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Interventions to Address Sexual Function in Women Affected by Female Genital Cutting: a Scoping Review

Crista Johnson-Agbakwu[1,2,3] · **Nicole Warren**[4]

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Abstract
Purpose of Review Global migration trends necessitate that health care providers, regardless of location, address sequelae from female genital cutting (FGC). Surgical interventions to treat sexual dysfunction in this population are proliferating despite limited evidence of their impact. We conducted a scoping review to describe interventions to address sexual dysfunction in FGC-affected women.
Recent Findings Thirty-four citations in four categories of peer-reviewed literature emerged: surgical technique descriptions, case reports, literature reviews, and original research including qualitative analyses, anatomically focused studies and surgical interventions.
Summary Surgical strategies to address sexual function in FGC-affected women, although promising, are limited by low-quality evidence. FGC-affected women require, but are rarely receiving, multidisciplinary care to address myriad influences on sexual function. Research is needed to clarify the impact of surgical interventions and promising non-surgical strategies including education and counseling.

Keywords Female genital cutting · Female genital mutilation/female circumcision · Sexual function/dysfunction · Surgical interventions · Defibulation · Clitoral reconstruction

This article is part of the Topical Collection on *Female Sexual Dysfunction and Disorders*

Crista Johnson-Agbakwu and Nicole Warren share joint first authorship

✉ Crista Johnson-Agbakwu
cejohn11@asu.edu; http://www.refugeewomensclinic.org/

[1] Refugee Women's Health Clinic, Obstetrics and Gynecology, Maricopa Integrated Health System, Phoenix, AZ, USA

[2] Obstetrics and Gynecology, University of Arizona College of Medicine-Phoenix, Phoenix, AZ, USA

[3] Center for International Translational Intervention Research [CITIR], Southwest Interdisciplinary Research Center [SIRC], School of Social Work-College of Public Service and Community Solutions, Phoenix, AZ, USA

[4] Department Community Public Health, Johns Hopkins University School of Nursing, 525 N. Wolfe Street, Baltimore, MD 21210, USA

Introduction

Strategies to address sexual function in women who have experienced female genital cutting (FGC), otherwise known as female genital mutilation or female circumcision, are quickly proliferating. Procedures such as clitoral reconstruction are becoming readily available across Europe [1, 2] and North America [3]. For example, surgeries intended to address the sexual impact of FGC are now covered by the national health systems in France [4••] and the UK [5]. There are also specialized clinics to provide these services in sub-Saharan Africa [6].

FGC is a cultural practice that predates the Abrahamic religions and continues to occur in 28 African countries as well as regions of the Middle East and Southeast Asia. Prevalence rates vary depending on ethnicity, region of origin, as well as urban versus rural locale with prevalence rates ranging from less than 10 to more than 90% [7] UNICEF estimates that up to 200 million women and girls have been affected by this practice worldwide [8]. According to the World Health Organization, FGC is defined as "all procedures involving partial or total removal of the external female genitalia or other injury to the female genital organs whether for cultural, religious or non-therapeutic reasons." [9]. There are four types of FGC (Table 1) ranging from partial removal

Table 1 2007 WHO-modified classification of female genital mutilation

Type	Definition
I	Partial or total removal of the clitoris[a] and/or the prepuce *(clitoridectomy)*
	Type Ia—removal of the clitoral hood or prepuce only
	Type Ib—removal of the clitoris[a] with the prepuce
II	Partial or total removal of the clitoris[a] and the labia minora, with or without excision of the labia majora *(excision)*
	Type IIa—removal of the labia minora only
	Type IIb—partial or total removal of the clitoris[a] and the labia minora
	Type IIc—partial or total removal of the clitoris[a], the labia minora and the labia majora
III	Narrowing of the vaginal orifice with creation of a covering seal by cutting and appositioning the labia minora and/or the labia majora, with or without excision of the clitoris *(infibulation)*
	Type IIIa—removal and apposition of the labia minora
	Type IIIb—removal and apposition of the labia majora
IV	Unclassified: all other harmful procedures to the female genitalia for non-medical purposes, (i.e., pricking, piercing, incising, scraping and cauterization)

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[a] In the World Health Organization classification, when there is reference to removal of the clitoris, only the glans or the glans with part of the body of the clitoris is removed. The body or part of the body and the crura of the clitoris remain intact as well as the bulbs, two other sexual erectile structures [48••]

of the hood of the clitoris to removal of external genitalia and near obliteration of the vaginal orifice [9]. Motivations for continuing the practice vary widely and may include religion, concerns for marriageability and social acceptance, protection of virginity, esthetic preference, and preparation for womanhood [9].

Global migration trends make FGC a challenge for health care providers regardless of location. An estimated 513,000 African women or girls in the USA are from or born to a parent from an FGC-practicing country [10•]. Estimates for European countries vary from a few hundred in Hungary to more than 65,000 in the UK [11]. Although data are limited, evidence suggests that few health care providers are well-informed about caring for FGC-affected women. A global review of providers' knowledge, perceptions, and attitudes related to FGC demonstrated low knowledge about the different types of FGC, infrequent use of care guidelines, and limited awareness of the legal implications of the practice [12].

There are a variety of female sexual dysfunctions (FSD) that concern clinically significant and distressing problems with arousal, desire, orgasm, and pain [13]. In the USA, approximately 12% of women report distressing sexual health concerns, although as many as 40% report overall sexual concerns [14]. While the prevalence of FSD among FGC-affected women is uncertain, two recent systematic reviews have summarized its impact. Berg and colleagues [15] explored multiple health impacts of the practice, including sexual function, and found that dyspareunia was more common in FGC-affected women. A "dose-response" relationship may exist with more severe cutting having greater impact. This was consistent with findings in a meta-analysis specifically focused on sexual function that suggested FGC-affected women were more likely to report dyspareunia, lack sexual desire, and less sexual satisfaction than unaffected women [16]. Despite adverse effects of the practice, FGC-affected women report high rates of orgasm and other signs of normal sexual function [17, 18]. These seemingly conflicting findings highlight the challenges in measuring sexual function which is dependent on a complex interplay of physiologic—anatomic, hormonal, and neurophysiological—sociocultural and psychosocial factors including individual, relationship, and community-level influences.

Anti-FGM campaigns have increased awareness among women in and from FGC-practicing countries that FGC is not a global norm. In settings where FGC is highly stigmatized, Western norms on the bodily integrity of women and girls may negatively affect the body/genital self-image of FGC-affected women [19••], a known influence on sexual function [17, 20]. Given global migration trends, there is increasing demand for and supply of strategies to improve sexual function after FGC. To date, the impact of these procedures has not been well described. The aim of this paper is to describe the evidence on interventions to address FSD in FGC-affected women.

