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Dynamics of change in the practice of female genital cutting in Senegambia: Testing predictions of social convention theory

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ABSTRACT

Recent reviews of intervention efforts aimed at ending female genital cutting (FGC) have concluded that progress to date has been slow, and call for more efficient programs informed by theories on behavior change. Social convention theory, first proposed by Mackie (1996), posits that in the context of extreme resource inequality, FGC emerged as a means of securing a better marriage by signaling fidelity, and subsequently spread to become a prerequisite for marriage for all women. Change is predicted to result from coordinated abandonment in intermarrying groups so as to preserve a marriage market for uncircumcised girls. While this theory fits well with many general observations of FGC, there have been few attempts to systematically test the theory. We use data from a three year mixed-method study of behavior change that began in 2004 in Senegal and The Gambia to explicitly test predictions generated by social convention theory. Analyses of 300 in-depth interviews, 28 focus group discussions, and survey data from 1220 women show that FGC is most often only indirectly related to marriageability via concerns over preserving virginity. Instead we find strong evidence for an alternative convention, namely a peer convention. We propose that being circumcised serves as a signal to other circumcised women that a girl or woman has been trained to respect the authority of her circumcised elders and is worthy of inclusion in their social network. In this manner, FGC facilitates the accumulation of social capital by younger women and of power and prestige by elder women. Based on this new evidence and reinterpretation of social convention theory, we suggest that interventions aimed at eliminating FGC should target women's social networks, which are intergenerational, and include both men and women. Our findings support Mackie's assertion that expectations regarding FGC are interdependent; change must therefore be coordinated among interconnected members of social networks.

Introduction

Female genital cutting (FGC), also known as female genital mutilation or female "circumcision," refers to a set of practices involving the partial or complete removal of the external female genitalia. These practices can be found in a wide variety of contexts throughout the northern half of sub-Saharan Africa, Sudan, Egypt, parts of the Middle East and Asia, as well as across the African diaspora. Beginning in the 1970's, the international community, national and local institutions, and the governments of numerous countries have openly taken a stance against FGC, and backed numerous campaigns aimed at eliminating the practice using a variety of approaches.

By the end of the 1990's many participants in the international campaign to end FGC reached the conclusion that programming efforts had, in many instances, yielded limited results. Subsequently, a series of reviews (Denison, Berg, Lewin, & Fretheim, 2009; Feldman-Jacobs & Ryniak, 2006; Frontiers in Reproductive Health/Population Council, 2002; Toubia & Sharief, 2003) echoed a question posed by the World Health Organization (WHO, 1999): *What works and what doesn't?* In addressing this question, one review (Frontiers in Reproductive Health/Population Council, 2002) emphasized that in order to improve our understanding of why and how interventions cause change, intervention research needs to be informed by theory on behavior change.

A significant body of academic research has, indeed, focused on the development of theoretical models of behavior change. These models fall broadly under two main paradigms: 1) decision-theoretic models, and 2) game-theoretic models. Decision-theoretic models employ a rational choice approach for weighing

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costs and benefits of behavioral options for independent actors. For example, community-based health education programs, which were widely employed in the first two decades of the global campaign to end FGC (and still are used, though now often alongside other approaches), were framed by a health belief model that employs a rational choice approach. These programs centered on delivering messages about the adverse health risks of FGC, assuming that improved knowledge of medical risks would alter the cost-benefit calculus of proceeding with FGC, and promote behavior change. While these programs have succeeded in raising awareness and generating public discussion, they have failed to motivate large-scale abandonment of FGC. A number of critiques of rational choice models have pointed to the flaw of assuming a direct link between an individual's intention and behavior, and stress the importance of understanding the interactions of decision makers and the context in which decisions are made (Davies, 1992; Parker, 2004; Shell-Duncan & Hernlund, 2006; Yoder, 1997, 2001).

As an alternative to the rational choice models, Mackie (1996, 2000) has proposed a game-theoretic model, social convention theory, which delineates the means by which actions of individuals are interdependent, necessitating coordinated change among interconnected actors. Mackie (2000) argues that FGC can be best understood as a convention maintained by interdependent expectations in the marriage market. Once it becomes widely expected of potential brides, the practice is locked in place: those who fail to comply also fail to marry and reproduce. A convention shift, whereby a critical mass of people abandons the practice and allows their children to marry uncircumcised women, is necessary to sustain abandonment of FGC. The success of community-based programs that seek to coordinate change within a community, such as the Senegalese Tostan project, which organizes public declarations of abandonment of FGC, provided strong initial support for social convention theory (Mackie, 2000; Tostan, 1999). This correspondence has drawn considerable attention from individuals designing, implementing and evaluating programs, as well as donors, policy makers and academics. UNICEF, in particular, has been instrumental in organizing a series of academic consultations and program reviews aimed at exploring the theoretical dimensions of behavior change, and gaining insights from correspondences with empirical program experiences (UNICEF, 2005, 2010). Few studies, however, have specifically tested predictions generated by social convention theory. One notable exception is a 2005 study by Hayford, which, using 1998 Kenya Demographic and Health Survey (DHS) data, tested whether the decision to circumcise a daughter was influenced by group norms in a marriage market, using community characteristics as a proxy for marriage market. After controlling for individual level variability, the results showed that women's decisions regarding their daughters' circumcision were correlated within communities, as predicted by social convention theory. More direct and detailed information on the role of marriageability is, however, not available in DHS data.

