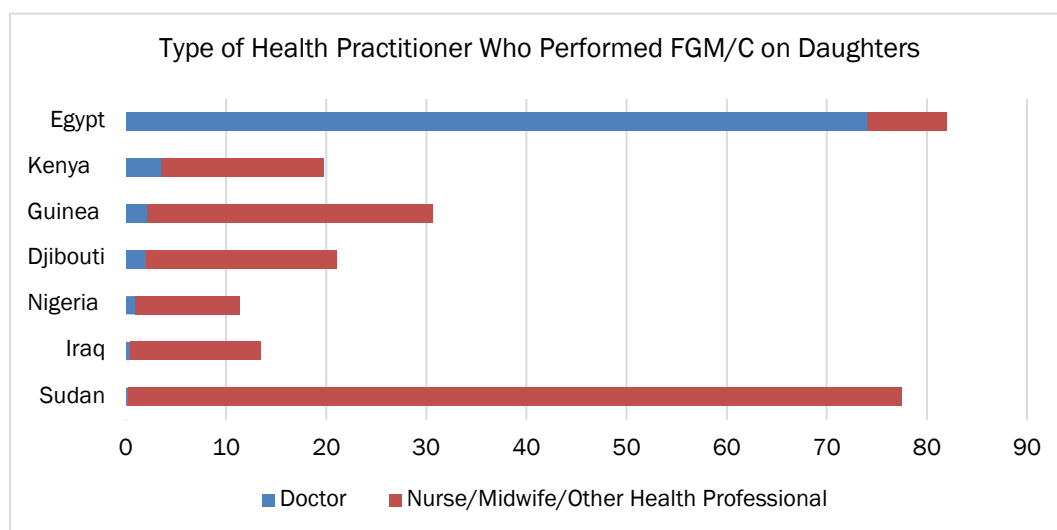
The reliability of data on practitioners may be higher for women reporting on their daughters rather than their own self-reports. Particularly when women were cut at very early ages, it may be difficult to recall the type of practitioner. Surveys from 23 countries have collected information on the type of practitioner who performed FGM/C on daughters. In Figure 4 they are classified as either traditional practitioners (traditional circumcisers, traditional birth attendants, and generally, other traditional practitioners), or health personnel (doctors, nurses, trained midwives, and other trained health worker) for the most recent surveys with available data on this indicator. Overall, FGM/C is most often performed on daughters by traditional practitioners. In 16 out of 23 countries, less than 10% of daughters were cut by medical professionals. By contrast, the majority of FGM/C among daughters is performed by health professionals in two countries: Egypt (82%) and Sudan (78%). Other countries with a substantial proportion of cases of medicalized FGM/C among daughters include Guinea (31%), Djibouti (21%), Kenya (20%), Iraq (13%), Yemen (13%) and Nigeria (12%).

Figure 4. Frequency with which Health Personnel or Traditional Practitioners Reportedly Perform FGM/C on Daughters



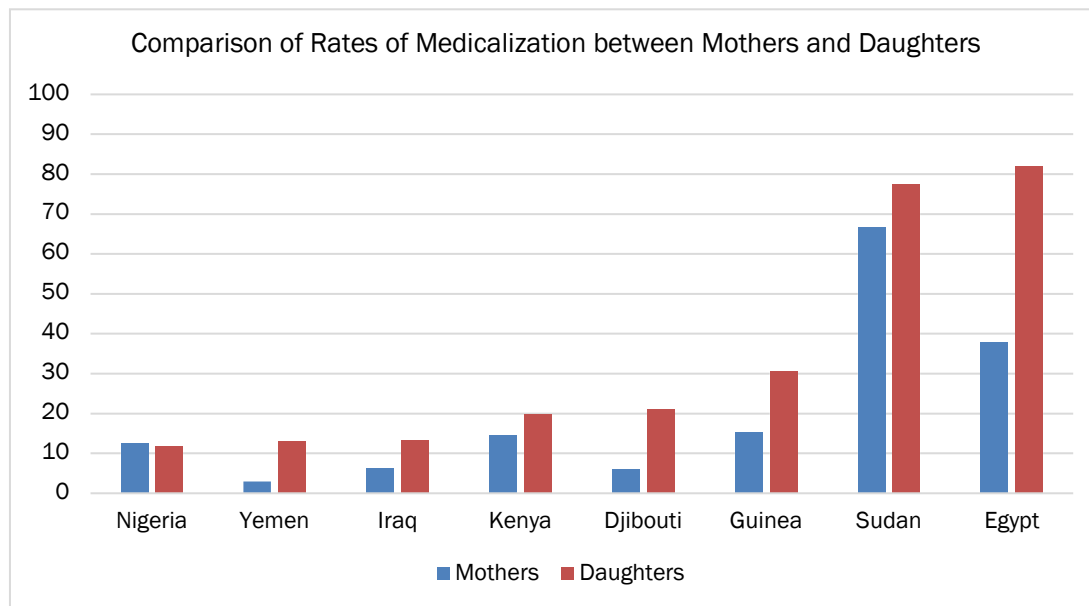
In comparing country data where rates of medicalization are 10% or higher, it is possible to examine the data on health personnel into two categories: 1) doctors, and 2) nurse, midwife or other health professional for all countries except Yemen, where only aggregated figures are reported (Figure 5). Egypt is unique in that doctors most commonly undertake FGM/C. In most countries where medical personnel provide FGM/C on daughters, it is carried out by nurses, trained midwives or other trained healthcare professionals.

Figure 5. Rates of Medicalization among Daughters by Type of Health Practitioners (Doctor vs. Nurse, Midwife or Other Health Professional)



Perhaps of greater interest are trends in rates of medicalization. Has medicalization increased between generations? One way to discern trends in medicalization is to compare proportions of FGM/C performed by medical professionals on women and daughters: data on the person who performed FGM/C are available for both mothers and daughters for 22 countries. In countries with substantial levels of medicalization (over 10%) (Figure 6), rates are higher among daughters than mothers; the only exception is Nigeria, where rates of medicalization among mothers and daughters are roughly equal. The trend toward increased medicalization in daughters, as compared to mothers, is most pronounced in Egypt, where medicalization rates among daughters (82%) are more than twice those among women (38%).

