

An Assessment of Radio-Based Education about Female Genital Cutting and Health and Human Rights Issues in Douentza, Mali

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Abstract

Introduction: Mali ranks 175 out of 188 countries on the Human Development Index, and its health and literacy indicators are correspondingly low. The under-five mortality rate is 114.7 per 1,000 live births and maternal complications are cited as the cause of death for 1 in 28 women. As of 2013, the rate of female genital mutilation/cutting (FGM/C)—widely regarded as a violation of the fundamental human rights of women and children—was 89%. According to UNICEF, in 2015 the adult literacy rate in Mali was 33.6%, with a moderate difference in literacy rates between males and females.

Given the country's low literacy rate, the spread of information in written form—whether digitally or in print—is difficult. According to research regarding mass communication in Mali, radio provides an efficient, alternative means of spreading information within the country and serves as “an attractive medium in reaching groups for whom there are significant social and structural impediments to accessing education, particularly women, rural residents, and the elderly.”

In 2014, an interdisciplinary team of Northwestern Access to Health Project (NAHP) faculty and graduate students partnered with local organizations in Douentza, a town in the Mopti region of central Mali, to create a public health album of six songs. The album provided health information on FGM/C, as well as malaria, HIV/AIDS, the importance of enrolling girls in school, breastfeeding, and sanitation. The album songs were broadcast frequently on the local station, Rural Radio Daande Douentza. In 2015, a study was carried out to assess the impact of this album. The study aimed to understand self-reported knowledge about six health and human rights topics following identified exposure to the radio-based educational programming. The study also sought to explore the use of radio and music as a means of health and human rights education and also specifically to explore attitudes and self-efficacy regarding FGM/C.

Methods: A mixed-methods assessment was conducted with 149 individuals across 10 villages in Douentza Cercle. Analyses focused on the association of radio listening habits, age, sex, ethnicity and education with a public health knowledge score.

Results: Over 90% of respondents reported daily radio listening, with many listening five or more hours per day. Potential risks of FGM/C cited by participants included death (59%), difficulty in childbirth (48%), sterility (34%), and fistula (33%); when asked about their level of control over FGM/C, 28% stated they would never cut their daughters.

Being a listener for 1-5 hours per day was associated with a 11.5% higher score of “public health knowledge” compared to those listening only a little or not at all ($p < 0.01$). Education (marginal versus no formal education) was associated with 7.6% increased score ($p < 0.01$).

Conclusion: Radio appears to be a significant part of community members' daily routines in central Mali. It further appears to be a valuable tool and accessible technology to transmit information in the region, particularly for lower literacy individuals.

Introduction

Mali ranks 175 out of 188 countries on the Human Development Index, and faces multiple health issues that impact its citizens across the lifespan, particularly women and children.¹ The under-five mortality rate is 114.7 per 1,000 live births.² Maternal complications are cited as the cause of death for 1 in 28 women.³ As of 2013, the rate of female genital mutilation/cutting (FGM/C)—widely regarded as a violation of the fundamental human rights of women and children—was 89%.⁴ Almost all women and girls in Mali who have experienced FGM/C in Mali underwent the practice before age 5.⁵ These various health and societal indicators speak to the larger issue of healthcare and social determinants of health in the country, which has a population of 17.6 million.⁶

The dissemination of health information in Mali is impacted by literacy rates. According to UNICEF, in 2015 the adult literacy rate was 33.6%, with a moderate difference in literacy rates between males and females.⁷ Among individuals 15-24 years of age, the literacy rate for males was 56.3%, while the rate for females was 39.0%.⁸ Such rates make the spread of information in written form difficult, demonstrating a need for information to be presented in accessible formats. According to research regarding communication in the area, radio provides an efficient, alternative means of spreading information within the country and serves as “an attractive medium in reaching groups for whom there are significant social and structural impediments to accessing education, particularly women, rural residents, and the elderly.”⁹

In 2014, an interdisciplinary team of Northwestern Access to Health Project (NAHP) faculty and graduate students partnered with local organizations in Douentza, a town in the Mopti region of central Mali, to create a public health entertainment-education album of six songs. The album provided health information on FGM/C, as well as malaria, HIV/AIDS, girls’ education, breastfeeding, and sanitation. The NAHP team worked with the Near East Foundation (NEF), a U.S.-based non-governmental organization (NGO) active in Mali since 1984, and Rural Radio Daande Duwansa in producing the album.¹⁰ The album was broadcast in Douentza and the surrounding area, referred to as Douentza Cercle, on Radio Daande. Given the topography of

¹ United Nations Human Development Programme, *Human Development Report: Mali*, (2016), available from <http://hdr.undp.org/en/countries/profiles/MLI>.

² Ibid.

³ United Nations Human Development Programme: *Human Development Report: Mali*, (2015), available from <http://hdr.undp.org/en/countries/profiles/MLI>.

⁴ UNICEF, *Female Genital Mutilation/Cutting: A statistical overview and exploration of the dynamics of change*, (July 2014), available from http://www.unicef.org/media/files/UNICEF_FGM_report_July_2013_Hi_res.pdf.

⁵ UNICEF, *Mali Statistical Profile on FGM/C*, (August 2016), available from https://data.unicef.org/wp-content/uploads/country_profiles/Mali/FGMC_MLI.pdf.

⁶ World Health Organization, *Countries, Mali*, (2015), available from <http://www.who.int/countries/mli/en/>.

⁷ UNICEF, *State of The World's Children 2015 Country Statistical tables*, (2015), available from http://www.unicef.org/infobycountry/mali_statistics.html.

⁸ Ibid.

