A Radio Drama's Effects on Attitudes Toward Early and Forced Marriage: Results from a Field Experiment in Rural Tanzania

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Abstract

Early and forced marriage (EFM) is an increasing focus of international organizations and local non-government organizations. This study assesses the extent to which attitudes and norms related to EFM can be changed by locally tailored media campaigns. A two-hour radio drama set in rural Tanzania was presented to Tanzanian villagers as part of a placebo controlled experiment randomized at the village level. A random sample of 1,200 villagers was interviewed at baseline and invited to a presentation of the radio drama, 83% of whom attended. 95% of baseline respondents were reinterviewed two weeks later, and 97% fifteen months after that. The radio drama produced sizable and statistically significant effects on attitudes and perceived norms concerning forced marriage, which was the focus of the radio drama, as well as more general attitudes about gender equality. Fifteen months later, treatment effects diminished, but we continue to see evidence of EFM-related attitude change.

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1 Introduction

Early marriage is pervasive worldwide. Given current trends, 150 million girls below the age of 18 will marry between 2018 and 2030 (ICRW 2018), and while the global rate of early marriage fell from 33% of girls in 2000 to 20% in 2017, the total number of early marriages is projected to rise because of population growth in the regions where it is most prevalent, such as South Asia and Sub-Saharan Africa. In 2011, a coalition of international organizations, governments, and non-governmental organizations launched an international campaign against early as well as forced marriage, premised on the belief that early marriage is often foisted upon girls and harmful to them (Hodgkinson 2016; Cloward 2016; Parsons et al. 2015). While the campaign has successfully induced many governments to formally outlaw early marriage and require brides' consent, 18% of countries still permit marriage under the age of 18, and 30% provide for exemptions when the bride is younger than 15 years old (Arthur et al. 2017). Moreover, early and forced marriages remain common even in countries where it is legally prohibited, especially in rural, conservative communities where awareness and enforcement of marriage law is limited (Wodon et al. 2017).[1]

To address these gaps in efforts to legally compel an end to early and forced marriages, the international campaign has built an expansive network of grassroots civil society organizations focused on influencing social attitudes and norms. Like many transnational social movements before it, the coalition against early and forced marriages has placed considerable emphasis on culturally-tailored messages and entertainment-education ("edutainment") campaigns, often delivered through local media (Hodgkinson 2016). If effective, such media campaigns offer a low-cost, scaleable tool for influencing cultural practices in communities where state and civil society organizations have little capacity. However, few of these messaging initiatives have been rigorously evaluated.

We present evidence from an experiment designed to test the effects of one such media cam-

[1]Although the terms are often used interchangeably, early marriage is distinguishable from forced marriage, or marriage in which one or both parties do not fully consent to the arrangement. Forced marriage may also occur when both parties are over 18 years old. International law holds that early marriage is always forced marriage because girls under the age of 18 cannot give meaningful consent. However, anthropological research in Tanzania suggests that girls under 18 experience varying degrees of autonomy in partner choice (Schaffnit et al. 2019).

paign in Tanzania's Tanga Region on attitudes towards early and forced marriage and gender equality. The centerpiece of the campaign is a radio drama written and produced in Tanga and designed to resonate with Tangan audiences. Rather than appealing to human rights norms or Tanzanian law, the story grounds its message in the story of a charismatic young girl and locally recognizable Islamic religious teachings about a woman's right to affirmative consent to her marriage under Islamic law.

Our study was set in an especially interesting political and social context. The media messages were presented in remote, socially conservative, rural communities in Tanga with a relatively balanced mix of Muslims and Christians. The experiment also occurred at a time when the issue of underage marriage and gender equality more broadly were politically contested in Tanzania. Tanzania launched a National Plan of Action to end violence against women and children in 2017, which prominently featured a call to reduce rates of child marriage. While the intervention was taking place, Tanzania's highest court was deliberating over government-supported legislation to allow early forced marriage for girls between the ages of 15 and 18.[2] Nonetheless, rural communities in our sample were almost entirely unaware of changes to Tanzanian marriage law (Emmanuel et al. 2022),[3] making this an ideal opportunity to investigate the effect of media campaigns in areas where changes to formal marriage law were afoot but remained relatively unknown.

Our findings demonstrate both the potential and limitations of entertainment-education as a means for changing public opinion on a timely policy issue. When attitudes were measured approximately two weeks after exposure to the radio program, villagers assigned to the treatment group showed significantly and substantially reduced support for early marriage (5 percentage points) and forced marriage (9 percentage points). Perceived norms also seem to have been changed somewhat, though effects are smaller and only marginally significant. Villagers

[2]In October 2019 the court ruled against the Tanzanian Government and set the legal age of marriage to 18 for both men and women.

[3]Fewer than 6% of our sample reported hearing about the court's decision in 2020 (Emmanuel et al. 2022), and 92% of Tanzanians in a 2017 national survey conducted by the Tanzanian Ministry of Health said they did not know or were unsure whether child marriage is legal (MoHCDEC 2017).

in the treatment group were slightly less likely to see others in the community as supportive of early marriage (5 percentage points) or forced marriage (6 percentage points), and they were also more likely to say that others in the community would report EFM to local officials (8 percentage points). The drama's impact appears to have extended beyond the immediate domain of EFM, with treated villagers becoming more supportive of gender equality in the realms of schooling and workplace participation. These results contrast with previous work, which finds that the effects of radio dramas are narrowly restricted to the core message articulated in the storyline and do not carry over to more general social attitudes (Green et al. 2020).

Although the experiment provides robust evidence of opinion change, exposure to the locally resonant messages appears to change some attitudes more readily than others. The radio drama's effects on social attitudes did not immediately translate into substantial changes in political priorities, such as elevated support for a candidate campaigning against early marriage in a hypothetical local election. And while the drama produced meaningful changes in general attitudes relating to gender equality, it initially had a rather muted effect on attitudes toward intimate partner violence (IPV).

