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MEDIA AND COMMUNITY INFLUENCES ON FEMALE GENITAL CUTTING IN EGYPT

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Abstract

This study examines how media exposure influences Egyptian mothers' intent for daughters to undergo female genital cutting (FGC), and whether community discussions of FGC moderate media effects. A mother's FGC decision-making is embedded within the context of her family and local community, but exposure to broader communities through media exposure may also shape the context in which FGC decision-making occurs. Logistic regression and propensity score matching were used to analyse data from the Egypt Demographic and Health Surveys to examine the effects of media types on FGC intentions and whether conversations about FGC moderate those effects. I find that mothers who watched television were more likely to intend FGC, whereas mothers who read the newspaper and used the internet were less likely. Also, discussing FGC with friends and family amplified the positive effect of watching television and minimised the negative effect of reading the newspaper and using the internet. These findings suggest that gendered norms change in the context of broader communities created through media exposure, but women are less likely to act on new norms in the presence of local sanctioning.

Keywords: *Egypt; female genital cutting; media; community*

Introduction

In September 1994, the United Nations International Conference on Population and Development met in Cairo to discuss population issues, such as women's education, reproductive right, and family planning. While the conference was taking place, CNN broadcasted the genital cutting of a 14-year old Egyptian girl to draw attention to the practice as a human rights violation. Female genital cutting (FGC), also known as female genital mutilation or female circumcision, has been practiced on more than 125 million women and girls worldwide, primarily concentrated in Africa and the Middle East (Organization, 2014). FGC is a non-medical procedure that involves partially or completely removing external female genitalia and is usually performed on girls anytime between birth and age 15. The United Nations along with international nongovernmental organisations classify FGC as a type of gender-based violence and compare it to other entrenched gender norms such as foot binding in China (Mackie, 1996), sex-selective abortions, and child marriage (Kenya, 2017). However, the empirical evidence on FGC's health outcomes is mixed and some view international anti-FGC advocacy as an imposition of Western values (Obermeyer, 2008; Shell-Duncan, 2008; Shweder, 2002).

FGC in Egypt is an interesting case to understand the context in which families to choose either to perpetuate or to abandon gender norms because FGC has been nearly universally practiced by Egyptian

families despite being prominently advocated against by international human rights organisations and feminist activists. For years after the 1994 CNN broadcast, the international media continued to cover the story of FGC in Egypt and mobilize the international community against the practice (Boyle, McMorris, & Gomez, 2002). In this paper, I try to understand the effects of the anti-FGC efforts in Egypt by examining whether mothers' exposure to different types of media influence their preferences to cut their daughters and whether normative conversations about FGC within immediate communities constrains the influence of external norms. Because a mother's preferences are embedded within her social context, her intentions may reflect influences from her family, her community, and larger cultural and political discourses.

Background

Individual-Level Characteristics

Most research on female genital cutting examines which individual socio-demographic characteristics predict a woman's likelihood to support or practice FGC. In most countries where FGC is practiced, a woman's educational attainment, wealth, and urban residence have been shown to be negatively associated with practicing or supporting female genital cutting. Previous studies in Egypt show that mothers with more education are less likely to intend FGC for their daughters (Sayed, El-Aty, & Fadel, 1996; Yount, 2002) and less likely to support the continuation of FGC (El-Gibaly, Ibrahim, Mensch, & Clark, 2002). Women in Egypt with higher levels of wealth and women who live in urban areas are also less likely to support FGC (Yount, 2002). Education, wealth, and urban residence may directly influence a woman's attitude toward FGC, but her socio-demographic characteristics also indicate her social context. FGC has been practiced in nearly all segments of Egyptian society, but as attitudes shift away from the practice, women in similar social contexts are likely to have similar views. Since individual characteristics and social context are highly correlated, we need to examine both simultaneously to understand how FGC intentions are driven by collective social influences.

Community Context

The context in which a mother and family decide to cut a daughter is embedded within a geographic community (Boyle & Svec, 2019; Grose, Hayford, & Cheong, 2019). Convention theory has been used to explain how a family's FGC decision is dependent on the norms of their community (Hayford, 2005; Mackie, 2000; Mackie & Lejeune, 2009; Shell-Duncan, Wander, Hernlund, & Moreau, 2011). According to Mackie and Lejeune (2009), a social norm is a practice or rule that individuals conform to because it is expected of them. FGC would be eradicated if a large enough proportion of the population abandoned FGC to make not practicing FGC the new norm. According to convention theory, FGC declines rapidly when parents see that other parents in their community have abandoned the practice.

Several empirical studies have applied convention theory to the study of FGC. Hayford (2005) tested convention theory among mothers in Kenya by looking at the correlation of FGC behaviour within marriage markets and concluded that women behave in ways similar to that of other women who live near them. Additionally, Shell-Duncan et al. (2011) test predictions from convention theory in Senegal and the Gambia using in-depth interviews, focus groups, and survey data. They find support for convention theory except that FGC expectations are less directly about marriageability concerns and more about intergenerational peer networks. They claim that FGC is a signal of belonging to a community and participating in that community's power hierarchy, which then gives young women social capital.

Similarly, Watkins (Watkins, 1990) claims that demographic behaviour is not only an independent individual choice but that it is influenced by the communities to which an individual belongs. Watkins specifies that women's gossip can permit the evaluation and then adoption of new behaviour. When women discuss FGC with their friends and family, whether they then choose to continue or abandon the

practice gives insight into the current social rules of their social network. If FGC is denounced by a religious leader or criminalised by the state, and yet everyone a mother knows continues to cut their daughters, then her own beliefs and behaviours are less likely to change.