⁹ Craig Tower, “Radio Ways: Society, Locality, and FM Technology in Koutiala, Mali.” PhD diss., Northwestern University, 2008. http://www.academia.edu/7534200/Radio_ways_Society_locality_and_FM_technology_in_Koutiala_Mali.

¹⁰ “Near East Foundation—Where We Work: Mali,” Near East Foundation, accessed March 10, 2015, <http://www.neareast.org/where-we-work/mali/#overview>.

the Mopti region and the often poor internet bandwidth in the area, radio programming is particularly important in communicating information to local residents, where approximately 75% of residents listen to Radio Daande regularly.¹¹

This paper reports on a survey conducted in Douentza Cercle that was intended to measure the potential reach of this radio education campaign. The study aimed to understand self-reported knowledge about six health and human rights topics following identified exposure to the radio-based educational programming. The study also sought to explore the use of radio and music as a means of health and human rights education and also specifically to explore attitudes and self-efficacy regarding FGM/C. FGM/C is condemned as an act of violence against women and children by international human rights documents, including the [Universal Declaration of Human Rights](#); the [UN Convention on the Elimination of All Forms of Discrimination against Women](#); the [Convention against Torture and Other Cruel, Inhuman, or Degrading Treatment or Punishment](#); and the [Convention on the Rights of the Child](#). An [interagency statement on FGM/C](#), issued by 10 UN organizations, was issued in 2008, and the Sustainable Development Goals adopted by the United Nations in 2015 call for an end to FGM/C by 2030. Moreover, the practice may cause multiple health issues including infection, complications in childbirth, and death. Given the high prevalence of FGM in Mali and the significant potential health risks, this topic was included as a key component of the musical album.

Methods

Study site and population

A mixed-methods assessment was developed and conducted in 2015 following the NAHP and NEF interventions initiated in 2014 in Douentza Cercle. Surveys were conducted in 10 villages in the region. Multiple ethnic groups populate Douentza Cercle; however, members of the Peuhl ethnic group (also known as Pulaar, Fula and Fulani) constitute the largest group in Douentza. The study team opted to utilize local surveyors for data collection. These surveyors were selected by NEF associates based on the following criteria: experience in survey work with at least three previous research projects; fluency in local languages; reading and writing at a ninth-grade level or above, preferably with familiarity of survey subject matter; strong communication skills; and understanding the terms of the survey, including confidentiality, neutrality, and respect for differing viewpoints. Surveyors participated in an NEF-led training session related to the questionnaire and survey methodology prior to survey initiation. Fifteen individuals were interviewed in each village (with the exception of Walo, where fourteen individuals were interviewed) using convenience sampling, for a total of 149 interviewees. Efforts were made to survey both men and women and individuals of various age groups to obtain a diverse sample of respondents. Assessment packets with short written answers on two pages were completed for each interviewee; surveyors handwrote responses on the survey. Surveys were confidential and only contained general demographic information about the individuals surveyed.

Messaging intervention in Mali

Topics for the 2014 broadcast album were selected by NAHP, the director of Radio Daande Duwansa, and a local group of musicians, “Troupe de Haire,” based on research of country-wide health issues and areas of perceived need. Once topics were selected, Troupe de Haire, which consists of six women and four men, wrote and performed the collection of songs for the album. Although French is the official language of Mali, songs were performed in the local language of Peuhl to reach individuals without formal education. Dr. Yacouba Guindo, the director of the community health center in Douentza (“CSCOM”) served as the album’s technical

¹¹ Tamboura, Boucary, Interview by NAHP, March 24, 2015.

advisor, ensuring the accuracy of medical information, while NAHP approved album lyrics and provided financial support for its creation. The full album lyrics for each of the six songs appear below in Appendix A, translated from French.

This album has been broadcast regularly on Mali's Radio Daande since 2014. Radio Daande is an independent, non-commercial radio station started in 1993 by NEF and community members to provide residents with information on politics, democracy, and their rights following the ousting of former President Moussa Traoré.¹² Radio Daande reaches approximately 120,000 area listeners (men, women & children), and is considered a nexus of community engagement, as well as a source of information and entertainment.¹³ Each song on the album provides educational messages about one of six specific health and human development topics. FGM/C was a key health area included in the album, given the high rates of FGM/C throughout the country. As noted, the overall country rate of FGM/C in Mali in 2013 was 89% and the rate for the Mopti region specifically was 75%.¹⁴ Participants in informal focus groups and key informant interviews conducted by NAHP in Douentza in 2014 prior to the survey made the following statements about FGM/C:

- In Douentza women don't have the right to speak up
- People do FGM because it diminishes female desire
- If word gets out that a girl isn't circumcised, she is thought of less
- If the word gets out that a woman is not circumcised it's like she is not fully woman, although it's not as bad as it used to be
- It's still somewhat of a shame for family if girl is uncut
- Education and economic opportunities are key to eradication¹⁵

The album was part of a multifaceted approach to reduce the burden of FGM/C in Douentza Cercle. While the album worked to address educational and cultural aspects of FGM/C through mass media, a play about FGM/C was also performed in five Douentza Cercle communities to further educate individuals on related risks and reasons not to engage in the practice. A total of 1,052 audience members attended these productions.¹⁶ These educational efforts were further supported by an economic development project that worked to eliminate the economic incentives to women, called "excisors," who traditionally performed FGM/C by providing them with alternate sources of livelihood that were both sustainable and culturally appropriate. The album worked to support the other facets of the FGM/C-specific intervention, as well as to provide an educational tool to support the transmission of information for the remaining five health and human development issues. While changes in knowledge and behavior may be related to the album, economic interventions, plays, or a combination of these interventions, this article focuses specifically on the album.

