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Sustainable Development Goal: Gender Equality, Good Health and Wellbeing

Abstract

Objectives: Female Genital Mutilation and Cutting (FGM/C) is an act of gender-based violence (GBV) and a global public health issue with well-documented adverse outcomes. With the rise in global migration, there is an increasing prevalence of FGM/C among Arab diaspora living in the West and Global South. What remains unclear is how to reduce the practice. This study was designed to identify interventions exerting an effect on reducing the practice of FGM/C.

Methods: A systematic review of peer-reviewed articles was conducted on interventions targeting individuals and/or the broader community to prevent FGM/C within the Arab League and its diaspora, up to December 2021. Databases searched included PubMed, Medline, Web of Science, PsycINFO, EMBASE, CINAHL, BIOSIS, ASSIA, and Scopus. Quality assessment used the Mixed Methods Appraisal Tool (MMAT) 2018.

Results: Twelve of 896 studies met the inclusion criteria. Eight interventions relied entirely on education with short-term gains but unchanged practices. Three interventions used social marketing and mixed media. Only one study took a multi-sectoral approach.

Conclusions: At a macro level, opportunities to reduce or end the practice of FGM/C exist through legislation, policy, a public-health approach grounded in gender equality and human rights. Using multi-sectoral actions that consider the social context and challenge social norms at macro, meso and micro levels appears more effective than individual-level interventions. Promoting advocacy and developing supportive environments to reduce GBV, enhance gender equality and empower communities is crucial for interventions to succeed and achieve the Sustainable Development Goal target of FGM/C abandonment by 2030.

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Keywords: Female Genital Mutilation and Cutting; FGM/C; Interventions; Arab League; Arab diaspora

Introduction

Female genital mutilation and cutting (FGM/C) is a hybrid term used to express a wide variety of procedures altering or removing the external genitalia of females for non-medical reasons [1, 2]. These procedures change normal genital functioning, leaving females at high risk for infections, urinary complications, and increased risk of gynaecological, sexual, and obstetric complications [3-5]. One modelling analysis across six African countries estimated 130,000 lost life years due to obstetric haemorrhage associated with FGM/C [6]. Other research suggest that females are less likely to succeed in education when FGM/C is widely practiced, but whether this is due to the practice itself or other structural factors remains unclear [7-9]. Although there has been a decline in FGM/C in some countries, not all have made significant reductions; estimates suggest that by 2030, 68 million girls will be at risk globally [10]. Despite increasing calls for the abandonment of FGM/C, the practice continues [11].

With the rise in global migration, there is an increasing prevalence of FGM/C in immigrant communities in Western countries [12, 13]. Goldberg et al. [14] estimated a 205% increased risk of FGM/C up to 2011 among women and girls in the United States [14]. In the United Kingdom, the prevalence of FGM purportedly increased by over 55% up to 2012 [15].

Western countries, the Global South, Iraqi Kurdistan, Djibouti, Egypt, Somalia, Yemen and North Sudan all criminalize FGM/C, recognising that it is gender-based violence (GBV), but this does not mean that laws are enforced. The practice remains deeply rooted in culture and tradition [16]. This threatens the likelihood of achieving the United Nations Sustainable Development Goal 5, to achieve gender equality and empower women and girls through collective abandonment of FGM/C by 2030 [17, 18]. Collective abandonment requires a multi-sectoral approach involving collaboration on multiple levels: macro involving legislation, policy and education systems, meso involving community and service delivery, and micro involving individuals [19, 20]. This is a complex area because a minority of pro-FGM/C supporters argue that Western hegemony and liberal feminism interfere with other cultural beliefs [21, 22]. Some communities consider FGM/C as a required Islamic practice, while others attribute it to tribal traditions and cultural practices [23]. Prevention and eradication of FGM/C is further complicated in immigrant communities because of the differences in language, culture, and traditions [24]. Other researchers argue that to achieve a collective approach there needs to be a shift in consciousness so abandonment of the practice occurs without risk of judgment or alienation [25]. Shifts in the practice of FGM/C may occur through its "medicalization," or focus on its health-related effects, including social and religious norms and increased awareness of its negative health effects [26]. Evidence suggests that medicalization fails to reduce the practice, merely shifting it into the hands of medical practitioners [27].

