Countering Islamic Radicalization in Northern Mozambique

Through Radio Campaigning and Voice Messaging

Alex Armand[1,2], Pedro C. Vicente[1,2], Inês Vilela[3,2]

[1]U Nova of Lisboa [2]NOVAFRICA

[3]Royal Holloway, U London

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Motivation

In recent years, most of the **major violent conflicts have happened in Muslim-majority countries**.

Islamic radicalization is one of the main correlates of violent conflict in the world today (Gleditsch and Rudolfsen, 2016).

Can Islamic radicalization and related violence be countered through **campaigning by local religious organizations**?

What we do

We follow a **campaign against violence sponsored by religious organizations** in Cabo Delgado, Mozambique.

Cabo Delgado has seen a violent insurgency since 2017 led by Islamic radicals linked to ISIS, which resulted in more than 3k deaths and 800k refugees.

The campaign was sponsored by different Islamic organizations and focused on the key message that **religion in not violence**. The campaign was broadcasted through **community radios and individual voice messages** sent to cell phones. We follow a radio treatment and a message treatment, which were randomized.

We measure impacts on **survey attitudes** and various **behavioral measures** including on anti-social behavioral and trust.

Preview of results

The **radio treatment improves attitudes significantly**, making people be less supportive of violence and of extreme social views related to radical Islam.

Anti-social behavior is not impacted significantly by the radio treatment. But the difference between harming Muslims and others increases. The belief that more antisocial behavior will arise also increases.

The radio treatment decreased **coordination** between individuals from different religions.

No significant effects of the message treatment except for an effect on perceiving Muslims positively.

There is generally no evidence in favor of complementarity between the radio and message treatments.

Literature

Economic determinants of civil wars: Collier and Hoeffler (2004); Miguel et al. (2004); Blattman and Annan (2016).

Counterinsurgency based on material benefits: Berman et al. (2011); Beath et al. (2018); Lyall et al. (2018).

Natural resources and conflict: Dube and Vargas (2013); Berman et al. (2017), Armand et al. (2020a).

Identity and religious motivations for conflict: (Bursztyn et al., 2017; Vicente and Vilela, 2021)

Radio campaigning and violence: Yanagizawa-Drott (2014); Armand et al. (2020b).

Context

Mozambique discovered substantial amounts of **natural gas** in Cabo Delgado province starting in 2010. This is likely to turn Mozambique into a global player in the LNG exports.

Cabo Delgado is **remote and primarily rural**, with high poverty and child mortality rates for national standards.

Conflict started in Cabo Delgado at the end of 2017: systematic attacks to government institutions like the police, to civilians in rural areas, and to foreign interests linked to the natural gas operations. 3k+ deaths and 800k+ civilians displaced until now.

Many associations with radical Muslims, some infiltrated in local Mosques from other countries, with links to ISIS. Most perpetrators are Mozambican.

Treatments

The treatments were developed by the two **main Muslim authorities in Mozambique**, i.e., CISLAMO (Islamic Council of Mozambique) and the Islamic Congress, as well as CCM (Christian Council of Mozambique).

It consisted of one intervention by **a religious leader from each group**, supporting peace and explaining how their religion supports peace. Specifically:

Islamic Congress: *Hello, I am XXX and I belong to the Islamic Congress. The word 'Islam' derives from 'salam' which means peace. The greeting 'Assalam Haleikum' translates into 'May peace be with you.' Therefore, the ones who create insecurity and terror in the name of the Islamic religion are not in line with its essence.*
CISLAMO: *Hello, I am XXX and I belong to CISLAMO. The Islamic religion teaches good behavior and that we are all the same. ALLAH has made us to love each other and cooperate with one another, not to disturb through action and language.*
CCM: *Hello, my name is XXX and I belong to CCM. Let us promote human cooperation and shall we not do anything that might harm oneâs individuality. Peace is the way. 'May peace be with you!' (John 20:19)*
Final message: *Religion is love and friendship, together we shall walk to achieve peace.*

Treatments

Radio

The radio spots were aired in **eight community radios** spread around Cabo Delgado: RTVC Mueda, RC Girimba Montepuez, CMC Mecufi, Radio Wimbi, CMC Nangade, RTVC Chiure, CMC Mpharama Balama, and Radio Sem Fronteiras.