Figure 6. Comparison of Rates of Medicalization Among Mothers and Daughters in Select Countries*

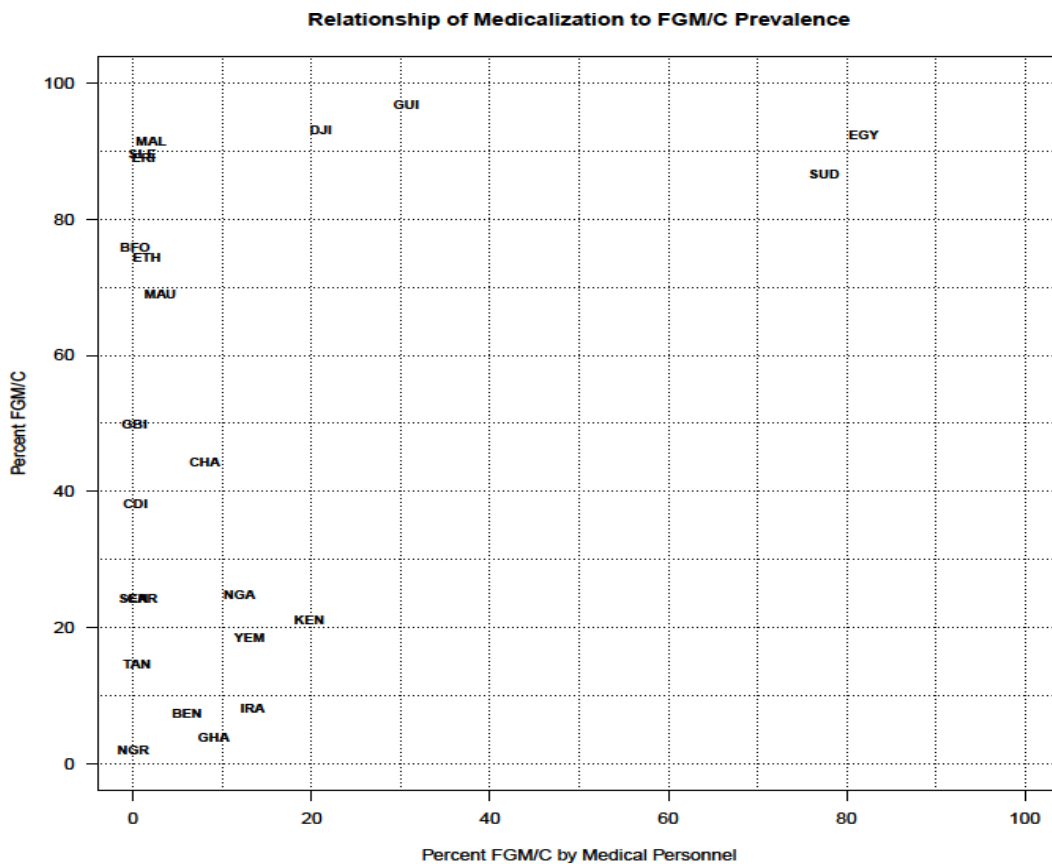


*Data shown are for countries with rates of medicalization over 10%

Association between Medicalization and Prevalence of FGM/C

What is the association between current levels of medicalization and prevalence of FGM/C? Is medicalization, defined here as FGM/C performed by trained health professionals, more common in countries with higher prevalence rates of FGM/C? Figure 7 shows the association between medicalization among daughters and prevalence of FGM/C among women aged 15-49 years. Egypt and Sudan are examples of countries with both a high prevalence of FGM/C and high rates of medicalization (in Egypt the prevalence of FGM/C is 92%, and health personnel are reported to have performed FGM/C on 82% of cut daughters; in Sudan the prevalence of FGM/C is 87%, and health personnel are reported to have performed FGM/C on 78% of cut daughters). Notably, 20% of daughters have been cut by health professionals in a moderately low prevalence country, Kenya (prevalence 21%). Moreover, low levels of medicalization are found in countries across the range of prevalence rates. Statistically, there is not a significant correlation between prevalence of FGM/C and medicalization rates among daughters.

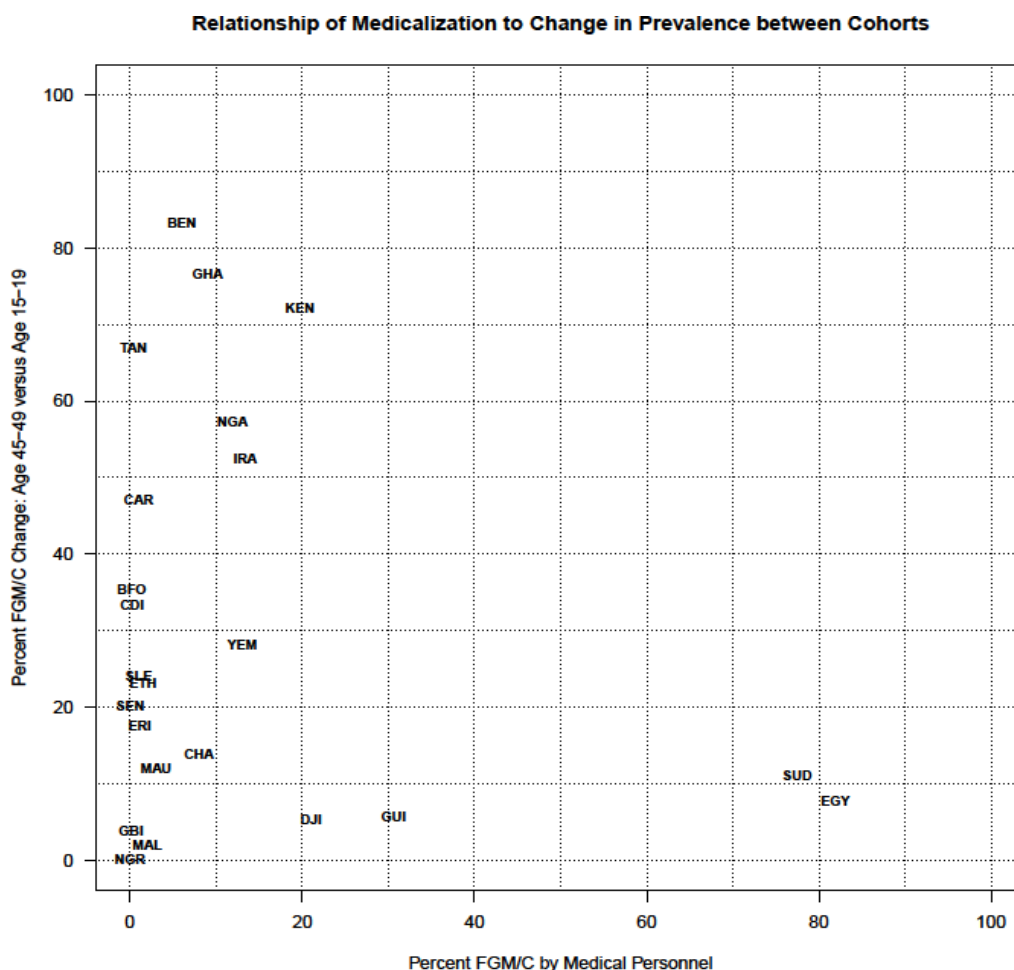
Figure 7. Association Between Medicalization Rates and Prevalence of FGM/C*