The Arab League has some of the highest FGM/C adult prevalence rates in the world, with high levels of population mobility and migration patterns internally, regionally, and internationally [28]. The majority of evidence on FGM/C concerns South African countries and their diaspora, but there is a paucity of high-quality evidence about

interventions reducing the practice in the Arab League and diaspora [29]. Current evidence shows that educational approaches play a vital role in eradicating the practice of FGM/C by using the Health Belief Model (HBM), but global health promotion no longer uses this model because it focuses on knowledge and attitude and cannot offer insight into how to facilitate health behavioural change [30]. The model also fails to consider societal and peer influences, motivation and self-efficacy [31]. There appears to be contrasting evidence that interventions alone contribute to a positive shift in behaviour to abandon FGM/C. Therefore, the aim of this study was to carry out a systematic review of the outcomes of prevention-based interventions involving FGM/C, focusing on Arab League States and their diaspora.

Methods

This study was a systematic review of the outcomes of primary-based interventions for FGM/C in Arabic-speaking countries and communities from the foundation of the Arab League in 1945 to December 2021. It provides a best evidence synthesis and contributes toward improving the knowledge base of preventive interventions for girls and women at risk. Arabic-speaking countries are defined as the 22 member countries of the Arab League States [32]. The researchers explored the elements of interventions, quality of evidence, target audiences, and program outcomes. The study employed the guidance for preferred reported items for systematic reviews and meta-analyses [PRISMA] [33].

The study registration number on PROSPERO is CRD42021298000 accessed on https://www.crd.york.ac.uk/PROSPERO. Databases searched included PubMed, Medline, Web of Science, PsycINFO, EMBASE, CINAHL, BIOSIS, ASSIA, and Scopus. The search used other focused methods such as accessing journals directly for hand searching. Extensive searches of different databases reduced the risk of publication bias and identified as much relevant evidence as possible. Search terms involved using a combination of strategies: Medical Subject Headings (MeSH) keywords exploded for different databases in order not to miss relevant articles, phrases, and Boolean operators in nine online databases (Table 1). Adapting the search strategy reflected the indexing systems of each respective database.

Eligibility Criteria

The eligibility criteria in Table 2 were used to screen papers. We sought to identify preventive interventions, including educational programs, targeted at individuals and/or the broader community to prevent or reduce the practice of FGM/C. Screening of titles and abstracts took place with four of the authors (L.A.R., T.A., N.F, and JO). Complementary methods to identify studies comprised following up on citations, hand searching, and scanning the reference lists of relevant papers by another two authors (BAE and JB). One author (BAE) used Rayyan QCRI software to assist in organizing and expediting the initial screening of abstracts and study titles [34]. After initial assessment, the reviewing authors discussed relevant studies with the corresponding author before making final decisions about article eligibility. Studies included used and/or assessed primary interventions to reduce the practice of FGM/C. All authors made the final decisions about inclusion, documenting reasons for exclusion (Figure 1: PRISMA flowchart).

Full-text articles retrieved met all inclusion criteria. Tabulation of extracted information from all studies included authors and date, country of study and population, sample size, study design, length of intervention, mechanisms, intervention characteristics, and FGM/C outcomes. The characteristics of included studies are summarized in Table 3.

The study used a single tool to assess quality, the Mixed Methods Appraisal Tool (MMAT) Version 2018 [35]. This was because of its ability to review mixed method studies alongside qualitative and quantitative studies in a single combined tool. Two authors (NH and BAE) assessed quality, checked by a third author (JO).

The included papers displayed heterogeneity making them unsuitable for meta-analysis. A narrative analysis focused on intervention characteristics, context and population focus in the studies.

Results

The search elicited 888 papers and an additional eight from hand-searching (N=896). After removal of duplicates and screening titles and abstracts for eligibility, we retrieved 22 full-text papers 12 of which met the inclusion criteria in Table 2.

Eight studies [36-42] described interventions reporting on preventive interventions within Arab League States. Four studies [43] described interventions in the Arab diaspora (Table 2). The length of studies varied from 1 day to 6 years and study designs varied.

