

Manuscript

Title

Female Genital Cutting Is a Social Coordination Norm in Kenya, Mali, Nigeria and Sierra Leon (or: Cutting or Not: Depending on what others will undergo the practice than what they think about the practice) **[[CFS: This title is a response to Efferson's title]]**

Authors

Chyun-Fung Shi (corresponding author), Department of Biology, McMaster University. Michael Li, Department of Biology, McMaster University. Jonathan Dushoff, Department of Biology, McMaster University.

journals

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Abstract

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Keywords

female genital cutting/mutilation, multilevel model, social norms, gender, DHS

Introduction

It is estimated, based on a UNICEF global database including Demographic and Health Surveys (DHS), Multiple Indicator Cluster Surveys (MICS), and other nationally representative surveys between 2004 to 2015, that more than 200 million women and girls have undergone female genital cutting (FGC), mostly in Africa and the Middle East and 44 millions of them are girls below age 15 [4, 55]. Current progress in reducing FGC is insufficient to keep up with the population growth, and girls and women undergoing FGC will rise significantly over the next decade **[[CFS only: double check]]** if the trends continue [28, 55] (also see <http://www.who.int/mediacentre/factsheets/fs241/en/> updated Sep, 18). FGC is also known as female genital mutilation and female circumcision; we use cutting instead because it implies a degree of self-awareness and is considered less judgmental [27, 24, 37, 43, 49].

The commonly shared position for FGC is more about eradication than intervention [28, 32, 53, 55, 61], as the United Nations has declared that FGC as violates human rights, and promoted the abandonment of the practice [61, 42] **[[CFS only: add and update]]**. The progress is hindered due to the complicated history of the very practice [17]. The meanings of FGC are competitively defined by various groups from local religious community to international governmental institutes, by linking the practice to cultural and religious identity in one end and to public health and human rights on the other [2, ?, 5, 28, ?, 48, 59].

Social norm is a fundamental approach in comprehending and intervening FGC practice [?, 12, 19, 32, 33, 63] while other perspectives (e.g., human rights and feminist theory [31, 15, 28, 22, 30, 37, 40, 58, 55, 62, 63] entails reasons of negotiating and abolishing the practices. Convention theory posits FGC an important norm to control marriage fidelity and social prestige; this perspective views FGC as a social behaviour resulting from group practice, and it takes a “critical mass” to initiate a change [33, 34]. FGC was also viewed as a social capital for inclusion and exclusion within women’s social groups [?]. When the norms within the communities are strong, individuals tend to self-enforce community norms [3, 19, 25, 32, ?, 34, 52] and the bond within women’s social networks could be intergenerational, interdependent and interconnected across generations and genders was proposed intervention of FGC [33, ?, 51]. **[[CFS only: add [8]]]**. Studies show that there may be more than one tipping point other than marriageability determining women’s fgc decision [?, 35, 12, 19, ?, 44, 46, 51, ?]

Although convention theory was well deliberated and applied and showed a larger effect on FGC practices than the others (e.g, [13, ?, ?, 15, 19, ?, 32, ?, ?, 62]), it was not without challenges [12] and multiple theoretical frameworks were called to be incorporated to grasp a full explanation of the persistence and decline of FGC due to the heterogeneity of the population [12, 38].

Research Questions

Identifying benefits of FGC practice is crucial to promote sustainable change [12]. This study takes both the dynamics of beliefs of FGC benefits and of FGC practices into account at both a population and a community level

to understand associations of FGC values and intention of carrying out the practices l [14, 11, 19, 20, 18, 21, 25, 41] (to confirm). We developed three models in this study. The main one is the “daughter” model, which analyzed associations of beliefs of FGC benefits (see the list of FGC benefits at table xx) and intention to cut daughters in the hope that if patterns of social norms (i.e., aggregation of values of FGC benefits) associating behavioral intention can be detected. Additionally, we also decompose the model into two “structural” models: “persistence” model to study women’s beliefs of FGC benefits and FGC continuance; and “future” model to examine the association of beliefs of FGC benefits, FGC persistence and intention of cutting daughters to understand how such positions change the main model.