Daily broadcasts between mid-June and mid-July 2021, and **two airings per day** in mid-September to mid-November 2021. Both Portuguese and local languages were employed in the airings.

Treatments

Voice messages

Partnership with a private provider (Viamo) experienced in delivering text and voice messages in the context of information campaigns.

Each individual received **four voice calls during this period with approximately two weeks in between**.

- Before each voice call, each person received a text message about the call they would receive and got instructions about a free number to call in case they missed the call. After each phone call, participants received a text message with the text: Religion is love and friends*hip, together we shall walk to achieve peace - message from the religious organizations.*

Messages were sent from mid-September to mid-November 2021. The languages employed were those of the recipients of the messages.

The campaign had a high success rate with **87 percent picking up the phone** on average for the four rounds.

Sampling

The villages in our sample are **based on the sample used in Armand et al. (2020a)**. That initial study used a sample of 206 representative villages in the province of Cabo Delgado.

We keep all the villages that satisfy the following rules: i) have reliable phone coverage (all surveys were conducted by phone); ii) still exist after the attacks by the insurgents. From the initial 206 villages we are able to keep 139 villages. We add seven new villages that took refugees from the initial 206 villages and that have good phone network. Hence, our **final sample includes 146 villages**.

We contacted all the individuals in the original sample in the beginning of this study. We were only able to reach 10 percent of the original sample. To increase the sample size, we asked the referred individuals for contacts of neighbors and friends living in the same village. We then contacted those people and invited them to participate in the study. At the end of this process, we were able to build a **sample of 1,400 individuals**.

Radio coverage and voice message randomization

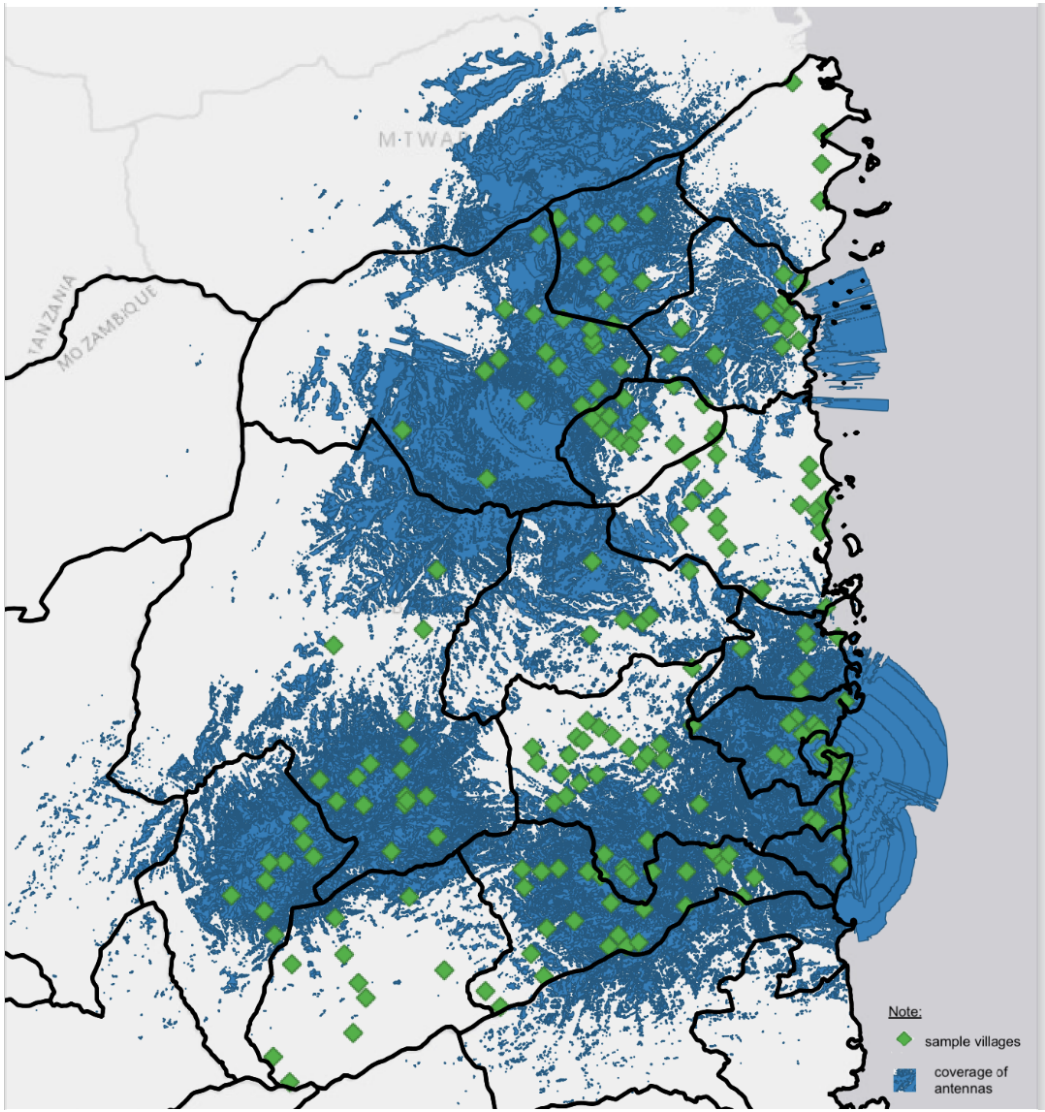
Following the literature (Olken, 2009; Enikolopov et al., 2011; Yanagizawa-Drott, 2014; DellaVigna et al., 2014; Adena et al., 2015; Armand et al., 2020b), we construct **topography-corrected radio coverage using the Longley-Rice Irregular Terrain Model**.