Methods

We conducted a scoping review to describe the evidence on interventions to treat sexual dysfunction in FGC-affected women. When the evidence is limited and there are few randomized trials, scoping reviews describe the landscape of literature available on the topic, discern whether a systematic review is even possible, and identify gaps in the evidence [21]. We used an adapted version of the methodologic framework described by Arskey and O'Malley [22] and Levac et al. [23] which includes the following steps: (1) identify the question, (2) identify relevant studies, (3) select studies for review, (4) chart the data, and (5) synthesize the results.

Our research question was: what is the evidence on interventions to address sexual functioning in FGC-affected women? To identify relevant studies, a specialist in library science/informatics conducted a systematic search of PubMed, Cochrane Library, CINAHL, PsychInfo, and Google Scholar. Search terms included, depending on database, some combination of the following: "defibulation," "defibulation," "reconstructive surgery," "reconstruction," "circumcision, female," "female genital mutilation," "female genital cutting," "dyspareunia," "sexual dysfunction," "physiological," "sexual dysfunction, psychological," "therapy," "rehabilitation," "interventions," "assessment," "quality," "outcomes," and "rehabilitation." The detailed search strategy by database is available upon request. Per scoping review methods, we used an iterative process to continually refine our inclusion criteria ensuring a selection of relevant literature. Ultimately, our inclusion criteria were English or French language, peer-reviewed citations of interventions to address sexual function in women with FGC (Fig. 1). There were no date limits. We excluded abstracts, conference proceedings, dissertations, and work that discussed interventions to address obstetrical issues.

Data were extracted from articles that met inclusion criteria by both authors using a standardized spreadsheet. We assessed all citations using the Johns Hopkins Nursing Evidence-Based Practice Research and Non-research Evidence appraisal tools [24].

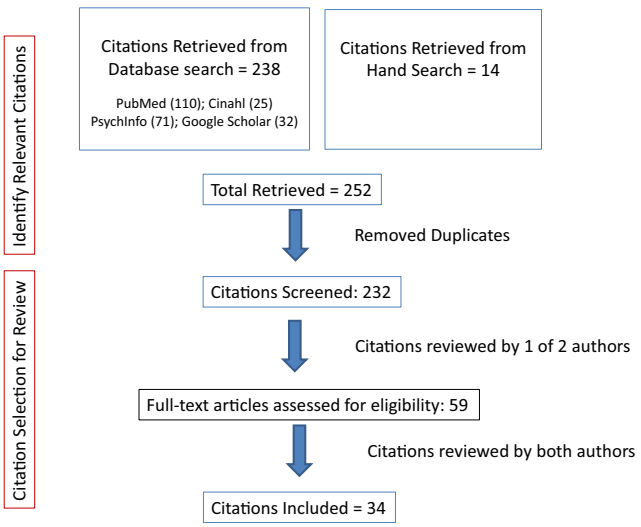

Fig. 1 Scoping review study selection flowchart

Results

Thirty-four citations met criteria and fell into four groups of peer-reviewed literature: descriptions of surgical techniques, case reports, literature reviews, and original research comprising qualitative studies, anatomically focused studies, and surgical interventions.

Surgical Techniques Four citations, while focused on describing surgical techniques often used to address sexual function in FGC-affected women, namely defibulation [25] and clitoral reconstruction [26–28], did not report on the efficacy of these surgical techniques. Defibulation entails the surgical release of the vulvar scar tissue by making a vertical incision along the infibulation to expose the urethral meatus and introitus, followed by reapproximation of the incised edges of each labia majora [25]. This can be accomplished via a traditional knife/scalpel or laser [20]. Clitoral reconstruction, first described in 2003, is a technique intended to improve genital sensation, sexual pleasure, and reduce clitoral pain in FGC-affected women [29]. All three surgical descriptions in this sample described the same technique, popularized by Foldes and colleagues, which entails resection of the clitoral stump scar, dividing the suspensory ligament, excising the surrounding fibrosis, and repositioning the mobilized clitoral stump to create a neoglans [30].

Case Reports We included 13 articles that represented a total of 43 cases demonstrating the surgical techniques of defibulation and clitoral reconstruction. Two authors described non-surgical strategies to address women's concerns including sexual therapy [31] and biofeedback [32]. Overall, authors mentioned dyspareunia ($n = 8$), apareunia ($n = 7$), and urinary problems ($n = 11$) as the most common presenting patient concerns. Seven of eight women who were defibulated, whose main complaint included dyspareunia, apareunia, desire for functional vagina, or perineal/pelvic pain, reported a resolution of symptoms [31, 33–37]. Two women in Burkina Faso reported persistent dyspareunia after defibulation [37]. No sexual outcomes were reported after defibulation for 28 women [38, 39] who presented for dyspareunia, apareunia, or desire to facilitate delivery, or two women who presented for pelvic/perineal pain, bleeding abnormalities, and urinary complaints [40]. Pathohistological data suggests that keratinized epithelial inclusion cysts are common. Seven authors reported pathology results with the most common results including two clitoral neuromas [41] and eight inclusion cysts [39, 42, 43]. Case report details by author are available in Tables 2 and 3.

Table 2 Evidence level and quality Guide

Evidence levels		Quality guide		
		A	B	C
Level 1	Experimental study; randomized controlled trial (RCT); systematic review of RCTs with or without meta-analysis	High quality: consistent, generalizable results; sufficient sample size for the study design; adequate control; definitive conclusions; consistent recommendations based on comprehensive literature review that includes thorough reference to scientific evidence	Good quality: reasonably consistent results; sufficient sample size for the study design; some control, fairly definitive conclusions; reasonably consistent design; recommendations based on fairly comprehensive literature review includes some reference to scientific evidence	Low quality or major flaws: little evidence with inconsistent results; insufficient sample size for the study design; conclusions cannot be drawn
Level 2	Quasi-experimental studies; systematic review of combination RCT and quasi-experimental studies; quasi-experimental studies only with or without meta-analysis			
Level 3	Non-experimental study; qystematic review of a combination of RCTs, quasi-experimental studies, or non-experimental studies only, with or without meta-analysis; qualitative study or systematic review of qualitative studies, with or without meta-synthesis			
Level 4	Opinion of respected authorities and/or reports of nationally recognized expert committees or consensus panels based on scientific evidence	High quality: material officially sponsored by a professional, public, private organization, or government agency; documentation of a systematic literature search strategy; consistent results with sufficient numbers of well-designed studies; criteria-based evaluation of overall scientific strength and quality of included studies and definitive conclusions; national expertise is clearly evident; developed or revised within the last 5 years	Good quality: material officially sponsored by a professional, public, private organization, or government agency; reasonably thorough and appropriate systematic literature search strategy; reasonably consistent results, sufficient numbers of well-designed studies; evaluation of strengths and limitations of included studies with fairly definitive conclusions; national expertise is clearly evident; developed or revised within the last 5 years	Low quality or major flaws: material not sponsored by an official organization or agency; undefined, poorly defined, or limited literature search strategy; no evaluation of strengths and limitations of included studies, insufficient evidence with inconsistent results, conclusions cannot be drawn; not revised within the last 5 years
Level 5	Evidence obtained from literature reviews, quality improvement, program evaluation, financial analysis, or case reports; nationally recognized opinion (organizational experience)	High quality: clear aims and objectives; consistent results across multiple settings; formal quality improvement, financial or program evaluation methods used; definitive conclusions; consistent recommendations with thorough reference to scientific evidence	Good quality: clear aims and objectives; consistent results in a single setting; formal quality improvement or financial or program evaluation methods used; reasonably consistent recommendations with some reference to scientific evidence	Low quality or major flaws: unclear or missing aims and objectives; inconsistent results; poorly defined quality improvement, financial or program evaluation methods; recommendations cannot be made
	Evidence obtained from literature reviews, quality improvement, program evaluation, financial analysis, or case reports; nationally recognized opinion (literature review, expert opinion, case report, community standard, clinician experience, consumer preference)	High quality: expertise is clearly evident; draws definitive conclusions; provides scientific rationale; thought leader(s) in the field	Good quality: expertise appears to be credible; draws fairly definitive conclusions; provides logical argument for opinions	Low quality or major flaws: expertise is not discernable or is dubious; conclusions cannot be drawn