As expected, the persuasive effects of a single exposure to edutainment diminished over time. When re-interviewed fifteen months after listening to the radio drama, audiences no longer reported that their community rejects EFM. Yet respondents themselves remained significantly more opposed to forced and early marriage than the control group, although – perhaps reflecting their evolving sense of community norms – they no longer expressed heightened willingness to report underage marriages to authorities.

This essay is organized as follows. We begin by placing the present messaging campaign in context, first with respect to international campaigns to spread norms of gender equality and second with respect to the specific issue of early and forced marriage. We then briefly describe the status of early and forced marriage in the Tanzanian context. Having set the backdrop for our evaluation, we lay out the key features of our experimental design: the setting, the selection of villages, sampling of villagers, random assignment of clusters, the treatment and placebo radio

programs, and the measurement of outcomes. After describing our estimation procedures, we assess the effects of the treatment on a range of attitudes, measured two weeks after exposure and more than a year later. We conclude by discussing the implications of our findings and by suggesting avenues for further investigation.

2 Motivation and contribution

The International Diffusion of Social Norms

A rich interdisciplinary literature investigates whether and how transnational ideas spread across cultural boundaries (Keck and Sikkink 2014; Risse et al. 1999). A standard tactic of social movements and transnational advocacy campaigns is "naming and shaming": amplifying global norms, publicizing violations, and condemning abuses (Roth 2004). These pressure campaigns are usually designed to reform domestic laws and policies but may also aim to influence cultural attitudes and norms (Ausderan 2014; Davis et al. 2012). A number of case studies track the impact of external pressure campaigns on the diffusion of norms (Cisneros et al. 2015; Gurowitz 1999; Keck and Sikkink 2018). However, external pressure campaigns face formidable obstacles, especially when the targeted state or community is resistant to the movement's message. Campaign messages may not reach targeted communities, they may not persuade targeted communities, and they may promote backlash when they are perceived to originate from external actors (Terman 2019; Muriaas et al. 2018; Munshi and Rosenzweig 2006).

In seminal research on the transnational spread of women's rights norms, Merry (2006) argues that transnational advocacy networks overcome these obstacles by *vernacularizing* the campaign message, or tailoring it to resonate with local audiences (Goodale and Merry 2007; Merry 2009). To do so, advocacy groups accentuate messages produced and delivered by *local members* of the advocacy network, such as grassroots civil society and media groups. They may also tailor the campaign message using locally resonant frames, norms, role models, and sources of authority that make the movement's claims salient, credible, and emotionally resonant (Benford and Snow 2000; Snow et al. 1986). Local tailoring is a commonly used strategy for encouraging the spread

of both progressive and conservative social values (Levitt and Merry 2009; Bob 2012). Although many case studies have described campaigns seeking to change norms and practices, relatively few rigorous evaluations have assessed whether and under what conditions this approach succeeds in changing audiences' attitudes and perceptions.

"Edutainment" and Social Attitudes

An increasingly common method for conveying campaign messages to local audiences is entertainment-education, or "edutainment." Unlike more overt messaging strategy, edutainment campaigns embed social messages in entertaining narratives often featuring locally-tailored storylines and characters. The growing experimental research literature evaluating the effects of edutainment interventions lends credence to the idea that locally tailored dramatizations can change attitudes and social norms. Paluck and Green (2009) found that rural Rwandans' exposure to a yearlong radio drama changed norms about deference to authority. Messages embedded in Nigerian MTV programs changed attitudes and behaviors related to HIV (Banerjee et al. 2019), while anti-corruption messages embedded in Nigerian feature-length films prompted viewers to submit more anti-corruption complaints (Blair et al. 2019). Green et al. (2020) report sizable and long-lasting conative attitude change in the wake of rural Ugandans' exposure to locally produced video dramas about violence against women and teacher absenteeism.

Why might dramatization change beliefs, attitudes, and behaviors? The theory of "vicarious learning" (Bandura 2004) posits that people acquire new ways of responding to social situations not only through direct experience, but also by observing and emulating others' behavior, including behavior modeled by likeable, relatable, or culturally similar characters in fictional dramatizations. A complementary psychological theory ("elaboration likelihood") suggests that audiences otherwise prone to counter-arguing against messages that contradict their prior beliefs may be more open to such messages when they are "transported" into an engaging storyline or the point of view of the protagonist (Slater and Rouner 2002). These two forces may impel audiences to learn new behavioral repertoires and see social issues from new vantage points. When these forces are not at play, as in purely informational, non-narrative media campaigns, attitudes and

behaviors may prove more resistant to change (Galiani et al. 2016; Grossman et al. 2020).

Yet the edutainment approach faces potential limitations. Edutainment interventions could fall flat if they fail to transport audiences into the story or promote identification with its characters (Neil et al. 2019). Audience members may also struggle to draw the intended lessons from a narrative if the message is too subtle (e.g. Sintra and Agante 2020) or the "entertainment" elements of the intervention too distracting (Houghton et al. 2017). A potential solution is to include narration or epilogues summarizing the take-home message of the drama; yet while this tactic could reinforce attitude change among audience members who are predisposed to accept the message (Pechmann and Wang 2010), it runs the risk of causing backlash among those who were previously opposed to the message (Pechmann and Wang 2010; Moyer-Gusé 2008). Even if edutainment interventions shift attitudes in domains that narrowly pertain to the message, it remains an open question whether they transform an audience's broader worldview (Green et al. 2020) or induce meaningful changes in behavior (Bjorvatn et al. 2020). Finally, the effects of edutainment interventions may dissipate rapidly with time (Orozco-Olvera et al. 2019). Although some studies have found persistent changes in attitudes months after subjects returned to their social milieux (Wilke et al. 2020; Murrar and Brauer 2018), others have found that treatment effects decay if lessons are not reinforced through repeated messaging or through group viewing and discussion (Semakula et al. 2020); squaring these competing findings is made difficult by the relative lack of experiments that track the same outcomes over multiple periods. In short, edutainment interventions might fail under a range of conditions, motivating further empirical research into their effects in new contexts and domains.