The purpose of this research was to develop an improved understanding of the dynamics of behavior change regarding FGC by explicitly testing predictions from social convention theory with empirical data from a three year mixed-method study conducted in Senegal and The Gambia. These countries share a tremendous amount in common in terms of languages, religion and cultural practices, including FGC. In Senegal, however, intervention efforts have led to wide-scale abandonment of FGC. Together, these settings provide a unique window into the behavior change process for FGC across a wide spectrum. We compared findings from both qualitative and quantitative data against predictions derived from Mackie's social convention theory.

Theoretical background

Social convention theory as a game theoretic model delineates that actions of individuals are interdependent, necessitating coordinated change among interconnected actors. Mackie (1996, 2000) proposed that FGC arose under conditions of imperial polygyny and extreme resource inequality, with powerful elite controlling crucial resources. He suggests that within this context, FGC may have originated as a means of signaling fidelity to highly polygynous male elites who control great economic resources. Furthermore, Mackie suggests that once FGC was adopted and improved chances of marriage into higher social strata, it became exaggerated and diffused through lower strata of society as parents attempted to improve the chances of their daughters marrying into higher social strata. The cascading effect is that FGC became associated with improved chances of good marriages throughout society and became a self-enforcing convention (Fig. 1). Mackie explains:

> However the custom originated, as soon as women believed that men would not marry an unmutilated woman, and men believed that an unmutilated woman would not be a faithful partner in marriage, the convention was locked in place. A woman would not choose nonmarriage and not to have her own children; a man would not choose an unfaithful partner and not to have his own children (Mackie, 2000: 264).

To avert the strong social sanction of non-marriage, Mackie argues that behavior change must be coordinated amongst individuals in interconnected marriage markets to shift from all cutting to no cutting. It is not necessary that the entire population ends the practice at once, but that change is coordinated amongst a critical mass of individuals to assure the existence of a marriage market for uncut girls.

According to Mackie (2000), peer pressure may be another potential independent source for maintaining FGC. Additionally, in various cultural settings, FGC can become associated with other factors such as female initiation or religion. By these means, a practice that arose as a marriage convention may be further enforced through a variety of social, moral, or religious norms (Mackie & LeJeune, 2009). Consequently, the theory does not

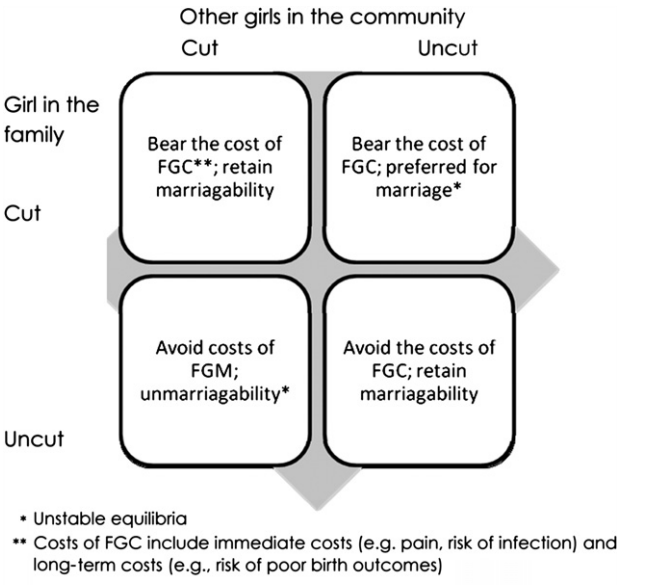

Fig. 1. Hypothetical payoff matrix for family's decision to circumcise or not, in the context of the decisions anticipated by other families.

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require that marriage be the most important factor associated with FGC (Mackie, 2000; Mackie & LeJeune, 2009). Nonetheless, marriageability is considered the "main engine of continuation," requiring that change be coordinated among intermarrying groups (Mackie, 2000: 265).

Drawing from the marriage convention hypothesis, FGC should have the following features:

1. It should be necessary for marriage or an avenue to better marriage prospects.
2. It should be self-enforcing; the expectation that other girls in the community will or will not be cut should be a primary factor in decision making surrounding FGC.
3. While other justifications may be imposed on it (accompanying training, health, cleanliness), it is the physical signal (cutting) itself that should be conserved; accompanying ritual, celebration, or training should be abandoned more readily than the actual physical modification.
4. It should be prone to exaggeration, as women compete to send a stronger signal and gain the best husbands.

We empirically examine these predictions, and then examine other factors that may contribute to the perpetuation of FGC.

Study population

This research project was conducted at sites located in Senegal and The Gambia. Often, these nations are referred to collectively as Senegambia, owing to the fact that they share much in common in terms of language, dominant religion (over 90% Muslim in both), subsistence activities, cultural practices, landscape, and climate. As the practice of FGC is most closely tied to ethnic affiliation, the overall prevalence rates for The Gambia and Senegal vary. In Senegal, where the largely non-practicing Wolof are the largest ethnic group, the prevalence is 28% (Diop, 2006). In The Gambia, where the ethnic majority are Mandinkas, who near-universally practice FGC, the prevalence of FGC is 78% (based on the 2006 Multiple Indicator Cluster Survey data). In the past, FGC was commonly performed as a pre-adolescent coming of age ritual that was accompanied by lengthy seclusion and training. It is now common for girls to be circumcised individually with little or no training or celebration, and at younger and younger ages (Hernlund, 2000). However, in a few groups, such as the Tukulor, FGC has long been performed at very young ages (Sylla, 1990). Type I (clitoridectomy) and Type II (excision of the clitoris and labia minora) are the most common forms of FGC practiced in both countries, but and to a lesser extent Type III (sealing, which differs from infibulation in that it involves no stitching) is also found (Daffeh, Dumbuya, & Sosseh-Gaye, 1999; Diop, 2006).

