

Mental and sexual health outcomes associated with FGM/C in Africa: a systematic narrative synthesis

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Summary

There are gaps in evidence regarding mental and sexual outcomes and associated interventions for women with Female Genital Mutilation/Cutting (FGM/C) living in Africa. This study employed a narrative synthesis to collate evidence on mental and sexual health outcomes. A systematic search of bibliographic databases and websites was performed using appropriate keywords and studies published in English from January 1, 2010 to March 25, 2022. 25 studies were retrieved and reported mental and sexual health complications associated with FGM/C. Most studies, $n = 13$ studies reported on sexual health outcomes including sexual pain, orgasm and sexual desire problems at sexual arousal and difficulties in lubrication. Mental health outcomes were reported in four studies including depression which was most prominent followed by somatisation and anxiety, Post Traumatic Stress Disorder (PTSD) and sleep disorder. Studies did not highlight combined mental and sexual health interventions. The findings of this narrative synthesis reveal the need to prioritise provision of mental and sexual health care services for women with FGM/C. The study recommends strengthening of health systems in Africa through awareness building, training and capacity building of primary health and specialist health workers in offering mental and sexual health care to women with FGM/C.

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Introduction

The global magnitude of female genital mutilation/cutting (FGM/C) is estimated to be over 200 million girls and women distributed across over 30 countries with an estimated average of 3 million girls being at risk of undergoing FGM/C annually, and this is despite the global commitment to end FGM/C by 2030.¹ The practice is globally distributed spanning from West, North, East and Central Africa, Middle East and Asia, and South America. With the biggest burden and concentration of FGM/C in Africa.¹ Additionally, the practice has assumed a global dimension by spreading to traditionally non-cutting countries propelled through migration and asylum seeking by people from cutting communities who move with the practice to their new host countries making FGM/C prevalent in Europe, North America, Australia and New Zealand.^{2,3} A recent systematic review covering national, regional and community-based studies focusing on factors associated

with FGM/C found that lower level of maternal education and family history of FGM/C were risk factors.⁴

The practice comprises all procedures that involve partial or total removal of the female external genitalia, or other injury to the female genital organs for non-medical reasons.⁵ The World Health Organization (WHO) describes the different types of FGM/C depending on the extent of the genital tissue removed as, clitoridectomy (Type I), with the removal of the clitoris and prepuce, excision (Type II), where additionally the labia minora are also removed, infibulation (Type III) is when all of the female external genitalia may be removed often with the stitching to make a small vaginal opening, and Type IV which includes procedures such as labia pulling, piercing, pricking and cauterisation among others (Appendix). Many studies have investigated the health impacts of FGM/C, however these studies have not investigated the burden, co-occurrences and interventions for mental and sexual health and associated complications for women with FGM/C in Africa including traumatic stress and pain associated with post-surgical defibulation experience for women who go through reconstructive surgery.⁶

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Women and girls that have undergone FGM/C have been found to experience negative physical and psychological effects that often harm their wellbeing, including their sexual functioning. FGM has been implicated in serious physiological, psychological, social and sexual harms on women and girls.^{7,8} These deleterious effects on the physical, mental and sexual wellbeing span from immediate and long-term, while others often persist for life.^{5,9} Studies documenting the impact of sexual and gender-based violence in the form of intimate partner violence, coercive FGM/C practices, family violence, neglect and maltreatment of young girls in the communities where FGM/C is practiced also remains under-investigated. The gendered power dynamics in households where women have little socioeconomic agency, no decision-making power as parents, and no independent access or resources to seek health care further compromises long term outcomes.¹⁰ In a study carried out recently in Kenya using the 2014 Demographic Health Survey found that women who had experienced FGM/C justified physical intimate partner violence significantly more than those who had not gone through this practice.¹⁰

Mental health outcomes majorly manifest as long-term disability accompanied by poor psychosocial functioning. Some of these psychological complications could manifest in the form of Post Traumatic Stress Disorder (PTSD), anxiety, depression and experiences of memory loss around the experience of FGM/C too may occur.¹¹ In a study of the mental health status of 66 immigrant women with FGM/C and an analysis of their psychosocial correlates found a third of them to have above cut-off scores for affective and/or anxiety disorders, and PTSD, substance use also was present, along with risk factors like poor economic empowerment were significantly associated with development of psychopathology.¹² Women with FGM/C may experience negative emotions towards the cutting experience and this only worsens during obstetric and gynaecological examinations and childbirth when the physical and mental adverse effects of the procedure become prominent and are a source of great discomfort to women in question. Depending on how the women cope with the negative effects of FGM/C, they have been classified into the adaptives, the disempowered and the traumatised.⁸ Such a classification points to some efforts at classifying mental health burden associated with the experience of FGM/C in women's lives. Other reported mental consequences after FGM/C include feelings of incompleteness, fear, chronic irritability and nightmares, sense of inferiority and suppression of emotions and feeling are associated with a higher risk for psychiatric and psychosomatic diseases.¹³ Other research has pointed out that there is enormous emotional and physical pain associated with the practice as well as reconstitutive measures that take place. The psychological debilities associated with FGM/C as well as the

trauma that follows implies poor self-esteem, self-efficacy and turmoil about ones gender and sexual identity,¹⁴ which persists even after the reconstitute surgical process. However there are studies which present evidence that clitoral reconstruction after FGM using sensate labial flaps result in significant improvement of sexual function, clitoral sensation, genital aesthetics and self-esteem.¹⁵

FGM/C is also associated with sexual health problems. Some studies have compared the sexual functioning of women living with and those without FGM generally showing clear distinctions of sexual functioning between the two groups.^{16,17} On the physical level, the removal of the clitoris severs the pleasure point and cutting of other parts of the vulva arguably affects sexual sensitivity thereby adversely affecting the experiences among cut women and the overall sexual quality of life is also impacted.^{16–18} Reports point to chronic vulvar pain, reduction of lubrication and sexual satisfaction as well as increasing dyspareunia compared to the uncut women.^{19,20} Women who underwent FGM/C were around twice as likely as non-FGM/C women to experience dyspareunia, perineal tears, prolonged labour, and episiotomy. A study conducted among the Maasai women reported lower sexual functioning scores among women who had undergone FGM/C compared to the uncut ones. The study proceeds to show that other domains of sexual functioning notably sexual desire, arousal, lubrication, orgasm and satisfaction domains specifically were reported to be lower among cut women in comparison to uncut women while additionally they may also experience sexual pain.^{16,18,21,22}

Whilst advocacy from multiple stakeholders has created a momentum to end FGM/C, there is paucity of evidence on the burden of mental and sexual health outcomes. There is very little evidence on mental health consequences of the practice. The reason for this might come from the strong advocacy to address socio-cultural, politico-legal aspects of the practice. At the same time today, a lack of evidence around treatment, rehabilitative and preventative services for women with FGM/C living in Africa persists. Several interventions have been geared towards addressing prominent and direct health complications. However, there remains an absence of culturally rooted, contextualised and patient-centred tools for supporting women living with FGM/C in Africa where the practice is rampant. The rationale of this study is to identify sexual and mental health outcomes and interventions thereof for women with FGM/C. The study will summarise the existing evidence on the mental and sexual outcomes and care services for women living with FGM/C in Africa.

The main objective of this study is to investigate the burden of mental and sexual health complications linked with FGM/C and their associated interventions in Africa.

The specific objectives are:

1. To carry out a narrative synthesis of the burden of mental and sexual outcomes linked with FGM/C in African populations.
2. To determine the co-occurrence of mental and sexual health outcomes associated with FGM/C among women in Africa.
3. To provide a framework towards developing interventions to address mental and sexual functioning outcomes amongst women living with FGM in Africa.

Methods

Search strategy and selection criteria

We carried out a scoping review of publications on African population of women living with mental and sexual health complications associated with FGM/C. A systematic search of bibliographic databases and websites using appropriate keywords on FGM/C sexual and mental health outcomes was conducted. A literature search was conducted in BioMed Central, PubMed Central, Taylor and Francis Online, Wiley online Library, EBSCOHOST databases. The following inclusion and exclusion criteria were set; date included all studies published between from January 1, 2010 to March 25, 2022 and the region included Africa (Fig. 1).