3 Early and Forced Marriage in Tanzania

Rural Tanzania is an apt setting for the study of early and forced marriage. First, early and forced marriages are quite common: 36% of women in Tanzania were married before the age of 18 (see Appendix B.3 for more information), and approximately 30% of women nationwide report exercising little or no autonomy in choosing their spouse (MoHCDEC 2017). In the rural communities of Tanga District, the setting of the present study, the incidence of early marriage

is slightly higher (38.59%) than the national average (36.82%).

Second, early and forced marriage are a longstanding political and legal issue in Tanzania. Tanzania's 1971 Law and Marriage Act legalized marriage for girls as young as 15 conditional on parental consent and 14 conditional on court consent. The Law and Marriage Act remained in force despite the fact that Tanzania has ratified all major international treaties concerning early and forced marriage, including CEDAW (1986), UNCRC (1991), and ACRWC (2003). In 2016, following a legal challenge from a domestic non-governmental organization, the Tanzanian high court ruled the Law and Marriage Act unconstitutional. The Tanzanian government appealed the decision on the grounds that the law was necessary to accommodate customary and religious values in marriage. Tanzania's Court of Appeals, the country's highest court, sustained the high court ruling banning marriage under the age of 18 in October 2019. Nonetheless, in 2020 fewer than 6% of respondents had heard about the court ruling, and we observe almost no change in attitudes towards the acceptability of early marriage in control communities after the ruling (Emmanuel et al. 2022). This finding is consistent with other surveys in Tanzania, which find little public awareness of marriage laws (MoHCDEC 2017).

Although cultural attitudes and norms are an important determinant of early and forced marriage (Schaffnit et al. 2019), little systematic evidence exists about public attitudes toward EFM in Tanzania. We therefore preface our experimental results with an overview of attitudes and norms about early marriage drawn from the control group in our midline survey (n = 575), which, as we explain below, is a stratified random sample of Tanga Region villagers.[4] Based on insights from focus group discussions held in 2018 and input from the local NGO UZIKWASA, which has conducted community outreach to villages in Pangani since 2010,[5] we presented respondents with one of two randomly selected vignettes describing an arranged marriage and asked them for both their personal views and their perception of their community's views about the acceptability of the marriage described in the story. We randomly varied key features of the story, including the

[4]Replication materials and code can be found at (Green et al. 2022).

[5]For further details see Appendix B, which discusses some of the motivations for early and forced marriage, as well as a discussion on consent for marriage.

price offered for the marriage, the age of the girl, and the motivation of the parents:[6]

> **Scenario 1: Family needs money**: *A poor family you know is having money problems. A wealthy man [randomly select: from inside the village; from outside the village] offers the family [randomly select: 400,000; 500,000; 600,000; 800,000; 1,000,000; 1,500,000; 2,000,000] shillings if the family will allow [him; his son] to marry their [randomly select: 14; 15; 16; 17; 18; 19] year-old daughter.*

> **Scenario 2: Misbehaving Daughter**: *The [randomly select: 14; 15; 16; 17] year-old daughter of a family is [randomly select: failing in school; difficult to control at home; at risk of getting pregnant]. A wealthy man [in their village; outside their village] offers the family [randomly select: 400,000; 500,000; 600,000; 800,000; 1,000,000; 1,500,000; 2,000,000] shillings if the family will allow [randomly select: him; his son] to marry their daughter.*

Table 1: **Opposition to Early Forced Marriage, by Experimental Condition**

	Misbehaving Daughter				*Family Needs Money*				
Age	<500 TZS	500-900	>1,000	Scenario Total	<500 TZS	500-900	>1,000	Scenario Total	Total
14-15	0.92	0.93	0.93	0.93	1.00	0.94	0.87	0.95	0.94
	(13)	(14)	(14)	(41)	(24)	(17)	(15)	(56)	(97)
16-17	0.94	0.88	1.00	0.94	0.89	0.95	0.98	0.95	0.94
	(33)	(25)	(27)	(85)	(27)	(22)	(44)	(93)	(178)
18-19	0.75	0.63	0.79	0.74	0.78	0.78	0.85	0.81	0.77
	(40)	(41)	(67)	(148)	(40)	(46)	(66)	(152)	(300)
Total	0.85	0.76	0.86	0.83	0.87	0.86	0.90	0.88	0.85
	(86)	(80)	(108)	(274)	(91)	(85)	(125)	(301)	(575)

Note: Proportion of respondents who disapprove of forced marriage given bride's age, bride price offered, and parents' motivation. Bride prices listed in 1,000 Tanzanian Shillings (TZS) ≈ 0.45 USD. Number of observations reported in parentheses.

We find that a minority of respondents express their approval of early and forced marriage. Averaged across all conditions, 15% of respondents approved of forced marriage. For example, a fifteen-year-old girl who participated in a focus group seemed resigned to the practice, commenting, "It is our parents that choose both when and who we marry. I guess my parents just know better than me about marriage." More frequently, focus group participants articulated their disapproval, as did one woman who commented, "I was married when I was very young, and I think it's just wrong. Girls are not ready for the struggles of married life, and for raising children. When you are young, you just don't know better."

[6]The bride prices on the low end of the spectrum were suggested to us by UZIKWASA as typical for the region; we greatly amplified these prices on the high end in order to see whether respondents reacted to them. We also varied whether the potential suitor sought a wife for himself or for his son and whether the potential husband came from inside or outside the village.