*Country codes: BEN – Benin; BFO – Burkina Faso; CAM – Cameroon; CAR – Central African Republic; CHA – Chad; CDI – Côte d’Ivoire; DJI – Djibouti; EGY – Egypt; ERI – Eritrea; ETH – Ethiopia; GAM – Gambia; GHA – Ghana; GUI – Guinea; GBI – Guinea Bissau; IRA – Iraq; KEN – Kenya; MAL – Mali; MAU – Mauritania; NGR – Niger; NGA- Nigria; SEN – Senegal; SLE – Sierra Leone; SUD – Sudan; TOG – Togo; TAN – United Republic of Tanzania; YEM – Yemen

A key question is whether medicalization counteracts efforts to eliminate FGM/C and reduces rates of decline in FGM/C. This is a causal question for which counterfactual data do not exist; that is, we cannot answer the question, “would rates of decline have been higher had medicalization not occurred?” With the data we have at hand, we can examine the association between trends in medicalization and trends in the prevalence of FGM/C, which falls short of determining causal effects but does provide some useful insights. As noted above, one way to examine trends in FGM/C is to compute the percent change in prevalence between the youngest and oldest age cohorts of women. What is the association between reductions in FGM/C prevalence and medicalization? Figure 8 shows the association between the percent change FGM/C prevalence in the oldest and youngest age cohorts and rates of medicalization among daughters. The data show that the countries with the highest rates of medicalization among daughters (Egypt, Sudan, Guinea and Djibouti), have a low percent change in prevalence of FGM/C. At the same time, the country with the greatest decline in FGM/C across age cohorts, Kenya, has a 20% rate of medicalization among daughters. Low rates of medicalization are found in countries with widely ranging rates of change in FGM/C. Overall, there is not a significant correlation between the rate of decline in FGM/C and medicalization. This suggests that a decline in the prevalence of FGM/C does not appear to be uniformly associated with a reduced demand for medicalization (but multivariate analyses may produce different results).

Figure 8. Relationship between Medicalization Rates and Percent Change in Prevalence of FGM/C between Youngest (15-19 years) and Oldest (45-45 years) Cohorts of Women*

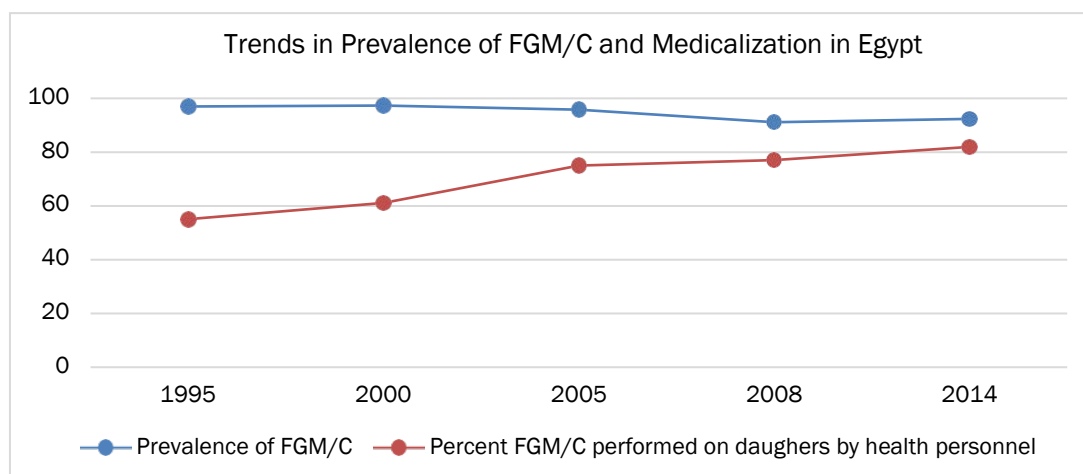


*Country codes: BEN – Benin; BFO – Burkina Faso; CAM – Cameroon; CAR – Central African Republic; CHA – Chad; CDI - Côte d’Ivoire; DJI – Djibouti; EGY – Egypt; ERI – Eritrea; ETH – Ethiopia; GAM – Gambia; GHA – Ghana; GUI – Guinea; GBI – Guinea Bissau; IRA – Iraq; KEN – Kenya; MAL – Mali; MAU – Mauritania; NGR – Niger; NGA- Nigeria; SEN – Senegal; SLE – Sierra Leone; SUD – Sudan; TOG – Togo; TAN – United Republic of Tanzania; YEM – Yemen

Our key question, however, is the opposite: does medicalization counteract efforts to end FGM/C and reduce the rate of decline in prevalence of the practice? Cross-sectional survey data are not ideal for answering this question. But insights may be gained by examining trends across repeat surveys. Repeat survey data on medicalization among daughters are available for 12 countries. These are Benin, Burkina Faso, Cote d’Ivoire, Egypt, Eritrea, Kenya, Mali, Niger, Nigeria, Sudan and the United Republic of Tanzania. Discernible changes in medicalization are detectable in only three countries: Egypt, Kenya, and Sudan.

Five repeat cross-sectional surveys are available from Egypt from 1995 through 2014, making it possible to examine the trend in use of medically trained personnel. The percentage of daughters cut by health personnel has steadily increased from 55% in 1998 to 82% in 2014 (Figure 9). At the same time, the prevalence of FGM/C among women aged 15-49 has shifted slightly, declining from 97% in 1995 to 92% in 2014. These changes have occurred over a period of intense scrutiny and public debate about Egypt’s official policy on medicalization (described above).