Methods

Data and Samples

We conducted secondary analysis of women aged 15-49 in the Demographic and Health Surveys (DHS). Countries with the following criteria were selected: high FGC prevalence [55], DHS surveys with modules of FGC benefits, and index of gender awareness; and that resulted in four nations: Kenya 2008/9, Mali 2006, Nigeria 2008 and Sierra Leone 2008. We did not analyze the newest dataset due to the lack of FGC benefits modules before this study finished for publication (checked in 1/09/19).

Only women with daughters to be considered for FGC were included in main model (the daughter model) and the future-daughter model, while the future model included all the women in the samples; that resulted in xxx, xxx and xxx (or three more if sample sizes in individual models are different from the full models) respectively. **[[CFS: FGC module at https://dhsprogram.com/pubs/pdf/DHSQMP/DHS5_Module_Female_Genital_Cutting.pdf]]**

Measurements and Concepts

[[CFS only: [46]]]*

Our main interest in this project is to study how norms associate with behavioural intention. We focus on how women will likely cut their daughters or not based on their current intention and that provide a more convincing result on how FGC norms affect FGC practice than using than what had already happened (e.g. women’s own FGC status). Therefore, our main response variables were woman’s behavioural intention to cut their daughters in the daughter model and the mixed (daughter-future) model, and woman’s attitude on whether FGC should be continued in the FGC persistence model. In other words, only women with daughter for a consideration of fgc were included in the main and mix models, and all women were included in the persistence model. The predictors were selected based on literature and three main theories which have developed to account for the practice of FGC (i.e., convention theory, feminist theory and modernization theory) [?, 35]. The main predictors were woman’s FGC status and beliefs of FGC benefits. Beliefs of FGC benefits was estimated based on a list of questionnaires (see supp) and quantified using average score pls confirm to identify the strength of benefits associating with fgc practice. Other socio demographic variables were also included: age, education, religion (see the list of religion recode at table xx in appendix; with a footnote on how we recoded it), marital status, work status, media use, gender awareness (see — for questions of gender awareness proxy) and residence (urban vs. rural) in addition to country. Media use and gender awareness were scored. The followings were treated as random variables: cluster ID (villages) and ethnicity (see the list of ethnicity recode at table xx in appendix; with a footnote on how we recoded it).

In order to address the significance of community impact on the practice of FGC, education, wealth, media use, FGC beliefs, gender awareness and FGC prevalence were also tested at the community level **[[CFS: on a cluster level, not national, right?]]** in response to the degrees of modernization, conventional values and gender awareness within- and among-community (see [1, 13, 19, 25, 38, 39, 41, 63]).). Cluster was used as a proxy to represent a community level of impact [?, 19, 29]

[[JD: Ideally, we would make ethnicity a random effect, but we are back to the Gilmour problem I guess.]] **[[CFS: Ethnicity is an important factor (see Hayf05), more so than religion, associating with FGC status, and I don’t think it shall be coded as a random factor. But as J said, it is too hard!]]** **[[CFS: Bayesian model [25] “Conversely, one cannot assume that the clusters selected in**

each district are fully representative of the states in which they are located because surveys only attempted to generate a fully representative sample at the regional level. Consequently, the spatial analysis will be affected by some random fluctuations. Some of this random variation can be reduced through structured spatial effects because it includes neighboring observations in the analysis. However, it should be pointed out that such a spatial analysis should preferably be applied to census data, where the precision of the spatial analysis would be much higher.” (p. 788)] [[CFS: Regarding FGC benefits modules, there were 9 questions. Keya had all the 9, Mali and SL 7 (missing promiscuity and STD), NG 8, missing STD). Should we drop STD since 3 out of 4 missed this variable?]]

Statistical Model

We used cumulative link mixed models (CLMMs) in the statistics package R [?, ?] to analyze the models. The CLMM framework allows us to model a binary or ordinal response variable (i.e., intention of cutting daughters and whether to continue FGC practice), while treating clusters and ethnicity as random effects. We subtracted respondent (-1) from the cluster when testing the community effect Please rewrite this. Also, do we need to mention how we treat cluster with only one sample (if that happens).