Media and the Extension of Community

Communities can expand beyond the physical and local through media exposure and internet use. Conceptualising media, including television, radio, newspapers, and the internet, as "windows to the outside world" that depict activities and values antithetical to tradition (Westoff & Koffman, 2011), past research shows how media can influence women's attitudes and behaviour. For example, one study explores how television watchers, specifically poor Turkish women who watched daytime soap operas, view idealised representations of other peoples' lives and then try to adopt the lifestyles associated with those representations (Ozgun, Yurdakul, & Atik, 2017). Another study in rural India finds that the introduction of cable television was associated with significant decreases in son preference, the acceptability of domestic violence, and fertility, as well as increases in women's autonomy (Jensen & Oster, 2009). Similarly, Westoff and Koffman's (2011) analysis of 48 countries in Africa and Latin America, found that women who watch television and women who listen to the radio are more likely to use contraception, to desire fewer children, and to have lower fertility than those who do not, and that the association between media consumption and fertility behaviour is stronger for television than for radio. In one of the few studies to measure media's association with female genital cutting, a 2002 analysis of Demographic and Health Survey data from 6 African countries with high rates of FGC found that owning a radio decreased a women's likelihood of practicing FGC by 20 percent and her likelihood of supporting FGC by 27 percent (Boyle, 2002).

Less research has been done to show the influence of the internet on demographic behaviour, though many studies have explored the power of the internet in social change. During the 2005 elections in Egypt, blogs started reporting political events and proceedings, which led to an increased interest in political blogs (Mehanna, 2010). Blogs can potentially provide a greater diversity of viewpoints and debates compared to traditional news media. Pahwa (2016) studied how the personal blogs of young Egyptian women around the time of the Arab Spring were "sites of transformation" (46). The internet gave some young women space outside of their conservative families and communities to openly discuss both the personal and political and rehearse new social roles for themselves in a new kind of digital community. In addition, the rise of social networking sites such as Facebook, Twitter, and YouTube have been used in Egypt to provide support, information, and organisational capabilities, as well as anonymity and freedom to explore new ideas (Tufekci, 2017; York, 2012). If FGC decisions are interdependent within a community, women who engage with online communities, especially those that enable the questioning of traditional norms and practices, may be less likely to continue FGC for future generations.

Internet and social media use can expose women to more information sources that are consistent with the global anti-FGC discourse. For example, the number of websites that document human rights violations in Egypt has increased, and more forums have emerged that allow for discussions on sexuality and gender norms that are taboo in everyday life (Mehanna, 2010). Media campaigns have been launched in Egypt that try to convince parents to end FGC, and some women attribute their changing views of the practice to those campaigns (Adeokun et al., 2006). Women who use the internet are likely more aware of customs and perspectives outside of their own geographic community and may have more exposure to information that condemns the practice of FGC.

In this paper, I analyse whether women who discuss FGC in their immediate social networks and who participate in broader networks through media exposure are more or less likely to intend FGC for their daughters, and whether that likelihood changes between 2005 (before the ban), 2008 (the year of the ban), and 2014 (after the ban). I hypothesise that women who discuss FGC in their immediate social networks are more likely to continue the practice because they are strengthening the existing norms of

their community. Also, I hypothesise that a woman with more media exposure, regardless of her socio-demographic characteristics, will be less likely to intend to cut her daughter since stepping out of the bounds of her immediate community changes the social context in which decisions are made. However, the different types of media included in this study—television, radio, newspaper, and internet—vary in popularity and likely also vary in content and therefore have diverse effects on FGC decision making, I expect the different media sources to work in a similar direction.

Political and Cultural Context of Egypt

The CNN broadcast of the cutting of an Egyptian girl in 1994 led to increased international pressure on Egypt to end FGC (Dawla, 1999). Egyptian government leaders responded by speaking out against FGC, but they did not take official legal action. In 1995, a prominent Egyptian Islamic cleric issued a decree stating that FGC was a religious ritual and encouraged families to cut their daughters.In 2006 Egypt's most prominent Islamic authority officially denounced the practice and said it was unnecessary according to Islam. FGC was banned in government hospitals in 2000, and then finally, in 2008 the government criminalised FGC. However, lax law enforcement allowed FGC to continue with few consequences (Darwish, 2014).

Political upheaval in Egypt several years later made the future of the new law uncertain. One of the most prominent voices who spoke out against FGC and pushed for its criminalisation was Suzanne Mubarak, the First Lady of Egypt from 1981 to 2011 (Boyle & Preves, 2000). Her husband, Hosni Mubarak, was forced to resign the presidency in early 2011 as part of the Arab Spring uprisings. Although the Arab Spring was generally perceived as egalitarian and modern due to the active involvement of women (Marshall, 2015), in Egypt the Muslim Brotherhood's rise to power in 2013 left the future of women's rights in doubt. For example, the Egyptian government under the Muslim Brotherhood, reacting against the UN Commission on the Status of Women, issued a statement that questioned basic principles of women's autonomy (Marshall, 2015). Due to the Muslim Brotherhood's stance on women's rights, international and Egyptian FGC activists feared a potential backlash against the FGC ban and committed to preserve and extend past legal and social gains for their cause (UNFPA-UNICEF, 2014). The Muslim Brotherhood was overthrown from power a year later and the political situation somewhat stabilised. In 2016, an amendment to the 2008 FGC law included stricter penalties and made the crime a felony instead of a misdemeanour, but arrests and convictions remain extremely rare (UNFPA-UNICEF, 2018).