Table 2: **Perceived Community Opposition to Early Forced Marriage, by Experimental Condition**

	Misbehaving Daughter				*Family Needs Money*				
Age	<500 TZS	500-900	>1,000	Scenario Total	<500 TZS	500-900	>1,000	Scenario Total	Total
14-15	0.64	0.75	0.57	0.65	0.87	0.75	0.57	0.75	0.71
	(11)	(12)	(14)	(37)	(23)	(16)	(14)	(53)	(90)
16-17	0.50	0.64	0.63	0.58	0.58	0.76	0.70	0.68	0.63
	(32)	(25)	(27)	(84)	(26)	(21)	(43)	(90)	(174)
18-19	0.5	0.38	0.48	0.46	0.48	0.49	0.58	0.53	0.49
	(40)	(39)	(66)	(145)	(40)	(45)	(65)	(150)	(295)
Total	0.52	0.53	0.53	0.53	0.61	0.61	0.62	0.61	0.57
	(83)	(76)	(107)	(266)	(89)	(82)	(122)	(293)	(559)

Note: Proportion of respondents who believe that most others disapprove of forced marriage given bride's age, bride price offered, and parents' motivation. Bride prices listed in 1,000 Tanzanian Shillings (TZS) ≈ 0.45 USD. Number of observations reported in parentheses.

Respondents were significantly more accepting of forced marriage than early forced marriage: across scenarios, approval of forced marriage substantially declines when the potential bride is below 18, from 23% to 6%. There is no discernible difference in acceptance of forced marriage above and below 15 years old. We also observe a decline in approval for forced marriage when the parents are motivated by worries about money rather than a misbehaving daughter, from 17% to 12%.

Turning to perceived community norms, we find that 43% of respondents think that *others* in their community would accept early and forced marriage, averaged across all circumstances. In other words, while respondents express personal opposition to early and forced marriage, they tend to see the community as far more accepting of the practice than themselves. For instance, one female focus group participant who was personally opposed to early and forced marriage stated, "Some people in the community don't care how old a girl is when she gets married – they just think it is better for girls to be married." the gap between personal and perceived community acceptance of EFM opens the door to messaging strategies that dramatize resistance to EFM. As with respondents' personal attitudes, respondents perceive greater community acceptance of forced marriage when the woman is above 18 years old (from 37% to 51%) and when the parents are motivated by concerns about their daughter's behavior (from 39% to 47%). Perhaps surprisingly, respondents are not affected by the amount of money offered, nor do they perceive that it

affects their community's acceptance of early and forced marriage.

We also asked respondents about their preferences for laws restricting early marriage. Over 97% of respondents supported a law to ban marriage for brides under the age of 15, but only 69% support banning marriage for brides younger than 18 (Emmanuel et al. 2022).

4 Data and Research Design

4.1 Intervention

The anti-EFM intervention was a 1 hour and 50 minute abridged audio screening of *Tamapendo*, a 20-episode KiSwahili radio drama set in Tanga and written and produced by the Tanga-based non-governmental organization UZIKWASA. This NGO develops and implements community-based interventions to promote women's empowerment, among other objectives (Lees et al. 2019). The abridged version of *Tamapendo* follows the story of a young girl, Fatuma, as she responds to the prospect of forced marriage. Fatuma's age is not stated explicitly, but she is understood to be between 14 and 17 years old. Fatuma is portrayed as an intelligent, motivated girl who wants to continue her education when she graduates from secondary school. However, her father arranges to marry her to a wealthy older man from outside the village without her consent.

Fatuma's mother, best friend, and romantic interest each begin the story as passive bystanders to the forced marriage but grow to understand Fatuma's resistance to the arrangement and ultimately support Fatuma when she rejects the forced marriage in the final, climactic scene. As part of their character development, conversations between Fatuma and her romantic interest model equitable gender roles in romantic relationships, such as mutual support for female education, equal household work, and an opposition to intimate partner violence. Their discussions contrast with the relationship between Fatuma's mother and father, which is depicted as hierarchical and abusive.

The intervention offers a useful example of vernacularization. It was conceived, written, acted, and produced by a Tangan media organization and tailored for a local audience. The message is framed through a locally resonant story: Fatuma is recognizably Tangan, and her story is

drawn from stories of early marriage that emerged from UZIKWASA's discussions with Tangan communities. Finally, *Tamapendo*'s anti-EFM message is built on local Islamic teachings about a woman's right to choose her husband and the doctrine of *kafā'a*, or social equality between a prospective husband and wife, which Fatuma deploys in response to the pro-EFM arguments of the imam character. Such debates about the acceptability of early and forced marriage are common within the Muslim community in Tanga. In focus groups conducted with local religious leaders, we find disagreement among even imams in the same village about the appropriate age of marriage for women: while one imam held that girls could get married when they are "mature," including as early as 16, his counterpart stated that "marriage at 16 is wrong" and that "18 to 20 is best, regardless of maturity." In short, the debate at the heart of *Tamapendo* reflects the sorts of religious discussions that listeners might plausibly encounter in daily life. Notably, the *Tamapendo* screening did not include any discussion about legal rights or state sanctions. An outline of the abridged plot is available in Appendix A.

Placebo villages received a 1 hour and 45 minute abridged audio screening of *Wahapahapa*, a multi-week radio program developed by *Media For Development International* focusing on HIV/AIDS. The effects of the placebo on HIV-related opinions are reported in a separate study (Green et al. 2021).

For purposes of the present study, the key feature of this abridged version of *Wahapahapa* is that it makes no mention of forced marriage, intimate partner violence, or gender equality. Thus, the placebo is expected to have no influence on the outcome measures of interest here. We confirmed the different ways in which the two radio dramas were perceived via an open-ended manipulation check question asked at the end of the post-treatment survey. Fully 95% of those who attended *Wahapahapa* recalled that it was about HIV/AIDS; among those who attended *Tamapendo*, 67% said that it was about early and/or forced marriage, and another 27% said that it was about gender and family issues.