Designs included six quasi-experimental studies [37, 39-42, 44], four descriptive qualitative [38, 43, 45, 46], one participatory action research [47] and one randomized controlled trial with no data to report because of delays due to COVID-19 [36].

Ten interventions focused on education with the aim of improving knowledge and changing beliefs and attitudes toward FGM/C [37-46]; one on improving the knowledge of medical professionals and strengthening healthcare systems [36]. Only one study employed a multi-sectoral approach over a six-year period in five European Union Countries with eight immigrant communities, three of which originated from Arab League member states [47].

Intervention tools differed. Psychological theory on stages of change and the COM-B model of behaviour change guided Barrett and colleagues' [47] REPLACE study, which used participatory action research and a variety of tools over a six-year period, evaluating each stage and modifying in a cyclical approach. Four studies targeting groups used health education in isolation and the Health Belief Model (HBM) [38, 40, 41, 44]. Four interventions occurred over a period of 1 day [46]; 2 days [43]; 49 days with pre-test post-test [41]; and 134 days with pre-test post-test [44]. One study in Egypt [40] used health education, employing pre and post-test evaluation, but additionally chose to use role-play and discussion groups to reinforce messages about FGM/C as a component of a short-term reproductive health education program. One study [37] evaluated the progress of a range of interventions within a public health campaign called 'Saleema' in the Sudan. Three further studies conducted in Sudan [38, 39, 42] and one study in the UK [43] used different forms of media designed to change FGM/C attitudes. An ongoing study protocol by Ahmed and colleagues [36] intends to use personalised communication, leaflets, posters, and clinical tools to increase knowledge and assist health professionals implementing sessions aiming at reducing FGM/C. Sample sizes for the

studies ranged from whole communities with no fixed reported number to small samples of 13.

Quality Assessment

Two authors (NH and BAE) applied the MMAT tool; a third author (JO) checked the results. There was 90% agreement and studies were classed as medium to high quality.

Discussion

The United Nations goal for abandonment of FGM/C by 2030 [17, 18] follows the spirit of Sustainable Development Goal 5, which is to achieve gender equality and to empower women and girls. Empowerment itself is both a process and an outcome; the various indicators at macro, meso, and micro levels to assist in the development of empowerment must be identified [48]. For many countries, GBV is unacceptable, creating macro-level policies such as the violence-against-women counter strategies and enshrining the issue within law. This is the beginning of developing a supportive environment and the conditions for empowerment to occur. The present systematic review is unique because it presents a more complete picture of the variety of interventions used to eradicate FGM/C in Arab League States and their diaspora.

Within the present review, some researchers relied on the 1950s and 1960s approach of health education [40, 41, 43, 44, 46]. For example, although there have been campaigns against FGM/C in Egypt since the 1920s [49], there was little empirical evidence to highlight interventions, only two papers from Egypt focused on educating female students at secondary and university level as part of a reproductive health programme [40, 41]. One study [40] attempted more student interaction with discussion and role play about FGM/C but both studies chose to focus on females in isolation and not include males. The study in Iraqi Kurdistan [50] educated religious leaders and parents on risks, benefits and barriers of FGM/C reporting a short-term reduction in positive beliefs about the practice. A study in Sweden [46] with Somalian male immigrants engaged men in education and discussion about the risks of FGM/C, uncovering tensions between Somalian traditions about FGM/C and Swedish law criminalising the practice. The study further suggests locating FGM/C in the broader research field of gendered violence, rather than health, uncovers the analytical tools of intersectional gender power and that engaging males in actions to prevent violence against women may be more transformational.

In contrast, research that is more recent identifies the limited potential of education about FGM/C in isolation [51]. Education alone concerns itself with the technical delivery of the 'right' information with the assumption that this enables people to act appropriately. This approach ignores the issue that change occurs from micro or individual level, meso or community level, to macro or population level [52]. Social structures and perceived norms with societies, alongside resources and motivations for change also exert powerful influences on the impetus for change to occur – it is a highly complex process encompassing theories around stages of change, and empowerment is a central tenet [53, 54].