- This methodology takes in station/antenna parameters, which we gathered from the corresponding radio stations, and topographic characteristics to determine which areas receive a signal from the station and at what strength.

Quasi-random variation assumption for the radio treatment: conditional on distance from the antennas, the presence of obstacles between the antenna and the listener is exogenous to the listener's behavior. We assume a standard threshold for quality of radio signal (54 decibels).

Concerning voice messages, we randomized treatment at the level of the village. Before randomization, we grouped villages into blocks of villages according to Mahalanobis-distance. We employ: the sample size at each village (proxy for village size), the maximum signal coverage at each village, and the district.

Sample and radio coverage



Measurement

Survey data

We conducted **phone surveys** with our sample. The baseline was conducted between May and mid-June 2021. The endline was conducted between December 2021 and February 2022.

We included in the surveys standard demographic questions. Regarding outcome variables, we ask several questions about **support for extremist religious positions**. The topics include violence, government and democracy, as well as social norms relating to gender and the use of photos.

Measurement

Behavioral data - games

We measure anti-social behavior through the **Joy-of-destruction game** (Abbink and Herrmann, 2011; Abbink and Sadrieh, 2009).

- Two individuals can destroy each other's endowment at a price. Each participant is paired with two different individuals, one with a distinctive Muslim name and another with a distinctive non-Muslim name. We also elicit beliefs about each counterpartâs decision in an incentivized manner.

We play a **standard trust game** with two counterparts. Again, one of the counterparts has a clearly Muslim name and the other does not.

Measurement

Behavioral data - activities

SMS activity: pay to send a peaceful message (Batista and Vicente, 2011).

Coordination activity: participants first select their counterpart between two possibilities, one with a Muslim name and the other with a non-Muslim one; second, they need to coordinate to receive a prize (Habyarimana et al., 2007).