During this time, the practice and support of FGC in Egypt gradually declined. In 1995, 97% of ever-married women ages 15-49 had undergone FGC (El-Zanaty, Hussein, Shawky, Way, & Kishor, 1996); in 2005, 96% of women had been cut (El-Zanaty & Way, 2006); and by 2014, the prevalence rate had declined to 92% (Ministry of Health and Population/Egypt, 2015). Attitudes toward FGC show a steeper decline. In 1995, 82% of women surveyed wanted FGC to continue, but support dropped to 68% by 2005 and then to 58% by 2014 (El-Zanaty et al., 1996; El-Zanaty & Way, 2006; Ministry of Health and Population/Egypt, 2015). The majority of women in Egypt continue to support FGC despite its criminalisation, even though the rates of support and prevalence of the practice have dropped steadily over the past two decades.

The fact that over half of married women in Egypt continue to support FGC after criminalisation shows that this is a deeply embedded cultural practice. Studies in Egypt have found that the main motivations for practicing FGC were maintaining tradition, preventing illicit sexual behaviour in women, and meeting the preferences of husbands (El-Zanaty & Way, 2006; Fahmy, El-Mouelhy, & Ragab, 2010). Specifically, FGC is perceived as a way to assure a woman's premarital virginity and marital fidelity (Fahmy et al., 2010), and therefore a woman who has been cut is more marriageable than a woman who has not been.

Research in Egypt has found that women in the family are expected to maintain tradition and thus they primarily make the decision for the daughter to undergo FGC (Meyers, 2000; Yount, 2002). Although the Egypt Demographic and Health Surveys ask the mother whether she intends to have her daughter cut, the actual decision is embedded in a family structure in which other women, such as a grandmother, may play an influential role. The mother may not be independently making this choice, and therefore in this analysis she represents the family or the household. Of course, even at the family level, preferences are formed within the cultural context of the community and social sphere. Therefore, more research is needed to explore how cultural information is transmitted and how that process influences expressed FGC preferences. Thus, this paper seeks to further understanding of the social spaces in which families in Egypt make the decision to cut a daughter. I examine whether mothers who interact in extended communities through media exposure are less likely to intend to cut a daughter and whether that effect is moderated by discussions on FGC in their immediate communities.

Data and Methods

Data for this analysis come from the 2005, 2008, and 2014 Egypt Demographic and Health Surveys (DHS; www.idhsdata.org and dhsprogram.com/data), which are nationally representative household surveys of ever-married women ages 15-49. The surveys provide data in the areas of health and population. The Egypt DHS also has a section on female genital cutting, which includes FGC information on the respondents as well as their daughters aged 0-19. Thus, the sample includes women aged 15-49 with at least one daughter aged 0-19 who is not yet cut. The sample sizes are 8,058 women in 2005, 6,389 women in 2008, and 9,478 women in 2014, yielding a combined sample size of 23,925 total women.

Dependent Variable

The outcome variable measures whether the respondent intends to cut her daughter in the future. Intent is determined by respondents' answer to the question, "You have (number of daughters not cut) daughter(s) who (has/have) not been circumcised, asked only to respondents who have at least one daughter who is not yet cut. Do you intend that (she/they) will be circumcised in the future?" No intent to cut a daughter in the future is coded 0 and intent to cut a daughter in the future is coded 1. The respondents who answered "don't know" are dropped from the sample in order to focus the analysis on the differences between those who answer yes and those who answer no.

Independent Variables

Media Exposure

I include variables on different types of media exposure as an indicator of a respondent's exposure to information outside of her immediate community and of her potential interactions with broader social networks. Although I expect that each type of media exposure will decrease the likelihood of FGC intent, I test each media type separately because they may differentially influence the context of FGC decision-making. Preliminary analysis showed that in each of the three years, there is a low correlation between the media types. Thus, I include variables on whether she watches television ("no"=0, "yes"=1), whether she listens to the radio ("no"=0, "yes"=1), and whether she reads the newspaper ("no"=0, "yes"=1).

Additional questions were added to the 2014 survey on the use of the internet and social networking sites, thus for the 2014 analysis, I include a variable on whether the respondent uses the internet and/or social networking sites ("no"=0, "yes"=1). Although the original survey has separate questions for using the internet and using social networking sites, I combine the two variables for several reasons. First, there is not a clear distinction between using the internet and using social networking sites, so combining the two variables is more accurate than using one or the other; a woman who uses social networking sites technically also uses the internet, and yet several hundred respondents said they used

social networking sites but not the internet. Furthermore, women who use the internet and women who use social networking sites are very similar in their likelihood of intending FGC and in educational attainment, levels of wealth, and place of residence.

Finally, in order to understand how immediate community constraints interact with media exposure to influence FGC intent, in an additional analysis I include an interaction between media types and a variable on whether a respondent has discussed FGC with relatives, friends, or neighbours in the past year ("no"=0 and "yes"=1).

Individual Characteristics

First, I include individual characteristics that previous research has found to be associated with a woman's intent to cut her daughter. Socio-demographic characteristics, such as educational attainment, wealth, and urban/rural residence are likely strong predictors of whether a woman intends to cut her daughter. I include dummy indicators for educational attainment as four categories: no education, primary education, secondary education, and higher education. I also include dummy indicators for wealth, which is measured by an index that places households on a standardised scale of relative wealth measured in quintiles—poorest, poorer, middle, richer, and richest. Next, I include type of place of residence as "rural" (0) or "urban" (1). The DHS classifies large cities, small cities, and towns as urban areas, while rural areas are countryside (Demographic and Health Surveys 2008).