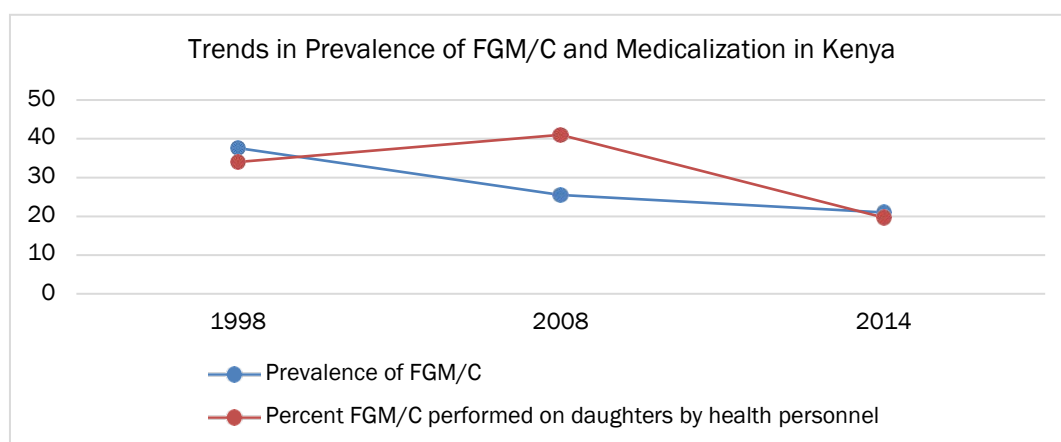
Figure 9. Trends in Prevalence (women aged 15-49 years) and Medicalization among Daughters across Consecutive Surveys in Egypt*



*Data Sources: DHS 1995, DHS 2000, DHS 2005, DHS 2008, DHS 2014

Egypt is unique in terms of having had a period of government consent for FGM/C to be performed by health personnel. Elsewhere government policies have either been absent or actively opposed having health care providers perform FGM/C. In Kenya, for instance, the Ministry of Health issued a policy directive in 2001 making it illegal to perform FGM/C in healthcare facilities (Njue and Askew, 2004). Additionally, the Children’s Act, passed in 2001, criminalizes the performance of FGM/C on girls under the age of 18, and sets a penalty of 12 month imprisonment and/or a fine of Ksh 50,000 (Shell-Duncan et al., 2013). Survey data from before and after the institution of these measures show that there has been an increasing trend to have FGM/C performed by health care personnel (Figure 10), rising from 34% in 1998 to 41% in 2008-09, followed by a subsequent drop in 2014. This fluctuation in medicalization rates has occurred simultaneously with a substantial decrease in the prevalence of FGM/C among women aged 15-49, dropping appreciably from 38% in 1998 to 20% in 2014. However, these data do not allow us to test causal associations nor whether the decline in FGM/C might have been even larger were health professionals not performing FGM/C. Nonetheless, it is clear that in Kenya, medicalization has occurred alongside substantial declines in rates of FGM/C.

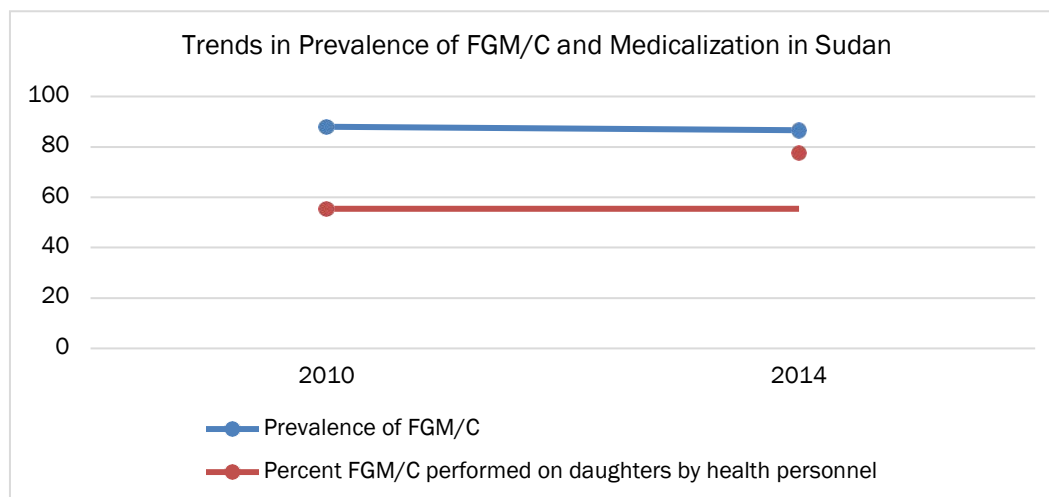
Figure 10. Trends in Prevalence (women aged 15-49 years) and Medicalization among Daughters across Consecutive Surveys in Kenya*



*Data sources: DHS 1998, DHS 2008, DHS 2014

Data on medicalization among daughters is available for two consecutive surveys completed in Sudan (Figure 11). The data show that between 2010 and 2014, the prevalence of FGM/C among women 15-49 remained steady. In this same interval, reported rates of medicalization among daughters increased sharply, rising from 55% to 78%. The degree to which this result reflects different data collection methodology between the 2010 Sudan Health and Household Survey and the 2014 MICS survey is unclear.

Figure 11. Trends in Prevalence (women aged 15-49) and Medicalization among Daughters across Consecutive Surveys in Sudan*