Assessment methods

¹² Tamboura, Boucary, Interview by NAHP, March 24, 2015.

¹³ Ibid.

¹⁴ Direction Régionale de la Promotion de la Femme, de l'Enfant et de la Famille, or the Regional Director for the Promotion of Women, Children and Families, available from <http://srdsebbalafia.simplesite.com/>.

¹⁵ Field Notes, Northwestern Access to Health Project, Douentza, Mali. March 2014.

¹⁶ Rapport de Campagne de Representation Teatrale dans 5 Villages de Douentza, Troupe de Haire de Douentza, (August 2015).

The assessment was structured as a hybrid between a survey and structured interview and included primarily open-ended questions about the six health and human development topics addressed in the album. The assessment was conducted in October 2015. Respondents were asked a series of demographic questions, including gender, age, ethnicity, primary language, educational attainment, and family size, as well as radio listening habits. Health questions focused on the six topics: malaria, HIV/AIDS, FGM/C, girls' education, breastfeeding, and hygiene/sanitation. (Survey questions can be found in [Appendix B](#)). The survey aimed to:

- 1) Understand the potential reach of health-related information presented via radio using songs to transmit information and participants' recommendations for future efforts; and
- 2) Understand participants' self-reported knowledge about six health and human rights topics following identified exposure to the radio-based educational programming, as well as to further explore participants' attitudes and self-efficacy regarding FGM.

Post hoc analyses were performed to assess which socio-demographic characteristics (age, sex, village, education level, and primary language) were related to public health knowledge and engagement.

Measures

For the topics of malaria, HIV/AIDS, breastfeeding and hygiene/sanitation, individuals were asked about their source of information. ("Where do you get your information on _____?") This question was not asked on the topics of FGM/C and girls' education given that attitudes toward these practices are historo-cultural.

The survey asked specific questions about the health information presented in the album songs, including health risks and means of prevention for the various topics. For example, the specific potential risks of FGM/C (death, fistula, complications in childbirth, sterility) were included in the FGM/C album song, while means of prevention against malaria (bednets with repellent, no standing water) and treatment (malaria medication) were cited in the malaria album song. Individuals were encouraged to provide multiple responses to survey questions, if desired. Participants were asked the question: "Do you feel you have control over you/your daughter undergoing FGM?" to measure perceived control against FGM/C. Responses were sorted and those who reported a strong intention to avoid FGM/C (specifically stating "I'll never have my child/daughter undergo FGM" or "I do not plan to have my child/daughter undergo FGM") were considered to have high perceived control against the practice.

Data analysis

Surveys were scanned into an online database and were translated by a native French speaker. Responses were categorized and coded by two members of the research team using thematic analysis, with discrepancies reconciled through consensus.¹⁷ Descriptive statistics (frequencies and means) are presented to describe survey responses and identify potential reach of radio education. All analyses were performed with IBM SPSS Version 22 Software.

Post hoc analyses

A "Public Health Knowledge" response score was created across survey domains by adding all factually correct, radio-message related health knowledge items provided by each respondent. This score offers information regarding responses across the album topics of malaria, HIV/AIDS, FGM/C, breastfeeding and hygiene/sanitation. The topic of education for girls was not included in this score given that the survey questions did not address the health risk and

¹⁷ Braun, Virginia, and Victoria Clarke. "Using thematic analysis in psychology." *Qualitative Research in Psychology* 3, no. 2 (2006): 77-101.

prevention information or “action” efforts included in the other questions. The number of possible correct target items endorsed was then weighted to represent each domain equally (three topics had four possible target items while others had three or five). A single engagement score ranging from 0 to 20 was produced for each respondent to reflect the respondents’ willingness to endorse public health concepts that were integral aspects of the radio messages that were disseminated. We employed a linear regression model to evaluate the association between respondent characteristics and public health knowledge scores.

Results

Respondent demographic characteristics

Approximately a third of respondents were in each identified age category within villages. Equal numbers of males and females were surveyed (Table 1). The majority of respondents had no formal education (53%), while just over 20% of respondents could read and write in their local language. Twenty-six percent of respondents completed some level of formal schooling, with 19.5% completing basic education, 5.4% completing secondary education (completion of high school or vocational school), and 1.3% completing university. Reported ethnicity was generally village-specific, with 1-2 ethnic groups represented within each village. Overall, 40.3% of respondents identified as Peuhl, 38.3% identified as Dogon, 16.8% identified as Songhoi, while the remaining 4.7% (“other” category) identified as Bambara, Mossi, or Mamanka.

Radio usage and potential message impact

Most (90.4%) of respondents reported listening to the radio every day and 84.5% reported owning a radio. Although 23 people indicated that they did not own a radio (15.4%), many of these individuals reported having access to a radio. When asked with whom they listened to the radio, many individuals cited family and neighbors.

Ninety-eight percent of respondents reported having heard the album songs and between 74-89% cited radio as one of their information sources, depending on the topic. Of respondents who reported radio as a source, responses were categorized by reported listening frequency (Table 2). For example, among individuals who reported getting information about malaria from the radio, 14.4% reported listening infrequently, while 50.5% reported listening to the radio five or more hours per day. Similar radio usage trends were seen across all of the topics, with the highest percentage of individuals who reported radio as an information source reporting five-plus hours per day listening habits.

When asked open-ended questions on health topics, individuals frequently cited specific information that was included in the songs broadcast on the radio (Table 3). For example, for the malaria album song, 90.6% cited prevention through bednets with repellent, 10.1% cited cleanliness/no standing water, and 12.8% cited malaria medication as a means of treatment.