Table 3 Case reports

Author [ref.]	Patient background and diagnosis	Country of research	HPI	Intervention	Sexual health outcomes	Pathology	Level of evidence
Abdulcadir and Dallenbach [33]	27 years old; Somalia; type IIIab; overactive bladder	Switzerland	Urinary complaints; apareunia	Defibulation and biofeedback	Resolution of symptoms	None noted	Level 5, high quality
Abdulcadir et al. [72]	24 years old; Somalia; type III; clitoral cyst	Switzerland	Dysmenorrhea; painful mass	Cyst excision and defibulation	Resolution of symptoms	Neuroma and granuloma; fibrous stroma with embedded nerve fasciles	Level 5, high quality
Abdulcadir et al. [4••]	39 years old, Burkina Faso, type II c; and 34 years old Somali; type IIIa	Switzerland	Dyspareunia, clitoral pain; aversion against cut genitals	Sexual therapy and clitoral reconstruction	Resolution of symptoms; improved self-image and resolution of symptoms	Clitoral neuroma	Level 5, high quality
Anand et al. [35]	25 years old; Somalia; type III	USA	Desire for functional vagina	Defibulation using Bovie electrocautery	Resolution of symptoms	None noted	Level 5, good quality
Chen et al. [32, 34]	31 years old; Sudan; type III	USA	Dyspareunia; infertility	Defibulation and biofeedback	Resolution of symptoms; pregnancy	None noted	Level 5, good quality
Craven et al. [36]	31 years old; Morocco; type III	USA	Apareunia, obstructive voiding, dysmenorrhea	Defibulation (outpatient)	Resolution of symptoms	None noted	Level 5, good quality
Gudu [43]	21 years old; Ethiopia; type III; infected vulvar tumor	Ethiopia	Acute vulvar pain, discharge, vulvar swelling	Surgical cyst excision	No sexual function outcomes reported	Keratinized inclusion cyst	Level 5, good quality
Gultekin et al. [40]	17 and 19 years old; none specified; type III	Turkey	Pelvic/perineal pain, metrorrhagia, urinary c/o	Defibulation	Resolution of symptoms	None noted	Level 5, good quality
Millogo-Traore et al. [37]	20 years old; 21 years old, type IIIab, type III; 17 years old type IIIab. No background specified	Burkina Faso	Apareunia	Defibulation	Persistent dyspareunia for two; resolution of symptoms for one	None noted	Level 5, good quality
Morris and Nour [38]	31, 20, and 35 years old Somali women; type III; benign vaginal villi	USA	Dyspareunia	Defibulation	No sexual function outcomes reported	Polypoid fragments of squamous mucuosa; squamous paillomas with inflammation; benign polypoid squamous mucosa.	Level 5, high quality
Nkwo [73]	27 years old; not specified; type III	Nigeria	Apareunia	Reverse marsupilization	Resolution of symptoms	None noted	Level 5, good quality
Penna et al. [39]	25 cases; Ethiopia (2) and Somalia (23); type III	Italy	Dyspareunia, desire to facilitate delivery	Defibulation (outpatient) using carbon dioxide laser surgery	No sexual function outcomes reported	Keratinized epithelial inclusion cysts noted in 5 patients	Level 5, high quality

Literature Reviews Two literature reviews provided insight into interventions to address sexual function among FGC-affected women. Paterson et al. [44] evaluated orgasmic functioning of FGC-affected women with and without an intact clitoris and the effect of surgical interventions, both defibulation and clitoral reconstruction, on orgasmic functioning. Their review included seven studies; however, their methods were not well described. They found the impact of FGC on orgasm unclear, mostly due to lack of control groups and a clear definition of orgasm. In women without an external clitoris, they concluded FGC-affected women can have orgasms but with increased difficulty. Based on a study with 18 women, Paterson concluded that defibulation significantly improved sexual desire, arousal satisfaction, and less pain with intercourse, as reflected in FSFI scores [44]. No effect sizes are reported in the review. Clitoral reconstruction's ability to improve sexual function overall and capacity for orgasm is reportedly based on two studies; no measurement data are provided.

Abdulcadir [4••] focused exclusively on clitoral reconstruction surgeries and stressed the lack of information available about the impact and outcomes of the procedure. Only studies that included safety or clinical outcomes were included. None of four included studies used validated measures of sexual function and outcome assessments were only conducted by the surgeon. Follow-up was poor, and 25% of patients had complications in two of three studies reporting safety data. The review included one study that had a control group of FGC-affected women who did not undergo clitoral reconstruction. Given the few studies, and their major flaws, the authors urged cautioned against discussing clitoral reconstruction without noting its still experimental nature. Dyspareunia appeared to decrease in one study; however, the others either did not report post-procedure pain findings or combined it with other outcomes making it impossible to discern the impact on pain.

Original Research

There were 15 original research articles. These included descriptions of outcomes following surgical interventions, qualitative analyses, and studies on the anatomy of FGC-affected women and its implications on sexual function.

Qualitative Analyses Three qualitative studies were included in our sample. Villani [45] examined consultative notes from 55 women's medical records who underwent clitoral reconstruction. The methods and analyses were not clearly described. The authors described how the women's attitudes toward FGC influenced whether or not she was offered surgery: the "patient's maturity also consists in awareness, and being able to integrate the opinion of the specialist, show that she rejects 'all the cultural claims' that go with excision" (p. 261), suggesting a conditional approval for surgery that hinges on a woman demonstrating a shift to the dominant ideas of femininity and sexuality in the host country of resettlement.