I then include several additional control variables. The respondent's age is included as a continuous variable along with several other age-related controls. As the youngest women in the survey could have potentially married at younger ages, I control for age at first marriage. Inaddition, since the older women in the survey may have older daughters, and women with daughters past the normal age for FGC are less likely to intend to cut their daughters, I include a control for whether or not they have given birth in the past 5 years. I control for religion because in Egypt, Muslims are more likely to practice FGC than the minority Christian population—Christians and others are coded 0 and Muslims are coded 1.

Analysis

Firstly, I present the descriptive statistics of the women included in the analytic sample. Secondly, I use logistic regression analysis to estimate the odds ratio for the association between the respondents' media exposure and their intent to cut their daughter, controlling for individual characteristics. This is done separately for 2005, 2008, and 2014, using the same variables in each year to facilitate comparison. I then estimate a second model for 2014 in which I include the newly-added variable on internet use.

Next, I employ a propensity score matching approach in order to address the selectivity issues of which women watch television, listen to the radio, read the newspaper, and use the internet. Propensity score matching is a commonly used approach first proposed by Rosenbaum and Rubin (1983) to reduce bias when using observational datasets. This approach estimates an individual's conditional probability for treatment given a set of observed characteristics.

This paper conducts separate matching analyses for each of the four treatments. The treatment groups are women who watched television, listened to the radio, read the newspaper, and used the internet, and the control groups are women who have not. To predict "treatment" assignment, I use educational attainment, wealth, urban or rural residence, age, age at first marriage, whether she had a birth in the last 5 years, whether she is employed, and whether she has a cut daughter. Then, in order to capture a greater part of the distribution of propensities for the treatments, I include several interaction terms and quadratic terms. Because wealth is one of the greatest predictors of using the internet, I interact wealth with each of the other independent variables. I also include an interaction of urban residence with educational attainment, and then include quadratic terms for both educational attainment and wealth.

Women with similar propensities for each of the "treatments" are matched, and we can then conclude that that the differences in their intent to cut are the treatment effect. In Table 3, women who watched TV are matched with women who did not; women who listened to the radio are matched with women who did not; women who read the newspaper are matched with women who did not; and women who used the internet are matched with women who did not.

I estimated the propensity scores by using a probity model and then stratifying the respondents into blocks according to their propensity scores. The mean propensity scores in each block is the same for the treatment and control groups. I restrict the analysis to all mothers in the treatment group plus those in the control group who are in the region of common support. I then use the estimated propensity scores as a control in the logistic regression models. Table 3 compares a logistic regression model without propensity scores to a logistic regression model with propensity scores as controls using each of the four treatments in separate models. As a robustness check, I also used propensity scores as weights and the Gaussian Kernel matching method, which both produced similar results (available upon request).

Although propensity score matching attempts causal inference, I do not claim direct causation given that these models do not prove the direction of the associations nor do they account for omitted variable bias. Although this technique allows me to address the observed factors contributing to selectivity bias, there continues to be selectivity problems from unobserved variables. For example, I can match respondents by their religion, but I cannot match them by their level of religiosity. However, respondents are matched on the characteristics most commonly used to predict both FGC intent and media use, and therefore matching respondents on individual characteristics helps to better understand the context in which decision-making in families occurs.

Lastly, I examine whether the effects of the types of media exposure on FGC intent varies by whether or not a mother has discussed FGC with her family, friends, or neighbours. I first present descriptive statistics on the proportion of women who discussed FGC and how that interacts with each of the media types for each of the three years. Then I use logistic regression analysis to estimate the odds ratios for the interactions between each of the media types. Each of the interactions is estimated in separate models, with the other media types and additional control variables included.

Results

Descriptive Statistics

Table 1 provides descriptive statistics for the women included in the sample in each of the three survey years. Results show that 71% of women intended to cut their daughters in 2005, 58% in 2008, and then 53% in 2014. A concern is whether the 13% decrease from 2005 to 2008 reflects a real decline of intent or whether it reflects women's fear of expressing intent after FGC's criminalisation. However, this is a minimal concern given that parents and providers have received almost no legal repercussions for cutting girls, and additionally, if a mother is afraid to express her intent to cut a daughter, she is likely also afraid to actually have her daughter cut. However, there is a possibility that some mothers reported no intent when they in fact do plan to have their daughter cut.

Next, the percentage of women who watched TV increased slightly from 93% in 2005 to 97% in 2014, the percentage of women who listened to the radio decreased dramatically from 68% to 15% along with women reading the newspaper from 17% to 6%. Finally, in 2014, 15% of women in the sample used the internet.

For individual characteristics, the modal educational attainment was secondary, though the percentage of women completing a secondary education increased from 40% in 2005 to 54% in 2014. The average wealth also shifted slightly higher in each year. The proportion of women living in urban areas

also increased—from 41% in 2005 to 46% in 2014. The average age in all three years was 32-33 years old and the percentage of Muslim women stayed somewhat consistent at 94-95%.