To ensure that all relevant studies were retrieved, an iterative process was employed by two research assistants and verified by the two co-authors. In addition, a manual search of harvesting references was carried out from selected studies and existing reviews in order to identify potential studies that were not identified by electronic databases search. Our initial research retrieved 4404 studies, they were then imported the references of these studies into EndNote 20 to identify duplicated studies. The software managed to identify a total of 2813 duplicated studies, Further scrutiny was carried out on the remaining 1595 studies to identify similar studies with different formatting, and 4 more duplicates were identified and deleted leaving 1591 studies.

A further manual screening using the inclusion and exclusion criteria on titles, abstract and geographical location was conducted, where 1278 studies were excluded (see Table 1 below).

Subsequently, the screening of abstracts was conducted with 313 studies retrieved. On further screening of full studies of which 272 were excluded. The remaining 41 studies was further screened to include only those with a geographical focus or populations of African region resulting in 17 studies retrieved for the critical appraisal by the two authors of the paper (see Fig. 1).

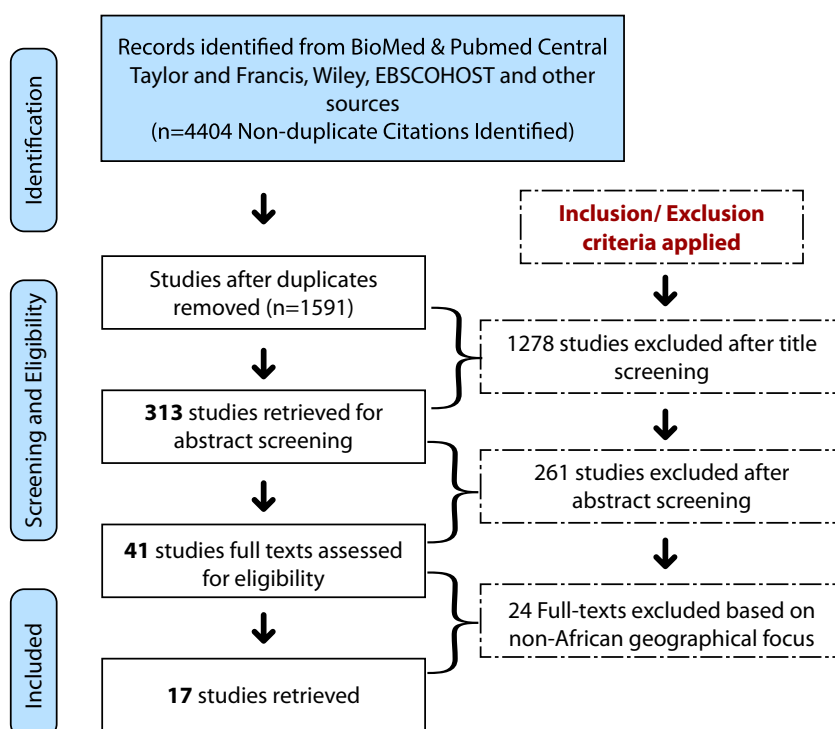


Fig. 1: Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram of retrieved studies.

Item	Inclusion criteria	Exclusion criteria
Geographical location	Sub-Saharan Africa in Geography or population under study reported	Any other studies with populations and geographically outside SSA
Language	English	Non-English literature
Publication date	1st January 2010–25th March 2022	Pre 2010 literature
Publication format	Evaluation, research studies and student thesis	Theoretical notes
Aim of study	The studies must have focused on assessing the impact of FGM/C on mental and sexual health of women	Studies that did not specifically assess mental and sexual health outcomes of FGM/C
Study design	All study types, designs and methodologies including primary and secondary studies with clear methodologies	N/A

Table 1: Inclusion and Exclusion criteria.

Data analysis

Data was extracted from studies regarding author, year of study, title, geographical location, study type, study design, study method, sample, settings, purpose design findings and study reference. The studies retrieved were completed between the year 2010 and 25th March 2022. Their full texts were available online and in English. The settings of the studies varied with some being in communities, health facilities, households among others. The study period of 12 years when concerted efforts have been advanced through various partners and stakeholders including the UNFPA-UNICEF joint program which accelerated policy and programmatic action on elimination of FGM/C and hence would provide a good overview of progress made.^{23,24} The analysis of retrieved data entailed a narrative synthesis of negative sexual and mental outcomes linked with FGM/C as well as its associated interventions.

Role of the funding source

There was no funding source for this study. All authors had full access to the data in the study and the corresponding author had final responsibility to submit the paper for publication.

Results

We selected 17 studies that were conducted in the African region and were of direct relevance to the theme of mental health and FGM/C. Most of the studies (n = 7) were conducted in Egypt, followed by Kenya (n = 3) and Ethiopia (n = 2) while the rest of the geographical areas have 1 study each reporting findings from countries like the Gambia, Tanzania, Somalia, Nigeria and Sudan (see Fig. 2).

Of these, majority (n = 17) were primary (P) studies with most of them being cross-sectional in design including qualitative (n = 5) and quantitative (n = 7) while the remaining three used mixed methodologies.

Quantitative cross-sectional research design was the most prominent design used in the studies that have

investigated the mental and sexual health outcomes linked with FGM/C in Africa. With regards to the strength of the design and approach taken, only three case control studies were reported and these were conducted in Egypt, while a longitudinal observation cohort study was carried out in Sudan. There were three mixed methods studies that took place in Ethiopia, Somali and Kenya. As we synthesise the evidence, it has become evident that aside from knowledge gap around mental and sexual health impacts, there is also paucity in development of suitable research methodologies that can tap into the challenging exposures and outcomes of FGM/C and its impact on mental health of impacted women.

With regards to different age groups impacted by FGM/C, for example various studies from Egypt, studied girls aged between 14 and 19 years and healthy sexually active, non-pregnant, married cut and uncut women as well as male populations that were studied as well. Only girls who were 13 years old were studied in The Gambia. In Ethiopia, childbearing aged women were studied in Bale zone alongside women living with different types of FGM/C participated along with their male partners. In other studies, more diverse stakeholders were engaged. In Kenya, in a qualitative study participants included female Somali youth, married cut and uncut women; male and female aged 15–80 years, influential people in the community such as religious leaders, health care providers, and organizations conducted end FGM/C activities through creating awareness on effects and outcomes of FGM/C. Table Summary of country context, age groups and female populations studied provides further information. Tables 2 and 3 description of geographical areas and study samples and study characteristics.

Most of the studies conducted in Egypt focused on sexual complications associated outcomes. Only three articles carried out in The Gambia, Egypt and Kenya investigated mental health outcomes (see Fig. 3 below).

This section provides the summary profile of sexual and mental health outcomes that were reported by the studies selected in our review. We found that majority of



Fig. 2: Geographical distribution of retrieved studies.

the studies we included in the final review investigated sexual health outcomes ($n = 17$) while those that investigated mental health outcomes were only four.

Key findings: A synthesis on sexual and mental health outcomes associated with FGM/C for women living in Africa

There were three studies that investigated mental health outcomes linked to FGM/C. These outcomes were charted in an excel matrix, analysed and presented in the Fig. 4 below. Depression was reported in all studies, while other studies reported Somatization and Anxiety issues, alongside some studies also reported on

associations with Post Traumatic Stress Disorder (PTSD) and Sleep disorders with the exposure to FGM/C.^{21,25–27}

All the four studies that reported the mental health outcomes, indicated that there were negative mental health complications for women and girls experiencing psychological problems such as somatisation, depression, anxiety, phobic anxiety and hostility compared with those with no FGM/C.^{25,26,28} One of the studies also reported the aspect of poly-victimisation that was found to be significantly associated with FGM/C experience.²⁷ The tools reported in these studies included Short Mood and Feeling Questionnaire (SMFQ), the Symptom check list (SCL-5) and Cantril's Ladder of Life

Setting and prevalence	Age group	Population studied described
Egypt	16–55 years	Egyptian women
	14–19 years	Girls
		Women, health facility sample
		Men and women purposive sample
	20–59 years	Non-pregnant married females
		Women, health facility sample
	18–60 years	Women with and without FGM/C
Ethiopia		Women of child bearing age
	Over 18 years	Women with or without FGM/C and 21 husbands
Gambia	13 years	Girls
Kenya	15–35 years	Female Somali youth
		<i>Others included;</i> Influential people in the community, recently married and unmarried men and women, older men and women, religious leaders, and FGM/C practitioners, health care facilities, health care providers, ante-natal clients and organizations conducting anti-FGC activities
	15–80 years	Males and females
	18–49 years	Married women either with or without FGM/C and those cut before marriage, or after marriage
Nigeria	15–80 years	Married women living with FGM/C, and their spouses
Somalia	15–49 years	Women
Sudan		All primigravida with or without FGM/C and had vaginal delivery during the study period
Tanzania		School girls

Table 2: Population studied in retrieved studies.