Safari [46] and Ndiaye et al. [47] provided different perspectives on the motivations for and impact of surgery. Safari explored the experiences of nine women of Somali and Eritrean origin in the UK who had undergone type III FGC with subsequent defibulation. Marital factors, the stability of the relationship, and social acceptability were critical factors influencing women's experience after defibulation. Specifically, after defibulation, a majority of the nine participants disliked their new genital appearance or were not comfortable with their new physical sensations. However, five said they would not wish to be infibulated again. Some women were ashamed of their decision, keeping their defibulation secret from family. For single women, being defibulated could mean rejection by potential partners because virginity would be questioned. Some women reported valuable support from husbands throughout the process.

Drawing upon the practice's experience providing multidisciplinary care to women requesting clitoral surgery in France, Ndiaye et al. [47] synthesized notes from 169 women who underwent surgical, psychological, and/or sexological consultations. Of the 169 who underwent surgical consults, 36 (21%) went on to pursue surgery, suggesting that some women's needs are met through psychological or sexological counseling alone. The authors posit that women's previous history of trauma, including forced marriage and sexual assault, motivates one to consider surgery, and is further compounded by repeated messages in Europe that they are somehow incomplete and devoid of any capacity for sexual pleasure. In effect, they are stigmatized for being circumcised and then seek to meet local cultural norms, the direct inverse of what prompted their original circumcision. The authors caution that "you cannot operate on shame" (p. 866) and that providers in contexts of resettlement should acknowledge that surgical "repair" will not meet the needs of all FGC-affected women.

Anatomically Focused Studies Our review included two studies focused on that anatomy of cut women. Abdulcadir et al. [48••] conducted a cross-sectional study examining whether differences in sexual anatomy and function exist among 30 women (15 FGC-affected and 15 unaffected with FGC types II and III). Measures included results from pelvic MRIs of non-aroused clitoral tissue and validated sexual function measures. This is the first study to characterize the sexual erectile tissue responsible for sexual arousal, orgasm, and pleasure which were found intact in women with FGC. The authors conclude that sexual erectile tissue was largely intact in FGC-affected women and their clitoral bodies were not

significantly smaller than unaffected women. FGC-affected women were more likely to report dyspareunia, however they did not score lower on orgasm, desire, or satisfactions sexual function sub-scales. They did score lower with respect to sexual function and desire. They concluded that women with FGC who experience FSD should receive anatomical education, counseling and treatment regardless of whether or not FGC is the etiology of their concerns.

Thabet [49] conducted a prospective cohort study of 50 unaffected and 125 FGC-affected (FGC types I and II) women with small to moderate anterior vaginal wall descent to examine the impact of FGC on the G-spot anatomically, functionally, and histologically. While no validated sexual function measures were used, findings suggest that neither sexual function nor the G-spot was affected by FGC. If there were changes, G-spot stimulation could potentially compensate.

Surgical Interventions Clitoral reconstruction (n = 7) and defibulation (n = 3) procedures were examined. The studies examining clitoral reconstruction varied considerably in terms of sample sizes and methodologic rigor and are summarized in Table 4. With respect to defibulation, Akotionga et al. [50] performed defibulations on 49 women in Burkina Faso and reported on the challenges of using local anesthetic for the procedure. They described their outcomes as satisfactory; however, no measurement details were provided. Nour et al. [51] and Krause [52] specifically addressed sexual function which improved in both studies; however, only the latter incorporated a validated scale (The Female Sexual Function Index (FSFI)). Nour's unique contribution is the inclusion of husband's satisfaction following defibulation. In a follow-up interview with husbands, all (28 out of 32 they attempted to reach) reported being satisfied with the results. Krause [2011] provided methodologic variation in her description of CO_2 laser as a defibulation technique. Complications ranged from 10% [50] to 16% [52]. Safety data for clitoral reconstruction surgery was provided in five of seven studies with complications rates ranging from 5% [1] to 30% [53]. The defibulation studies reported complications rates from 0% [54] to 16% [52]. In all of these studies, there was only short-term follow-up post-procedure.

Discussion

Strategies to address sexual function in FGC-affected women are being informed by case reports and studies of low quality that suggest sexual function is improved after surgery. However, FGC-affected women require, but are rarely receiving, multidisciplinary care to address the myriad influences on sexual function.

Surgical Interventions

Surgical interventions are a promising approach to improve women's sexual function. Both the original research and case studies included here suggest defibulation can restore normal genitourinary function and resolve dyspareunia and apareunia among women with type III FGC with few complications [52, 54]. However, the physical benefits of defibulation cannot be considered without its potential social implications. Both Nour [54] and Safari [46] report that defibulated women kept their changes secret, suggesting defibulation was not acceptable in their community. Safari's work provides a glimpse into the long-term psychological and social implications of defibulation including impaired self-image and shame. These data suggest women should be counseled not just about the positive physical changes she may experience, but the potential social implications as well. Moreover, long-term follow-up of defibulated women is necessary to assess ongoing sexual function and identity concerns.

Clitoral reconstruction is arguably more complex as both the procedure and existing literature is controversial. While several authors [1, 37, 44, 55] and a non-profit organization, Clitoraid [6], purport the legitimacy of clitoral reconstruction, the plausibility of the procedure have been questioned [56]. Specifically, Creighton and colleagues argue that the neurovascular bundle cannot be preserved by clitoral reconstruction. Despite these concerns, innovations in clitoral reconstructive surgery have outpaced the available evidence surrounding its safety and effectiveness. Not uncommonly, new procedures are desired by surgeons and patients alike. The necessity and safety of clitoral reconstruction has been readily accepted in an effort to provide FGC-affected women with the orgasms many assume they cannot achieve. While the evidence suggests that women have more positive clitoral function following clitoral reconstruction, most studies report only short-term follow-up. It is important to consider to what extent the stigma of FGC is more influential than the need for safety and quality evidence.

The studies on defibulation and clitoral reconstruction further discredit two myths about women with FGC. First, FGC cannot remove the entirety of clitoral tissue. This was demonstrated by Abdulcadir's [57] study using pelvic MRI imaging to demonstrate that a large portion of clitoral mass and functionality remains intact in women with FGC. Second, the extent of cutting is not necessarily consistent with degree of orgasmic function. There is evidence that many women with type III, where more external tissue is removed, have intact clitorises [51, 52]. This suggests they may have higher orgasmic functioning as compared to women with types I and II which, in principle, removes some or all of the external clitoris but less total tissue.