In each treatment and placebo village, 40 randomly selected respondents were surveyed and invited to attend a local community screening of a radio drama. A few days later, a single screen-

ing was held in the early evening to accommodate respondents' work obligations. The screenings were held in a classroom or other indoor community meeting place near the center of town, and attendees were provided light snacks and refreshments. At all sites, two members of the research team briefly discussed the logistics of the screening and provided refreshments mid-way through the event but did not formally moderate the sessions.

The intervention was designed in collaboration with the local non-governmental organization UZIKWASA and deployed by a Tanzanian research team trained and supervised by Innovations for Poverty Action. Every effort was made to ensure that the autonomy and well-being of participants were respected. We discuss how we responded to a range of ethical considerations raised by the project in Appendix C.

4.2 Site Selection

The study sites were 30 rural villages distributed evenly across 15 wards in Tanzania's north-eastern Tanga Region, where *Tamapendo* takes place. Villages were eligible for inclusion if they met the following conditions: they were outside of Pangani District, where UZIKWASA had already widely aired *Tamapendo*; they were within 70 km of Pangani Town, to ensure socio-cultural similarity to the setting of *Tamapendo*; they did not touch a main or secondary road and were at least 8km from a major town, to focus the study on rural citizens and limit the risk of attrition; and they were at least 4km from any other selected village, to minimize the risk of spillovers. In wards containing three or more eligible villages, we randomly selected two villages.

4.3 Random Assignment

We conducted random assignment to experimental conditions at the village level after blocking at the ward level. Figure 4 shows the geographic distribution of treatment and placebo villages. Each letter represents a distinct ward; upper or lower case reflects treatment or placebo assignment, respectively.

Because the study was designed as a placebo-controlled trial, we made every effort to maintain symmetry between experimental groups when encouraging participation in the listening events. Enumerators conducting baseline surveys were blind to the treatment assignment of each village,

so that their encouragement to participate could not be affected by the content of the audio drama. Consistent with the assumptions of our design, attendance rates were very similar in treatment (85.60%) and placebo (86.19%) villages.[7] Furthermore, as expected, random assignment was not significantly correlated with pre-treatment characteristics of baseline respondents or screening attendees. Of 42 pre-specified pre-treatment covariates, no covariates show marked differences between treatment and placebo attendees. Analysis of pre-treatment balance between treatment and placebo groups appears in Appendix E.3.

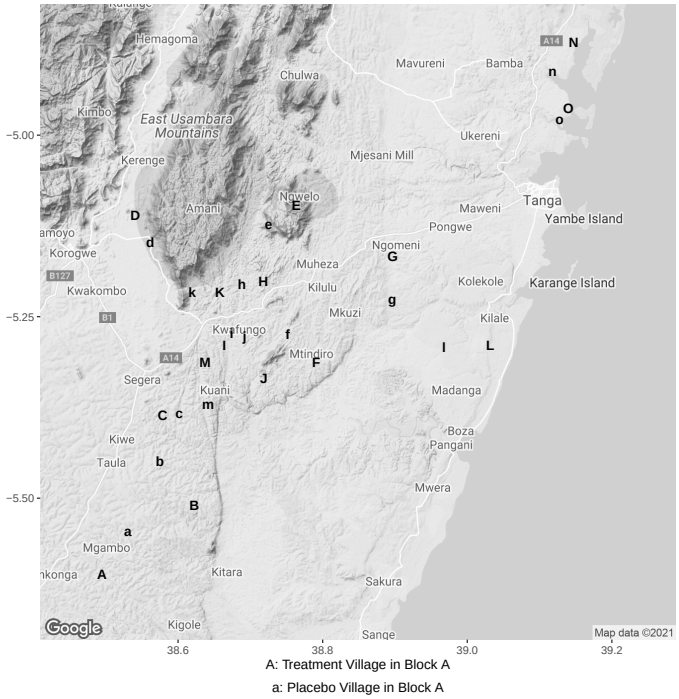

Figure 1: Geographic distribution of Treatment (EFM) and Placebo (HIV) villages

4.4 Sampling of Respondents

In each village, we employed a four-step strategy to identify study participants. First, the research team used satellite maps to identify the approximate village radius as 200, 400, 600 or 800 meters from the village center. Second, a census team identified all households living within the village radius, as well as the age and gender of household members between 18 and 65. Third, the census team's survey software randomly selected 20 households for the female respondent group and 20 households for the male respondent group, and randomly selected a household member

[7] See Appendix E.2 for details.

of the targeted gender. Female respondents were interviewed by women, and male respondents were interviewed by men. Fourth, if an individual of the targeted gender and age range was not available from the household during the census phase, the household was dropped and a replacement household was randomly selected. [8]

4.5 Sample Characteristics

Table 3 shows some relevant individual-level characteristics of the resulting sample (for a full description, see the full set of baseline characteristics shown in Table A3).

Four features stand out. First, 45% of the respondents report their household owning at least one radio (5.64% report owning more than one), and 83% report owning a cellphone. Second, villagers, on average, are not extremely conservative on questions of gender equality. Mean scores on a gender equality index ranging from zero to one are 0.709 in the treatment group and 0.728 in the placebo group, with higher scores on this indicating more egalitarian attitudes. Third, the sample's media ownership and social attitudes are similar to rural respondents in both Tanzania and Africa generally, as measured by recent Afrobarometer surveys (see Appendix E.1). Fourth, the sample contains a mix of Muslim and Christian respondents, characteristic of northeastern Tanzania. Approximately 67% of the sample is Muslim.[9] The mixture of Muslim and Christian respondents in most villages offers an opportunity to examine the effect of locally tailored media campaigns across religious boundaries. While the story of Fatuma presented in *Tamapendo* would be recognizable to both Christians and Muslims, the drama appealed to Muslim religious teachings and local Islamic authorities.