Only one study in the European Union [47] involving Somalian and Sudanese diaspora, alongside diaspora from non-Arab League countries, engaged with the stages-of-change theory to guide its process, using participatory action

research (PAR) and displaying multi-sectoral action. PAR is ideal to address community-based problems because it constantly evaluates and adapts interventions in a cyclical manner. The COM-B model used considers behavior to be part of a dynamic system with positive and negative feedback loops [55, 56]. It considers capabilities, opportunities, and motivations; capability and opportunity influence the relationship between motivation and behavior, rather than the behavior itself, while motivations generate the behavior. Participatory principles ground the REPLACE approach, requiring the extensive involvement of community members in the Cyclic Framework, which includes research, design, implementation, and evaluation. The first stage involves getting to know community members to build up a relationship of trust. Non-government organisations, having built strong relationships with the communities over a number of years, assist the researchers. Community members identify change agents such as community leaders, influential people, and community champions for training. REPLACE partners use a specially prepared handbook to enable change agents to understand and challenge social norms perpetuating the practice of FGM/C. The REPLACE Community Readiness to Change Assessment tool assess individual perceptions of readiness of individuals to change within their self-identified community as well as their reference group. This takes diversity within communities into account. Peer group champions then identify intervention activities matching community stage of readiness to end FGM. With support, they apply the COM-B model of change to identify the factors that need to be addressed. This assists in developing and delivering intervention activities, such as involving Quranic schools to teach that FGM/C is not an Islamic requirement. This challenges beliefs that FGM/C is a requirement by Islam, and was identified as important to the continuation or discontinuation of the practice within the Sudanese and Somali community in the Netherlands. The independently observed use of WhatsApp community groups as a method of support showed the degree of success. Another Somali group in the Netherlands reported increased confidence to challenge social norms about FGM/C, suggesting that collective actions can change them.

Barrett and colleagues [47] do indicate the need for more measurement of behaviour change and underline that changing social norms is a slow process, affected by changes in populations, such as an influx of new immigrants with more traditional views on FGM/C and the length of time required for change to occur. Changes to FGM/C therefore permeate the entire society or social group and not merely alterations to the lives and behavior of individual members of that society or group. This type of change is collective and impresses upon the entire society or group [57].

Evans and colleagues [37] evaluated 'Saleema' (meaning whole or complete), which is a public health campaign launched in Sudan in 2008 and was implemented in partnership with UNICEF, the National Council for Child Welfare (NCCW), and other government and non-governmental organizations. The aim of 'Saleema' is to promote long-term abandonment of FGM/C, with the goal of changing social norms, attitudes, and fostering positive cultural associations about uncircumcised females. The campaign's slogan is 'Every girl is born saleema. Let her grow saleema' avoids the initial link with FGM/C in its initial stages, instead highlighting positive social values, favoring the well-being of children and the importance of parental care. In the later stages of the campaign, it explicitly links to FGM/C and uses social marketing techniques. This incorporates four main activities: (1) publicly pledging to abandon FGM/C and support the Saleema initiative, (2) wearing the Saleema colours as a sign of support, (3) engaging in

public dialogue on the existence of FGM/C and (4) pledging not to cut new-born daughters immediately after birth. Results suggest that self-reported exposure associates with reduced pro-FGM/C social norms. The ongoing campaign with constant activities and reminders emphasises, like the REPLACE study, that social change is a slow process requiring repeated exposure to the problem. Psychological studies further emphasise that stable contexts make behaviour and habits easier to maintain [58, 59].

One challenge is that if a society has an enclosed social structure with a tradition-bound attitude it will resist any form of change in order to maintain what it perceives as its cultural values [60]. FGM/C becomes a public problem rather than a private problem because it encroaches on rapidly growing beliefs and values on gender equality and transformative actions on gender-based violence. Making FGM/C a public or social problem means that action ensues, leaving it as a private problem means public responsibilities are forgotten [61]. There is some evidence to suggest that societies are willing to transgress legislation if they perceive something as 'Islamic' [62]. This stresses the importance of involving religious and community leaders in challenging and changing social norms.