*Data Sources: Sudan Health and Household Survey 2010, MICS 2014

Medicalization and Support for the Continuation of FGM/C

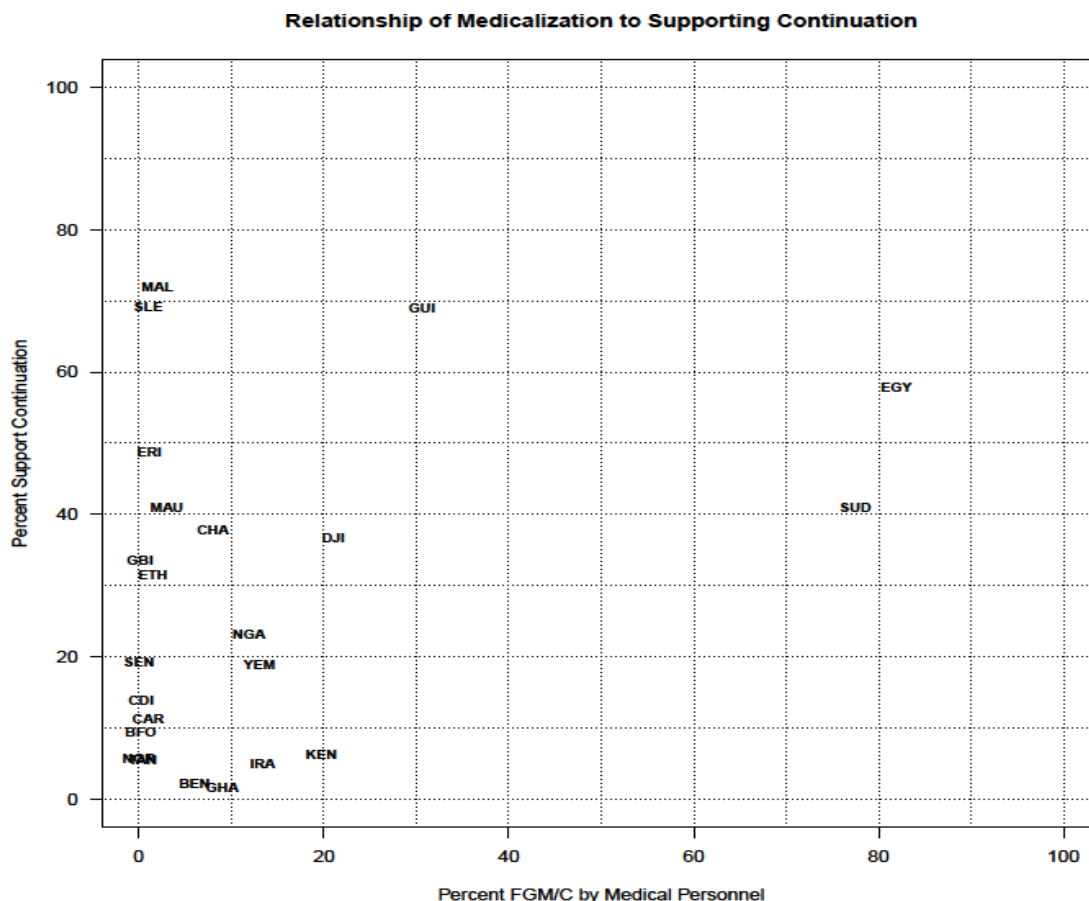
A related question is whether medicalization influences support for the continuation of FGM/C. Does the availability of medicalized FGM/C result in continued support for the practice of FGM/C? Alternatively, are mothers who opt for medicalized cutting for their daughters more open to change and more likely to favor abandonment?

Messages on health risks have been a cornerstone of anti-FGM campaigns for decades. Responses to these messages have been described variably, ranging from rejection of these messages as not credible, to acceptance and motivating behavior change (Hernlund and Shell-Duncan, 2007). Research in The Gambia in the 1990's, for example, revealed that anti-FGM programs sought to educate the public about the harmful effects of FGM, drawing on the activist literature that divided health risks into the oft-repeated categories of short-term, long-term and obstetrical consequences (Hernlund, 2003). Hernlund's interviews with women and girls who attended workshops revealed what she referred to as a "credibility gap" – a consistent skepticism reading the obstetrical health risk message in particular. By the late 1990's the health risk messages in The Gambia and Senegal began to change in the context of speculation regarding the potential risk of HIV transmission associated with FGM/C. This message was deemed credible by some, and internalization of the health risk message was found to be associated with increased readiness to abandon FGM/C (Shell-Duncan et al., 2010). It is important to note, however, that these results are true for Senegal and The Gambia, two countries where medicalization of FGM/C is nearly absent. A key debate has centered on what kind of behavior change health-risk messaging might motivate in other settings, including those where medicalized FGM/C is readily

available. Does concern over health risks motivate a desire to abandon FGM/C, or does it motivate medicalization while support for continuation of the practice remains unchanged?

The modules on FGM/C in the DHS and MICS surveys routinely collect information on support for continuation of FGM/C. Figure 12 shows the percent of women who reported that they support the continuation of FGM/C and rates of medicalization among daughters. There is not a significant correlation between medicalization and high support for continuation of FGM/C.

Figure 12. Relationship between Medicalization Rates among Daughters and Mother’s Stated Support for Continuation of FGM/C*



*Country codes: BEN – Benin; BFO – Burkina Faso; CAM – Cameroon; CAR – Central African Republic; CHA – Chad; CDI – Côte d’Ivoire; DJI – Djibouti; EGY – Egypt; ERI – Eritrea; ETH – Ethiopia; GAM – Gambia; GHA – Ghana; GUI – Guinea; GBI – Guinea Bissau; IRA – Iraq; KEN – Kenya; MAL – Mali; MAU – Mauritania; NGR – Niger; NGA – Nigeria; SEN – Senegal; SLE – Sierra Leone; SUD – Sudan; TOG – Togo; TAN – United Republic of Tanzania; YEM – Yemen

Type of FGM/C

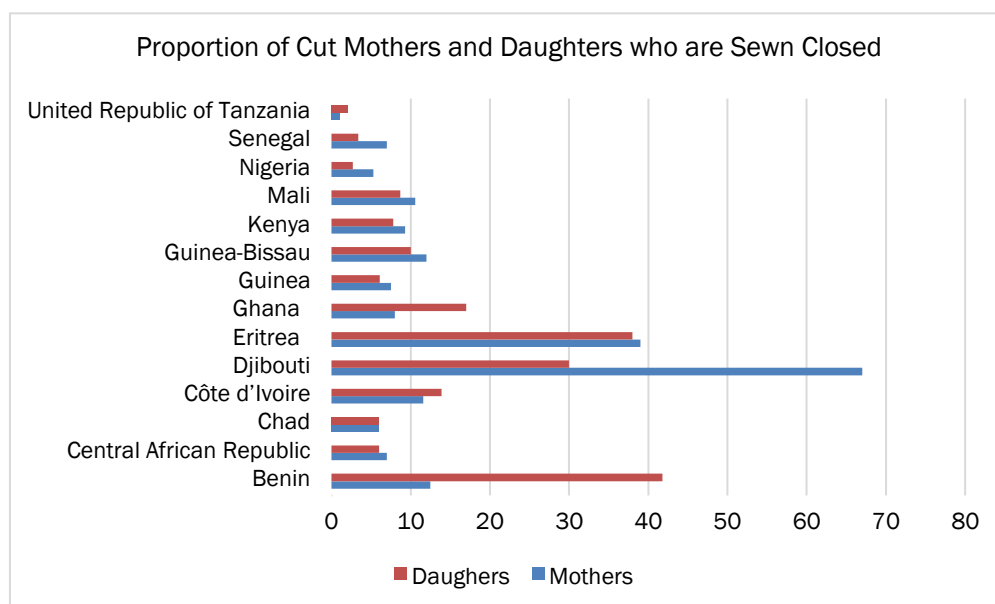
Potential changes in the severity of cutting can be examined by comparing data on self-reported type of FGM/C performed on women aged 15-49 and their reports of FGM/C type among their daughters. Many of the DHS surveys from several years ago classified the type of FGM/C using the categories of clitoridectomy, excision, and infibulation. However, often these categories do not correspond with local terminologies on types of cutting. In the most recent standardized MICS and DHS surveys module on FGM/C, the type is classified into four main categories: 1) cut, no flesh removed, 2) cut, some flesh removed, 3) sewn closed, 4) type not determined/not sure/doesn’t