Salience activity: participants hear a story with different characters, some with Muslim names and others with non-Muslim names; after that they are asked questions about the characters; the questions are incentivized; we are interested in the difference of errors between the two groups (Blouin and Mukand, 2019).

Perceptions activity: measures implicit prejudice against Muslims and non-Muslims (identified by distinctive names) using an index of characteristics (Scacco and Warren, 2021).

Estimation strategy

We estimate **Intent-to-Treat Effects** using the following main specification:

$$Y_i = \alpha + \beta_1 \text{Radio}_i + \beta_2 \text{Message}_i + \beta_3 \text{Radio x Message}_i + X_i'\gamma + \epsilon_i \quad (1)$$

- X_i includes the minimum distance and minimum distance squared between the antennas and the village, as well as individual controls (age, gender, schooling, religion, and religiosity).
- ϵ_i is an idiosyncratic error term clustered at the village level.

Descriptive statistics

Table 1: Descriptive statistics

	Mean	N	std. Dev.
Age	24.725	1299	14.004
Female	0.207	1309	0.405
Education (years)	6.828	1308	3.405
Muslim	0.563	1309	0.496
Christian	0.406	1309	0.491
High religious frequency	0.487	1303	0.500
Listen to radio	0.738	1309	0.440

Education (years) is the maximum schooling number of years completed by the respondent, Muslim is a a indicator for being of the Muslim religion, Christian is an indicator for being of the Christian religion, High religious frequency takes value one if the respondent goes to a religious service or practice more than once per day, Listen to radio is a self-reported dummy with value one if respondent listen to the radio normally.

Results

Table 2: Survey questions

	No support for violence		Support government and democracy		Social norms	
	No violence	No religious violence	Not countering the government because of religion	Democracy is always preferable	Equal schooling across gender	Have document with photo
	(1)	(2)	(3)	(4)	(5)	(6)
Radio treatment	0.067	0.116**	0.060	0.147**	0.237***	0.100
	(0.102)	(0.048)	(0.106)	(0.069)	(0.067)	(0.078)
Message treatment	0.104	-0.053	0.031	0.090	-0.154	-0.063
	(0.127)	(0.063)	(0.098)	(0.066)	(0.093)	(0.070)
Radio x message	-0.130	-0.008	-0.003	-0.135*	0.026	0.014
	(0.133)	(0.071)	(0.113)	(0.073)	(0.104)	(0.084)
Radio = Message (p-value)	0.742	0.012	0.760	0.194	0.000	0.066
Radio+Message+Interaction = 0 (p-value)	0.680	0.241	0.355	0.137	0.123	0.423
Observations	1267	1261	1283	1278	1284	1282
R-squared	0.022	0.025	0.035	0.021	0.065	0.025

Notes. The table shows results from OLS regressions for different survey outcome variables. Column (1) is a dummy that takes value one if the respondent disagrees that violence might be acceptable in some scenarios; column (2) takes value one if respondents disagree that violence might be needed in the name of religion; column (3) takes value one if respondents disagree that going against the government might be necessary for a religious purpose; column (4) takes value one if respondents disagree that democracy might not be the best option some times; colum (5) takes value one if the respondent agrees that boys and girls should have the same schooling level; colum (6) takes value one if respondent reports it is ok to have documents that have photos. We present the p-values for tests of 2 hypotheses. The first if the equality of the treatments and the second is the sum of the treatments and the interaction is equal to zero. All regressions include controls for the minimum distance and minimum distance squared of the village to the antennas and individual controls: age, gender, schooling level, religion and religious frequency.Standard errors are clustered at the village level and presented in parenthesis.