Anti-circumcision campaigns have been ongoing in Senegambia for several decades, but strategies have varied. Senegal is the original site of the massive Tostan program, which has led to abandonment of the practice in 5368 villages, with continued rapid spread (www.tostan.org, accessed May 21, 2011). Tostan began work in The Gambia in the Upper River Region during our study, and as of March 2011, 99 communities participated in public declarations to end FGC (http://www.tostan.org/web/module/events/pressID/111/interior.asp). At the time of our study, however, Gambian participants were unaware of these activities, although many were familiar with some of the other campaigns that have been ongoing in The Gambia. There were no cases of large scale, community-wide abandonment of FGC in The Gambia, although cases of abandonment by individuals or families were found. The purpose of this research study is *not* to evaluate the effectiveness of the Tostan campaign, but to assess the dynamics of change, and whether they conform to predictions from social convention theory.

Methods

Research was conducted in three distinct regions: 1) peri-urban communities surrounding the Gambian capital, Banjul; 2) the Gambian North Bank Division rural border area known as Baddibu, and 3) the Senegalese region directly across the border from Baddibu, falling mostly in rural Kaolack Division, including several villages covered in the Tostan program. These research sites do not provide nationally representative samples, but were selected instead to capture variation in abandonment of FGC and in the social dynamics surrounding the practice, in particular decision making. Ethical approval was given from The World Health Organization, Cheikh Anta Diop Université, Gambia College - Brikama Campus and University of Washington, Seattle.

Mixed methods data collection began in 2004. The first phase involved qualitative research in each subsection of the study region. Data were collected by six Gambian fieldworkers; one male and one female fieldworker were assigned to each of the three study sites. In-depth interviews with men, women, community and religious leaders, health professionals, and former circumcisers were conducted following interview guidelines, and later transcribed and translated into English.

Focus group discussions (FGD) were conducted in order to identify FGC decision makers, perceived advantages and disadvantages of FGC, and recent changes in the practice. FGD were divided by gender, age (elder vs. younger men or women), circumcising tradition (whether FGC was a tradition in the participants' families or not), and (in Senegal) whether participants came from a village that had or had not participated in the Tostan program.

Qualitative data collection yielded over three hundred interviews and twenty-eight FGD that contain tremendously rich information on decision making. Constructs and categories relevant to decision making regarding FGC were identified through analysis of the interviews and FGD, and were incorporated in the development of an ethnographically-grounded survey questionnaire. A developmental pre-test of the survey was carried out in March and April of 2006. This involved a conceptual review of entire questionnaire with key Gambian consultants, evaluation of alternate forms of questions, testing the effect of question order, and assessing reliability using a test-retest process (further details are in Shell-Duncan, Hernlund, Wander, & Moreau, 2010). The entire questionnaire was then translated into Mandinka and Wolof, back-translated into English, and discrepancies were reconciled.

Phase two involved questionnaire administration, data entry, and quantitative analysis. A multistage sampling procedure was used, first cluster sampling villages and next randomly choosing compounds. In Senegal, villages were stratified based on whether they had participated in the Tostan program or not, and if they were large or small, and four communities were selected. In The Gambia, villages were stratified as urban or rural, and six rural and two urban communities were randomly selected. Maps with numbered compounds were available from the Gambian Bureau of Statistics, and maps were created for the communities in Senegal. The number of compounds randomly sampled from each site was proportional to the total number of compounds. Residents were asked to list all female residents between the ages of 18 and 40 who had given birth to at least one girl. From this list of eligible women, one was selected using a random number table. The overall response rate was 96.4%. A total of 1220 women responded to the questionnaire. Of these, 319 and 636 women were from rural and urban Gambia, respectively, and 265 were from Senegal.

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The data were analyzed at the University of Washington. Qualitative interviews were recorded and transcribed by fieldworkers, and analyzed by the lead investigators and research assistants. Interviews were coded using Atlas ti (GmbH, Berlin), and emerging themes and analytical directions were discussed regularly. FGD were analyzed following Knodel (1993) for points of agreement and contention, and were also coded in Atlas ti and analyzed for themes. Quantitative data from the survey pertinent to the questions addressed here were analyzed using Stata software (Statacorp, College Station, Texas).

Results

Characteristics of survey respondents are described in Table 1. All three study areas included women from multiple ethnic groups, and women who reported that their family did or did not come from a "circumcising tradition." Overall, 58% of women reported that they came from families that traditionally practiced FGC.

Some ethnic groups were close to uniform in their circumcising tradition (97% of Mandinka women participating in the survey reported that FGC is/was a tradition in their family; 96% of Wolof women reported that it is/was not). For others, this was not the case: among Fula women, 72% reported that FGC is/was a tradition in their family; among Jola women, 85%; and among the Serer, 25%.

Table 1
Sample characteristics.