know. These categories do not directly match the WHO typology. “Cut, no flesh removed” may describe a practice known as nicking or pricking, which currently is categorized as Type IV. “Cut, some flesh removed” may correspond to Type I (clitoridectomy) and Type II (excision) combined. And “sewn closed” (called *fermé* or “closed” in some French language surveys) corresponds to Type III, infibulation. Gele and colleagues (2013: 7) report that one of the most common forms of “sunna circumcision” in Somali is clitoridectomy followed by two stitches. Thus, survey responses of “sewn closed” may include this non-infibulating form of FGM/C, making it difficult to discern trends toward reduced cutting. (For further discussion on validity of survey data on FGM/C, see Shell-Duncan, 2016). Other limitations on data on type of FGM/C include issues regarding self-reported data on type of FGM/C. Particularly when FGM/C occurs in early childhood, a woman may not be fully aware of the extent of physical modifications that were made. Information may be more accurate when mothers report the type of FGM/C performed on daughters. Other challenges in data collection result from difficulties in establishing how clearly survey respondents understood the questions referring to the main types of FGM/C.

Data on type of FGM/C are available for both mothers and daughters for 16 countries. Not all survey modules finalized at the country-level include questions on type of cutting, and in those that do, not all include all 4 response options. Therefore, to allow cross-country comparison, we present the results in two formats: 1) comparison of “sewn closed” to all forms that are not “sewn closed”, and 2) comparison of “cut, no flesh removed” all forms that involve removing flesh.

Figure 13 shows comparisons of mother-daughter rates of “sewn closed.” The data show that there are substantial intergenerational decreases in infibulation in Djibouti, and increases in infibulation in Benin. Notably, Djibouti is a high prevalence country (93% among women ages 15- 49), and the ratio of the prevalence in the youngest (15-19) and oldest (45-49) age cohorts indicates no substantial decline in FGM/C across age cohorts. This suggests that a trend toward less severe cutting may occur in a context where the prevalence of FGM/C is high and not declining. Caution must be taken, however, regarding the accuracy of self-reported data on type of FGM/C.

Figure 13. Proportion of Cut Mothers and Daughters who are “Sewn Closed”



In the 9 countries that report “cut, no flesh removed” (corresponding to nicking) for both mothers and daughters, rates of nicking are higher among daughters in all countries except Tanzania.

Figure 14. Proportion of Cut Mothers and Daughters who are “Cut, No Flesh Removed”

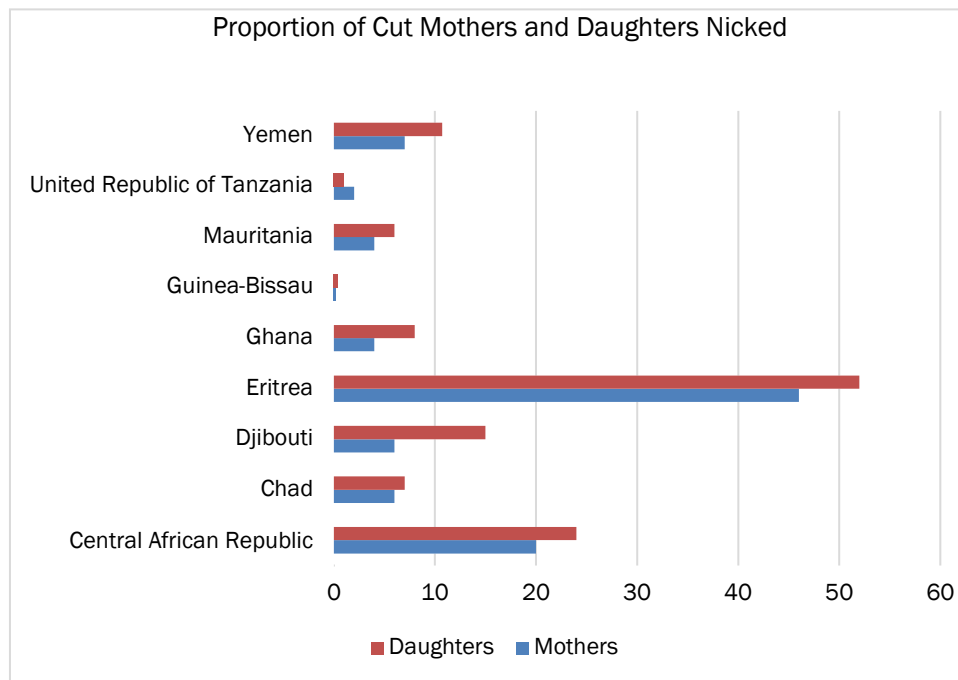
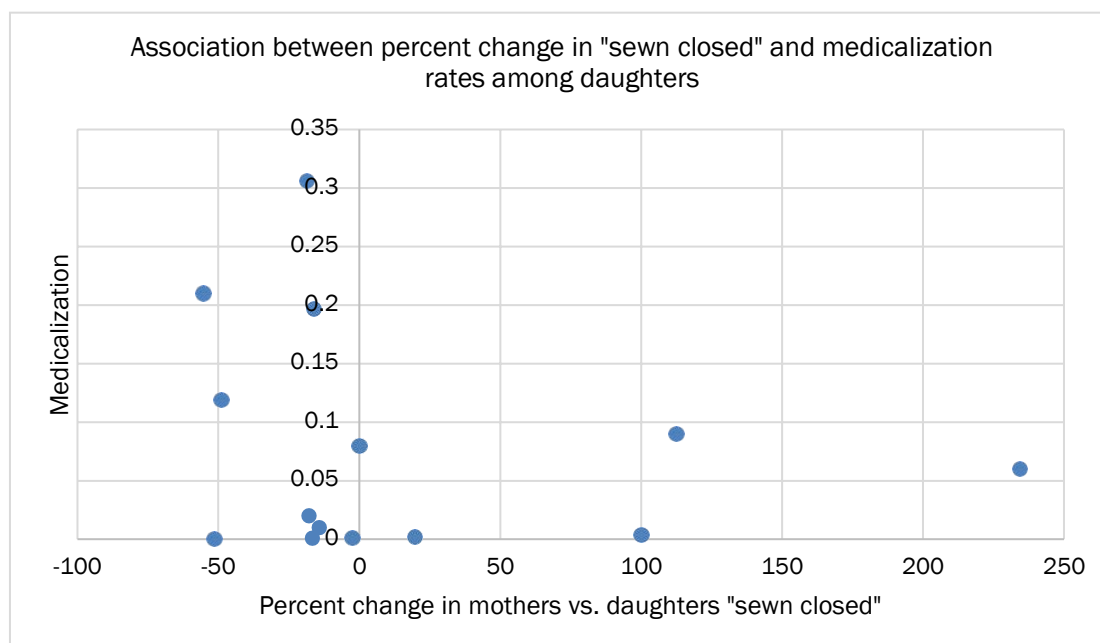