Results

Table 3: Destruction game and sms activity

	Destruction game				SMS activity
	Destroy	Destroy different religion	Destroy Mulim - non-Muslim	Belief destroy	Pay to send peaceful message
	(1)	(2)	(3)	(4)	(5)
Radio treatment	-0.038	-0.042	0.157**	0.102*	-0.018
	(0.072)	(0.055)	(0.063)	(0.055)	(0.043)
Message treatment	0.076	0.100	0.025	0.081	0.040
	(0.080)	(0.064)	(0.079)	(0.078)	(0.044)
Radio x message	-0.014	-0.067	-0.039	-0.022	-0.016
	(0.087)	(0.069)	(0.083)	(0.086)	(0.050)
Radio = Message (p-value)	0.082	0.007	0.067	0.804	0.183
Radio + Message + Interaction = 0 (p-values)	0.741	0.868	0.025	0.003	0.882
Observations	1284	1092	1284	1284	1284
R-squared	0.016	0.018	0.024	0.016	0.004

Notes. The table shows results from OLS regressions for different survey outcome variables. Column (1) is a dummy that takes value one if the respondent decided to destroy the payoff of at least one pair, column (2) takes value one if the respondent decides to destoy the pair of a different religion than it own, column (3) is the difference between the destruction decision between Muslim and non-Muslim, column (4) takes value one if the respondent believes at least one pair will destroy the respondent's payoff, column (5) takes value one if the respondent decided to pay to send a message to someone else supporting peace in the region. We present the p-values for tests of 2 hypotheses. The first if the equality of the treatments and the second is the sum of the treatments and the interaction is equal to zero. All regressions include controls for the minimum distance and minimum distance squared of the village to the antennas and individual controls: age, gender, schooling level, religion and religious frequency. Standard errors are clustered at the village level and presented in parenthesis.

Results

Table 4: Behavioural games and activities

	Trust game		Coordination activity	Salience activity	Perceptions activity	
	Average trust	Trust Muslim - non-Muslim	Select different religion	Difference in recall	Positive perceptions: Muslims - non Muslims	Positive perceptions: Muslims
	(1)	(2)	(3)	(4)	(5)	(6)
Radio treatment	-1.561	-1.843	-0.124**	-0.000	0.044	0.014
	(3.248)	(1.384)	(0.053)	(0.051)	(0.062)	(0.048)
Message treatment	-2.416	-2.629	0.016	0.006	0.112*	0.051
	(2.016)	(1.715)	(0.073)	(0.048)	(0.067)	(0.054)
Radio x message	0.694	4.020**	0.019	0.016	-0.092	-0.040
	(2.777)	(1.871)	(0.079)	(0.055)	(0.075)	(0.062)
Radio = Message (p-value)	0.783	0.644	0.057	0.870	0.231	0.522
Radio + Message + Interaction = 0 (p-values)	0.201	0.739	0.087	0.673	0.292	0.566
Observations	1284	1284	1246	1152	1274	1280
R-squared	0.033	0.010	0.015	0.038	0.009	0.013

Notes. The table shows results from OLS regressions for different survey outcome variables. Column (1) is the average share of the endowment the respondent share with the two pairs, column (2) is the difference of the share sent to the muslim and the non-Muslim in the trust game, column (3) is a dummy that takes value one if the respondent chose the pair from a different religion for the coordination activity, colum (4) is the share of the absolute difference of correct recall answers for muslim and non-Muslim pairs, column (5) takes value one if the all positive perceptions of the muslim character are higher than the non-Muslim, and column (6) takes value one if all perceptions of the Muslim character are positive. We present the p-values for tests of 2 hypotheses. The first if the equality of the treatments and the second is the sum of the treatments and the interaction is equal to zero. All regressions include controls for the minimum distance and minimum distance squared of the village to the antennas and individual controls: age, gender, schooling level, religion and religious frequency. Standard errors are clustered at the village level and presented in parenthesis.

Concluding remarks

The radio campaign was particularly effective at improving attitudes in the direction of **less support for violence**, more support for democracy, and less support for extreme social norms.

Still, some caveats: the radio campaign led to relatively more anti-social behavior against Muslims and a general belief that others behave in an anti-social manner; coordination with individuals from different religions was also decreased.

No clear effects of the voice messages except for an effect on perceiving Muslims positively.

Good indications (although preliminary and not fully optimistic) regarding the mobilization of local religious organizations to counter Islamic radicalization through the radio.