	Rural Senegal	Rural Gambia	Urban Gambia	Total
Number of respondents	265	319	636	1220
Mean age (years)	30.4	29.7	29.6	29.8
Muslim (%)	97.7	99.7	94.3	96.5
School attendance (%)				
None	17.8	35.2	29.4	28.4
Arabic school only[a]	31.4	40.6	25.9	31.0
Primary school	33.0	14.2	19.1	20.8
Secondary school	15.9	8.8	24.2	18.3
College	1.9	1.3	1.5	1.5
Ethnicity (%)				
Mandinka	28.3	9.4	32.6	25.6
Wolof	15.1	38.9	16.8	22.2
Fula	18.1	22.9	16.5	18.5
Serer	32.1	17.9	4.1	13.8
Jola	1.1	0.9	15.4	8.5
Other	5.3	10.0	14.6	11.4
Marital Status (%)				
Never married	4.6	2.2	7.7	5.6
Currently married	86.7	90.6	83.8	86.2
Widowed	1.1	2.5	2.4	2.1
Divorced/Separated	7.6	4.7	6.2	6.1
Circumcised (%)				
Mandinka	90.7	90.0	98.1	95.5
Wolof	2.5	3.2	6.5	4.4
Fula	43.8	61.6	87.5	68.8
Serer	34.1	5.3	30.8	23.8
Jola	33.3	66.7	84.5	82.5
Overall	48.7	32.6	71.3	56.2
Families that traditionally practice FGC (%)				
Mandinka	93.3	93.3	98.5	96.8
Wolof	2.5	2.4	7.5	4.4
Fula	52.1	61.6	88.5	72.0
Serer	36.5	3.5	34.6	25.0
Jola	33.3	66.7	87.6	85.4
Overall	52.1	32.9	72.5	57.7
Inter-ethnic marriage (%)	34.0	20.1	29.9	28.1
FGC-incongruent marriage[b] (%)	14.0	11.9	10.6	11.7

[a] Arabic school only: the respondent's only formal schooling was attended at a mosque.
[b] Husband's circumcision tradition does not match respondent's circumcision status.

Social convention theory: empirical insights from Senegambia

We drew on analyses of our qualitative and quantitative data to evaluate the predictions generated by the marriage convention hypothesis.

Circumcision is a prerequisite for marriage or related to marrying well

We find little support for this prediction. All interviewees and FGD participants were asked if FGC was necessary for a girl to find a "good" husband; most, whether from a circumcising tradition or not, agreed that circumcision was not necessary for marriage, and none asserted that it was an avenue to get a richer or better husband. When respondents did assert that circumcision was important or necessary for a good marriage, it was most often not because men refused to marry uncircumcised women, but because an uncircumcised woman marrying into a circumcising family would face difficult relationships with other women in her marital home.

> If you have two wives—one who is circumcised and the other one who is uncircumcised—the one who is circumcised always calls the uncircumcised one solima, meaning uncircumcised woman full of odors. I have seen many cases pertaining to circumcised and uncircumcised women here in this village. —Middle-aged Jahanka man, rural Gambia

We also addressed this prediction with quantitative data. First, the survey contained two items directly asking about the importance of FGC for marriageability. Second, women responding to the survey provided information about their circumcision status, tradition, ethnicity, and (for those who are or were married) the circumcision tradition and ethnicity of their husbands, allowing us to examine actual marriage pairings and concordance within marriages for FGC status and tradition.

Most survey respondents did not see a connection between circumcision and marriageability: 66% disagreed with the statement, "If a girl is circumcised, she has a better chance of finding a good husband" (61% among circumcised women), and 72% disagreed with the statement, "A girl who is not circumcised will have difficulty finding a husband" (68% among circumcised women). We find indirect support for a link between FGC and marriageability via its usefulness for protecting virginity until marriage: 51% of respondents agreed with the statement, "Female circumcision helps a girl remain a virgin until she marries."

While marriage partners often had ethnicity and circumcising tradition in common, this was far from universally true: 28% of respondents reported being in ethnicity-discordant marriages, and 12% reported being in FGC-discordant marriages (11.7% overall; 12.9% among women from circumcising families), suggesting that the marriage prospects for uncircumcised women in our study area are far from dismal, as marriage across both ethnic and FGC tradition lines are possibilities. FGC-discordant marriages included those between uncircumcised women and men from circumcising families and between circumcised women and men not from circumcising families, in about equal proportions (Table 2).

We examined concordance for ethnicity and circumcision separately, and then attempted to disentangle the effects of these two factors. Concordance within marriages for FGC and ethnicity was calculated as the percentage of pairs with the same characteristic. The kappa statistic (κ) was calculated as the extent to which observed concordance exceeded that expected solely by chance: $\kappa = (\text{Observed concordance} - \text{expected concordance})/(1 - \text{expected concordance})$.

Concordance between survey respondents' FGC status and their husbands' tradition is described in Tables 3. Concordance between

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Table 2
Percent concordance between husband's tradition and respondent's circumcision status among Senegambian women ($n = 1148$).[a]

Female circumcision is a tradition in husband's family	Circumcised	
	Yes	No
Yes	50.2%	4.7%
No	7.8%	38.0%
Unsure	0.2%	0.0%

[a] Restricted to ever married women.

respondents' circumcision status and husbands' family's circumcising tradition was 0.8806. Expected concordance was 0.5058; kappa was 0.7584, indicating greater concordance than expected by chance. Similarly, concordance between respondents' and husbands' family's circumcising traditions was 0.8822. Expected concordance was 0.5070 and kappa was 0.7611, again, indicating greater concordance than expected by chance. However, the high concordance for ethnicity could explain much of the concordance for FGC. To control for ethnic group, we examined FGC concordance only among marriages concordant for ethnicity, and focused on groups with moderate prevalence of FGC to evaluate whether circumcised women are more likely married to men from circumcising traditions.

It appears (see Table 4) that assortative pairing is at work for men from *both* backgrounds: among the Fula, Jola, and Serer, it seems that circumcised women are more likely to be married to men from circumcising backgrounds and uncircumcised women are more likely to be married to men not from circumcising backgrounds. However, the marriage convention hypothesis does not predict any preference for uncircumcised women among men from non-circumcising families (and instead predicts that the preference for circumcised wives will be rather contagious). Overall, we find mixed and limited supporting evidence in our qualitative or survey data that FGC in our study communities is necessary to ensure marriageability or to enhance marriage prospects.