Table 4 Studies exploring clitoral reconstruction surgeries

Author [ref.]	Study design	Patient background and FGC type	Sample size	Country of research	Intervention	Outcomes and complication rates	Study quality level (level, rank)
Abramowicz et al. [53]	Retrospective cohort	Mostly Mali, Senegal, and Mauitanita; 70% with type II	30	France	Clitoral reconstruction	Increases in sexual function; 100% satisfaction per surgeon vs. 58% of patients (seeking more visible clitoris). 96% of patients found anatomical improvement. 9% early post-operative complications (n = 30) 30% rate w/in 8 days	Level 3, good
Foldes et al. [1]	Prospective cohort	Mali, Senegal, Ivory Coast, Djibouti, Ethiopia, Egypt: types II and III	2938	France	Clitoral reconstruction	Improvement (no worsening) in pain (98%) and clitoral pleasure (98%), with 51% experiencing orgasm at 1 year; 5% complication rate, 3.7% required readmission	Level 3, low
Foldes et al. [2]	Prospective cohort	Unspecified; types II and III	453	France	Clitoral reconstruction	Satisfactory anatomical restoration of clitoral mass per surgeon in 87% of cases; satisfactory functional results obtained in 75% of cases; 22.5% (n = 102) complication rate within first 10 days of procedure, of which 18.6% (n = 19) required hospital readmission, and 16.7% (n = 17) required reoperation	Level 3, low
Merckelbagh [61]	Retrospective cohort	Three-quarters Mali, Senegal, Cote d'Ivoire; type not specified	169	France	Clitoral reconstruction versus non-surgical treatment	For women with multidisciplinary care, including surgery, increases in desire, pleasant clitoral sensations, and orgasm. Decrease in dyspareunia. Results were an esthetic improvement for women and increased their sense of femininity	Level 3; good
Ouedraogo et al. [55]	Retrospective cohort	Burkina Faso with FGC types II and III	120	Burkina Faso	Clitoral reconstruction	Higher post-operative sexual desire scores; 71.3% satisfied with esthetic results, 28.7% unsatisfied. Improved sexual function in 83.6%. Complications experienced in 22.5% (n = 27)	Level 3, low
Thabet and Thabet [29]	Prospective, quasi--experimental trial	Egyptian; types I, II, and III	147	Egypt	Clitoral reconstruction and clitoral cyst excision	Women with more severe FGC demonstrated lower scores on sexual desire, arousal, orgasm, and appearance of external genitalia, with improvement in post-operative sex scores	Level 2, low
Vital et al. [58]	Prospective cohort	Burkina Faso, Guinea, Senegal, Sierra Leone: FGC types I (3) and II (9)	12	France	Clitoral reconstruction	Global sexual dysfunction improved across all FSFI domains except lubrication. 92% satisfied with genital appearance/sense of femininity, 83% had clitoral sensations, and 92% were satisfied with surgery; 8% complication rate	Level 3; good

Methodologic Challenges

Regardless of the procedure's legitimacy, existing studies examining clitoral reconstruction suffer from design and measurement limitations including small sample sizes that limit power and generalizability. The well-powered studies lacked reliable measures and had a high loss to follow-up [1, 2].

Measurement was a major limitation of most studies. There is no baseline sexual function prevalence against which to compare surgical outcomes among FGC-affected women. In the USA, prevalence of female sexual concerns is approximately 44% with only 12% experiencing distress [14]. Without similar prevalence data for unaffected women from similar cultural and ethnic background as FGC-affected women being studied, the impact of therapies is difficult to describe. Few authors reported using any measurement tool with psychometric support. Three studies used the FSFI [52, 53, 58]. Only Abramowicz [53] attempted to adapt the tool for their FGC-affected sample. Thabet and Thabet [29] reported acceptable reliability and validity for their measure but provides no detail about the tool itself.

We found only one study that included a control group [29]. Given the number of women seeking clitoral reconstruction and defibulation, it is plausible to compare outcomes for women who opt for surgery, to those who prefer non-surgical interventions, and those who pursue neither. Several factors impact sexual function including educational level, religiosity, intimate partner violence, or sexual abuse [59, 60]. However, no studies controlled for these influences. This is particularly relevant for displaced populations who may have been exposed to war-related, sexual and gender-based violence. FGC-affected women often present with a history of violence, trauma, and social challenges which may impact their motivation to pursue surgery [47]. In a review of female dysfunction among mostly FGC-affected women in Egypt, Elnashar [59] stressed the main challenges were psychosocial in nature, not anatomical. The lack of control for potential confounders is further obscured by the complexity of female sexual function illustrating that clitoral reconstruction alone will not ensure sexual function for FGC-affected women.

Sociocultural Influences on Treatment

Studies conducted in Western countries where FGC-affected populations reside must consider the individual, family, provider, and society-level influences on treatment. Women may acquire a pathologic view of their bodies/sexual function when they live in Western cultures that stigmatize FGC. This is especially relevant for adolescents just beginning to explore their sexuality partners who may not share their cultural/ethnic background.

At the provider level, Villani [45] described how a woman's rejection of FGC influences providers' decision-making to offer her surgery. Previous research with FGC-affected women suggests providers can be judgmental and make FGC-affected women feel ashamed. The extent to which this influences informed and autonomous decision-making about treatment is not well understood.

Reproductive health decision-making processes at the family level may involve male partners. Male decision-making power may not be comfortable for many Western providers. However, including male partners in treatment decisions may increase their overall acceptability in the community. Only one study explicitly evaluated the post-surgical perceptions of the male partner, highlighting men's critical role in women's decisions [51].

Ndiaye [47] discussed individual level decision-making, describing women self-selecting for surgery if sexologic and psychologic consultations did not adequately address their needs. She notes that of the 169 who sought surgery, only 36 went on to have the procedure. This is consistent with other studies: Merckelbagh [61] found that some women who initially seek surgery find "relief through psychosexual support in lifting the taboos" (p. 635). Abdulcadir [31] reported that 6 of 11 women who initially requested surgery had their needs met through information and sexual therapy alone.

It is impossible to review these studies without drawing analogies to the myriad cosmetic genital surgeries available in Western countries. At present, genital surgeries for cosmetic reasons are widely available but not recommended by the American College of Obstetricians and Gynecologist [62]. Notably, in two studies in this review, patient satisfaction was included as an outcome [55, 63]. They reported some women were not satisfied with their post-operative appearance following clitoral reconstruction, having expected more of a genital protrusion. Abramowicz [53] found an association between dissatisfaction with clitoral reconstruction results and indication for surgery: women who presented for sexual health concerns were less satisfied with the surgical result than women who presented for identity or pain issues. Women undergoing defibulation reported dissatisfaction with their post-operative genital appearance [46, 47]. The delineation of what comprises genital cosmetic surgery, its ethical implications and self-perceived impact on genital anatomy, function, and self-image warrants further exploration [64•].