Satisfaction, PTSD Symptom Scale-Interview, Shutdown syndrome: Shutdown Dissociation Scale (ShuD), Depression and anxiety symptoms: Hopkins Symptom Checklist-25 (HSCL-25).

Only one study used a structured diagnostic interview such as Mini-International Neuropsychiatric Interview. None of the studies reported engagement of mental health professionals in carrying out these assessments.

With regards to mental health interventions post FGM/C exposure, some of the main interventions proposed included strengthening the health sector response by providing guidelines, tools and training to ensure that health professionals provide medical care and psychological counselling as well as enhancing advocacy efforts ensure support women who have FGM/C^{25–27} receive psychosocial and psychiatric support. Additionally, building capacity of medical and mental health professionals was proposed as a next step in order to provide quality comprehensive and culturally-sensitive care for women with FGM/C to avoid re-traumatisation and prevent stigmatisation.²⁷ Addressing intersectional stigma – of feeling physically unfit and less functional due to the FGM/C as well as mental ill-health stigma. Moreover, only one study provided medical care to girls and women with FGM/C complications and health education in order to prevent adverse long-term physical and psychological health consequences of FGM/C.²⁶ The following interventions were

proposed, recommended and/or provided in the studies we selected in this review (See Table 4). Table 3 on studies on FGM/C mental health outcomes and interventions.

The sexual health complications reported were sexual pain, inability to experience orgasm and lacking sexual desire, sexual arousal including experiencing lack of lubrication during sex.

Most of the studies (n = 13) that investigated sexual health outcomes, mentioned that the various domains of female sexual functioning had been negatively impacted including sexual desire, sexual arousal, lubrication, orgasm, and satisfaction.^{16,21,22,29–35} Sexual pain appeared to be the most commonly studied problem reported in all the studies retrieved which investigated sexual health outcomes.^{30,36–38} Other studies mentioned that some of these impacts had a negative effect on marital relationships, general health and overall well-being of women. A qualitative study found that the disabling consequence of FGM was largely sexual in nature, resulting in traumatic sexual experiences and negative beliefs about sex requiring a myriad of coping strategies employed by these women whose physiological processes have been disrupted. And their spouses too had to resort to strategies and procedures which were not well-documented. The tools used to assess sexual health included Female Sexual Function Index (FSFI) especially Arabic versions and two studies mentioned evaluating the cuts to make determination of the FGM/C classification. Overall the

Author and year	Setting and prevalence	Population	Sample type and recruitment strategy	Study design and comparison group	Method and quality of studies	Information/activities intervention offered/evaluated	Type of outcome	Outcome/results
Anis et al. (2012)	Egypt	Egyptian women	The study included 650 Egyptian females between 16 and 55 years of age (333 genitally cut women and 317 uncut women)	Cross sectional study design	Used Arabic Female Sexual Function Index (ArFSFI) and examination of the cut	Effects of Female Genital Cutting on the Sexual Function of Egyptian Women	Sexual Complication	The desire, arousal, lubrication, orgasm, and satisfaction domains were significantly higher in the uncut participants compared with those of the cut participants. No significant difference between the two groups was found regarding the sexual pain domain.
Esho et al. (2017)	Kenya	Married women; the uncut, cut before marriage, and cut after marriage	Multistage sampling technique was used to select married women who were categorized into: cut before marriage, cut after marriage and the uncut	Cross sectional study design	Questionnaire	The 'heat' goes away: sexual disorders of married women with female genital mutilation/cutting	Sexual Complication	Women cut after marriage scored significantly lower than the uncut. No statistically significant difference between the two FGM/C groups. Among the sexual functioning domains, lubrication, orgasm, and satisfaction were significantly different across the three groups. Desire, arousal, and pain were not statistically different.
Esho et al. (2012)	Kenya	Male and female age 15–80	A purposely sample consisting of 28 women and 19 men, within the ages of 15–80 years.	Case control study design	Interviews and 5 focus group discussions.	An Exploration of the Psycho-Sexual Experiences of Women Who Have Undergone Female Genital Cutting	Sexual Complication	The study found out that one of the desired effects of FGC ritual among the Maasai was to reduce women's sexual desire, embodied as tamed sexuality. This consequence was however not experienced as an impediment to sexual function. The research established that esteeming transformational processes linked with the FGC 'rite of passage' are crucial in shaping a woman's femininity, identity, marriageable status and legitimating sexuality. In turn, these elements are imperative in inculcating and nurturing a positive body-self image and sex appeal and consequently, positive sexual self actualization.

(Table 3 continues on next page)

Author and year	Setting and prevalence	Population	Sample type and recruitment strategy	Study design and comparison group	Method and quality of studies	Information/activities intervention offered/ evaluated	Type of outcome	Outcome/results
(Continued from previous page)								
Mpofu et al. (2017)	Kenya and Nigeria	Cut and uncut women	The sample size was 7344 for Kenya and 16,294 for Nigeria.	Cross sectional study design	Survey	The relation of female circumcision to sexual behavior in Kenya	Sexual Complication	The outcome variables were age at first intercourse and total lifetime number of sexual partners. The study hypothesis was that women who were circumcised were less likely to have initiated sex early and to have only one sex partner. Cox proportional hazards regression and Poisson regression were used to examine the relations of female circumcision and other selected variables to sexual behavior. No association was observed between female circumcision and the outcomes for sexual behavior of women in Kenya and Nigeria. The argument of sexual chastity is insufficient to sustain the perpetuation of female circumcision.
Ismail et al. (2017)	Egypt	Healthy sexually active Egyptian women	The sample included healthy sexually active Egyptian women (197 with FGM/C and 197 without FGM/C) who had visited the hospital either for routine check-up, for mild dermatological illness or accompanying other patients. Women with chronic medical illnesses, psychiatric illness, pregnancy and lactation, illiterate women and those with no sexual activity in the last 6 months were excluded from the study.	Case control study design	Questionnaire	Effect of female genital mutilation/cutting; types I and II on sexual function	Sexual Complication	Female sexual dysfunction (FSD) was found in 83.8% of FGM/C cases in contrast to 64.5% of the control. The total FSFI score in the FGM/C group was significantly lower than in the control group. FSD was found in 83.4% of FGM/C I cases and in 84.6% of FGM/C II cases. There was no statistically significant difference between the two types of FGM/C as regards total and individual domain scores except for the pain domain. There were significantly lower total and individual domain scores in both FGM/C types except for the desire domain compared to control.
Johanssen et al. (2021).	Somali and Sudan	Men and women migrants	Snow-ball sampling through different starting points was used to recruit 24 informants who had lived more than a year in Norway, and four key informants were recruited through the services in which they worked	Qualitative study	In-depth interviews	Virility, pleasure and female genital mutilation/cutting. A qualitative study of perceptions and experiences of medicalized defibulation	Sexual Complication	The study findings indicate that, despite negative attitudes towards infibulation, its cultural meaning in relation to virility and sexual pleasure constitutes a barrier to the acceptance of medicalized defibulation.