Circumcision is self-enforcing

The marriage convention hypothesis predicts that expectations alone will be sufficient to perpetuate FGC: as long as families anticipate that girls in the community will be circumcised, they will decide to circumcise their girls as well (lest they fail to marry; see Fig. 1). This means that there should be no need to actively enforce circumcision behavior through social sanctions (either positive sanctions, such as approval and praise, or negative sanctions such as ostracization and peer pressure). We found that expectations regarding whether other girls in the community will be cut or whether potential marriage partners will prefer circumcised wives were not listed among the major considerations in the decision making process regarding FGC. Instead, FGC is actively promoted among those who practice it: First, those who choose not to circumcise a daughter face direct pressure from family and community members. FGC is considered part of a family's obligation to its daughters, and having a girl circumcised the choice of a responsible parent. Second, uncircumcised girls and women face substantial harassment from circumcised women of all ages. As Hernlund (2000) also found, those who are not circumcised are contemptuously insulted by being labeled *solima*, meaning not only uncircumcised, but also rude, ignorant, immature, uncivilized, and unclean; women who are *solima* are told they know nothing, and are harassed and excluded by women for not knowing how to behave properly. And finally, uncircumcised women are excluded from participating in, or even being present for, some activities (most commonly listed were circumcision ceremonies and wedding ceremonies). Some respondents also asserted that uncircumcised women are excluded from collective (family or community) decision making. Therefore, rather than considering the FGC composition of the marriage market a girl will enter, decision makers seem to be most concerned with the overt sanctioning they and their girls will face as a result of a choice to circumcise or not. Such pressure should not be necessary to maintain decision makers' desire to circumcise in the marriage convention scenario.

The physical modification is more valued than the accompanying training or ritual (circumcision without training is more acceptable than training without circumcision)

Consistent with this prediction, we found that, increasingly, the physical cutting of FGC is becoming divorced from the training and ritual that traditionally accompany circumcision. Although they emphasized training as a primary benefit of circumcising, most respondents found performing circumcision on girls at younger ages and shifting from circumcisions in the bush (the traditional venue for multiple weeks of training accompanying circumcision) to the family compound acceptable.

> Changes in the practice are vital. For example, girls should be taken at a very early stage and not in groups, neither stay in the bush as was the case during our time. We stayed for almost two months in the bush but came home every evening after sunset and went back before sunrise, in very unhealthy conditions. As such, since the boys are now taken to the clinics by doctors, why should not also the girls be taken to trained medical personnel?—Middle-aged Mandinka woman, rural Gambia

We tested this prediction with our survey data by examining changes in the practice. By comparing Gambian participants to their daughters (data regarding daughters' circumcision was not available from participants in Senegal), we identified changes in circumcision practices between the two generations. We found significant changes between mothers' and daughters' generations in circumcision location, the degree of celebration, and age at circumcision, but no change in the type or degree of cutting (Table 5): Daughters were less likely to be circumcised "in the bush" or with any accompanying ceremony; however, no change in the frequency of "sunna", "all removed", or sealing was apparent.

We used Kaplan–Meier methods to evaluate whether the age at circumcision has declined across generations, and calculated a log-rank test for equality of survivor functions. The results reveal

Table 3
FGC-incongruent marriages (comparing respondent's status to husband's tradition) among Senegambian women.[a]

Among all Senegambian women			Among Senegambian women from circumcising families		
Concordance between husband's tradition and wife's circumcision	Frequency	Percent	Concordance between husband's tradition and wife's circumcision	Frequency	Percent
Yes	1012	88.31	Yes	586	87.07
No	134	11.69	No	87	12.93
Total	1146	100.00	Total	673	100.00

[a] Restricted to ever married women.

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Table 4
Concordance between husband's circumcision tradition and circumcision status by ethnic group among Senegambian women from circumcising families in ethnically concordant marriages.

Ethnic group	Concordance	Kappa
Wolof	0.9946	0.7974
Fula	0.9133	0.7730
Mandinka	0.9600	0.1820
Serahule	1.000	1.000
Jola	0.9111	0.5500
Aku Marabout	1.000	1.000
Serer	0.9259	0.7551
Balanta	1.000	1.000
Other	0.9333	0.7931

a substantial decrease in age at circumcision in the daughters' generation ($\chi^2 = 36.58$; $p < .0001$).

Thus, our data reveal that circumcisions among respondents' daughters were more likely to be performed at home, less likely to be accompanied by any ceremony or celebration, and performed at a younger age. This phenomenon has been previously described by Hernlund (2000: 235) as "cutting without ritual"; it is consistent with the marriage convention prediction that change in the practices surrounding FGC would be more acceptable than change in the actual cutting. These trends, together with respondents' expressed preference for preserving the practice of cutting, even in the absence of accompanying training and ceremony, provide support for the social convention hypothesis.

Competition for the wealthiest husbands promotes a greater degree of cutting

This prediction was not borne out in our qualitative data. Most participants were willing to accept (or advocated) reducing the degree of cutting.

> People should stop removing/cutting all, but remove just a little. And care should be taken not to use one instrument or material for more than one person. And also go singly, rather than in groups.—Middle-aged Mandinka woman, rural Gambia

Table 5
Concordance and kappa statistics (κ) for characteristics of Gambian mothers' and daughters' circumcisions.