Implications for Future Research

This review provides clear directions for future research. These include clarifying neuropathophysiologic pathways, improving measurement tools, incorporating multidisciplinary approaches to care, and facilitating access to quality, culturally informed care.

Clarify Neuropathophysiologic Pathways

Future research should build on existing work regarding the neurovascular innervation of FGC scar tissue to determine the extent of neural responsiveness [56], the potential for neuroplasticity [65] and impact of FGC scar thickness on genitally focused sensory perception to touch, pain, and manual stimulation in both the resting and engorged [genitally aroused] state [48••].

Develop Reliable and Valid Measurement Tools

Researchers should build upon the efforts of Abramowicz et al. [53] and Catania [17] to further adapt tools like the FSFI to account for cultural, linguistic, and contextual factors unique to FGC-affected communities. In addition, baseline FSD prevalence rates should be established and incorporated into analyses. Strategies to adapt and test the reliability and validity of previously established tools in a new cultural context around sensitive issues have been well described by others [66].

The validity of future research is also dependent on use of control groups and control for known influences on sexual function (e.g., history of trauma/violence, age, FGC type, relationship status, and well-being). Developing long-term, trust-based relationships with community partners will be critical so that these studies can be conducted. Coordinating programs of research across multiple sites would increase the sample size and ability to include geographically dispersed FGC-affected populations.

Incorporate Multidisciplinary Treatment Approaches

A multidisciplinary approach to addressing sexual function incorporates surgical and non-surgical options relevant to the patient's history and circumstances. Surgical options appear to benefit some women; however, techniques need to be standardized and supported by long-term safety and efficacy data. The impact of non-surgical interventions—pelvic floor physical therapy, individual/couples sexual counseling, and vibratory and other insertional dilator devices—needs to be assessed to determine if they are safer and more effective than clitoral reconstruction alone. The acceptability of these myriad options will vary depending on the woman, her partner, and their cultural/religious values. Researchers may consider delayed intervention designs to address ethical dilemmas of providing these services Algorithms may guide providers and their patients in considering treatment options. A stepwise approach is needed that helps providers determine if surgical options are the right first-line treatment choice or for use only after non-surgical options have been exhausted. Patient-centered multidisciplinary care should be highly individualized, emerging collaboratively following an exchange of information and discussion of risks and benefits of the available options.

Facilitate Access to Quality, Culturally Informed Care

Accessing quality, culturally informed care is particularly challenging for FGC-affected women. Providers with the requisite clinical, language, or cultural skills may be difficult to find, particularly outside of large urban areas. Health insurance may or may not cover interventions to manage sexual sequelae of FGC. Access may also be limited by distrust of the health care system, condescending attitudes toward FGC that does not foster open, culturally sensitive dialog, lack of gender concordance between patients and providers, and community stigma around sexual concerns [67–69]. Therefore, we encourage research that examines the effectiveness of innovative provider training such as the "Extension for Community Healthcare Outcomes." This model uses networks of providers to decentralize specialized expertise so that more patients can access high quality care [70].

Conclusion

Caution is needed when interpreting the scant evidence on sexual function following clitoral reconstruction. The evidence on surgical techniques is promising but does not adequately address the complex influences on sexual function. Non-surgical options like education about normal anatomy and counseling may adequately address sexual concerns but, like clitoral restoration, also need to be systematically evaluated. The findings of this review can guide research to validate measures of sexual function in FGC-affected populations and discern which elements of multidisciplinary care are most effective. Providers are urged to engage patients using a multidisciplinary approach to assessment and treatment. All plans should emerge collaboratively following an exchange of information and a discussion of risk and benefits of available options, their cost, accessibility, safety, and efficacy.

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Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no competing interests.

Human and Animal Rights and Informed Consent This article does not contain any studies with human or animal subjects performed by any of the authors.

References

Papers of particular interest, published recently, have been highlighted as:

- • Of importance
- •• Of major importance

1. Foldes P, Cuzin B, Andro A. Reconstructive surgery after female genital mutilation: a prospective cohort study. Lancet. 2012;380(9837):134–41. doi:10.1016/S0140-6736(12)60400-0.
2. Foldes P, Louis-Sylvestre C. Results of surgical clitoral repair after ritual excision: 453 cases. Gynecol Obstet Fertil. 2006;34(12):1137–41.
3. Khan S. Trying to rebuild women's bodies after female 'circumcision'. The Atlantic; 2014.
4.•• Abdulcadir J, Rodriguez MI, Say L. A systematic review of the evidence on clitoral reconstruction after female genital mutilation/cutting. Int J Gynaecol Obstet. 2015a;129(2):93–7. doi:10.1016/j.ijgo.2014.11.008. **This study elucidates the limited evidence on safety and efficacy and long-term outcomes of clitoral reconstruction procedures.**
5. National Health Service Clinical Reference Group Complex Gynaecology. Clinical commissioning policy statement: genital surgery to improve clitoral sensation. 2015; NHS England E10/PS/a.
6. No author. Clitoraid. 2012; Available at: http://www.clitoraid.org/. Accessed 13 Oct 2016.
7. Gupta GR. Female genital mutilation/cutting: a statistical overview and exploration of the dynamics of change. Reprod Health Matters. 2013;21(42):184–91.
8. UNICEF. Female genital mutilation/cutting: a global concern. New York: UNICEF; 2016. p. 1–4.
9. World Health Organization. Female genital mutilation: fact sheet. 2016. Available at: http://www.who.int/mediacentre/factsheets/fs241/en/. Accessed 13 Oct 2016.
10.• Goldberg H, Stupp P, Okoroh E, Besera G, Goodman D, Danel I. Female genital mutilation/cutting in the United States: updated estimates of women and girls at risk, 2012. Public Health Rep. 2016;131(2):340–7. **This study presents the most recent estimates of women and girls living with FGC in the U.S.**
11. Ortensi LE, Farina P, Menonna A. Improving estimates of the prevalence of female genital mutilation/cutting among migrants in Western countries. Demogr Res. 2015;32:543–62.
12. Reig-Alcaraz M, Siles-González J, Solano-Ruiz C. A mixed-method synthesis of knowledge, experiences and attitudes of health professionals to female genital mutilation. J Adv Nurs. 2016;72(2):245–60.
13. American College of Obstetricians and Gynecologists. Female sexual dysfunction. ACOG practice bulletin no. 119. Obstet Gynecol. 2011;117(4):996–1007.
14. Shifren JL, Monz BU, Russo PA, Segreti A, Johannes CB. Sexual problems and distress in United States women: prevalence and correlates. Obstet Gynecol. 2008;112(5):970–8. doi:10.1097/AOG.0b013e3181898cdb.
15. Berg RC, Denison EM, Fretheim A. Psychological, social and sexual consequences of female genital mutilation/cutting (FGM/C): a systematic review of quantitative studies. 2010.
16. Berg RC, Denison E. Does female genital mutilation/cutting (FGM/C) affect women's sexual functioning? A systematic review of the sexual consequences of FGM/C. Sexuality Research and Social Policy. 2012;9(1):41–56.
17. Catania L, Abdulcadir O, Puppo V, Verde JB, Abdulcadir J, Abdulcadir D. Pleasure and orgasm in women with female genital mutilation/cutting (FGM/C). J Sex Med. 2007;4(6):1666–78.
18. Okonofua FE, Larsen U, Oronsaye F, Snow R, Slanger T. The association between female genital cutting and correlates of sexual and gynaecological morbidity in Edo State, Nigeria. BJOG: an International Journal of Obstetrics & Gynaecology. 2002;109(10):1089–96.
19.•• Johnsdotter S, Essén B. Cultural change after migration: circumcision of girls in Western migrant communities. Best Practice & Research Clinical Obstetrics & Gynaecology. 2016;32:15–25. **This study highlights the dynamics of cultural change that is occurring across migrant FGC-affected communities now residing in the West.**
20. Abdulcadir J, Margairaz C, Boulvain M, Irion O. Care of women with female genital mutilation/cutting. Swiss Med Wkly. 2011;140:w13137. doi:10.4414/smw.2010.13137.
21. Levac D, Colquhoun H, O'Brien KK. Scoping studies: advancing the methodology. Implement Sci. 2010;5(1):1.
22. Arksey H, O'Malley L. Scoping studies: towards a methodological framework. Int J Soc Res Methodol. 2005;8(1):19–32.
23. Colquhoun HL, Levac D, O'Brien KK, Straus S, Tricco AC, Perrier L, et al. Scoping reviews: time for clarity in definition, methods, and reporting. J Clin Epidemiol. 2014;67(12):1291–4.
24. Dearholt S, Dang D. Johns Hopkins nursing evidence-based practice: models and guidelines. Sigma Theta Tau; 2012.
25. Johnson C, Nour NM. Surgical techniques: defibulation of type III female genital cutting. J Sex Med. 2007;4(6):1544–7.
26. Chevrot A, Lousquy R, Arfi A, Haddad B, Paniel BJ, Touboul C. Operative technique: the clitoral transposition. J Gynecol Obstet Biol Reprod (Paris). 2015;44(8):787–91. doi:10.1016/j.jgyn.2015.02.013.
27. Madzou S, Ouedraogo CM, Gillard P, Lefebvre-Lacoeuille C, Catala L, Sentilhes L, et al. Reconstructive surgery of the clitoris after sexual mutilation. Ann Chir Plast Esthet. 2011;56(1):59–64. doi:10.1016/j.anplas.2009.08.008.
28. Quilichini J, Burin Des Roziers B, Daoud G, Cartier S. Clitoridal reconstruction after female circumcision. Ann Chir Plast Esthet. 2011;56(1):74–9. doi:10.1016/j.anplas.2010.04.001.
29. Thabet SM, Thabet AS. Defective sexuality and female circumcision: the cause and the possible management. J Obstet Gynaecol Res. 2003;29(1):12–9.
30. Foldes P. Reconstructive plastic surgery of the clitoris after sexual mutilation. Prog Urol. 2004;14(1):47–50.
31. Abdulcadir J, Rodriguez MI, Petignat P, Say L. Clitoral reconstruction after female genital mutilation/cutting: case studies. J Sex Med. 2015b;12(1):274–81. doi:10.1111/jsm.12737.
32. Chen G, Dharia SP, Steinkampf MP, Callison S. Infertility from female circumcision. Fertil Steril. 2004a;81(6):1692–4. doi:10.1016/j.fertnstert.2004.01.024.
33. Abdulcadir J, Dallenbach P. Overactive bladder after female genital mutilation/cutting (FGM/C) type III. BMJ Case Rep. 2013; doi:10.1136/bcr-2012-008155 10.1136/bcr-2012-008155.
34. Chen G, Dharia SP, Steinkampf MP, Callison S. Infertility from female circumcision. Fertil Steril. 2004b;81(6):1692–4. doi:10.1016/j.fertnstert.2004.01.024.
35. Anand M, Stanhope TJ, Occhino JA. Female genital mutilation reversal: a general approach. Int Urogynecol J. 2014;25(7):985–6. doi:10.1007/s00192-013-2299-0.
36. Craven S, Kavanagh A, Khavari R. Female genital mutilation management in the ambulatory clinic setting: a case study and review of the literature. J Surg Case Rep. 2016;2016(6) doi:10.1093/jscr/rjw104 10.1093/jscr/rjw104.
37. Millogo-Traore F, Akotionga M, Lankoande J. Infibulation complications: three vaginal plastic surgeries at Kossodo (Burkina Faso). Bull Soc Pathol Exot. 2002;95(4):250–2.
38. Morris SN, Nour NM. Benign vaginal villi noted at time of defibulation of female genital cutting. Obstet Gynecol. 2005;105(5):1206–9. 4p