4.6 Data Collection

The baseline survey was rolled out consecutively across wards so that the treatment and placebo pair in each ward received the baseline survey, audio screening, midline, and endline evaluation at similar points in time. Appendix D reports the timeline of the surveys and the intervention in more detail. Cooperation rates were extremely high. The 1,205 targeted respon-

[8] Note that in 4 different villages we over-sampled by one or two respondents; therefore our final N is 1,205.

[9] At the village level, the average proportion of the population identifying as Muslim is 0.66 and the village-level standard deviation is 0.25. Only five villages in the sample are more than 90% Muslim, and only one is 90% Christian.

Table 3: **Sample Characteristics and Covariate Balance**

	EFM Mean	HIV Mean	RI pval	N
Age	37.485	38.309	0.391	1,205
Female	0.504	0.504	0.556	1,205
Muslim	0.640	0.678	0.545	1,205
Finished Standard 7	0.722	0.747	0.635	1,205
Married	0.662	0.666	0.988	1,205
Assets - cell phone	0.851	0.800	0.173	1,205
Assets - radio number	0.487	0.549	0.128	1,205
Gender Equality (index)	0.709	0.728	0.274	1,205

Note: Variables are a subset of all baseline variables selected for illustrative purposes.

dents completed a baseline survey and were invited to attend a screening with others surveyed from their village three or four days later. 999 (83%) attended. The midline survey team collected outcome measures 13-16 days after the village screenings. 95.6% of baseline respondents (regardless of whether they attended the screening) completed this survey. The endline survey team collected outcome measures 15 months after the village screenings. 96.5% of baseline respondents completed this survey. The proportion of baseline respondents who completed both midline and endline surveys is 93%, with similar response rates in treatment and placebo groups (see Table A2). In order to minimize demand effects, the interviewer teams were distinct from the teams that hosted the screenings.

4.7 Estimation

Ordinary least squares regression is used to estimate the effectiveness of the audioscreening treatment. For purposes of estimation, the pool of subjects is restricted to compliers, i.e., those who complied with the invitation to attend a radio screening (either the treatment screening on forced marriage or the placebo screening on HIV). Let Y_i denote the survey outcome for subject i, and let T_i denote this subject's assigned treatment (1 if early and forced marriage, 0 if HIV). The regression model

$$Y_i = \beta T_i + \gamma_1 ward_{1i} + \gamma_2 ward_{2i} \ldots + \gamma_k ward_{ki} + u_i$$

expresses the outcome as a linear function of the randomly assigned treatment, indicator variables

for each of the k wards (blocks), and an unobserved disturbance term u_i. The key parameter of interest is β, which represents the complier average causal effect (CACE). This regression estimator is similar to the difference-in-means estimator, since the block indicators are orthogonal to the assigned treatment. Because assignment to treatment occurs at the village level, we report clustered standard errors. Exact p-values are calculated using randomization inference under the sharp null hypothesis of no treatment effect for any unit.

This regression model may also be used to confirm some basic assumptions about noncompliance and attrition. Table A2 shows that audio screening attendance is weakly and insignificantly related to treatment assignment, as would be expected given that enumerators were blind to treatment condition. Turning from compliance to attrition, we see that missingness from the midline survey is also unrelated to treatment assignment, and the same holds for the missingness from the endline survey. It appears that the placebo controlled design and outcome assessment preserves the independence of treatment assignment and potential outcomes.

In keeping with our pre-analysis plan, our analysis of substantive outcomes also reports covariate-adjusted regression results. The LASSO procedure selects prognostic covariates from a set of variables collected during the baseline survey (these variables are listed in Appendix E.3.) The number of selected covariates ranges from to zero to thirty depending on the outcome, but due to the similarity across experimental groups at baseline, the estimates after adjustment closely resemble estimates without adjustment across all analyses.

5 Analysis

5.1 Results 2-3 weeks after exposure

Our analysis begins with the primary outcome measures, which gauge support for forced marriage. On average, villagers who attended the radio drama screening became substantially less likely to agree with the statement "a girl should not have a say in whom she marries; it is best if her father selects a suitable husband for her." Without adjusting for covariates, this estimated ATE is 9.3 percentage points. This estimate climbs slightly to 9.5 percentage points

after controlling for LASSO-selected covariates. Both estimates have randomization inference p-values equal to or less than 0.001. The estimated effect is large substantively, amounting to more than half of a village-level standard deviation. Another way to think about the substantive magnitude of the estimated effect is to frame it in terms of change in the odds of expressing opposition to forced marriage: in the control group, the odds are close to 5:1; in the treatment group, the odds rise to 11:1.

In an effort to gather more information about villagers' attitudes specifically about forced marriage, elsewhere in the questionnaire we posed a more specific question about whether "an 18 year-old daughter should accept the husband that her father decides for her." The estimates are again large, highly significant, and on the order of more than half a village-level standard deviation. Again, the odds of opposition rise from almost 4:1 in the control group to almost 7:1 in the treatment group.

We then turn to the conjoint experiment described above, which presented respondents with a hypothetical vignette about a family that is tempted to marry off its daughter to an older man who is offering a substantial sum of money. To evaluate the effect of the drama on attitudes towards *early* forced marriage, we focus on responses when the girl in the vignette was younger than 18. We find that the drama significantly reduced acceptance of early forced marriage in this scenario by 4.8 percentage points, over half a village-level standard deviation. However, the drama had no effect on acceptance of EFM when the family was responding to a daughter who was misbehaving or failing in school. These results seems to suggest that treatment effects were confined to situations that closely reflected the types of EFM presented in *Tamapendo*, where Fatuma was a bright and successful student and her father sought money from her marriage.