Characteristic	Mothers' generation	Daughters' generation	Concordance (κ)[a]
Type of circumcision			
Sunna	38.6%	44.8%	92.0% (84.0%)
All removed	43.8	39.0	
Unknown	17.6	16.2	
Sealing			
Sealed	14.7	11.8	91.4 (60.2)
Not sealed	85.4	88.3	
Unknown	0.2	–	
Location			
Circumciser's compound	35.0	49.9	48.0 (26.6)
Own compound	20.2	34.4	
Bush	42.5	13.1	
Other	2.3	2.7	
Circumciser			
Local circumciser	94.2	90.0	87.5 (11.7)
Other circumciser	1.9	7.6	
Nurse	3.0	1.6	
Other	0.9	1.0	
Celebration			
Celebration	82.5	52.9	65.7 (28.7)
None	17.5	47.1	

[a] Pairs in which either mother or daughter's circumcision type was reported to be "Unknown" were eliminated from the calculation of concordance/kappa statistics.

This voiced support was, however, not accompanied by any significant change in the severity of cutting. Comparison of FGC among mothers and daughters, discussed above, shows that there is no secular trend in circumcision type in our study communities (Table 5).

Collectively, from testing these four predictions, we conclude that FGC in our study communities in Senegambia is not maintained primarily by a marriage convention, although it is possible that marriageability contributed to the origin and spread of FGC in the past (as has been documented in Guinea-Bissau; see Johnson, 2000: 219). We suggest that currently, in Senegambia, FGC may be perpetuated by an alternative convention, namely a peer convention.

Beyond marriage convention

Mackie (1996) identified a second possible convention for the maintenance of FGC: a peer convention. We believe a peer convention hypothesis has important benefits over the marriage convention hypothesis for explaining FGC in the Senegambia. First, it potentially explains both female *and male* circumcision. Male circumcision is not addressed in treatments of social convention theory (Mackie, 1996, 2000). However, our interview data revealed that male and female circumcision are clearly considered complementary practices within Senegambian groups in which both males and females are traditionally circumcised (consistent with Ahmadu, 2005). They also share recent trends toward younger ages at circumcision and a decoupling of training from circumcision itself. (For more discussion of male circumcision and the role of men as decision makers regarding FGC, see Shell-Duncan et al., 2010.)

Second, the peer convention hypothesis can better accommodate a situation like that in Senegambia, where a significant proportion of the female population remains uncircumcised. If female circumcision persists because it is a marriage convention, originally providing an avenue for young women to "marry up" and eventually becoming a prerequisite for marriage in all social strata, we should expect it to have been adopted more widely in ethnic groups interacting with circumcising groups, especially in light of evidence that marriage across ethnic lines is quite common. The marriage convention hypothesis predicts that the convention be prone to spreading. Were this true it would be unlikely that ethnic groups such as the Mandinka and the Wolof, with a long history of interaction and intermarriage, and few examples of adoption, could persist with different practices regarding FGC. Such a tendency to spread, however, is not necessarily a prediction of the peer convention explanation of FGC because circumcised and uncircumcised women can maintain largely distinct social networks.

FGC as a strategy for accessing social capital

We suggest that a peer convention operates to maintain circumcision in our study communities by facilitating entry into a social network and conferring access to social support and resources. *Social capital* refers to resources embedded in a person's social network that may be accessed by virtue of membership in the network or by calling on particular connections. Resources accessed through such networks and connections can take the form of social norms (e.g., norms against theft; Coleman, 1988), information and opportunities (e.g., job openings; Sprengers, Tazelaar, & Flap, 1988), or material resources (e.g., assistance in launching a small business; Lin, Ensel, & Vaughn, 1981). In the socioeconomic conditions of the Senegambia, where poverty is common, crises frequent, and opportunities scarce, adults rely heavily on social networks to access resources and opportunities in many arenas. N'Dione (1992, cited in Zaoual, 1997: 35), writing on Senegal, asserts that "the upkeep and maintenance of social networks is the

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surest strategy to protect oneself from life's uncertainties," and points to a Senegalese proverb that expresses this belief: Man is the remedy for man. Zaoual (1997: 32) explains that across many African societies, "local milieu work…on the principle of social links," and contribute to the strong cultural value placed on relationships, sharing, and solidarity. What emerges is a system of reciprocity that improves the security of a group's members by reducing hazards and risks. Such a system relies on social networks and social cohesion, resulting in a group that is bound through mutual obligation (see also Ahmadu, 2005). Both men and women in the Senegambia rely on extensive networks of friend, acquaintance, and family contacts in a variety of ways: for example, contacts may be used to access employment and business opportunities, family may be relied on for childcare or help covering expenses, and both family and social contacts relied on for public and social support (e.g. in a dispute with another member of the community). If having circumcision in common enhances the likelihood that two individuals will form a social connection (the currency of social capital), then circumcision represents a viable strategy to access social capital. These "ready-made" connections may be particularly useful to young women, who, upon marriage, face the prospect of leaving the majority of their social connections behind in their natal home, to build their social capital anew in their marital home.

As insiders, circumcised women cement their belonging in their social network and maximize their social capital by excluding uncircumcised women through harassment and ostracism. We interpret many of the benefits of female circumcision cited by supporters of the practice, including cleanliness, preventing promiscuity, preventing disease, and even easing childbirth, as tacit criticisms of uncircumcised women—and thus, justification for excluding them. This casts the report of many of our respondents that FGC is important for preserving virginity in a new light. Based on the tenor of comments regarding virginity, promiscuity, and circumcision, which focus more on disgust with uncircumcised women (e.g., they "make good sex workers"; young Mandinka man) than on the value of virginity before marriage, we interpret the assertion that FGC is important to preserving virginity as support for a peer convention: uncircumcised women, in addition to being dirty, diseased, and disrespectful, are also unlikely to have the self-control to remain virgins until marriage, adding one more reason to exclude them from one's social circle. Emphasizing what circumcised women have in common and how uncircumcised women are lacking may help facilitate the formation of connections between circumcised women, allowing them to make the most of their circumcised status.