(Table 3 continues on next page)

Author and year	Setting and prevalence	Population	Sample type and recruitment strategy	Study design and comparison group	Method and quality of studies	Information/activities intervention offered/ evaluated	Type of outcome	Outcome/results
(Continued from previous page)								
Owojuyigbe et al. (2017)	Nigeria	Married women who had been subject to FGM, and their spouses	Twenty-two participants for the study were purposively selected, using snowball sampling	Cross sectional study design	Semi-structured in-depth interviews	Female genital mutilation as sexual disability: perceptions of women and their spouses	Sexual Complication	The study shows that the disabling consequence of FGM is largely sexual in nature, leading to traumatic experiences and negative beliefs about sex, and requiring a myriad of coping strategies employed by the disabled women, and their spouses, which may have its own implications for marital and sexual bliss.
Mahmoud (2016)	Egypt	Women who have undergone FGM and those who had not	A convenient sample of 272 currently married educated women had FGM with their 272 matched controls (their matching was for age, education and marital status); women were included from 4 randomly selected PHCC: 2 from urban and 2 from rural Alexandria (Abees region).	Case control study design	A specially designed interviewing format in Arabic was completed by the researcher followed by completion of Female Sexual Function Index (FSFI) questionnaire.	Effect of female genital mutilation on female sexual function	Sexual Complication	FGM was a risk factor for dysmenorrhea, obstructed labor and postpartum hemorrhage. Cases had lower mean sexual function; moreover, half of them convinced with FGM practice and with its continuation.
Ahmed et al. (2017)	Egypt	Girls, aged 14–19 years	A total of 204 girls, aged 14–19 years, were included	Cross sectional study design	Questionnaire	Psychological impact of female genital mutilation	Mental Health	There were no significant differences between the FGM and non-FGM groups as regards religion, educational and socioeconomic levels. FGM girls had a significantly higher level of psychological problems with regard to somatisation, depression, anxiety, phobic anxiety and hostility compared with non-FGM girls ($p < .0001$).

(Table 3 continues on next page)

Author and year	Setting and prevalence	Population	Sample type and recruitment strategy	Study design and comparison group	Method and quality of studies	Information/activities intervention offered/ evaluated	Type of outcome	Outcome/results
(Continued from previous page)								
Yassin et al. (2018)	Sudan	All primigravida (subjected and not subjected to FGM/C) who experienced vaginal delivery during the study period	Census of all primigravida (subjected and not subjected to FGM/C) who experienced vaginal delivery during the study period in Omdurman Maternity Hospital, Khartoum	A prospective observational cohort study (longitudinal)	Questionnaire	Characteristics of female sexual dysfunctions and obstetric complications related to female genital mutilation	Sexual Complication	The most common reported sexual complication was dyspareunia, B leading following first attempt of sexual intercourse, reduced sexual desire, reduced sexual satisfaction and need for surgery to release labial adhesions at first attempt of sexual intercourse. With regard to FGM- related complications that occurred during labor 76.5% required an episiotomy, 61.7% experienced difficulties in cervical examination, 57.8% needed defibulations during second stage of labor, 26.5% complicated by episiotomy wound infection and 2.2% developed obstetric haemorrhage
Battle et al. (2017)	Ethiopia	Women with different types of FGC (or no FGC) and 21 husbands	28 women with different types of FGC (or no FGC) and 21 husbands were included in the study	Cross sectional study design	Indepth interviews	Influence of Female Genital Cutting on Sexual Experience	Sexual Complication	Compared to others, women with more severe FGC reported traumatic sexual experiences and decreased sexual desire. Nonetheless, participants largely endorsed FGC for daughters, revealing pressure to maintain the practice. Opportunities for change exist, as women and men recognized the sexual pleasure and healthy birth experiences of uncut women.
Pesambili et al. (2018)	Tanzania	Girls and women of all age and nationalities from FGM/C-practising communities affected by the procedure	In-depth interviews were conducted with a wide range of respondents, including circumcised girls, elders, parents, and heads of schools, a total of 42 interviews were conducted. A total of four focus groups consisting of five members for each session was conducted. Two groups consisted of the primary school's students and the other two groups consisted of the secondary school's students.	Case control study design	Interviews and focus group discussion	Implications of female genital mutilation on girls' education and psychological wellbeing	Sexual complication	The effect of FGM on girls are multifaceted, including early marriages, parents' negative attitudes towards girls' education, girls' change in attitudes and loss of interest in schooling, which lead to poor educational achievement in many ways. Notably, girls who manage to escape FGM suffer from isolation and stigma from their peers who have been circumcised

(Table 3 continues on next page)

Author and year	Setting and prevalence	Population	Sample type and recruitment strategy	Study design and comparison group	Method and quality of studies	Information/activities intervention offered/ evaluated	Type of outcome	Outcome/results
(Continued from previous page)								
Guyo et al. (2021).	Kenya	"Influential people in the community, recently married men and women, unmarried men and women, older men and women, religious leaders, and FGC practitioners, health care facilities, health care providers, ante-natal clients and organisations conducting anti-FGC activities"	Eighteen interviews were undertaken in North Eastern Province and 11 in Nairobi. Focus group discussions (FGDs) were conducted in Mandera and Eastleigh 21 FGDs we conducted in Facility -Two health centres, three hospitals, and three dispensaries from Mandera and Wajir, and six private nursing homes in Eastleigh Interviews were conducted with all the staff responsible for safe motherhood services in these facilities Exit interviews were conducted with all antenatal clients- 49 clients in Nairobi and 52 from North Eastern. Discussions with organisations conducting anti-FGC activities: All organizations implementing FGC abandonment activities in the study sites were identified through discussions with local leaders.	Discussion and interview	Questionnaire	Female Genital Cutting among the Somali of Kenya and Management of its Complications	Psychological Complication Sexual complication	About half of the health workers reported encountering clients with psychological complications associated with FGC. Once married, 73 percent of them reported that they were afraid of being married because of fear of sexual penetration, psychological trauma, depression, and lack of sexual satisfaction or desire. Of the 17 health workers that reported ever managing a woman with social problems associated with FGC, nearly all reported marital conflict, with two citing divorce. This conflict can begin after the wedding night, if the man discovers that the girl had not been "properly" infibulated, or because of failure by the man to penetrate the woman.
Abdulle et al. (2020)	Somali	Women aged 15-49 years	Sample size of 344 women aged 15-49 years was determined using the Fisher formula and finite correction for proportions. Systematic sampling was used to select households from which respondents were purposively selected if one and randomly selected if many to complete questionnaires. Key informants and focus group discussion participants including professional midwives, head nurses and traditional birth attendants, women organizations, religious leaders, local authority of the district and youth organizations were purposively selected.	Cross sectional study design	Questionnaires, KII and FGDs	Female genital mutilation practice and its effects on women's reproductive health	Sexual Complication	Pain (74.5%), bleeding (71.9%), difficulties with menstruation (69.9%) and infections (60.9%) were the main reproductive health complications associated with FGM.

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Author and year	Setting and prevalence	Population	Sample type and recruitment strategy	Study design and comparison group	Method and quality of studies	Information/activities intervention offered/ evaluated	Type of outcome	Outcome/results
(Continued from previous page)								
Im et al. (2019)	Kenya	Female Somali youth	143 refugee female were included in the study	Cross sectional study design		Polyvictimization and mental health consequences of female genital mutilation/ circumcision (FGM/C)	Mental Health	FGM/C was strongly associated with negative physical and mental health outcomes, including Post Traumatic Stress Disorder and depressive, anxiety, and somatic symptoms. Logistic regression analysis revealed that separation from a parent and poly-victimization experiences were significantly associated with FGM/C experience. The results also showed that FGM/C and other traumas did not occur singly but were indicative of cumulative adversities, especially for women who were socially vulnerable and marginalized.
Mohammed et al. (2014)	Egypt	Women	The respondents were drawn from five randomly selected districts of Bale zone. The total sample was allocated proportionally to each district based on the number of reproductive age women it has. Purposive sampling method was used for qualitative study.	Cross sectional study design	Female Sexual Function Index (FSFI) questionnaire.	Female genital mutilation/ cutting: will it continue?	Sexual Complication	Desire, arousal, lubrication, orgasm, and satisfaction were significantly poorer in women with type II FGM/C. Pain was significantly higher in type II FGM/C.
Bogale et al. (2014)	Ethiopia	All Bale Zone child bearing age women	The respondents were drawn from five randomly selected districts of Bale zone. The total sample was allocated proportionally to each district based on the number of reproductive age women it has. Purposive sampling method was used for qualitative study.	Cross sectional study design	Pre-tested and structured questionnaire	Prevalence of female genital mutilation and its effect on women's health	Sexual Complication	To get married, to get social acceptance, to safeguard virginity, to suppress sexual desire and religious recommendations were the main reasons of FGM. The reported immediate complications were excessive bleeding at the time of the procedure, infection, urine retention and swelling of genital organ. Muslim women and women from rural areas were significantly more likely to have undergone the procedure. In addition to these, compared to women 15–20 years old older women were more likely to report themselves having undergone FGM.