When asked what advice they would give to improve the songs, 53% of respondents stated that they would like current efforts to continue. Twenty percent suggested that songs be translated from Peuhl into other local languages, while other suggestions included increasing airtime, “doubling” the awareness/effort, and adapting the show according to ethnicity.

FGM/C messaging

While individuals were not asked the source of their information on FGM/C, as was done for the other health and development topics, individuals were asked questions about general knowledge, specific risks, and perceived level of control over FGM/C. Both positive and negative responses regarding the practice of FGM/C were provided by respondents when asked

to report on their FGM/C knowledge. Fifty percent of respondents reported that FGM/C was a custom, while 44% stated that it was dangerous for the health of the girl. Nineteen percent defined FGM/C as “cutting the girl’s genitalia,” and 9% reported that the practice was “very good.” Individuals cited death (59%), difficulty in childbirth (48%), sterility (34%), and fistula (33%) as the primary potential risks of FGM/C. Thirty-nine percent of respondents reported feeling that they had “control” over the practice of FGM/C for themselves/their daughters (Figure 1). Twenty-eight percent of respondents specifically stated that they would never have their daughters undergo FGM/C, while 6% of individuals specifically stated that their child would undergo FGM/C.

Differing rates of identification of specific health risks and perceived control over FGM/C were seen between villages ($p=0.02$). In Walo, 100% of the respondents cited at least one specific health risk of FGM/C and over 57% reported they would never mutilate their daughters. In Kerena and Koubewelkoundia, 100% of respondents cited at least one specific health risk, but only a quarter of respondents stated that they would not mutilate their daughters. In Dianvely and Mounouvel, no individuals reported that they would avoid the practice, though respondents in each village stated some specific health risks associated with FGM/C.

Education level was not a significant factor in whether or not an individual cited specific health risks of FGM/C (Table 4). However, perceived control over FGM/C was over twice as high (38.7%) for individuals who reported a neo-literate education level (able to read and write in the local language) compared to no education ($p=0.006$). Among individuals who reported formal education, 41.0% reported high perceived control against FGM/C.

Public Health Knowledge

Of the 149 survey respondents, the average number of specific responses provided across the remaining five health topics was 7.29/20 possible with a standard deviation of 2.24; on average, individuals cited 1-2 pieces of information highlighted in the album songs for each health topic, including specific risks and prevention methods. Exploratory data analysis supported our assumption of normality of the public health knowledge scores. Linear regression demonstrated that measured demographic and listening variables explained over 30% of the variance in public health knowledge scores ($R^2=.34$) (Table 5). Being a listener for one to five hours per day was associated with a 2.29 higher point score than those who listened only a little or not at all ($p<.001$); however, reporting listening more than five hours per day was only associated with 0.5 additional points ($p=.24$). The only other statistically significant variable was neo-literate education level versus no formal education, which was associated with 1.53 higher points ($p=.001$). By contrast, formal education was only associated with .45 higher points compared to no formal education ($p=.33$). All other variables were non-significant in the model.

Given public health knowledge scores and the relationship to education, additional *post hoc* analyses were conducted to compare education and radio listening habits (Table 6). Only one third of individuals with formal education reported listening to the radio five or more hours per day, while 45.2% of individuals who identified as neo-literate, and 51.9% who identified as having no formal education reported listening at this frequency.

Discussion

The long-standing history of radio as a tool for dissemination of human development education in Douentza Cercle offers a foundation for current and future education efforts. With a reported daily listening rate of over 90%, radio is undeniably a part of community members’ daily routines and should be considered as a vehicle for further work.

The role of radio in Douentza dates back to the early 1990s, when NEF conducted a democracy teaching program broadcast on Radio Daande known as the *Programme d'Appui à la Démocratie et à la Décentralisation* (the "Program in Support for Democracy and Decentralization").¹⁸ After two years of programming, NEF engaged in an impact study to qualitatively gauge the radio broadcast's impact on residents' knowledge of democratic processes and ideas.¹⁹ At the end of the impact study, NEF concluded that the *Programme d'Appui à la Démocratie et à la Décentralisation* had "directly influenced" nearly 52,000 people living in Douentza.²⁰ The 1990s radio programming is highly relevant when considering the application of the 2014 musical album—it was broadcast in the same communities and worked to reach local residents in an accessible medium.

In a systematic review of the effectiveness of mass media interventions for child survival in low and middle income countries, authors state that the reviews:

"...highlight the potential for mass media to impact child survival, but underscore the reality that health communication campaigns are almost always implemented in conjunction with other interventions making it difficult to isolate independent effects. Although randomized controlled trials are the gold standard for determining cause and effect, they are generally not appropriate or effective in evaluating mass mediated public health campaigns. For these campaigns, interventions with mutually reinforcing program components are widely considered best practice."²¹

As described, mutually reinforcing program components were a significant part of the mass media intervention efforts related to FGM/C in Douentza. *Post hoc* analyses of education and listening frequency suggests that Radio Daande may be particularly effective in reaching individuals reporting a neo-literate education level who do not read outside the local language, as these individuals were more likely to report specific health and human development knowledge than individuals with formal education. This outcome may be explained by the non-literate individuals' working at jobs such as manual labor or agriculture in which one can listen to the radio at the same time one works.