Intergenerational aspects to women's peer networks

Female circumcision and female networks seem to have an important intergenerational component. As Ahmadu (2005) explains, female circumcision is closely tied to notions of women's power among Mande groups throughout West Africa; "far from being oppressed by excision rituals, women are the organizers, the champions, and staunch defenders of these practices and, importantly they strategically manipulate and exploit gender ideologies as well as gender asymmetries" (Ahmadu, 2005: 56). She argues that women's investment in perpetuating the practice of FGC serves to perpetuate the structural position and influence of female elders. It is within this hierarchy of power that younger women undergo FGC.

Elder women, established in the community and often wealthier, have established social networks, and, at the same time, are less likely than younger women (in new marriages, with fewer connections, and with young children) to need to rely on their connections for social or material support. By including a younger woman in her network, an older woman is more likely to be called upon by the new connection for support than she is to be the recipient of support. Our qualitative data suggest that, in order to gain entry into women's networks, young women offer their deference or obedience to older women in the network, enhancing the elder's power and standing in the community. Along with Ahmadu (2005), we find that female circumcision serves as a signal that girls have been taught the art of subordination to their future husband, husband's brothers, and most importantly, to their mothers in-law. Girls who have been taught to display nonverbal signs of deference to those in higher positions in the social hierarchy are said to "know the eye," and are considered to behave in a fashion that is socially refined in comparison to uncut women. Fessler (2004) argues that in highly hierarchical societies, subordination is associated with a culturally-shaped emotion of shame. He describes shame as a rank-related aversive emotion that internally motivates conformity. Uncircumcised women living among people who practice FGC experience not only negative sanctions through exclusion, but also experience the aversive emotion of shame. This powerful emotion helps explain why some women in our study reported having individually opted to become circumcised, in some cases long after marriage.

This intergenerational peer convention seems to be consistent with what women describe. For younger girls, the benefit of being circumcised is that they learn to have respect, they can "stay anywhere" (form new connections and amass social capital in a new compound or community):

> Yes, [if you are circumcised,] you will have respect, you will know the eye. And it will make you be independent: because of the teachings you undergo during circumcision you will be able to stay anywhere.—Middle-aged (circumcised) Wolof woman, urban Gambia

For older women, the benefit of being circumcised is that they have been transformed into figures of authority:

> Another benefit is that if you are circumcised, you have high regard in the community. When it also comes to decision making, people listen to you. —Middle-aged Mandinka woman, rural Gambia

Consequently, the intergenerational peer convention serves to uphold women's hierarchies of power and regulate access to networks of social capital.

Discussion

Social convention theory posits that the practice of FGC is perpetuated first and foremost by concerns over marriageability (Mackie, 1996, 2000). In our study sites, however, we find only weak evidence in support of the marriage convention hypothesis. Instead, it appears that an intergenerational peer convention better explains the perpetuation of circumcision in our study sites in Senegambia than does a marriage convention model. We propose that limited, variable resources render individuals reliant on extensive networks for support (e.g., in disputes, in child-rearing, for emergency resources, or for employment opportunities). To gain entry to a women's peer network, girls and younger women signal their subordination to elders, which bolsters their power in the community. This allows young women to expand their social capital, and, as they age, they benefit from younger women's deference or obedience, gaining power in the community themselves. To gain entry to a network, young women use circumcision to signal a willingness to participate in the hierarchy of power.

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Our interview and focus group discussion data from the Senegambia reveal that approval of appropriate behavior is one major perceived benefit of circumcision ("knowing the eye" and being able to "stay anywhere"). We interpret this to mean circumcised women can behave appropriately, and offer their elders appropriate deference, and thus can fit in and find social support anywhere they find other circumcised women.

Additional support comes from our finding that the major deterrent to marriage between men from circumcising families and uncircumcised women, and the major perceived problem with such marriages when they occur, is not men's refusal or distrust of uncircumcised women, but the hostility and discrimination an uncircumcised woman faces among circumcised women. It is likely that both circumcised and uncircumcised women prefer to marry into families, compounds, and communities in which they can form connections and accumulate the most social capital; for circumcised women, this means marrying into circumcising families, and for uncircumcised women, this means marrying into non-circumcising families. Rather than being driven by men's preferences for circumcision in their wives, marriage patterns may reflect women (or their families, in the case of arranged marriages) seeking marriages which maximize their access to social capital; this may explain the pattern of assortative pairing we observed among survey respondents.

Interpreting female circumcision as a peer convention suggests some specific recommendations for intervention. As Mackie (2000) notes, expectations about FGC are interdependent, and change must be coordinated among members of a social network to avert sanctions. While the marriage convention suggests targeting intermarrying groups, an intergenerational peer convention points to the need to direct efforts across generations, and to aim to include as comprehensively as possible members of a women's social network, and their families. Although it is crucial to deliver credible information on the disadvantages of FGC and the advantages of not cutting, programs must also communicate that reciprocal expectations regarding FGM have changed. Additionally, because the specific constellation of conventions and norms may change over time and across settings, it is essential that programs are locally attuned and address the potentially shifting contexts in which FGC is practiced.

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References

Ahmadu, F. (2005). Cutting the Anthill: The Symbolic Foundations of female and male circumcision rituals among the Mandinka of Brikama, The Gambia. Ph.D. doctoral dissertation, London: London School of Economics.

Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology, 94*, S95–S120.