Although the results suggest that effects tend to be strongest when outcomes are most closely related to the dramatic narrative, it should be noted that listeners did not have to be Muslim to be influenced by *Tamapendo*. Despite the fact that the drama was set in a Muslim community and used Islamic teachings to move listeners away from supporting early marriage, the results we present do not change significantly based on the religion of the respondent: Muslim respondents

are not more likely than Christian respondents to change their views in response to the drama.[10]

Table 4: **Attitudes toward Early Forced Marriage, 2-3 Weeks After Exposure**

	Reject Forced Marriage				Reject Early Forced Marriage			
	Reject FM		Reject FM (18+)		Money		Misbehaving	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
EFM Treat	0.093	0.097	0.088	0.092	0.048	0.044	0.013	0.013
Standard Error	0.027	0.020	0.025	0.017	0.014	0.015	0.027	0.027
RI p-value	0.007	0.002	0.008	0.001	0.016	0.027	0.363	0.363
Hypothesis	+	+	+	+	+	+	+	+
Control Mean	0.82	0.82	0.79	0.79	0.94	0.94	0.93	0.93
Control Village SD	0.16	0.16	0.16	0.16	0.06	0.06	0.07	0.07
DV Range	[0-1]	[0-1]	[0-1]	[0-1]	[0-1]	[0-1]	[0-1]	[0-1]
Blocked FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	17	No	21	No	2	No	0
Adj-R^2	0.09	0.23	0.10	0.20	-0.00	0.09	0.01	0.01
Observations	998	998	997	997	261	261	232	232

Note: * p < .1, ** p < 0.05, and *** p < 0.01. Standard errors clustered at the village level. Positive coefficients imply progressive attitudes. Columns 1 and 2 report results for responses to the question: *"Please tell me if you agree or disagree with the following statement: A girl should not have a say in whom she marries; it is best if her father selects a suitable husband for her."* Columns 3 and 4 report results for responses to the question: *"Please tell me if you agree or disagree with the following statement: A 18 year-old daughter should accept the husband that her father decides for her."* Columns 5 and 6 report results for responses to the *vignette* reported in Table 1 when the girl is less than 18 *and the family is having money trouble.* Columns 7 and 8 report results for responses to the *vignette* reported in Table 1 when the girl is less than 18 *and the family is worried about the daughter's behavior.*

Respondents were next asked about prevailing norms — what others in their community would likely do in the same situation. From the row reporting means for these outcome measures, we again see that respondents in the control group were more likely to say that others in their community would approve of the forced marriage. In other words, absent exposure to the treatment, respondents tended to believe the community to be more conservative than themselves on this issue. However, the EFM drama reduced this perception by approximately 6 percentage points when the girl was over 18 years old and 5 percentage points when the girl was less than 18 years old, borderline significant estimates that both amount to about half a village-level standard deviation. Evidently, the edutainment intervention affected not only the audience's personal views, but also their perceptions of the views of others.

[10]Our pre-analysis plan relies on machine learning to detect heterogeneous effects rather than specifying particular treatment-by-covariate interactions. Machine learning algorithms (generalized random forests and Bayesian additive regression trees) confirm the lack of treatment effect heterogeneity by respondents' religion.

Table 5: **Perceived Community Norms about Early Forced Marriage, 2-3 Weeks After Exposure**

	Community Rejects			
	Reject Forced Marriage		Reject Early Forced Marriage	
	(1)	(2)	(3)	(4)
EFM Treat	0.065*	0.050*	0.054*	0.067*
Standard Error	0.027	0.024	0.026	0.026
RI p-value	0.062	0.088	0.088	0.051
Hypothesis	+	+	+	+
Control Mean	0.51	0.51	0.68	0.68
Control SD	0.14	0.14	0.10	0.10
DV Range	[0-1]	[0-1]	[0-1]	[0-1]
Blocked FE	Yes	Yes	Yes	Yes
Controls	No	4	No	1
Adj-R^2	0.02	0.07	-0.00	0.02
Observations	491	491	478	478

Note: * p < .1, ** p < 0.05, and *** p < 0.01. Standard errors clustered at the village level. Columns 1 and 2 report results for responses to the *vignette* reported in Table 2 *when the girl is 18 years old or older* (Forced Marriage). Columns 3 and 4 report results for responses to the *vignette* reported in Table 2 *when the girl is less than 18* (Early Forced Marriage).

Taken together the results presented in Table 4 and Table 5 leave little doubt that the radio drama substantially changed attitudes towards EFM. The results also suggest, albeit with less statistical precision, that the drama affected perceptions of what others think about it.

Next we turn our attention to willingness to report instances of EFM to authorities. The question asks, "Imagine in your village, a father is going to marry their 13 year-old daughter off. Is that something you would report to the village leader, or would you prefer to keep out of it because it is outside your own family?" It was unclear ex ante whether exposure to *Tamapendo* would encourage reporting; reporting was not explicitly advocated as a constructive intervention, and village leaders were portrayed as unresponsive to this issue. The estimates suggest that audiences did become more inclined to report EFM: the estimated ATE is 5.9 percentage points, which is approximately one-half of a village-level standard deviation. Consistent with the earlier finding that exposure to *Tamapendo* increased the perception that the community opposes EFM, we also find a significant increase in the share of respondents who say that this is "something that people in your community would report to the village leader."