Table 3: Key findings of the studies included in the review.



Fig. 3: Geographical areas and classification of retrieved studies in relation to FGM/C mental and sexual health outcomes.

post-FGM/C adjustments for both the women and their spouses were significant and this finding has its own implications for marital and sexual sense of satisfaction and connection as couples.³³ The female partner due to the exposure to FGM/C experiences significant discomfort and pain. The association of physical factors with regards to the FGM/C were also linked to sexual health outcomes. One study reported dysmenorrhea, bleeding following first attempt of sexual intercourse, continued sexual pain, menstruation difficulties were also mentioned.³⁹

With regards to specific interventions for sexual health outcomes, majority of the studies ($n = 9$) did not propose or provide any.^{30,32–35,37–39} Only 7 of the studies,

proposed interventions and only one provided it to their sample population on a need basis.^{16,22,31,34–36,40} This highlights a big gap with regards to sexual health management of survivors. Table 4 studies sexual health outcomes and interventions.

Combining the outcomes reported in Tables 3 and 4 above, these findings indicate that sexual pain and sexual desire, orgasm difficulties may contribute to clinically significant depression, anxiety, somatization as well as trauma symptoms that warrant further investigation-in terms of understanding their duration, severity, comorbidities as well as appropriate psychosocial and psychopharmacological interventions.

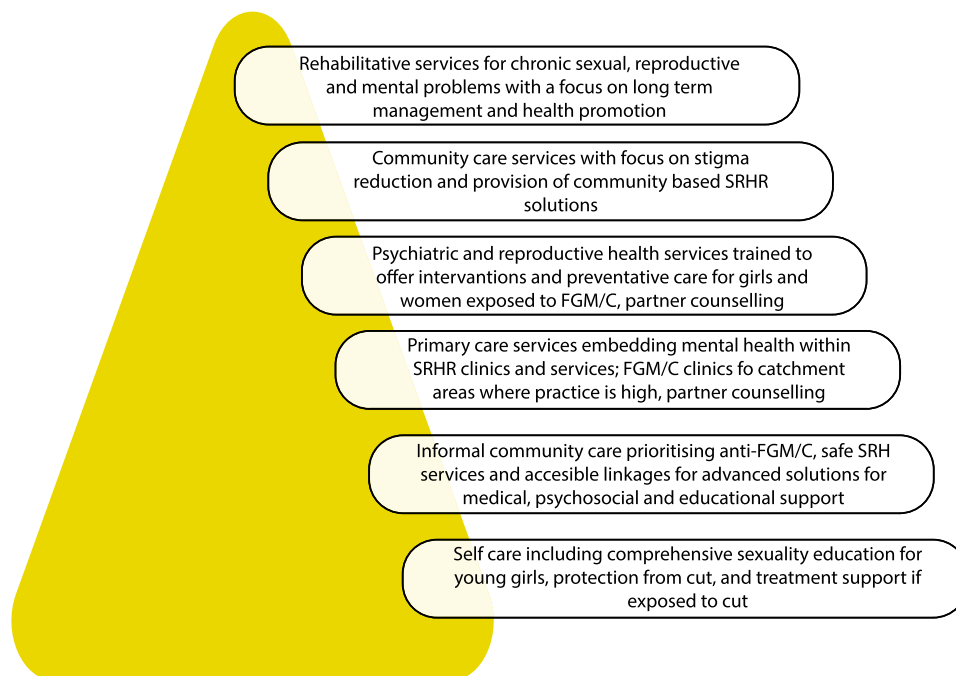


Fig. 4: Integrated service development for FGM/C.

Discussion

More recently there has been a surge of literature on FGM/C and health outcomes of women^{4,41} and a few studies recently have drawn attention to psychosocial import of the practice.^{42–44} Overall, however, very little attention continues to be paid to the link between mental health and socio-psychological and physical health consequences of FGM/C. Our review points to some areas within mental health that have been covered in studies in the SSA region. However, in terms of design and clear determination of constructs the studies are sub-optimal. A number of studies were also qualitative and mixed methods approaches and these were corroborating the worsening impact FGM/C has on mental health of women and deepened an understanding of their experience. We would like to underscore the need to embed mental health outcomes as being key to understanding well-being and recovery/rehabilitation outcomes of women exposed to the practice. Over time there is an understanding that FGM/C is a selective interpretation of both culture and religion and that it has become a tool to control women. There are strong legislative guidelines and conventions pointing to the need to give up this practice and the case of how it scars women psychologically and socio-emotionally needs to become an active driver of advocacy. Depressed mood, PTSD, anxiety, and somatisation problems were amongst the commonly studied conditions explored in handful of studies. Along with these disorders, feelings of anger, hostility and mood disturbances, reports of

appetite disturbances and eating disorders, self-esteem and relationship difficulties were part of mental and emotional attributes that were also explored in the four studies we identified covering this population. These domains have to become important points of entry when offering psychosocial and mental health services. We found slightly higher number of studies focusing on sexual health covering spheres of sexual arousal, sexual pain, sexual desire, lubrication, orgasm, virility, and sexual satisfaction. However, neither were these terms well-articulated or more culturally contextualised explanations, symptom features or interventions suggested in these studies. Our review identified very few studies conducted within Africa that focused on mental health outcomes that were primary outcomes of interest to us. Given that FGM/C is most seen in the African continent, our review identifies a significant evidence and knowledge gap on mental health of women exposed to FGM/C.

As we synthesise the evidence, it has become evident that aside from knowledge gap around mental and sexual health impacts, there is also paucity in development of suitable research methodologies that can tap into the challenging exposures and outcomes of FGM/C and its impact on mental health of impacted women. A major gap in our view is that FGM/C is majorly a practice that is linked with outcomes that may not be measured only using quantitative methodologies and may require qualitative aspects especially phenomenologically engaging inquires to bring out the individual

Study author and title	Mental health outcomes	Mental health intervention proposed or provided
Magdy et al., 2017. Psychological impact of female genital mutilation.	Girls with FGM/C had a significantly higher level of psychological problems including somatisation, depression, anxiety, phobic anxiety and hostility compared with non-FGM girls	<ul style="list-style-type: none"> Health sector strengthening for FGM/C complications response through guidelines, tools and training to ensure that health professionals provide medical care and psychological counselling to girls and women living with FGM/C simultaneously Increasing advocacy efforts at international, regional and local levels to end FGM/C and to care for mental health damages to girls/women impacted by this practice.
Im et al., 2019. Polyvictimization and mental health consequences of female genital mutilation/circumcision (FGM/C).	FGM/C was associated with negative physical and mental health outcomes, including Post Traumatic Stress Disorder and depressive, anxiety, and somatic symptoms. Other mental health impacts multi occurrence of trauma related to included parental separation from a parent, social stigma and poly-victimization	<ul style="list-style-type: none"> Capacity strengthening of for caregivers targeting parents and legal guardians Strengthening of community and systems level for interventions to end FGM/C and enhance protection for children and youth. Capacity strengthening of medical and mental health professionals to provide comprehensive and culturally-sensitive care to FGM/C survivors
Bothild et al., 2021. The association between physical complications following female genital cutting and the mental health 12-year-old Gambian girls: A community-based cross-sectional study.	Depressive symptoms were associated with immediate physical health complications Co-occurrence of the urogenital problems Psychological distress was only associated with immediate complications	<ul style="list-style-type: none"> Provided medical care to those with FGM/C co implications Capacity strengthening that also targets girls and women who have undergone FGM/C on mental and sexual health is important
Pesambili and Mkumbo 2018. Implications of female genital mutilation on girls' education and psychological wellbeing	Reported multifaceted nature of complications impacting girls including early marriages, parents' negative attitudes towards girls' education, girls' change in attitudes and loss of interest in schooling hence interfering with girls education	No intervention reported

Table 4: Studies on FGM/C mental health outcomes and interventions.

meaning, personal experience, subjective lived experiences associated with the practice including women's appraisal of their well-being in the aftermath of the cut. Cultural and gender dynamics, female empowerment and understanding of such practices need more participatory, gender-responsive, and socio-anthropologically situated approaches.