Daffeh, J., Dumbuya, S., & Sosseh-Gaye, A. (1999). *Listening to the voice of the people: A situation analysis of female genital mutilation in The Gambia*. WHO, UNFPA, UNICEF.

Davies, P. (1992). On relapse: recidivism or rational response? In P. Aggelton, P. Davies, & G. Hart (Eds.), *AIDS: Rights, Risk and Reason* (pp. 133–141) Washington D.C.: The Falmer Press.

Denison, E., Berg, R., Lewin, S., & Fretheim, A. (2009). *Effectiveness of interventions designed to reduce the prevalence of female genital mutilation/cutting*. Report from Kunnskapssenteret nr 25. Oslo: Norwegian Knowledge Centre for the Health Services.

Diop, N. J. (2006). Excision. In S. Ndiaye, & M. Ayad (Eds.), *Enquête Démographique et de Santé Sénégal 2005*. Calverton, Maryland: ORC Macro, (Vol. April 2006).

Feldman-Jacobs, C., & Ryniak, S. (2006). *Abandoning female genital mutilation/cutting: An in-depth look at promising practices*. Washington, D.C.: Population Reference Bureau.

Fessler, D. (2004). Shame in two cultures: implications for evolutionary approaches. *Journal of Cognition and Culture, 4*(2), 207–262.

Frontiers in Reproductive Health/Population Council. (2002). *Using operations research to strengthen programmes for encouraging abandonment of female genital cutting*. Nairobi, Kenya: Report of a Consultative Meeting on Methodological Issues for FGC Research April 9–11, 2002.

Hayford, S. (2005). Conformity and change: community effects on female genital cutting in Kenya. *Journal of Health and Social Behavior, 46*(2), 121–140.

Hernlund, Y. (2000). Cutting without ritual and ritual without cutting: female "circumcision" and the re-ritualization of initiation in the Gambia. In B. Shell-Duncan, & Y. Hernlund (Eds.), *Female "circumcision" in Africa: Culture, controversy, and change* (pp. 235–252). Boulder, CO: Lynne Rienner Publishers.

Johnson, M. (2000). Becoming a Muslim, becoming a person: female "circumcision," religious identity, and personhood in Guinea-Bissau. In B. Shell-Duncan, & Y. Hernlund (Eds.), *Female "Circumcision" in Africa: Culture, controversy, and change* (pp. 215–234). Boulder, CO: Lynne Rienner Publishers.

Knodel, J. (1993). The design and analysis of focus group studies: a practical approach. In D. L. Morgan (Ed.), *Focus groups: Advancing the State of the art* (pp. 35–50). Newbury Park, CA: Sage Publications.

Lin, N., Ensel, W. M., & Vaughn, J. C. (1981). Social resources and strength of ties: structural factors in occupational status attainment. *American Sociological Review, 46*(4), 393–405.

Mackie, G. (1996). Ending footbinding and infibulation: a convention account. *American Sociological Review, 61*, 999–1017.

Mackie, G. (2000). Female genital cutting: the beginning of the end. In B. Shell-Duncan, & Y. Hernlund (Eds.), *Female "circumcision" in Africa: Culture, controversy, and change* (pp. 253–283). Boulder, CO: Lynne Rienner Publishers.

Mackie, G., & LeJeune, J. (2009). *Social dynamics of abandonment of harmful practices: A new look at the theory*. Special Series on Social Norms and Harmful Practices: Innocenti Working Paper No. 2009-06. Florence: UNICED Innocenti Research Centre.

Parker, W. (2004). *Rethinking conceptual approaches to behavior change: The importance of context*. Centre for AIDS Development, Research and Evaluation (CADRE). http://change.comminit.com/en/node/206742 Accessed November 1.11.2008.

Shell-Duncan, B., & Hernlund, Y. (2006). Are there "stages of change" in the practice of female genital cutting?: qualitative research findings from Senegal and The Gambia. *African Journal of Reproductive Health, 10*(2), 57–71.

Shell-Duncan, B., Hernlund, Y., Wander, K., & Moreau, A. (2010). *Contingency and change in the practice of female genital cutting: Dynamics of decision making in Senegambia*. Summary Report. http://csde.washington.edu/bsd.

Sprengers, M., Tazelaar, F., & Flap, H. D. (1988). Social resources, situational constraints, and re-employment. *Netherlands Journal of Sociology, 24*, 98–116.

Sylla, M. H. S. (1990). *Excision au Sénégal Dakar*. ENDA.

Tostan. (1999). *Breakthrough in Senegal: Ending female genital cutting*.

Toubia, N. F., & Sharief, E. H. (2003). Female genital mutilation: Have we made progress yet? *International Journal of Gynaecology and Obstetrics, 82*, 251–261.

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UNICEF. (2005). *Changing a harmful social convention: Female genital mutilation/cutting*. Florence, Italy: United Nations Children's Fund (UNICEF).

UNICEF. (2010). *Dynamics of social change: Toward the abandonment of female genital mutilation/cutting in five African countries*. Florence: Innocenti Research Center.

WHO. (1999). *Female genital mutilation: Programmes to date: What works and what doesn't? A review*. Geneva: World Health Organization.

Yoder, P. S. (1997). Negotiating relevance: belief, knowledge, and practice in international health projects. *Medical Anthropology Quarterly, 11*(2), 131–146.

Yoder, P. S. (2001). From sexual behavior to sexual encounters: issues in AIDS prevention research. *Reviews in Anthropology, 30*, 225–241.

Zaoual, H. (1997). The economy and symbolic sites of Africa. In M. Rahnema, & V. Bautree (Eds.), *The post-development reader* (pp. 30–39). New Jersey: Zed Books.

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