Table 1: Descriptive Statistics of Analytic Sample, Egypt Demographic and Health Surveys, 2005-2014

	2005		2008		2014	
	Mean	SD	Mean	SD	Mean	SD
Intends to circumcise daughter	0.71	0.45	0.58	0.49	0.53	0.50
Media exposure						
Watches TV	0.93	0.26	0.95	0.22	0.97	0.18
Listens to the radio	0.68	0.47	0.46	0.50	0.15	0.36
Reads the newspaper	0.17	0.38	0.12	0.32	0.06	0.06
Uses the internet and/or social networking sites					0.15	0.36
Educational attainment						
No education	0.36	0.48	0.31	0.46	0.21	0.41
Primary	0.15	0.36	0.12	0.32	0.10	0.30
Secondary	0.40	0.49	0.45	0.50	0.54	0.50
Higher	0.10	0.30	0.12	0.32	0.16	0.36
Wealth						
Poorest	0.24	0.43	0.22	0.41	0.18	0.38
Poorer	0.20	0.40	0.19	0.39	0.18	0.39
Middle	0.18	0.38	0.19	0.39	0.18	0.38
Richer	0.18	0.39	0.19	0.39	0.20	0.40
Richest	0.20	0.40	0.21	0.40	0.26	0.44
Type of place of residence						
Urban	0.41	0.49	0.43	0.49	0.46	0.50
Rural	0.59	0.49	0.57	0.49	0.54	0.50
Age						
Age in years	32.26	7.52	32.85	7.56	32.82	7.36
Age at first marriage	19.21	4.08	19.66	4.02	20.13	3.93
Had a birth in the last 5 years	0.69	0.46	0.63	0.48	0.66	0.48
Religion						
Muslim	0.94	0.23	0.95	0.22	0.95	0.22
Christian or other	0.06	0.23	0.05	0.22	0.05	0.22
N	8,058		6,389		9,478	

Correlates of FGC Intent for Daughter

Media exposure

Table 2 shows the results of the logistic regression models using data from 2005, 2008, and 2014. First and somewhat surprisingly, watching television had a positive and significant relationship with intending to cut a daughter in all years and models except for 2008. In 2005 and in 2014, women who watched TV displayed log intending FGC that was 50% greater than those who did not watch TV. Next, listening to the radio had insignificant effects on FGC intentions in all years and models, and reading the newspaper also had insignificant effects in 2008 and the 2014 model with internet, but significant and negative effects in 2005 and the 2014 model without internet. Mothers who read the newspaper in 2005 demontrated (a FGC intention result) lpg that was 43% lower than those who did not, and then weakened to 27% lower by 2014. Lastly, women who used the internet in 2014 showed log 45% lower of intending to cut their daughters than women who did not. Although the positive association between FGC intent and

watching television is somewhat surprising, the significant and negative associations for reading the newspaper and using the internet were consistent with expectations.

Table 2: Logistic Regression Predicting Intent to Circumcise Daughter, Egypt Demographic and Health Surveys, 2005-2014

	2005		2008		2014 (1)		2014 (2)	
	OR	SE	OR	SE	OR	SE	OR	SE
Media exposure								
Watches TV	1.50**	0.19	1.14	0.17	1.51**	0.20	1.50**	0.20
Listens to the radio	0.88	0.06	0.93	0.06	0.91	0.06	0.94	0.06
Reads the newspaper	0.57**	0.05	0.86	0.09	0.73**	0.08	0.82	0.10
Uses the internet and/or social networking sites							0.55***	0.04
Educational attainment								
Primary	0.89	0.09	0.87	0.09	0.68***	0.06	0.68***	0.06
Secondary	0.62***	0.05	0.64***	0.05	0.65***	0.04	0.67***	0.05
Higher	0.39***	0.05	0.32***	0.04	0.32***	0.03	0.39***	0.04
Wealth								
Poorer	1.10	0.12	0.96	0.10	0.81*	0.07	0.81*	0.07
Middle	0.82	0.09	0.74**	0.08	0.57***	0.05	0.58***	0.05
Richer	0.51***	0.06	0.50***	0.06	0.47***	0.04	0.48***	0.05
Richest	0.30***	0.04	0.28***	0.04	0.23***	0.03	0.26***	0.03
Type of place of residence								
Urban	0.50***	0.04	0.63***	0.04	0.59***	0.05	0.58***	0.04
Age								
Age in years	0.98**	0.01	0.98**	0.01	0.98***	0.00	0.98***	0.00
Age at first marriage	0.96***	0.01	0.98*	0.01	0.99	0.01	0.99	0.01
Had a birth in the last 5 years	1.66***	0.13	1.50***	0.11	1.99***	0.13	1.99***	0.13
Religion								
Muslim	9.58***	1.34	9.37***	1.50	10.03***	1.56	10.00***	1.55
Constant	2.32**	0.57	0.76	0.22	0.48**	0.13	0.50*	0.14
N	8,058		6,389		9,478		9,478	

****p<.0001, **p<.01 p<.05*

Propensity score matching

Tables 3 compares the results of logistic regression analyses to models that use a propensity score matching technique with each treatment separately in 2005, 2008, and 2014. The first treatment is watching television. The logit model in 2005 estimates a statistically significant ($p<.001$) odds ratio (1.62) that suggests that mothers who watch television were more likely to intend to cut their daughters. However, when propensity scores were used as a control, the magnitude and significance decreased slightly. In 2008, both models indicate that mothers who watched television did not display a significantly different odds of intending FGC than mothers who did not watch television. Then in 2014, the odds ratio for both models became slightly significant ($p<.05$), suggesting that watching television is associated with a higher likelihood of FGC intent. However, television watching is nearly universal in Egypt in 2014.