FGM/C

In Mali, the issue of FGM/C is the purview of the National Program of the Fight against Excision (PNLE), established under the Ministry of Women, Children and Family Affairs in 2002 through a presidential ordinance.²² The PNLE is tasked with the "coordination, implementation and

¹⁸ Myers, Mary. "The promotion of democracy at the grass-roots: The example of radio in Mali." *Democratization* 5, no. 2 (1998): 200-216. Published online 2007 at <http://www.tandfonline.com/doi/abs/10.1080/13510349808403565?journalCode=fdem20>.

¹⁹ *Ibid.*, p. 210.

²⁰ *Ibid.*, p. 209.

²¹ Naugle, Danielle A., and Robert C. Hornik. "Systematic review of the effectiveness of mass media interventions for child survival in low-and middle-income countries." *Journal of Health Communication* 19, (2014): 190-215. Available at <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4205927/pdf/uhcm-19-190.pdf>.

²² Ordinance No. 02-053/P-RM, June 4, 2002.

evaluation of policies and strategies on FGM/C.”²³ Since 2002, the PNLE has hosted a number of regional conferences and workshops with other advocates for the eradication of FGM/C, has supported outreach and education for communities regarding repercussions of FGM/C, and maintains a list of communities that have publically renounced the practice.²⁴ The 2010-2014 Action Plan listed, among other goals, a reduction in FGM/C to 65%, creation of an early education plan, and supporting/coordinating local efforts to eradicate the practice.

As reflected in the statements made during focus group discussions and key informant interviews prior to the survey, women perceive the root causes of FGM in Douentza to be patriarchal views of the preserving the premarital virginity and limited sexual appetite of women and girls. However, the survey results indicate that individuals with a higher level of education are more likely to perceive FGM/C as a choice. Specifically, perceived control over FGM/C was over twice as high for individuals who reported a neo-literate education level compared to no education. Among individuals who reported formal education, 41.0% reported high perceived control against FGM/C. This is broadly consistent with 2016 UNICEF countrywide data, which indicates that 29% of individuals with a primary education and 42% of individuals with secondary or higher education do not think the practice should continue, as contrasted with 23% of individuals with no education.²⁵ This indicates a correlation between education and empowerment regarding FGM/C.

To date, there is no law criminalizing FGM/C in Mali. In 2009, a draft bill was put before the National Assembly. This bill would criminalize “all procedures involving partial or total removal of the external genitalia of women and/or injury to the female genital organs for cultural or all other non-therapeutic reasons,” and impose imprisonment and fines for the practice, attempted practice, and complicity to the act.²⁶ Greater penalties would be imposed depending on the age of the victim, on health care workers who engage in excision, on people found guilty of recidivism, and where a death occurs.²⁷ However, the bill remains pending in the National Assembly.

Mass media is considered a form of “non-formal adult education” that is considered an integral part of addressing FGM/C in Mali.²⁸ FGM/C information cited by respondents may represent increased awareness of the specific risks as a result of the intervention triad, of which radio was one component. When asked about the risks of FGM/C, the top four responses were the four primary issues that were highlighted in the album song on FGM/C, which may indicate that the album is a salient source of information on the topic for local villagers in Douentza Cercle. Reported risks of FGM/C and control against the practice varied across villages. This information may guide village-specific efforts to provide additional education and support to

²³ UNICEF, “Legislative Reform to Support the Abandonment of Female Genital Mutilation/Cutting” at 34 (August 2010).

²⁴ Programme National de Lutte Contre le Pratique de L’Excision (last updated 2011), available from <http://www.pnle.gouv.ml/>. See also Center for Reproductive Rights (2006, 58.)

²⁵ UNICEF, *Mali Statistical Profile on FGM/C* (August 2016), available from https://data.unicef.org/wp-content/uploads/country_profiles/Mali/FGMC_MLI.pdf.

²⁶ Portant Penalisation de la Pratique de L’Excision 2009, Art. 2.

²⁷ Portant Penalisation de la Pratique de L’Excision 2009, Art. 3.

²⁸ Easton, Peter, and Kristen Molyneaux. "Transformative Learning on the Desert's Edge: The Tostan FGM Program in Senegal, Mali and the Sudan." (July 4, 2006). *Adult Education Research Conference*. Paper 19, available from <http://newprairiepress.org/aerc/2006/papers/19>

community members in order to eliminate the practice, particularly given the multi-dimensional work of this intervention, as well as the outreach efforts of PNLE and other organizations.

Limitations

Given the lack of pre-album data regarding respondents' knowledge of the health topics and the fact that individuals likely receive health and development information from a variety of sources, we are unable to conclude that the album intervention alone is the source of the above responses. As discussed, this radio-based intervention was part of a multi-component initiative involving the album, economic interventions, and plays. Given that these interventions were taking place simultaneously and individuals were not asked about their interactions with the economic intervention or involvement with the plays, we are unable to control for these aspects of the multi-faceted approach. However, given high radio listening rates and the fact that individuals specifically cited radio as one of their information sources, the radio may serve as a contributing source for health and human development education. Additionally, given the areas for continued intervention development and suggestions cited by individual listeners, this assessment may serve as a baseline for future efforts and measurement and may illustrate potential opportunities for health and development education in other nations with similar development goals.

An additional limitation involves the "Public Health Knowledge" score. As discussed, this score was obtained in *post hoc* analyses by adding all factually correct, radio-message related health knowledge items provided by respondents in order to quantify knowledge surrounding these specific public health issues. However, this score is not a validated assessment measure; a validated tool assessing health literacy may be a useful concept to consider in future work in the area.