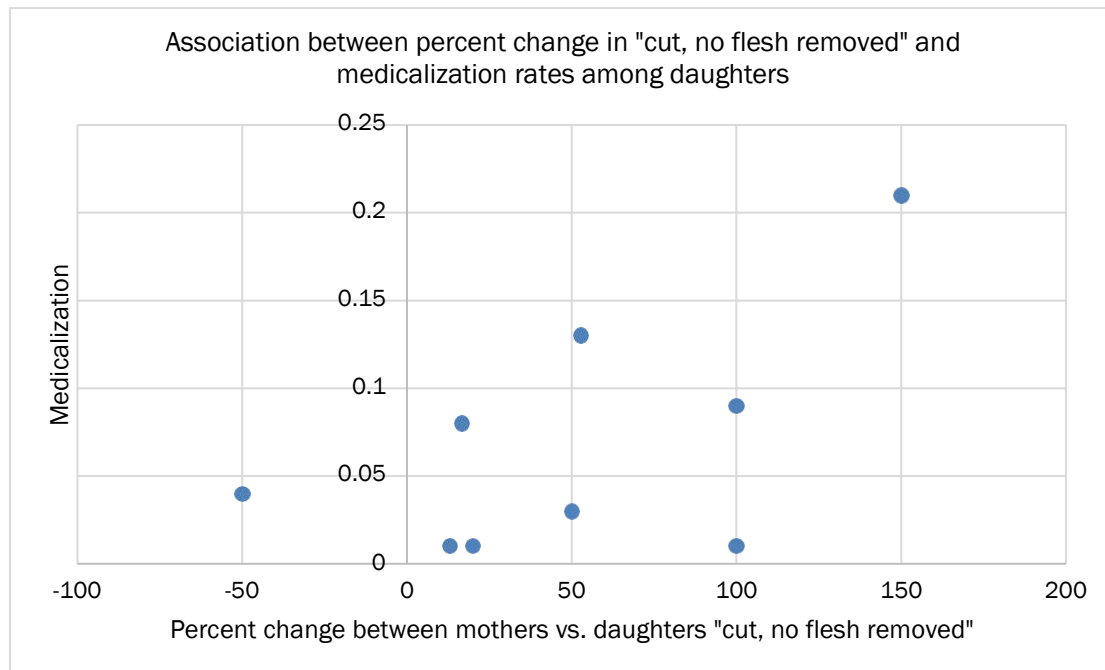
Figure 15 shows the percent change in “sewn closed” between mothers and daughters, and its association with medicalization rates among daughters. A positive number in percent change indicates that the proportion of daughters “sewn closed” is higher than among mothers. (The data point at the extreme right is Benin, a country with a low rate of medicalization). The country with the greatest rates of medicalization, Guinea (.31), Djibouti (.21) and Kenya (.20) show decreasing rates of “sewn closed” across generations, but the correlation is not statistically significant.

Figure 15. Association between percent change in “sewn closed” across generations and medicalization rates among daughters



There are limited data on the percent change in “cut, no flesh removed” across generations and rates of medicalization (Figure 16). The country with the highest rate of medicalization, Djibouti (.20) also shows the highest rates of increase in “cut, no flesh removed.” Countries with the highest rates of medicalization appear to have increasing rates of this form of cutting. Statistically, the correlation is marginally significant ($p < .10$), and further multivariate analyses are needed to confirm this positive association.

Figure 16. Association between percent change in “cut, no flesh removed” across generations and medicalization rates among daughters



SUMMARY AND CONCLUSIONS

The results from this study provide an overview of patterns and trends in medicalization of FGM/C using population-based survey data from 25 countries. The data reveal that 74% of girls and women aged 15-49 who report having undergone FGM/C were cut by traditional practitioners. In this same age group, an estimated 26% – totaling nearly 16 million girls and women – report having been cut by a health care professional (doctor, nurse, trained midwife or other health professional), a phenomenon commonly referred to as medicalization. Medicalized cutting is concentrated in three countries; 93% of women who report having been cut by a health care professional live in Egypt, Sudan and Nigeria. More than half of these women (51%) live in Egypt alone.

At the national level, rates of medicalization among daughters of respondents are highest in Egypt (38%), Sudan (67%), Guinea (15%), Kenya (15%) and Nigeria (13%). Comparing medicalization rates between survey respondents and their daughters, rates of medicalization are increasing across generations in each of these countries except of Nigeria.