Table 3 also displays results of logistic regression analyses and propensity score matching models with listening to the radio as the treatment. In 2005 and 2008, listening to the radio did not have a statistically significant effect in either of the models. Then in 2014, only the logistic regression model without propensity scores estimated that mothers who listened to the radio showed a significantly lower log odds of FGC intent. These results suggest listening to the radio had little to no effect on FGC intent in each of the three years, especially when considering the selection bias based on individual characteristics.

Next, Table 3 shows the results using newspaper reading as the treatment. In 2005, both models show that mothers who read the newspaper are significantly less likely (p<.001) to intend to cut a daughter than mothers who did not. In the original logit model, mothers who read the newspaper showed a 48% lower odds of FGC intent. When propensity scores were used as controls, mothers had a 44% lower odds. In 2008, the magnitude and significance decreased for both models. In the PSM model, mothers who read the newspaper had an odds 20% lower of intending FGC than mothers who did not read the newspaper at a p<.05 significance threshold. Again in 2014, both models show that mothers who read the newspaper were less likely to intend FGC, though the magnitude and statistical significant were slightly lower in the PSM model. Overall, reading the newspaper is negatively associated with FGC intent in 2005, 2008, and 2014, though the relationship was strongest in 2005.

Finally, Table 3 uses data from the 2014 survey to compare results of the logistic regression model to the results of the propensity score matching model in which the propensity for women to use the internet is determined by their individual characteristics. In the logit model, the odds ratio for using the internet is statistically significant. Women who use the internet displasy a 53% lower odds of intending to cut a daughter than women who do not. In the PSM model, women who use the internet show a 45% lower odds of intending cut. Results suggest that regardless of individual characteristics, women who used the internet were less likely to intend FGC for their daughters.

Table 3: Logistic Regression and Propensity Score Matching Predicting Intent to Circumcise Daughter Separately for Treatment Groups; Egypt Demographic and Health Surveys, 2005, 2008, 2014

	2005		2008		2014	
	Logit	PSM	Logit	PSM	Logit	PSM
Watches television	1.62 (0.22)***	1.44 (0.19)*	1.07 (0.17)	1.42 (0.20)*	1.38 (0.19)*	1.38 (0.19)*
	N = 8,058	*N* = 8,058	*N* = 6,389	*N* = 6,389	*N* = 9,478	*N* = 9,478
Listens to the radio	0.92 (0.06)	0.91 (0.06)	0.99 (0.06)	0.97 (0.06)	0.86 (0.06)*	0.88 (0.06)
	N = 8,058	*N* = 8,058	*N* = 6,389	*N* = 6,386	*N* = 9,478	*N* = 9,432
Reads the newspaper	0.52 (0.04)***	0.56 (0.05)***	0.80 (0.08)*	0.65 (0.07)***	0.68 (0.08)**	*0.68 (0.08)***
	N = 8,058	*N* = 7,161	*N* = 6,389	*N* = 6,215	*N* = 9,478	*N=8,566*
Uses the internet					0.47 (0.04)***	0.55 (0.05)***
					N = 9,478	*N* = 9,111

Notes: Each of the treatment effects estimated in separate models for each year. Controls included in each model.
****p<.001, **p<.01, *p<.05. Standard errors in parentheses.*

Interactions between media exposure and community discourse

Table 4 presents descriptive statistics on the discussion variable and its interactions with the media types. As listening to the radio was not a significant predictor of a mother's FGC intent for her daughter, it is excluded as part of an interaction in the analysis. Firstly, the percentage of women who discussed FGC with relatives, friends, or neighbours decreased over time—from 55% in 2005, to 49% in 2008, and then to only 32% in 2014. In 2005, just over half of women both watched television and discussed FGC, though driven by the decline in women discussing FGC, that percentage decreased to about 48% in 2008 and then further to about 31% in 2014. In 2005, about 10% of respondents both read the newspaper and discussed FGC, and since both activities have declined over time, the percentage dropped to about 7% in 2008 and then only 2% in 2014. In 2014, the majority of women neither used the internet nor discussed FGC, and about 5% did both.

Table 4: Descriptive Statistics Of Analytic Sample, Egypt Demographic And Health Surveys, 2005-2014

	2005		2008		2014	
	N	%	N	%	N	%
discusses FGC with family, friends, or neighbors	4390	54.48	3161	49.48	2994	31.59
Watches television						
neither watches tv nor discusses FGC	339	4.21	205	3.21	228	2.41
only discusses FGC	232	2.28	124	1.94	99	1.04
only watches tv	3329	41.31	3023	47.32	6256	66.01
both watches tv and discusses FGC	4158	51.60	3037	47.53	2895	30.54
Reads newspaper						
neither reads newspaper nor discusses FGC	3095	38.41	2939	46.00	6109	64.45
only discusses FGC	3572	44.33	2695	42.18	2784	29.37
only reads newspaper	573	7.11	289	4.52	375	3.96
reads newspaper and discusses FGC	818	10.15	466	7.29	210	2.22
Uses internet						
neither uses internet nor discusses FGC					5518	58.22
only discusses FGC					2524	26.63
only uses internet					966	10.19
both uses internet and discusses FGC					470	4.96
N	8,058		6,389		9,478	

Table 5 displays the results of 7 logistic regression models estimating the effects of the interactions between discussing FGC and type of media exposure. For mothers who did not watch television, those who discussed FGC were 76% more likely to intend FGC for their daughter. For mothers who did not discuss FGC, those who watched television were 53% more likely to intend FGC for their daughters in 2005. Compared to mothers who did not watch television and did not discuss FGC, those who watched television and discussed FGC were more than twice as likely to intend FGC. In 2008, the only group with significantly different intent than mothers who did not watch television and did not discuss FGC were mothers who did both. Then in 2014, all three groups were significantly more likely to intend FGC for their daughters than those who did not watch television and did not discuss FGC, with those groups who discussed FGC more than 3 times more likely to intend FGC.