Three studies conducted in Sudan [37, 38, 42] and one study in the UK [43] reported the outcomes of programs incorporating different forms of media designed to change FGM/C attitudes. Greiner and colleagues [38] used photo-elicitation, which is an interviewing technique in which researchers present photographs that they feel could represent participant knowledge about a phenomenon to gain people's narratives [63, 64] and a radio programme around the effect of FGM/C on different character's lives. The participants drew their responses to the photographs and radio programme, which assisted in producing narratives on their effect, and suggested a reduction in positive attitudes toward FGM/C. These studies failed to take a whole community approach with constant evaluation and addressing of problems, like that of Barrett and colleagues [45]. Therefore, the longevity of the reduction of positive attitudes towards FGM/C is doubtful.

Vogt and colleagues [42] employed a similar study to the three previous, delivering four short films in Sudan, which included FGM/C as a sub-plot, garnering audience responses afterward. They aligned the study with the Saleema campaign, initially using audio recordings of positive and negative words, which participants categorized and then presented pictures of girls wearing saleema cloth dresses contrasting them with girls wearing *firka* cloth dresses. *Firka* cloth has a distinctive and instantly recognizable pattern and plays a prominent role in the cutting ceremony in Sudan [65]. Participants categorized the girls using implicit association with audio recordings playing negative words (e.g., worthless, unimportant, ugly) and positive words (e.g., great, good, beautiful) which participants had to attribute to the pictures after watching the movies. Results suggested that the movies had an effect on reducing positive attitudes toward FGM/C, but the possible chance of exposure to the Saleema campaign may have biased responses. Furthermore, the responses are not an indicator of changed practices.

Mahgoub and colleagues [39] used education, discussion groups and a video about one person's physical and psychological challenges after undergoing FGM/C. Although the study used a variety of tools, including embedding the work in an existing sexual health education program, the existing Saleema campaign in Sudan may have exerted a positive effect on the responses, but again does not indicate changed practices.

Although pre and post-test scores demonstrated improvements in knowledge and attitude, studies using health

education and the HBM in isolation from any other form of community mobilisation only indicates measurement of short-term changes in attitude, but not practices. The applications of this approach would therefore appear limited. An extended evaluation report on field studies from over 19 countries suggested that interventions needed to centre on community needs and strengths, ownership should be transferred to the community, individuals from within the community should be trained as agents of change, socio-cultural values should be respected, organisations needed to earn the trust of communities before implementing interventions, information should be multi-dimensional, creative materials such as media and the arts are often effective, alongside long-term funding if FGM/C is to be abandoned and sustainable change achieved [66].

The study by Johnson-Agbakwu and colleagues [43] used semi-structured focus groups and individual interviews of Somalian immigrants which revealed an increasing preference for caesarean births among women due to FGM/C. The researchers' main findings highlighted the role of shifting cultural influences on gender norms and increased awareness of FGM/C-related complications, including difficulties during pregnancy and childbirth.

Male attitudes can also play a significant role, with one study suggesting that many men desire to abandon the practice of FGM/C [20]. Major obstacles included cultural differences between the sexes. For example, one study suggested that although men appeared ambivalent, women played a vital role in continuing the practice because they pre-conditioned their daughters into believing that they would obtain better suitors and social status in terms of marriageability if they underwent FGM/C [67]. In this situation, it would appear that men need support to challenge these beliefs. In contrast, the majority of women in the study by Johnson-Agbakwu and colleagues [43] were not in support of FGM/C, furthermore they reported a distrust of the healthcare system and lack of confidence in healthcare providers' ability to care for women who have undergone FGM/C. This suggests the need for culturally congruent health care, including building supportive and enabling settings for the empowerment of women and men and development of collective community action [68].

Conclusion

Despite legislation and recognition that it is rooted in GBV, the practice of FGM/C continues in the Arab League and diaspora. If the goal of achieving the United Nations Sustainable Development Goal 5 [18] of gender equality and empowerment of women and girls is to occur by 2030, then ending FGM/C requires multi-level approaches. This means employing stages-of-change theories and participatory action research bringing together all concerned stakeholders, considering the social context and challenging social norms, rather than employing limiting individual-level interventions.