While FGM/C rates specific to the town of Douentza and Douentza Cercle in 2013 are also not known, the fact that the album team, including community members comprising "Troupe de Haire" and the manager of Radio Daande, selected FGM/C as a health education topic points to an area of health need within the community. With over a quarter of respondents offering a firm "no" to the practice of FGM/C and only 6% specifically reporting that their daughter will undergo the practice, responses may indicate changes in how FGM/C is viewed, particularly in the context of changes in practice within the communities.

Summary

Analyses demonstrated that reported radio listening tends to correlate with education attainment; those with less education reported increased listening frequency. This information suggests that radio-based interventions may be particularly effective in reaching individuals with lower education and literacy levels, particularly when disseminating essential health and human development information. Given the correlation between education and perceived control over whether or not to undergo FGM/C—a practice widely considered to be a violation of international human rights and a form of gender-based violence—the radio-based intervention and assessment of radio habits and health knowledge and beliefs suggests the value of radio as a medium for information. This in turn may support further outreach efforts in Douentza and other communities with similar health, human rights, and development objectives.

Table 1: Percent of respondents from each demographic category (age, gender, education, ethnicity)
by village

Village	Age			Gender		Education					Ethnicity			
	15-30	31-49	50+	Male	Female	None	Neo-literate*	Basic	Secondary	University	Peuhl	Dogon	Songhoi	Other
Dalla	26.7	33.3	40.0	53.3	46.7	46.7	33.3	20.0	0.0	0.0	100	0.0	0.0	0.0
Dansa	33.3	46.7	20.0	46.7	53.3	60.0	13.3	20.0	6.7	0.0	13.3	26.7	60.0	0.0
Debere	26.7	33.3	40.0	53.3	46.7	26.7	60.0	13.3	0.0	0.0	93.3	0.0	0.0	6.7
Dianvely	33.3	40.0	26.7	46.7	53.3	80.0	0.0	13.3	6.7	0.0	6.7	80.0	0.0	13.3
Douentza	33.3	46.7	20.0	53.3	46.7	33.3	13.3	20.0	20.0	13.3	66.7	13.3	6.7	13.3
Kerena	40.0	20.0	40.0	57.1	42.9	46.7	33.3	20.0	0.0	0.0	100	0.0	0.0	0.0
Koubewelkoundia	33.3	20.0	46.7	53.3	46.7	80.0	0.0	6.7	13.3	0.0	0.0	93.3	0.0	6.7
Mounouvel	33.3	40.0	26.7	46.7	53.3	80.0	6.7	13.3	0.0	0.0	0.0	0.0	100	0.0
Petaka	33.3	33.3	33.3	46.7	53.3	33.3	33.3	26.7	6.7	0.0	0.0	100	0.0	0.0
Walo	42.9	28.6	28.6	42.9	57.1	42.9	14.3	42.9	0.0	0.0	21.4	71.4	0.0	7.1
TOTAL	33.6	34.2	32.2	50	50	53.0	20.8	19.5	5.4	1.3	40.3	38.3	16.8	4.7

*Neo-literate: able to read and write in the local language

Table 2: Percentage of respondents who cited radio as a source of information for specific health topics by listening frequency

Health topic	Listen infrequently, up to 1 hour/day	Listen 1-5 hours per day	Listen 5 or more hours per day
Malaria (n=111)	14.4	35.1	50.5
HIV/AIDS (n=133)	14.3	39.1	46.6
Breastfeeding (n=125)	15.2	41.6	43.2
Hygiene/Sanitation (n=132)	15.2	40.2	44.7

Table 3: Percentage of respondents who cited specific information from the album songs when asked about health risks, prevention & limiting factors on the identified health topics (n=149)

Prevention against malaria	Bednets with repellent: 90.6% Related to mosquitos: 70.5% Protect pregnant women: 14.1% Malaria medication/treatment: 12.8% Cleanliness/no standing water: 10.1%
Prevention against HIV	One time use of sharp/soiled objects 49.0% Sexual relations (fidelity/know your partner/abstinence): 34.9% Use of condoms 34.2% Testing: 1.3%
Specific potential negative outcomes of FGM/C	Death: 59.1% Complications in childbirth: 48.3% Sterility: 34.2% Fistula: 32.9%
Specific breastfeeding and children's healthcare recommendations	Go to health center if child is sick: 91.9% (Breastfeeding is) Important/healthy for infants: 75.2% Breastfeed for 6 months: 2.7%
Factors limiting recommended education for girls	Tradition: 24.2% Lack of means: 23.5% Distance to school 5.4% Crisis: 0.7%
Factors limiting recommended hygiene/sanitation	Unclean environment: 19.5% Unclean/standing water: 14.8% Poverty: 0.7%

(Individuals could provide more than one response for each category, so responses may total more than 100%.)

Table 4: Percentage of respondents who cited specific health risks of female genital mutilation (FGM/C) and perceived control against FGM/C by education level

Education level	Cites specific health risks of FGM/C* (n=127)	Reports perceived control against FGM/C** (n=149)
No formal education	82.3	16.5
Neo-literate (reads/writes in local language)	90.3	38.7
Formal education (basic, secondary, or university)	87.2	41.0

*difficulty in childbirth, very dangerous for the health of the girl, disease, hemorrhaging, fistula, death, sterile/unable to conceive, incontinence, reduced libido, p=0.52

**“I’ll never have my child/daughter undergo FGM” or “I do not plan to have my child/daughter undergo FGM,” p=0.006

Table 5: *Post hoc* analysis: Multiple linear regression results for “Public Health Knowledge” score (R²=.34)