Studies retrieved did not look at the co-occurrence of mental and sexual health on women living with FGM/C. Other studies revealed that associated social impacts also could result from co-occurring harmful practices such as social isolation, disengagement from learning and schooling due to pain, discomfort and stigma in young girls from Tanzania,²⁸ traumatic painful traumatic sexual experiences that added to psychological distress from Ethiopia, FGM/C's association with depression, anxiety, somatization and trauma with cumulative vulnerabilities that this practice added to their mental and physical ills.²⁷ Similarly another review found out that women with FGM/C are more likely to develop mental disorders, such as Post Traumatic Stress Disorder, anxiety, somatisation, phobia, and low self-esteem.⁴⁵ In a study on Senegalese women, Behrendt and Moritz (2005)¹¹ found a significantly higher prevalence of PTSD and other psychiatric syndromes in 23 cut women versus 24 uncut women and found associations between PTSD and memory dysfunctions in the cut women. Most of the findings came out of Egypt

possibly relating to the higher burden of FGM/C in that country which stands at 87.2%.⁴⁶ These findings are in keeping with the evidence we have globally around this practice.

With regards to sexual health outcomes, our efforts at evidence synthesis revealed associations between level of traumatic sexual experiences and reduced sexual desire associated with FGM/C.³⁷ This finding is in line with a study that was conducted among the Somali ethnic group in Kenya, where other sexual health outcomes were described. These included: alterations in and difficulties during menstruation, prolonged labor, pain and complications during child birth, persistent sexual pain among others.⁴⁷ In other studies, FGM/C was a justification for marriage, safeguarding virginity and sexual chastity, however sexual dissatisfaction was clearly identified as an outcome associated with the experience of FGM/C.^{36,48} Other reported outcomes include the increased risk of sexually transmitted infections.³⁸ Marital satisfaction, quality of interpersonal relationships were impacted by the resulting male sexual dysfunction as a result of the female partner's sexual dysfunction.²⁹

Furthermore, we would like to underscore the complex interaction between the biological, psychological and sociocultural experiences on mental and sexual health of women with FGM/C. Evidence shows that sexual functioning is a product of complex interactions

of many processes notably biological, psychological, social, political mechanisms, and not just pertaining to dysfunction of the external genitalia.^{31,49-51} The removal of the clitoris, the organ of sexual pleasure would arguably be expected to adversely affect sexual experiences among cut women^{17,52} from a purely anatomical perspective. This therefore indicates the need for sexual health services not just for individual women but also couples to enhance sexual health and well-being. Some of the salient nuances around the normative aspects of FGM/C is that its transformational processes as a rite of passage among the Maasai people is one that nurtures positive body self-image, sex appeal, legitimises sexuality with regards to readiness to child bearing.³¹ The same study also reveals the nuances of FGM/C justification as taming of female sexuality for sexual chastity within marriage. A study from Kenya and Nigeria⁵³ found no association between female circumcision and the outcomes for sexual behaviour of women and the authors underscore that the argument of sexual chastity is insufficient to sustain the perpetuation of female circumcision. This also points to the complex interaction of the bio-psychosocial aspects that play a role to impact sexual experiences. Hence a positive body image and relationship will promote sexuality of these women.

This narrative synthesis reveals that many of the studies investigated the association of FGM/C and sexual outcomes. The studies revealed that there were many negative outcomes associated with FGM/C affecting various spheres of female sexual functioning including sexual desire, sexual arousal, lubrication, orgasm, and satisfaction.^{16,22,29,32} These were studies that utilised the Female Sexual Functioning Index to assess female sexual functioning. Other studies focused on aspects around sexual health outcomes of FGM/C including such as dysmenorrhea, menstruation difficulties, infections and bleeding.^{27,30,39} Studies were reviewed also revealed some level of traumatic sexual experiences and reduced sexual desire associated with FGM/C.³⁷ This particular findings is in line with a study that found out that the other sexual health outcomes are related to menstruation difficulties, child birth issues, sexual pain among others.⁴⁷

In terms of the linkage between FGM/C mental consequences and its impact on sexual health and vice-versa there seems to be a gap that should be explored further as very few studies investigate this connection and research on mental health outcomes have tapped into limited domains associated overall psychosocial functioning. We did not find violence and psychosocial impacts of gender based, intimate partner violence associated with FGM/C in the scholarship we reviewed. The disconnect between linking violence to FGM/C and absence of systematic documentation and analysis of its impact on mental, physical and sexual health is a serious limitation we have identified in our work. We think this is an area that needs attention of future studies that will

attempt to map psychological, mental and sexual health outcomes associated with FGM/C.

One of our key findings is that there remains a gap in evidence generation and research prioritisation around the combined effects of mental and sexual health, as these two outcomes will interact to worsen the conditions for women and couples with regards to their general health. We are concerned that this gap also has implications for grassroots and regional advocacy and policy development as well. One reason why there is attention to FGM/C practice is because immigrants in North American, European contexts are now encountering these populations and their health and social systems are feeling challenged by how rampant the practice of FGM/C is in these sub-populations. This awareness has led to mobilisation of resources and efforts to develop policies and action plans to stall this practice. While on the other hand in SSA and other regions of the world where it is practiced, that kind of prioritisation, resources and policy impetus is lacking. What is also lacking alongside are health services, research and an integrated care approach in SSA to mitigate harmful effects of FGM/C. We know that FGM/C as a traumatic exposure does not occur in isolation the rampant nature of the practice in communities that culturally endorse it but indicative of cumulative adversities, exposure to violence and victimization especially debilitating for women who are socially vulnerable and marginalised. This finding also concurred another Gambian study that investigated these outcomes in young girls where depressive symptoms were associated with immediate physical health complications.²⁶

The Gutmacher-Lancet Commission 2018 defines SRHR as “a state of physical, emotional, mental, and social well-being in relation to all aspects of sexuality and reproduction, not merely the absence of disease, dysfunction, or infirmity and that for sexual health to be attained and maintained, the sexual rights of all persons must be respected, protected and fulfilled.”^{54,55}

The acceleration of the progress towards the achievement of sexual health requires a holistic view of SRHR including addressing historically neglected topics, such as GBV, adolescent sexual and reproductive health and harmful practices like FGM/C.⁵⁶ The impetus for our work here is to generate more multi-dimensional evidence on neglected areas such as mental health, FGM/C and GBV. In the same year as the Gutmacher Commission, the Lancet Commission on Mental Health and Sustainable Development (2018) highlighted that mental health is a global public good and all countries, societies, and individuals benefit from its inclusion in their overall development agenda. Mental health exists on a continuum and there are problems that range from mild to severe in intensity. Mental health services and programs range from rehabilitation, treatment, prevention, and promotion. Each

of these categories are important and must be embraced at the same time. Mental health is a confluence of multiple factors, it is not only our biology, a genetic makeover, but also our environmental exposures. It is a fundamental human right, and like other fundamental rights mental health needs to be legally and politically upheld. Investment in mental health brings returns (albeit not immediately) and the rate of return is 5–6 times the initial investment.⁵⁷ Given the context of Africa where the practice of FGM/C is most rampant, we need to think about improved investment in both mental health and SRHR programming so that we can develop adequate support structures to treat and rehabilitate girls and women who have gone through cutting as well as provide health promotion and social protection to those who can be prevented from exposure to this practice. Awareness building and advocacy at multiple levels remains critical. While these findings we hope would help in shaping a stronger mental and sexual health agenda around FGM/C experience, our work was not without limitations. We were restricted to English language databases and there may have been studies that we missed out on. Grey literature too has not been attended to here and we believe important insights may have been missed out. We hope future studies would attend to these lacunae in updating our review. We did not find a lot of focus on domestic, sexual or gender-based violence which is inextricably connected with women's experiences in most parts of the world. The act of FGM/C especially in infants, female children and young girls is an act of violence. We were not able to develop this strand further and do not know that we may have missed out on important determinant of sexual and mental ill-health.