In 2005 for women who did not read the newspaper, women who discussed FGC were 44% more likely to intend FGC for their daughters. For women who did not discuss FGC, women who read the newspaper were 56% less likely to intend FGC. For women who both read the newspaper and discussed FGC, the effects of the two activities seemingly cancelled each other out and thus their intent was not significantly different from those who did neither activity. However, in 2008, the community constraint was stronger and women who both read the newspaper and discussed FGC were more likely to intend to cut their daughters than women who did neither. In 2014, women who did not read the newspaper but discussed FGC were 2.4 times more likely to intend FGC, but the other groups did not have statistically significant odds ratios compared to the reference group, indicating a lack of statistical power due to the reduced number of women reading the newspaper.

For women who did not use the internet in 2014, those who discussed FGC were 2.35 times more likely to intend FGC for their daughters. For women who did not discuss FGC, women who used the internet were 45% less likely to intend FGC. One again, the opposite effects of both activities cancelled out for women who both used the internet and discussed FGC compared to those who did neither, as the difference in their likelihood of intending FGC is not statistically significantly different.

Table 5: Logistic Regression Predicting Intent to Circumcise Daughter; Egypt Demographic and Health Surveys, 2005, 2008, 2014

	2005		2008		2014	
	OR	SE	OR	SE	OR	SE
Interaction with discussing FGC with family, friends, and neighbors:						
Watches television (reference = does not watch tv and does not discuss FGC)						
only discusses FGC	1.76*	0.45	1.71	0.49	3.24***	0.97
only watches TV	1.53*	0.25	1.13	0.20	1.63**	0.25
both watches TV and discusses FGC	2.37***	0.40	1.82**	0.33	3.69***	0.59
Reads the newspaper (reference = does not read the newspaper and does not discuss FGC)						
only discusses FGC	1.44***	0.10	1.51***	0.10	2.40***	0.13
only reads newspaper	0.46***	0.06	0.52**	0.10	1.06	0.16
both reads newspaper and discusses FGC	0.97	0.10	1.54***	0.19	1.23	0.22
Uses the internet (reference = does not use the internet and does not discuss FGC)						
only discusses FGC					2.35***	0.14
only uses internet					0.55***	0.05
both uses internet and discusses FGC					1.11	0.13
N	8,058		6,389		9,478	

Discussion

A common explanation for FGC is that a mother is more likely to prefer FGC for her daughter when FGC is the convention of her community. However, communities can extend beyond the local and geographic context through exposure to and interaction with media. In this paper, I have added to the existing literature on FGC and other forms of gender-based violence by considering how women's exposure to broader communities can be moderated by engagement with their immediate communities. First, I tested the effect of woman's exposure to outside information and extended communities on her FGC intent. Somewhat surprisingly, women who watched television were more likely to intend FGC than women who did not. However, the magnitude and significance of that relationship weakened when using propensity score matching techniques. In contrast, mothers who read the newspaper and used the internet were less likely to intend to cut their daughters. Since TV watching in Egypt is so ubiquitous and the rates of FGC have also been nearly universal until recently, Egyptian television programming from 2005 to 2014 may have served to strengthen conventional Egyptian identity and traditions rather than attempt any challenge to existing norms. In addition, the content that most women were watching on television may have been very different from what most women were reading in the newspaper and seeing on the internet and social media. Although daytime soap operas have been shown to influence some demographic behaviour and gendered attitudes of women, FGC is less visible than other social norms, such as a woman's number of children. If television viewers emulate the lifestyles they see on TV, they would not necessarily change their FGC behaviour to conform in the same way they could change their desired fertility, for example.

On the other hand, women who listened to the radio were less likely to intend to cut their daughters, but radio listening was only a significant predictor in the 2014 model without matching, and therefore the results were not robust. The UNFPA-UNICEF Joint Programme produced a guide for radio

journalists and in 2012 over 250 media personnel in Egypt received training on how to accurately and compellingly cover FGC in the news (UNFPA-UNICEF, 2012). From 2005 to 2014 the percentage of women who listened to the radio declined from 68% to only 15%. As those percentages have continued to decline, radio is unlikely to serve as an effective vehicle for disseminating FGC information in Egypt.

Compared to listening to the radio, reading the newspaper was even less common for Egyptian women, but the relationship between FGC intent and reading the newspaper was stronger, especially in 2005 and 2014. Although educated, wealthy, and urban women were more likely to read the newspaper, the results of propensity score matching confirm that regardless of educational attainment, wealth, or residence, women who read the newspaper were less likely to intend FGC for their daughters. Few poor, uneducated women read the newspaper, but those who did were less likely to intend to cut a daughter. This suggests that information sources, such as newspapers, can be mediating influences in the relationship between socioeconomic status and FGC intentions.

Women who used the internet in 2014 were even less likely to intend to cut their daughters than women who read newspapers, and this relationship holds for women of all socioeconomic positions. These results are consistent with theoretical expectations; engaging with the internet and social networking sites could connect a woman to an extended community and to more diverse information sources than she could find in print newspapers or in her immediate geographic community. Although only 15% of women in 2014 used the internet, internet use (unlike radio and newspapers) is growing in popularity.