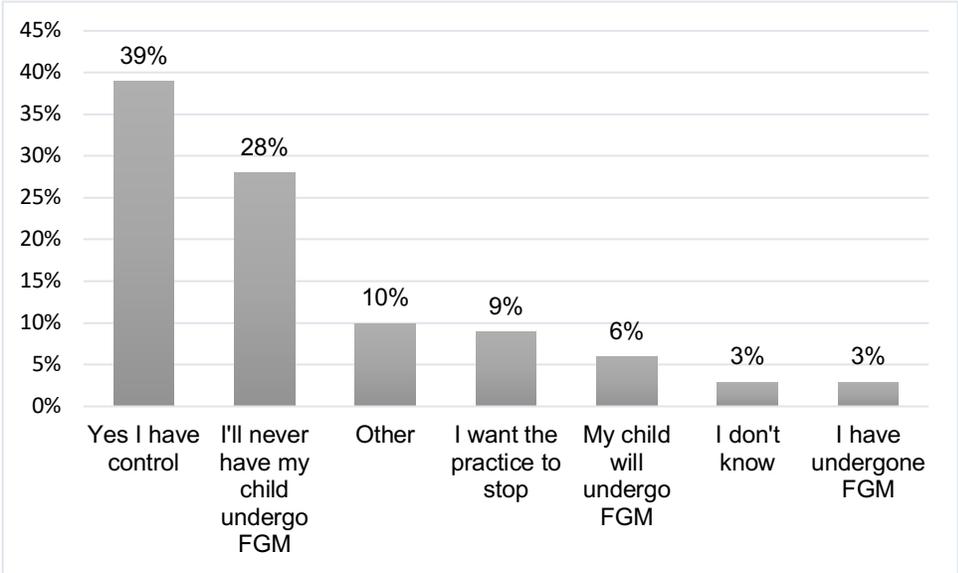
	Mean (SD)	B (Coefficient)	SE (Standard Error)	P (Probability)
Age				
15-30	7.3 (2.0)	.38	.43	.38
31-45	7.5 (2.6)	.37	.41	.38
46 or older	7.1 (2.1)	Reference		
Gender				
Male	7.5 (2.3)	.45	.36	.17
Female	7.1 (2.2)	Reference		
Ethnicity				
Puehl	7.6 (2.4)	.13	.35	.70
Dogon	7.0 (1.8)	Reference		
Other	7.4 (2.5)	1.04	.78	.18
Education				
No formal	6.7 (1.8)	Reference		
Neo-literate: Local language	8.6 (2.6)	1.53	.44	<.01
Formal education	7.6 (2.2)	.45	.43	.30
Listening				
None/Little	6.0 (1.8)	Reference		
1-5 hours/day	8.4 (2.2)	2.29	.50	<.01
5+ hours/day	6.7 (2.2)	.57	.48	.24

Table 6: *Post hoc* analysis: Reported radio listening frequency by educational attainment percentages*

	No formal education	Neo-literate (reads/writes in local language)	Formal education (basic, secondary, or university)
Listen up to 1 hour per day	15.2	9.7	17.9
Listen 1-5 hours per day	32.9	45.2	48.7
Listen 5 or more hours per day	51.9	45.2	33.3

*p=.31

Figure 1: Do you feel you have control over you/your daughter undergoing female genital mutilation (FGM)?



(*Other* responses include: "It depends, I'm not the one deciding, Women are in control, No, Some of my daughters are mutilated, One was mutilated and almost died so now I won't do it")

Appendices

A. The album lyrics (translated from French)

1. *Malaria*

(refrain)

Dear Parents, listen to this message
Cleanliness is the mother of human health
Listen to better understand this message
We cleanse our environment to stop mosquitoes from having places to live and multiply

The government of Mali has taken steps to confront malaria
Pregnant women and children under 5 are treated for free
Cleanliness is the mother of human health
We cleanse our environment to stop mosquitoes from having places to live and multiply

(Messenger)

You have told the truth
Cleanliness is the mother of human health, we cleanse our environment to stop mosquitoes from having places to live and multiply
We must avoid pollution of our streets by latrine water, which is the ideal place for the growth of malarial mosquitoes

We sleep under medicated bednets
We regularly put medication on the bednets
In case of malaria we quickly send the patient to our closest health centers
Parents here is the message that these girls have wanted you to deliver in their songs with this advice
We can avoid malaria
(refrain)

2. *AIDS*

(refrain)

AIDS is a danger more dangerous than fire
Men, women: AIDS is what we must avoid at all cost
Black people can do nothing about this dangerous illness
Westerners can do nothing about this dangerous illness

(Messenger)

We hear what these girls have just said
AIDS is among us, it is more dangerous than fire; one catches it by:
-sexual relations between a person with AIDS and one who doesn't have it
-a syringe used by someone with AIDS and another who doesn't have it
-razor blades of someone with AIDS and another who doesn't have it

To avoid it
We use condoms in the event of sexual relations
Fidelity
One syringe for one individual
One razor blade for one individual

Better safe than sorry

What's more, get tested to know your health

If you're infected with AIDS you can go to the pharmacy for free treatment and you'll live as long as God wishes

(refrain)

3. No to Female Genital Mutilation/Cutting

Parents listen well to this message, it will serve you well

"No" to FGM is a decision from the highest authorities of Mali

Health works proposed the order to the government and the government agreed

A non-circumcised girl as a complete girl, who carries herself in a perfect state of health

Cutting a girl can cause her death

Cutting a girl can cause her to have a fistula

Cutting a girl can cause complications when she has a baby

Cutting a girl can make her sterile

Cutting a girl makes surgery necessary when she is having a baby

For all of these reasons health works asked the state to take a decision against the practice of FGM that was accepted by the government of Mali

Parents listen to this message, it will serve you well

"No" to FGM is a decision from the highest authorities of Mali

Health works proposed the order to the government and the government agreed

A non-circumcised girl as a complete girl, who carries herself in a perfect state of health

A circumcised girl runs many risks that we have just listed.