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Table 1. Electronic Databases Used with Relevant Search Period and Terms

Databases	Search Period	MeSH keywords, terms, phrases, and Boolean operators
PubMed, MEDLINE, EMBASE, BIOSIS, CINAHL, Web of Science, PsycInfo, SCOPUS, ASSIA	Up to December 31st 2021	Female Genital Mutilation [af]; OR Female Genital Cutting [af]; OR FGM [af]; OR Female circumcision [af]; OR infibulation [af] OR Khafd [af]; OR Khifad [af] AND intervention [af]; OR program [af]; OR education [af]; OR educat* [af] OR Prevention [af] OR Behavior change [af] OR Behaviour change [af]

Table 2. Inclusion and exclusion criteria

	Inclusion	Exclusion
Date Range	Up to 31/12/2021	
Research Design	Intervention studies, RCTs, quasi-experimental, qualitative	Non-interventional studies. Systematic, scoping, rapid and literature reviews. Commentaries, narratives, editorial communications, opinion pieces, conference papers, white papers, grey literature, theses, dissertations, government reports, guidance documents.
Sources	Peer reviewed empirical evidence	
Languages	English, French, Arabic	
Geographic location	Arabic-speaking countries and members of the 22 Arab League States: Algeria, Egypt, Bahrain, Comoros, Djibouti, Iraq, Jordan, Saudi Arabia, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Palestinian Territories, Qatar, Yemen, Somalia, Sudan, Syria, Tunisia, United Arab Emirates	1. Non-Arabic speaking countries without Arab diaspora as the focus 2. Countries not part of the 22 Arab League States and without a focus on Arab diaspora
Groups	1. Arabic speaking populations residing in other countries (diaspora) 2. Children 0-17 years 3. Adults	1. Non-Arabic speaking populations 2. Non-Arabic diaspora
Focus of study	1. Interventions focusing on prevention of FGM/C 2. Interventions focusing on education about FGM/C to assist in its prevention	1. Surgical gynaecological interventions 2. Other clinical interventions not focusing on FGM/C 3. Clinical or psychological treatment and care of

Table 3. Included studies (N=12)

Authors (year)	Location and settings	Sample size	Study Design	Length of intervention	Aim of Intervention	Intervention Characteristics	Outcomes
Abdulah et al. (2019)	Iraqi Kurdistan	927 192 Mullahs 212 Mokhtars 523 Parents	Quasi-experimental	134 days 19/03/17-31/07/17	To use an education to change the attitudes of parents and religious leaders towards FGM/C.	Health Belief Model (HBM) used to outline susceptibility, risks, benefits and barriers related to FGM/C	Reported reduction in positive beliefs and attitudes around FGM/C
Ahmed et al. (2021)	Guinea, Kenya, and Somalia	60 antenatal care (ANC) clinics in Somalia. 30 controls 30 clinics for each country (N=180 clinics comprising of 90 controls and 90 clinics for whole study)	Randomized Controlled Trial and Process evaluation	183 days	To strengthen health systems through training, communication and policy.	Provides training for antenatal care (ANC) providers to deliver personalized communication on FGM prevention using guidelines, posters, and clinical tools. Altering health policy on FGM/C	Ongoing, held up due to COVID-19. Nothing to report yet

Barrett et al. (2020)	5 EU countries; Italy, Netherland, Portugal, Spain and the UK and 8 immigrant communities; Somalia (2 communities), Sudan, Eritrea, Ethiopia, Guinea Bissau, Gambia and Senegal	NR	Participatory Action Research	6 years 2010-2016	To end FGM/C in Europe through a community based participatory action research approach and a Cyclic Framework for Social Norm Transformation.	Assessment of community stage of readiness to end FGM/C at the outset of working with them. Repeated after intervention delivery and repeated over time to assess social norm shifts at the community (meso) level. Focus groups with communities to assess change at the individual (micro) level. Uses a circular model (COM-B) to assist. Quranic school education to challenge belief FGM/C is an Islamic requirement. Questionnaires to	Somali and Sudanese communities implemented planning activities and resources to work with communities to end FGM/C. Evidenced by communities setting up WhatsApp groups to reinforce messages. Reported increased confidence to challenge social norms.

	assess targets of change. Records of intervention activities over time.