[[CFS: Our response ARE categorical not binary; AND still need to explain why ethnicity is a random effect. AND media use was supposed to be incorporated as a random factor at the country level, based on the assumption that media content likely varied among countries.]]

[[CFS: Do we do any within-community variation and between-community variation? Is it a thing?]] [[CFS: reference: Methods and the first paragraph of Discussion[?]]]

Scripts

Codes are be available upon request.

Results

Baseline socio-demographic and sample characteristics are shown in xxx. The prevalence of FGC are %, %, % and % in Kenya, Mali, Nigeria and Sierra Leon accordingly, and %, %, % and % of the samples thought FGC should continue as well.

The results of the three models are at figure?. The findings showed that all the three responses were clearly associated with the following predictors: women's fgc status, beliefs of fgc benefits and FGC prevalence in a community; so as the following factors: country, media, education, age and religion and the community levels of media, education. We did not find clear association of the community level of beliefs of fgc benefits and the three responses.

[[CFS: main predictors: beliefs of FGC benefits, woman's FGC status and attitudes of gender equality]]

Tables and figures to be included: - table of basic sociodemographic results - 3 figures of the results of the 3 models - a figure of women's FGC prevalence vs. their intention of cutting daughters vs. attitudes towards FGC continuity. (ref to <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3302551/>, Fig 1)

Discussion

–Main interpretation –

Our findings suggest that a daughter's likely future of being cut or not is overdetermined by her community's overall likelihood of mothers' intention of cutting their daughters, fgc prevalence, among others: the norm of FGC is synergistic, based on what women think about the other women in the community will like undergo the practice than what they think about this practice. Our findings show that omen's decision on cutting their daughters was clearly related to their own FGC status, personal beliefs of FGC benefits and theFGC prevalent in their community link; yet group beliefs of FGC benefits in their community did not play a clear role in determining whether a daughter would be cut. The similar results also applied to women's view of whether FGC should be continued link. How to use the future-mother producing daughter model?. Our findings suggest that FGC practice is a social norm in respect of how an individual behavioral intention on FGC is

in line with how their community implement this ritual; the social norm is based on what an agent perceives what their community members think and that perception can be based on the members' behavioural outcome (i.e., whether others had FGC) or communication about the ritual practice [] .

— Norm —

- conventional [?, 19, 26, 32, 51] vs. - “attitude is the strongest predictor of mothers' intentions to allow their daughters to undergo FGM, followed by subjective norms.” [44]. “alternative convention/peer convention[51] [51] proposed that reasons for fgc practice go beyond the belief that it is advantageous for marriage prospects. FGC allows women to gain social capitals and access to networks. Their findings also suggested that the main deterrent to marriages was not men's refusal of non-fgc women, but hostility and discrimination from fgc women to non fgc women. **[[CFS only: Mackie's social convention theory was supported in [51]. In [34], the authors saw marriageability was only one reason for FGC and proposed multiple factors in influencing women's decision of cutting their daughters.]]**

[44]: Attitude was the strongest predictor of mothers' intentions for their daughters' FGC status, followed by subjective norms

- community level of effects - [23](community -based approach), [6, 19, 26, 45, 51] [35]: “We find that much of the variation in a woman's support for FGC can be attributed to individual- and household-level factors rather than to village-level factors or to factors beyond the village level.” - tipping point/threshold - **[[CFS: empirical norm: enough others follow the norm- community level of FGC [7] normative norm: enough others think we need to follow the norm - FGC beliefs, decision on daughter's FGC status (already and future), [7]]]** -community level of fgc benefit: can the no effect result partially due to heterogeneity?