4. Girls' Education

Parents, we enroll our girls in school for the development of the country

Mothers, we enroll our girls in school to prepare them for the future

An uneducated girl is a loss for the country

(Messenger)

You have spoken the sad truth

The education of girls has been neglected by us; we must confront it

An educated girl will serve her family in the village and the entire country

To teach a girl is like teaching the entire family, the entire village, the entire country, and the entire world

Fathers, mothers, we invite you to send all our little sisters to school for their future

Parents, we enroll our girls in school for the development of the country

Mothers, we enroll our girls in school to prepare them for the future

An uneducated girl is a loss for the country

Fathers, mothers, we invite you to send all our little sisters to school for their future

5. Breastfeeding

Parents, listen to this message because we are the messengers of the midwives

This message is especially for women, they must listen to better understand

A newborn: don't give him water or broth until six months

Don't give him animal milk either
Don't make him drink from a bottle

Listen and understand what you must do for a newborn

He must nurse his mother for six months
Breast milk is the best milk for a newborn
If he becomes sick you must bring him to the closest health center
Only health workers know the best treatment for a newborn
(refrain)

6. Hygiene and Sanitation

Parents, dirt is very bad for our health
We must wash our streets, our houses, and clean out our gutters
We men, we women must pitch in to clean all of our surroundings for our health and that of our children
Moreover we must drink clean water
We avoid drinking stagnant water from ponds and streams for our health

(Messenger)

We hear what the children say in their chant
Hygiene and sanitation are the only means of preserving our health
Mayors, chiefs of villages, advisors, committees of youth and women let us rise and pitch in to clean our environment
We clean our houses, our streets, we unclog our gutters

What's more, we avoid drinking water from ponds and streams, the source of many illnesses like diarrhea, bilharzia, and stomachache
We avoid growing millet, gombo, and peanut in our houses because these places cause the arrival of mosquitoes, the source of malaria
(refrain)

B. Survey Questions

Demographic Questions:

1. Gender:
2. Age:
3. Education Level:
 - a. Superior
 - b. Secondary
 - c. Basic
 - d. Neo literate
 - e. None
4. Number of children?
 - a. Boys?
 - b. Girls?
5. What is your primary language at home?
6. If your native language is not Fulani (Peulh), can you comprehend/understand Fulani (Peulh)?

Malaria:

1. Tell me what you know about malaria?
2. Where do you get your information about malaria?
3. Do you think you are at risk of malaria?
 - a. Why?
 - b. Why not?
4. What can you do to prevent malaria? (Listen specifically for: mosquito nets, cleanliness, free treatment for pregnant women and children under 5 years old, medication mosquito nets, and other practices)
5. Your children?
6. What makes it difficult to prevent malaria for yourself/your children?

HIV/AIDS:

1. Tell me what you know about HIV/AIDS?
2. Where do you get your information about HIV/AIDS?
3. Do you think you are at risk for HIV/AIDS?
 - a. Why?
 - b. Why not?
4. What can you do to prevent HIV/AIDS in yourself/your children? (Listen specifically for syringes, razor blades, sexual relations/condoms)
5. What makes it difficult to prevent HIV/AIDS for yourself/your children?

FGM:

1. Tell me what you know about FGM?
2. What are the risks of FGM? (Listen specifically for: death, fistula, childbirth complications, infertility, caesarean/surgery during childbirth)
3. What do others say about FGM? (Listen specifically for: religion, family, government)
4. Do you feel you have control over you/your daughter undergoing FGM?

Education:

1. How do you feel about education for boys?

2. How do you feel about education for girls?
3. If applicable: Do you feel your daughter has access to education?
4. If applicable: What makes access to education for your daughter(s) difficult?

Breastfeeding:

1. Tell me what you know about breastfeeding?
2. Where do you get your information on breastfeeding?
3. If applicable: Are you in control of the decision to breastfeed your child?
4. If applicable: What makes it difficult to breastfeed your children?
5. What do you do if your baby is sick? (Listen specifically for: go to the health center)

Hygiene and Sanitation:

- 1) Tell me what you know about hygiene and sanitation?
- 2) Where do you get your information about hygiene and sanitation?
- 3) How can good hygiene and sanitation preserve your health?
- 4) What can good hygiene and sanitation prevent? (Listen specifically for: diarrhea, malaria, bilharzia, stomachache)
- 5) What makes it difficult to practice good hygiene and sanitation? (Listen specifically for: lack of access to clean water, gutters, unclean environment)

Radio Questions:

- 1) Do you own a radio?
- 2) How many radios do you have in the family?
- 3) Who in your home listens to the radio?
- 4) Do you listen to the radio every day?
 - a. If yes:
 - i. Less than an hour a day?
 - ii. 1-3 hours per day?
 - iii. 3-5 hours a day?
 - iv. 5+ a day?
 - b. If no:
 - i. Every other day?
 - ii. Once a week?
- 5) What are your preferred times for listening?

Questions about the album:

- 1) Have you heard the songs on the radio which discuss the health topics we've asked you about?
- 2) Are the broadcast times convenient for you?
- 3) Are they convenient for others?
- 4) Have you benefited from the instructions or specific information from the songs on the album?
- 5) Have you made changes after hearing the songs?
- 6) Are you finding behavioral changes in your neighbors after hearing the songs?
- 7) What advice would you give to improve listening to the songs?