We make recommendations for sexual and mental health programming across the cascade of care to better provide for women who have gone through this practice. We have modelled Fig. 4 on the WHO's Pyramid of Care.⁵⁸ Beginning with self care, comprehensive sexuality education to mitigate FGM/C practices and their wider use.

We believe that the integrated programming will offer solutions towards long term well-being of this population. We do think that the primary health and community care plays an important role in the shaping of advanced and specialised services. The role of informal and formal community strengthening of services and care to ramp up anti-FGM/C messages, using cultural metaphors and processes that can be suitable replacement for FGM/C, encouraging safe SRH services at grassroots level. This then needs a strong primary care set up that can mitigate, promote but also provide comprehensive psychosocial, medical and family focused interventions to treat FGM/C exposure. As we go up the pyramid, higher psychiatric level management accompanied by advanced gynaecological, SRHR services, stigma mitigation, provision of care

within communities as well as rehabilitative services will be the key in this integrated model.

Outstanding questions

As identified in the findings of this scoping study, there is scarcity of studies and interventions that target mental and sexual health implications of women living with FGM/C as psychosocial and mental health outcomes in Africa have been neglected. What is also missing is an integrated approach to studying these harmful impacts, for example combined understanding of sexual and mental health aspects or testing multilevel interventions targeting emotional, behavioural and sexual health of women. The long term interpersonal and relationship impacts continue to be understudied. Therefore, not only in the immediacy of FGM/C but also in the long term, the practice has also been associated with psychosexual disorders and Post Traumatic Stress Disorder. Given these damaging outcomes, we would like to recommend a stronger focus on mental health needs and interventions for women who have gone through FGM/C and we strongly urge that the focus of the mental health and psychosocial support target traumatic stress and relationship dysfunction that can occur in lives of such women and young girls. Our key finding that both mental and sexual health need a joint programming and prioritisation is another critical recommendation we would like to make here. Psychosexual disorders and traumatic stress require intervention strategies. We believe that in the future, integrated programming will offer solutions towards long term well-being of this population. We do think that the primary health and community care plays an important role in the shaping of specialised treatment and rehabilitative services and these services have to be co-designed by survivors of FGM/C.

Contributors

E.T. and K.M. jointly developed the search strategy and the concept for this paper. E.T. carried out the search and both authors reviewed and assessed the papers together. E.T. created an outline of the MS that was jointly developed, edited and both authors approved the final draft.

Data sharing statement

Data extracted from reviewed papers are freely available on request to the corresponding author.

Declaration of interests

The authors have no competing interests to declare.

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Search strategy and selection criteria

The purpose of this study was to review mental and sexual health outcomes in women who have experienced FGM/C in Africa. A literature search was conducted in BioMed Central, PubMed Central, Taylor and Francis Online, Wiley online Library, EBSCOHOST databases. The following inclusion and exclusion criteria were set; date included all studies published between from 1st January 2010 through 25th March 2022 and the region included Africa. We are reporting findings of 25 studies included in our review that started Most studies reported on sexual health outcomes such as sexual pain, orgasm, sexual desire problems at sexual arousal and difficulties in lubrication. Mental health outcomes were reported in fewer studies including Depression which was most prominent followed by Somatization and Anxiety, Post Traumatic Stress Disorder (PTSD) and Sleep disorder.

Appendix A. Supplementary data

Supplementary data related to this article can be found at <https://doi.org/10.1016/j.eclinm.2022.101813>.

References

- UNICEF. http://www.unicef.org/media/files/FGMC_2016_brochure_final_UNICEF_SPREAD.pdf; 2016.
- Brown K, Beecham D, Barrett H. The applicability of behaviour change in intervention programmes targeted at ending female genital mutilation in the EU: integrating social cognitive and community level approaches. *Obstet Gynecol Int*. 2013;2013:324362.
- Mulongo P, McAndrew S, Hollins Martin C. Crossing borders: discussing the evidence relating to the mental health needs of women exposed to female genital mutilation. *Int J Ment Health Nurs*. 2014;23(4):296–305.
- El-Dirani Z, Farouki L, Akl C, Ali U, Akik C, McCall SJ. Factors associated with female genital mutilation: a systematic review and synthesis of national, regional and community-based studies. *BMJ Sex Reprod Health*. 2022;48(3):169–178.
- WHO. <https://www.who.int/news-room/fact-sheets/detail/female-genital-mutilation>; 2022.
- Taraschi G, Manin E, Bianchi De Micheli F, Abdulcadir J. Defibulation can recall the trauma of female genital mutilation/cutting: a case report. *J Med Case Rep*. 2022;16(1):223.
- Almroth L, Almroth-Berggren V, Mahmoud Hassanein O, Salah Eldin Al-Said S, Siddiq Alamin Hasan S, Lithell U-B, et al. Male complications of female genital mutilation. *Soc Sci Med*. 2001;53(11):1455–1460.
- Vloeberghs E, van der Kwaak A, Knipscheer J, van den Muijsenbergh M. Coping and chronic psychosocial consequences of female genital mutilation in The Netherlands. *Ethn Health*. 2012;17(6):677–695.
- Kimani S, Muteshi-Strachan J, Njue C. Health impacts of female genital mutilation/cutting: a synthesis of the evidence [Internet]. Available from: https://knowledgecommons.popcouncil.org/departments_sbsr-rh/637; 2016.
- Sano Y, Konkor I, Antabe R, Ragetlie R. Physical intimate partner violence justification and female genital mutilation in Kenya: evidence from the demographic and health survey. *J Aggress Maltreat Trauma*. 2021;30(6):781–791.
- Behrendt A, Moritz S. Posttraumatic stress disorder and memory problems after female genital mutilation. *Am J Psychiatry*. 2005;162(5):1000–1002.
- Knipscheer J, Vloeberghs E, van der Kwaak A, van den Muijsenbergh M. Mental health problems associated with female genital mutilation. *BJPsych Bull*. 2015;39(6):273–277.
- Lever H, Ottenheimer D, Teysir J, Singer E, Atkinson HG. Depression, anxiety, post-traumatic stress disorder and a history of pervasive gender-based violence among women asylum seekers who have undergone female genital mutilation/cutting: a retrospective case review. *J Immigr Minor Health*. 2019;21(3):483–489.
- O'Neill S, Richard F, Vanderhoven C, Caillet M. Pleasure, womanhood and the desire for reconstructive surgery after female genital cutting in Belgium. *Anthropol Med*. 2022;29(3):237–254.
- Wilson AM, Zaki AA. Novel clitoral reconstruction and coverage with sensate labial flaps: potential remedy for female genital mutilation. *Aesthetic Surg J*. 2022;42(2):183–192.
- Esho T, Kimani S, Nyamongo I, Kimani V, Muniu S, Kigundu C, et al. The 'heat' goes away: sexual disorders of married women with female genital mutilation/cutting in Kenya. *J Sex Med*. 2018;15(7):S329–S330.
- Berg RC, Denison EM-L, Fretheim A. *Psychological, social and sexual consequences of female genital mutilation/cutting (FGM/C): a systematic review of quantitative studies*. Norwegian Knowledge Centre for the Health Services; 2010.
- Andersson SHA, Rymer J, Joyce DW, Momoh C, Gayle CM. Sexual quality of life in women who have undergone female genital mutilation: a case-control study. *BJOG*. 2012;119(13):1606–1611.
- Shafaati Laleh S, Maleki A, Samiei V, Roshanaei G, Soltani F. The comparison of sexual function in women with or without experience of female genital circumcision: a case-control study in a Kurdish region of Iran. *Health Care Women Int*. 2022;43(1–3):194–206.
- Lurie JM, Weidman A, Huynh S, Delgado D, Easthausen I, Kaur G. Painful gynecologic and obstetric complications of female genital mutilation/cutting: a systematic review and meta-analysis. *PLoS Med*. 2020;17(3):e1003088.
- Biglu M-H, Farnam A, Abotalebi P, Biglu S, Ghavami M. Effect of female genital mutilation/cutting on sexual functions. *Sex Reprod Healthc*. 2016;10:3–8.
- Anis TH, Aboul Gheit S, Awad HH, Saied HS. Effects of female genital cutting on the sexual function of Egyptian women. A cross-sectional study. *J Sex Med*. 2012;9(10):2682–2692.
- United Nations. International day of zero tolerance for female genital mutilation [internet]. Available from: <https://www.un.org/en/observances/female-genital-mutilation-day>; 2022. Accessed July 21, 2022.
- UNICEF. Female genital mutilation (FGM) statistics [internet]. Available from: <https://data.unicef.org/topic/child-protection/female-genital-mutilation/>; 2022. Accessed July 21, 2022.
- Ahmed MR, Shaaban MM, Meko HK, Amin Arafah ME, Mohamed TY, Gharib WF, et al. Psychological impact of female genital mutilation among adolescent Egyptian girls: a cross-sectional study. *Eur J Contracept Reprod Heal Care*. 2017;22(4):280–285.
- Bendiksen B, Heir T, Minteh F, Ziyada MM, Kuye RA, Lien I-L. The association between physical complications following female genital cutting and the mental health of 12-year-old Gambian girls: a community-based cross-sectional study. *PLoS One*. 2021;16(1):e0245723.
- Im H, Swan LET, Heaton L. Polyvictimization and mental health consequences of female genital mutilation/circumcision (FGM/C) among Somali refugees in Kenya. *Women Health*. 2020;60(6):636–651.
- Pesambili JC, Mkumbo KAK. Implications of female genital mutilation on girls' education and psychological wellbeing in Tarime, Tanzania. *J Youth Stud*. 2018;21(8):1111–1126.
- Ibrahim ZM, Ahmed MR, Sayed Ahmed WA. Prevalence and risk factors for female sexual dysfunction among Egyptian women. *Arch Gynecol Obstet*. 2013;287(6):1173–1180.
- Abdulle IM, Funwue AD. Female genital mutilation practice and its effects on women's reproductive health in Barwaqo Ward, Warta Nabada District, Mogadishu Somalia. *Int J Curr Microbiol Appl Sci*. 2020;9(7):2020.
- Esho T. An exploration of the psycho-sexual experiences of women who have undergone female genital cutting: a case of the Maasai in Kenya. *Facts Views Vis Obgyn*. 2012;4(2):121–132.
- Ismail SA, Abbas AM, Habib D, Morsy H, Saleh MA, Bahloul M. Effect of female genital mutilation/cutting; types I and II on sexual function: case-controlled study. *Reprod Health*. 2017;14(1):108.
- Owojuyigbe M, Bolorunduro M-E, Busari D. Female genital mutilation as sexual disability: perceptions of women and their spouses in Akure, Ondo State, Nigeria. *Reprod Health Matters*. 2017;25(50):80–91.
- Mohammed GF, Hassan MM, Eyada MM. Female genital mutilation/cutting: will it continue? *J Sex Med*. 2014;11(11):2756–2763.