What does it mean that group level of daughter future as the biggest predictor compared to individual benefit and group fgc (prevalence)? Does it mean that fgc norm works implicitly and it might not be something behaviour women really agree with? Is it a social norm supported by social sanction (i.e., cutting daughter) for what reason? (see [34] (p.28 which mentioned Bicchieri06)

- Beliefs of FGC benefits - Our PCA results show that women's beliefs of what benefits FGC brings is not clearly identified (see figure pca) and mar-

riageability was not a clear one (to compare with [?, ?]. On interpretation is that marriageability is no longer a strong belief in community where FGC is still common and new norms are insinuated around [[**CFS only: Cite: EffeVogt15, MackLeJe08, ShelWand11, networking, part of social groups Duncan-Shell?**]]

— secondary analysis/socio demograhpic —

- modernization (citeBoylMcMo02, Youn02, education and wealth as index of modernization), vs. gender [31, 15, ?, 37, 58, 62, 63]. Hayf05 Wealth: Some research showed that household wealth has nonlinear correlation with women's FGC status predictor of daughter's FGC status [25, 56] proposing various factors impacting FGC practices, such as women's education

[36] (In Ethiopia): Women who believed that FGM should continue were more likely to be aged 15-24years; rural residents; Muslim; married ; uneducated ; circumcised ; and to have had no exposure to mass media [10](in 7 African countries): increasing media coverage and education, and reducing poverty are of importance for shifting adolescent girls' attitudes in favor of discontinuation of FGM. [19, 44] (more)

— by nations and laws in those nations—

In Ethiopia, the majority of women who were aware of the negative reproductive health effects had not stopped the practice highlighted the possible fear of isolation and being alienated from the cultural system where FGC could be seen as a force of social cohesion [62]. In Kenya, woman's decision on whether to cut their daughters' genitals were likely to relate to collective identity within ethnic groups against broader social changes [1, 19]; similarly findings observed in Nigeria [?, ?].

— Kenya: legal background: Kenya [?]; [54]; vs. [?, 19], and [http://kenya.usaid.gov/programs/women/182PEPFAR/kenya] — Mali: "The occurrence of FGM/C is also concentrated in certain West African countries where prevalence rates range from 72–96 percent: Burkina Faso, the Gambia, Guinea, and Mali. The populations of these countries share certain social and historical ties, which suggests that a strategy to eliminate FGM/C in one of these countries might be successful in others. FGM/C is practiced as part of the initiation into a secret society in Liberia and Sierra Leone. We should expect that the repercussions for mothers there who do not send their daughters to be initiated would be different than for mothers in nearby Mali or Guinea [?]

— Nigeria: “Modernization (education and high socioeconomic status) had minimal impact on the likelihood of FGM, but education plays an important role in the mother’s decision not to circumcise her daughter. It follows from these findings that community factors have a large effect on FGM, with individual factors having little effect on the distribution of FGM” [25]

— Sierra Leone: [47]

— Suggestions — - empowering community, engaging community leaders and other strategies [?] - MC vs. FGC. Considering the acceptance of Alternative rights of passage [16] without criminalize the practice. (I’m not sure if I’m comfortable with this position, but it is an alternative.) vs. focused on empowerment, and campaigns to recruit change agents from within communities (to eradicate FGC) [50, 60] - modelling by plotting empirical data to study threshold/tipping point. - redesign questions of fgc benefits in DHS - inviting faced women migrated to western society to participate in fgc intervention campaign. For example, attitude change: “migrating to and living in Sweden facilitates a transition in attitudes regarding FGC” [57], and initiating “participatory campaign and education” (an idea from MackLeJe08’s “participatory human rights education” and Boston’s), including women’s empowerment and horizontal involvement (vs. trickle-down strategy) - [34]”coordinated community abandonments (Dagne 2008, <http://www.kmgselfhelp.org/hotissues.html>). Both human rights deliberation and coordinated community abandonment are necessary for change. National programmes in Egypt and Sudan are promoting positive human rights messages and discussions at national, regional, and local levels, and are experimenting with a variety of coordinated abandonment through community dialogue efforts at the local level. “ (use [9, 34] for this idea)

— Limitation — - No FGC types relating to our response variables - Not controlling for daughter’s age

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Conflicts of interest

The James S. McDonnell foundation and the Canadian Institutes of Health Research had no role in study design; collection, analysis, and interpretation of data; the writing of the manuscript; or in the decision to submit the manuscript for publication. The views expressed herein do not necessarily represent the views of the founding bodies.

Authors' contributions

Disclaimer

The findings and conclusions of this article are those of the authors and do not necessarily represent the views of the funding agency.

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Appendix

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