Evans et al. (2019)	Sudan	11,268 from 18 states in Sudan stratified by state and gender	Quasi-experimental	730 days 2years	To use the Saleema initiative to promote the long-term abandonment of FGM. Use of social marketing to change attitudes, beliefs, social norms and foster positive cultural associations about uncircumcised females	Wearing Saleema colours as a sign of support, community dialogue around not cutting newborn girls at birth, public pledging for abandonment of FGM/C, public support of campaign.	Decreased social norms about acceptability of FGM/C. Higher rates of social dialogue.
Greiner et al. (2007)	Sudan	55 43 women 12 men 18-40 years	Descriptive qualitative	600 days 17/11/2004 - 30/06/2006	To use educational messages in the media to exert an impact on beliefs and practices	Photo-elicitation to gain narratives. Radio programme around the effect of FGM/C on people's lives using narratives centering on different characters. Sketched responses from audience assisted in producing narratives	Visual production of narratives emphasized programme impact on reducing positive attitudes to FGM/C.

						on the impact of the radio programme.	
Johnson-Agbakwu et al. (2014)	United States (Arizona)	40 8 one-to-one interviews 3 focus groups Somalian-born male refugees 27-72 years	Descriptive qualitative	2 days	To discuss gender roles and male attitudes about pregnancy, labor, and FGM practices	Semi-structured focus groups one-to-one interviews, demographic survey. Some education on FGM/C, exploration of barriers encountered as a migrant population	More focus on service delivery and barriers from a lack of physician knowledge on FGM/C, e.g. insisting on caesarean sections. Traditional male roles in tension with matriarchal dominance on FGM/C

Mahgoub et al. (2019)	Sudan	150 Female secondary-school students 14-17 years	Quasi-experimental	42 days	To educate students on FGM/C and challenge their belief system	Lecture on the origins and types of FGM; discussion groups; a video of a girl with FGM/C complications and how it affected their life.	Increase in knowledge about FGM/C. Increase in negative attitudes and awareness that it is an illegal practice. Saleema campaign may have had an impact.
Mounir et al. (2003)	Egypt (Alexandria)	745 Female university students	Quasi-experimental	38 days	To implement a reproductive health education program containing learning about FGM/C, premarital counselling, family planning, STIs, breast-feeding and pre and ante natal care	Health education program comprising 28 sessions for 60 minutes. Teaching methods included health talks, discussion groups, and role-play	Improvements in knowledge about FGM/C.

Moustafa & Muhammad (2018)	Egypt (Alexandria)	102 Female preparatory school students	Quasi-experimental	49days 7 weeks	To educate students on reproductive health knowledge and FGM/C	An educational program about reproductive health on four topics: puberty and menstrual cycle, STIs, menopause, and FGM/C	Increase in knowledge across all domains and highest increase for FGM/C.
Salmon et al. (2020)	England (UK)	16 Somali-born men and women 11 women 5 men	Descriptive Qualitative	1 day	To raise awareness of FGM/C by educating through prepared materials.	Interviews and focus groups using posters and leaflets to educate and provoke discussion on FGM/C.	Campaign well received. Materials needed greater cultural sensitivity and community collaboration ensuring development of effective messages.

Strid & Axelsson 2020	Sweden	13 Immigrant Somali men	Descriptive Qualitative (Focus groups)	1 day	To re-frame FGM/C as violence against females and discuss the role of men in abandoning the practice whilst raising awareness of the risks of FGM/C	Focus groups raising awareness and exploring the window of opportunity for changing practice	Men opposed the harmful practice of FGM/C. They realized the tension between their roles as male, head of the household, community leaders and responsibility to protect their daughters.
Vogt et al. (2016)	Sudan (Gezira)	7918 122 local communities in Sudan	Quasi-experimental	49 days	To use visual and audio media to change attitudes and beliefs on FGM/C.	Four movies in the form of different telenovelas on FGM/C. Pictures of girls wearing saleema and firka fabric dresses (reflects Saleema campaign to end FGM/C). Audio recordings; categorization of positive and negative words	Films and materials led to higher positive attitudes towards uncircumcised females.

Abbreviations

NR= not reported; FGM/C= female genital mutilation and cutting; STIs= sexually transmitted infections

Figure 1. PRISMA 2020 flow diagram for FGM/C interventions