- 35 Yassin K, Idris HA, Ali AA. Characteristics of female sexual dysfunctions and obstetric complications related to female genital mutilation in Omdurman Maternity Hospital, Sudan. *Reprod Health*. 2018;15(1):7.
- 36 Fahmy A, El-Mouelhy MT, Ragab AR. Female genital mutilation/cutting and issues of sexuality in Egypt. *Reprod Health Matters*. 2010;18(36):181–190.
- 37 Battle JD, Hennink MM, Yount KM. Influence of female genital cutting on sexual experience in Southern Ethiopia. *Int J Sex Health*. 2017;29(2):173–186.
- 38 Wagner N. Female genital cutting and long-term health consequences—nationally representative estimates across 13 countries. *J Dev Stud*. 2015;51(3):226–246.
- 39 Mahmoud MIH. Effect of female genital mutilation on female sexual function, Alexandria, Egypt. *Alexandria J Med*. 2016;52(1):55–59.
- 40 Ibrahim I, Oyeyemi A, Ekine A. Knowledge, attitude and practice of female genital mutilation among doctors and nurses in Bayelsa state, Niger-Delta of Nigeria. *Int J Med Biomed Res*. 2013;2(1):40–47.
- 41 Elamin W, Mason-Jones AJ. Female genital mutilation/cutting: a systematic review and meta-ethnography exploring women's views of why it exists and persists. *Int J Sex Health*. 2020;32(1):1–21.
- 42 Wulfes N, von Fritschen U, Strunz C, Kröhl N, Scherer R, Kröger C. Cognitive-emotional aspects of post-traumatic stress disorder in the context of female genital mutilation. *Int J Environ Res Public Health*. 2022;19(9):4993.
- 43 Farouki L, El-Dirani Z, Abdulrahim S, Akl C, Akik C, McCall SJ. The global prevalence of female genital mutilation/cutting: a systematic review and meta-analysis of national, regional, facility, and school-based studies. *PLoS Med*. 2022;19(9):e1004061.
- 44 O'Neill S, Pallitto C. The consequences of female genital mutilation on psycho-social well-being: a systematic review of qualitative research. *Qual Health Res*. 2021;31(9):1738–1750.
- 45 Buggio L, Facchin F, Chiappa L, Barbara G, Brambilla M, Vercellini P. Psychosexual consequences of female genital mutilation and the impact of reconstructive surgery: a narrative review. *Health Equity*. 2019;3(1):36–46.
- 46 Ministry of Health and Population [Egypt], El-Zanty and Associates [Egypt], ICF International. Egypt health issues survey 2015 [internet]. p. 234. Available from: <https://dhsprogram.com/pubs/pdf/FR313/FR313.pdf>; 2015. Accessed August 14, 2022.
- 47 Jaldesa G, Askew I, Njue C, Wanjiru M. Female genital cutting among the Somali of Kenya and management of its complications [Internet]. Population Council/Frontiers/USAID. Available from: https://knowledgecommons.popcouncil.org/departments_sbsr-rh/141; 2005.
- 48 Bogale D, Markos D, Kaso M. Prevalence of female genital mutilation and its effect on women's health in Bale zone, Ethiopia: a cross-sectional study. *BMC Public Health*. 2014;14(1):1076.
- 49 Basson R. Sexual function of women with chronic illness and cancer. *Womens Health (Lond)*. 2010;6(3):407–429.
- 50 Laan E, Both S. What makes women experience desire? *Fem Psychol*. 2008;18(4):505–514.
- 51 Levin RJ. The physiology of sexual arousal in the human female: a recreational and procreational synthesis. *Arch Sex Behav*. 2002;31(5):405–411.
- 52 Oyefara JL. Ritual female genital mutilation: a psychosocial analysis of a flourishing rather than a dying tradition in Oworshoki community, Lagos, Nigeria. *IFE Psychol An Int J*. 2014;22(2):72–83.
- 53 Mpofu S, Odimegwu C, De Wet N, Adedini S, Akinyemi J. The relation of female circumcision to sexual behavior in Kenya and Nigeria. *Women Health*. 2017;57(7):757–774.
- 54 Guttmacher Institute. Accelerate progress—sexual and reproductive health and rights for all [internet]. Available from: <https://www.guttmacher.org/report/accelerate-progress-sexual-and-reproductive-health-and-rights-all>; 2018. Accessed August 14, 2022.
- 55 WHO. *Defining sexual health: report of a technical consultation on sexual health, 28-31 January 2002, Geneva* [internet]. Geneva: World Health Organization; 2002. Available from: <https://www.worldcat.org/title/defining-sexual-health-report-of-a-technical-consultation-on-sexual-health-28-31-january-2002-geneva/oclc/654850454>. Accessed August 14, 2022.
- 56 Starrs AM, Ezeh AC, Barker G, Basu A, Bertrand JT, Blum R, et al. Accelerate progress—sexual and reproductive health and rights for all: report of the Guttmacher–Lancet Commission. *Lancet*. 2018;391(10140):2642–2692.
- 57 Patel V, Saxena S, Lund C, Thornicroft G, Baingana F, Bolton P, et al. The Lancet Commission on global mental health and sustainable development. *Lancet*. 2018;392(10157):1553–1598.
- 58 Patel V, Chisholm D, Dua T, Laxminarayan R, Medina-Mora ME. *Disease control priorities, third edition (volume 4): mental, neurological, and substance use disorders* [internet]. Washington, DC: World Bank; 2016. Available from: <http://hdl.handle.net/10986/23832>.