Finally, I examined how discussing FGC with relatives, friends, and neighbours could moderate the effect of media use on mothers' FGC expressed preferences. Communication with immediate relations could strengthen community practices and perhaps impede new attitudes or behaviours. I found that compared to mothers who neither watched television nor discussed FGC, mothers who either discussed FGC or watched television had greater log odds of FGC intent, and the log odds were magnified even greater for mothers who both watched television and discussed FGC. Analysing the 2005 data, I found that compared to mothers who neither read the newspaper nor discussed FGC, mothers who only discussed FGC had a greater log odds of FGC intent, and mothers who only read the newspaper had a lower log odds of FGC intent. However, when mothers both discussed FGC and read the newspaper, the effects of reading the newspaper were neutralised when mothers also discussed FGC in their communities. A similar pattern was found in the 2014 data for internet use. Compared to mothers who neither used the internet not discussed FGC, mothers who discussed FGC were more likely to intend FGC, mothers who used the internet were less likely to, and mothers who did both were not significantly different from mothers who did neither. In each of the models, discussing FGC had a strong moderating effect that constrained the influence of media exposure.

Conclusion

This paper finds support for the idea that Egyptian mothers' FGC decisions are not only influenced by their family context, individual characteristics, and immediate communities but also by their extended social networks and information sources. Although we do not know the nature of the content the women in the study were consuming, the findings suggest that certain kinds of media--the internet and newspapers—provide a social context that facilitates the abandonment of controversial gendered practices. Mothers who discuss FGC with friends, family, and neighbours and mothers who watch television are more likely to intend to cut a daughter, and mothers who read the newspaper, listen to the radio, and use the internet are less likely to intend to cut a daughter. However, when mothers also engage in community discourse around FGC, the effects of media exposure weakens, perhaps due to strong local sanctioning.

The data in the study come from years marked by political change and upheaval in Egypt, including the 2008 FGC criminalisation, the 2011 Arab Spring, and the political uncertainty that followed. From 2005 to 2014, political awareness and active involvement increased in Egypt, particularly among young adults, and a large portion of political mobilisation and social activism moved online. Online engagement led to drastic political change in Egypt during the Arab Spring, and this study finds support for the idea that the extended social networks enabled by the internet can give mothers and families new social contexts in which to form preferences and make decisions.

Whether media provides a new frame of reference for abandoning FGC depends on the type and content of the media. For example, the effect of watching television could change depending on the content viewed. In 2008, Egypt entered the United Nations Population Fund (UNFPA) and the United Nations Children's Fund's (UNICEF) Joint Programme on Female Genital Mutilation/Cutting, which supports and implements approaches to accelerate the abandonment of FGC (UNFPA-UNICEF 2012). Part of the Joint Programme's strategy is to change social norms through media influence. However, compared to other countries in the Joint Programme, Egypt had few television or radio programming on FGC in 2010 and 2011 and then almost none in 2012 (UNFPA-UNICEF 2014). Given the extent of the media and entertainment industry in Egypt, the media campaigns against FGC were extremely small and had little reach in those years. Thus, it's not surprising that watching television did not influence mothers to abandon FGC.

However, there has been an increase in television campaigns in Egypt since the 2014 survey. For example, in 2015, information about FGC was integrated into national vaccination campaigns in Egypt (UNFPA-UNICEF 2017) and public service announcements on FGC aired on national television (UNFPA-UNICEF 2018). Also, in 2015, a series of dramatic TV vignettes titled "Enough FGM" were broadcasted in Egypt on 16 highly viewed channels where they reached 63-65% of the target population (UNFPA-UNICEF 2016). My current findings provide an important base for future research that could incorporate later survey years to examine whether the influx of television campaigns effectively change social conventions for the many families watching television.

The UNFPA-UNICEF Joint Programme has also used social media in recent years to try to accelerate the end of FGC. As part of their efforts to build community consensus against FGC, they have used social media to disseminate infographic material on FGC and as another platform to post the "Enough FGM" TV dramas, some of which have gone viral (UNFPA-UNICEF 2016). Also, Mona Zaki, a renowned Egyptian actress and UNICEF Goodwill Ambassador posted a social media message for Egypt's "End FGM Day" in which she spoke against the use of culture and religion as justification for FGC (UNFPA-UNICEF 2018). Another way activists in Egypt have tried to change social conventions was through posting online public declarations to abandon FGC (UNFPA-UNICEF 2016). Tostan, an international nongovernmental organisation that originated in Senegal, developed the concept of the public declaration. As FGC is not merely an individual decision, but a practice embedded within communities and social networks, Tostan's approach was to encourage an entire community to commit to abandoning FGC. In recent years, groups of people who are connected online have posted public declarations to abandon FGC, demonstrating how social networks have extended beyond the geographic to virtual communities.

This study has implications more broadly on how gender norms can change when family decision-making becomes embedded in new social contexts. FGC was nearly ubiquitous in Egypt twenty years ago, but increased resources, both from Egyptian and international organisations, have worked to eradicate FGC by advocating against its social acceptability. Mothers who engage with more media and expand their community beyond the immediate allow for new social contexts to shape their preferences. However, strong sanctioning within immediate communities can limit individuals' ability to act on new norms diffused through broader media, and thus effective campaigns target not only the individual consumer but the family and local community in which they are embedded.

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