We use these data from all 25 countries to make evidence-based inferences regarding some key debates surrounding the effects of medicalization. First, to investigate the claim that medicalized cutting may slow rates of abandonment of FGM/C, we examine associations between medicalization and trends in prevalence FGM/C. There is no discernible association between rates of medicalization among daughters and rates of decline in prevalence of FGM/C, although further multivariate analyses are needed to control for potentially confounding factors. Repeat survey data on medicalization among daughters are available for 12 countries, and substantial changes in both medicalization and prevalence rates are detectable only in Kenya; the data show that in Kenya, medicalization has occurred alongside substantial declines in rates of FGM/C. Therefore, at least in this setting, medicalization has not completely counteracted the process of abandonment of FGM/C. These data do not, however, allow us to test causal associations nor whether the decline in FGM/C might have been even larger were health professionals not performing FGM/C.

Debates have also centered on whether medicalization undermines efforts to motivate abandonment of FGM/C by legitimizing the practice or by creating an impression that the procedure may be performed safely. Alternatively, it has been suggested that parents who opt for medicalized cutting may be more open to change in FGM/C, including the possibility of abandonment. To investigate these claims, we examined the association between rates of medicalization among daughters and mother's stated support for the continuation of FGM/C, and found no discernible trend. Therefore, it is not clear that medicalization either hinders or enhances the likelihood of favoring abandonment of FGM/C. Focused local studies are needed to understand the rationale for selecting medicalized cutting, and whether or how medicalization influences readiness to change FGM/C.

Finally, debates have centered on whether medicalization is associated with a shift toward either more or less severe forms of cutting. Although data are limited, it appears that medicalized cutting among daughters is significantly associated with a trend toward less severe forms of cutting (toward "cutting, no flesh removed"). Further analyses controlling for potentially confounding factors are needed to confirm this finding, along with focused research that investigates whether shifts toward less severe cutting represent reluctance to forego an intractable practice, or possibly serve a temporary transitional step toward abandonment of FGM/C.

There are a number of limitations in this study. We examined trends and correlations, and further multivariate analyses are needed to control for potentially confounding factors. Additionally, there are a number of concerns regarding the validity of the survey data used in this study.

Self-reported data on FGM/C needs to be treated with caution as inaccuracies may arise because of unwilling to disclose having undergone FGM/C due to the sensitivity of the topic or because of criminalization of the practice (Askew, 2005). Additionally, particularly when FGM/C is performed at an early age, women may be unaware of whether they have been cut or the extent of the cutting or may not accurately recall the circumstances surrounding the procedure.

A number of studies have attempted to determine the reliability of self-reports of FGM/C status (being cut or not) by verifying them through clinical examinations, and have reported variable rates of concordance (Elmusharaf et al., 2006; Adinma, 1997; Msuya et al., 2002; Klouman et al., 2005; Snow et al., 2002). In a detailed overview of methodological considerations for measuring change in FGM/C, Askew (2005: 472-73) emphasizes the need to consider the context in which questions of FGM/C status are being asked: "If FGC is widespread, socially acceptable and there is no well-

publicized interventions causing people to question its acceptability and legality..., then self-reporting is likely to be valid. If there are reasons why it would not be attractive for respondents to declare that they are cut..., then self-reported measures should be questioned and ways sought to validate the results.”

Studies of the correspondence between self-reported type of FGM/C and clinically observed type also report variable levels of disagreement, with more frequent under-reporting than over-reporting of the extent of cutting (Morison, et al., 2001; Elmusharaf et al., 2006). It may be difficult to make a clear correspondence between the local vernacular describing type and descriptions used in survey questions. Additionally, women may be unaware of the details of their own genital modification. Information on the FGM/C status of daughters, the type, and the circumstances surrounding the practice is generally regarded as more reliable than women’s self-reports since daughter’s FGM/C occurred more recently, and mothers are assumed to have been involved in the event (Yoder et al., 2004). Further details of concerns regarding validity of survey data on FGM/C have been addressed elsewhere (Shell-Duncan, 2016).

Most importantly, the FGC module used in the MICS and DHS surveys do not provide information on a number of issues that are of potential interest, such as data on the location where cutting was performed (home, private or state clinic or hospital, other), or training provided to either professional or traditional practitioners of FGM/C. The survey data also lack detailed information on local context that may provide insights what factors motivate parents to seek medicalized FGM/C or their daughters, or when and why health care professional elect to provide FGM/C. How can health care workers be discouraged from performing FGM/C? That is, in places where norms held by medical professionals include acceptability of performing FGM/C, how can these norms be shifted? What drives demand for medicalized cutting, and how does decision-making take place? Increasingly medical professionals are being asked to become involved in advocacy aimed at ending FGM/C (Kimani et al., 2016). How does this role influence their ability to establish trust with their patients and offer culturally competent care (Tharackan and Thompson, 2013)? Can advice from health care professionals be useful in reducing demand for medicalized cutting? As countries adopt and implement criminal law bans FGM/C, questions emerge on the role of health care providers in enforcement of legal bans on the practice. Some countries have adopted policies for mandatory reporting that raise novel ethical questions for health care professionals: how should medical professionals balance legal reporting requirements against loyalty to their patients? While medical ethics have long recognized the paramount importance of prioritizing patient confidentiality, this principle becomes challenged when FGM/C is criminalized and recognized a human rights violation (International Dual Loyalty Working Group, 2008). Further studies are needed to shed light on these important pressing questions.

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APPENDIX: DATA SOURCES ON FGM/C AND MEDICALIZATION

Country	Data Source
Benin	DHS 2011-12
Burkina Faso	MICS/DHS 2010
Cameroon	DHS 2004
Central African Republic	MICS 2010
Chad	MICS 2010
Cote d'Ivoire	DHS 2012
Djibouti	MICS 2006
Egypt	DHS 2014 (and DHS 2008, 2005, 2000, 1995)
Eritrea	DHS 2002
Gambia	DHS 2013
Ghana	MICS 2011
Guinea	DHS 2012
Guinea-Bissau	MICS 2014
Iraq	MICS 2011
Kenya	DHS 2014 (and DHS 2008, 1998)
Mali	DHS 2012-13
Mauritania	MICS 2011
Niger	DHS 2012
Nigeria	DHS 2013
Senegal	DHS 2015 (Cont.)
Sierra Leone	DHS 2013
Sudan	MICS 2014 (and SHHS 2010)
Togo	DHS 2013-14
United Republic of Tanzania	DHS 2010
Yemen	DHS 2013