39. Penna C, Fallani MG, Fambrini M, Zipoli E, Marchionni M. Type III female genital mutilation: clinical implications and treatment by carbon dioxide laser surgery. Obstet Gynecol. 2002;187(6):1550–4.
40. Gultekin IB, Altinboga O, Dur R, Kara OF, Kucukozkan T. Surgical reconstruction in female genital mutilation. Turk J Urol. 2016;42(2):111–4. doi:10.5152/tud.2015.89982.
41. Abdulcadir J, Rodriguez MI, Petignat P, Say L. Clitoral reconstruction after female genital mutilation/cutting: case studies. Journal of Sexual Medicine. 2015c;12(1):274–81. doi:10.1111/jsm.12737.
42. Fazari AB, Berg RC, Mohammed WA, Gailii EB, Elmusharaf K. Reconstructive surgery for female genital mutilation starts sexual functioning in Sudanese woman: a case report. J Sex Med. 2013;10(11):2861–5. doi:10.1111/jsm.12286.
43. Gudu W. Acute vulvar pain in a lady with post circumcision inclusion cyst of the vulva containing stones: a case report. BMC Womens Health. 2014;14 doi:10.1186/1472-6874-14-2.2-6874-14-2
44. Paterson LQP, Davis SN, Binik YM. Female genital mutilation/cutting and orgasm before and after surgical repair. Sexologies: European Journal of Sexology and Sexual Health/Revue européenne de sexologie et de santé sexuelle. 2012;21(1):3–8. doi:10.1016/j.sexol.2011.09.005.
45. Villani M. From the "maturity" of a woman to surgery: conditions for clitoris repair. Sexologies. 2009;18(4):259–61.
46. Safari F. A qualitative study of women's lived experience after deinfibulation in the UK. Midwifery. 2013;29(2):154–8.
47. Ndiaye EA, Fall S, Beltran L. Intérêt de la prise en charge pluridisciplinaire des femmes excisées. Journal de Gynécologie Obstétrique et Biologie de la Reproduction. 2015;44(9):862–9.
48.•• Abdulcadir J, Botsikas D, Bolmont M, Bilancioni A, Djema DA, Bianchi Demicheli F, et al. Sexual anatomy and function in women with and without genital mutilation: a cross-sectional study. J Sex Med. 2016a;13(2):226–37. doi:10.1016/j.jsxm.2015.12.023. **This is a landmark study that provides radiographic evidence of the preservation of sexual erectile tissues for sexual arousal, orgasm and pleasure in FGC-affected women.**
49. Thabet SM. Reality of the G-spot and its relation to female circumcision and vaginal surgery. J Obstet Gynaecol Res. 2009;35(5):967–73. doi:10.1111/j.1447-0756.2009.01020.x.
50. Akotionga M, Traore O, Lakoande J, Kone B. External genital excision sequelae at the Yalgado Ouedraogo national central hospital: epidemiology and surgical treatment. Gynecol Obstet Fertil. 2001;29(4):295–300.
51. Nour NM, Michels KB, Bryant AE. Defibulation to treat female genital cutting: effect on symptoms and sexual function. Obstet Gynecol. 2006 Jul;108(1):55–60.
52. Krause E, Brandner S, Mueller MD, Kuhn A. Out of eastern Africa: defibulation and sexual function in woman with female genital mutilation. J Sex Med. 2011;8(5):1420–5. doi:10.1111/j.1743-6109.2011.02225.x.
53. Abramowicz S, Oden S, Dietrich G, Marpeau L, Resch B. Anatomic, functional and identity results after clitoris transposition. J Gynecol Obstet Biol Reprod (Paris). 2016; 23.
54. Nour NM, Michels KB, Bryant AE. Defibulation to treat female genital cutting: effect on symptoms and sexual function. Obstet Gynecol. 2006;108(1):55–60.
55. Ouedraogo CM, Madzou S, Toure B, Ouedraogo A, Ouedraogo S, Lankoande J. Practice of reconstructive plastic surgery of the clitoris after genital mutilation in Burkina Faso. Report of 94 cases. Ann Chir Plast Esthet. 2013;58(3):208–15. doi:10.1016/j.anplas.2012.04.004.
56. Creighton S, Bewley S, Liao LM. Reconstructive surgery after female genital mutilation. Lancet. 2012;380(9837):134–41. Lancet 2012 10/27;380 North American Edition(9852):1469–1469 doi:10.1016/S0140-6736(12)61836-4.
57. Abdulcadir J, McLaren S, Boulvain M, Irion O. Health education and clinical care of immigrant women with female genital mutilation/cutting who request postpartum reinfibulation. Int J Gynaecol Obstet. 2016b; 16.
58. Vital M, de Visme S, Hanf M, Philippe HJ, Winer N, Wylomanski S. Using the female sexual function index (FSFI) to evaluate sexual function in women with genital mutilation undergoing surgical reconstruction: a pilot prospective study. Eur J Obstet Gynecol Reprod Biol. 2016;202:71–4. doi:10.1596/978-1-4648-0348-2_ch2.
59. Elnashar A, El-Dien Ibrahim M, El-Desoky M, Ali O, El-Sayd Mohamed Hassan M. Female sexual dysfunction in lower Egypt. BJOG. 2007;114(2):201–6. 6p
60. Coker AL. Does physical intimate partner violence affect sexual health? A systematic review. Trauma Violence Abuse. 2007;8(2):149–77.
61. Merckelbagh H, Nicolas M, Piketty M, Benifla J. Évaluation d'une prise en charge multidisciplinaire chez 169 patientes excisées demandeuses d'une chirurgie réparatrice. Gynécologie Obstétrique & Fertilité. 2015;43(10):633–9.
62. Committee on Gynecologic Practice, American College of Obstetricians and Gynecologists. ACOG Committee opinion no. 378: vaginal "rejuvenation" and cosmetic vaginal procedures. Obstet Gynecol. 2007;110(3):737–8.
63. Foldes P, Droupy S, Cuzin B. Cosmetic surgery of the female genitalia. Prog Urol. 2013;23(9):601–11. doi:10.1016/j.purol.2013.01.017.
64.• Atallah S, Johnson-Agbakwu C, Rosenbaum T, Abdo C, Byers ES, Graham C, et al. Ethical and sociocultural aspects of sexual function and dysfunction in both sexes. J Sex Med. 2016;13(4):591–606. **This study examines the ethical principles surrounding female genital cutting and female genital cosmetic surgery and the critical need for providers to provide culturally appropriate and ethically grounded patient counseling and education.**
65. Einstein G. From body to brain: considering the neurobiological effects of female genital cutting. Perspect Biol Med. 2008;51(1):84–97.
66. Bass JK, Ryder RW, Lammers M, Mukaba TN, Bolton PA. Postpartum depression in Kinshasa, Democratic Republic of Congo: validation of a concept using a mixed-methods cross-cultural approach. Tropical Med Int Health. 2008;13(12):1534–42.
67. Lazar JN, Johnson-Agbakwu CE, Davis OI, Shipp MP. Providers' perceptions of challenges in obstetrical care for Somali women. Obstet Gynecol Int. 2013;2013:149640. doi:10.1155/2013/149640.
68. Johnson CE, Ali SA, Shipp MP. Building community-based participatory research partnerships with a Somali refugee community. Am J Prev Med. 2009;37(6):S230–6.
69. Johnson-Agbakwu CE, Helm T, Killawi A, Padela AI. Perceptions of obstetrical interventions and female genital cutting: insights of men in a Somali refugee community. Ethn Health. 2014;19(4):440–57.
70. Arora S, Kalishman S, Thornton K, Dion D, Murata G, Deming P, et al. Expanding access to hepatitis C virus treatment—extension for community healthcare outcomes (ECHO) project: disruptive innovation in specialty care. Hepatology. 2010;52(3):1124–33.
71. Abdulcadir J, Catania L, Hindin MJ, Say L, Petignat P, Abdulcadir O. Female genital mutilation. A visual reference and learning tool for health care professionals. Obstet Gynecol. 2016c;128:958–63.
72. Abdulcadir J, Pusztaszeri M, Vilarino R, Dubuisson J-B, Vlastos A-T. Clitoral neuroma after female genital mutilation/cutting: a rare but possible event. J Sex Med. 2012;9:1220–5. doi:10.1111/j.1743-6109.2011.02558.x.
73. Nkwo PO. Reverse marsupialization technique of defibulation to restore vulvo-perineal elasticity: a case report and description of technique. Trop Doct. 2012;42:147–9. doi:10.1258/td.2012.120082.