Did the dramatization increase the importance that audiences accord the issue of early forced

Table 6: **Views about Reporting an Underage Marriage to Authorities, 2-3 Weeks After Exposure**

	Attitudes		Norms	
	Would Report EFM		Community Would Report EFM	
	(1)	(2)	(3)	(4)
EFM Treat	0.059	0.056	0.081	0.074
Standard Error	0.028	0.029	0.026	0.025
RI p-value	0.088	0.100	0.030	0.037
Hypothesis	+	+	+	+
Control Mean	0.75	0.75	0.47	0.47
Control Village SD	0.11	0.11	0.10	0.10
DV Range	[0-1]	[0-1]	[0-1]	[0-1]
Blocked FE	Yes	Yes	Yes	Yes
Controls	No	15	No	4
Adj-R^2	0.03	0.06	0.03	0.04
Observations	998	998	974	974

Note: * p < .1, ** p < 0.05, and *** p < 0.01. Standard errors clustered at the village level. Columns 1 and 2 report results of responses to the question: *"Imagine in your village, a father is going to marry their 13 year-old daughter off. Is that something you would report to the village leader, or would you prefer to keep out of it because it is outside your own family?"* Columns 3 and 4 report results of responses to the question: *"Imagine in your village, a father is going to marry their 13 year-old daughter off. Is that something that people in your community would report to the village leader, or would they prefer to keep out of it because it is outside their own family?"*

marriage? One outcome measure invites respondents to rank order the three most important village goals as well as the least important goal from a list that included: reducing the incidence of forced marriage; increasing the availability of HIV medicine; and other common development goals such as investing in roads, increasing the availability of electricity, and reducing crime. Respondents were scored 1 if they ranked EFM 1st or ranked EFM 2nd and ranked HIV 1st and 0 otherwise, and the average score in the control group is 0.13.[11] The other measure presents respondents with candidates in an hypothetical local election that run on different platforms. Each respondent is asked to vote on two paired match-ups, with candidates' ethnicity and gender randomly rotated. The platforms used in this analysis are fighting against child marriage, making HIV/AIDS treatment more available, improving roads, and cracking down on stealing in the village. The early marriage platform garners 56% support in the control group.

Tamapendo did not noticeably affect respondents' political priorities: it elevated the likelihood

[11]This scoring makes the outcome measure neutral across experimental conditions, in case the HIV treatment increased the priority that the placebo group assigned HIV medicine.

Table 7: **Importance of Reducing Forced Marriage as a Political Priority, 2-3 Weeks After Exposure**

	Top Priority		Vote for EFM platform	
	(1)	(2)	(3)	(4)
EFM Treat	0.028	0.0260	-0.063	-0.056
Standard Error	0.025	0.023	0.027	0.025
RI p-value	0.229	0.239	0.938	0.930
Hypothesis	+	+	+	+
Control Mean	0.13	0.13	0.56	0.56
Control Village SD	0.07	0.07	0.15	0.15
DV Range	[0-1]	[0-1]	[0-1]	[0-1]
Blocked FE	Yes	Yes	Yes	Yes
Controls	No	22	No	13
Adj-R^2	0.04	0.07	0.03	0.06
Observations	1,001	1,001	660	660

Note: * p < .1, ** p < 0.05, and *** p < 0.01. Standard errors clustered at the village level. Columns 1 and 2 report results of responses to the question: *"Here is another set of cards, which show different goals for your village. Please choose the three that are currently the most important to you, and the item that is least important. (Options: Reduce the incidence of forced marriage, Reduce the amount of crime, Increase the availability of medicine for HIV/AIDS, Increase the number of roads, Increase the availability of electricity, Increase the availability of water, Reduce the number of people who do not have enough food to eat.)"* Respondents were scored 1 if they ranked EFM 1st or ranked EFM 2nd and ranked HIV 1st, and 0 otherwise. Columns 3 and 4 report results of responses to the question: *"Imagine a village about one day's walk from here is having an election for Village Chairperson. The first candidate [...] promises to [randomly: fight against child marriage / make HIV-AIDS treatment more available / improve roads / crack down on stealing in the village]. The second candidate [...] promises to [...]. Which of these candidates do you think should be selected?"* Responses were coded 1 if the respondent selected the EFM platform, 0 otherwise. Respondents who were randomly assigned an election with EFM and HIV platforms pitted against one another were dropped.

of ranking EFM first as a policy priority only by a couple of percentage points, and it did not change the likelihood of voting for a candidate who runs on such a platform.

We next consider whether *Tamapendo* changed listeners' presuppositions about gender roles. Drawing from questions used in other national surveys, the midline questionnaire asked respondents whether they agreed or disagreed with the statements "If a woman earns more money than her husband, it's almost certain to cause problems" and "It is more important that a boy goes to school than a girl." The additive index of the two items constitutes an outcome variable in Table 8.

This index shows a highly significant effect amounting to about half a village-level standard deviation. In percentage point terms, this effect is much smaller than the corresponding effect on attitudes about forced marriage shown above, but it seems clear that the drama moved listeners in a more egalitarian direction.

Does this uptick in egalitarian views extend to gender-based violence? Because the *Tamapendo* drama briefly depicts physical abuse against Fatuma's mother, we measured whether the episode changed audience's views about the acceptability of such violence. Drawing on widely-used wording from DHS surveys in the region, our first question asks, "In your opinion, does a man have good reason to hit his wife if she disobeys him?" Those who agree are asked, "Should she be slapped or should more force be used than that?" Those who disagree are asked, "What if she persists in disobeying the husband? Does he then have good reason to hit her?" This question is followed by a question about what the community thinks. Using this branched question as an outcome measure, we find no indication that exposure to the *Tamapendo* drama increased opposition to IPV. Table 8 shows the point estimate to be weakly negative; even more negative are the effects on perceived norms. We also asked respondents whether they would help a cousin who discloses that she has been beaten by her husband, a question patterned after a similar question used in Green et al. (2020). Again we find no indication of a positive treatment effect.

5.2 15 months after exposure

Only a small fraction of edutainment-related experiments assess outcomes more than one year after exposure. By our count, 79 randomized control trials have evaluated edutainment interventions since 2014; just five measured outcomes at least one year after the intervention took place. Given that prior work has found that edutainment's effects diminish over time (Semakula et al. 2019), it was unclear ex ante whether our midline effects would persist to the endline survey. In an effort to improve the precision with which any remaining endline effects were estimated, we augmented the questionnaire with branched versions of existing questions or additional questions on the same topics. The idea was to leverage additional measurements to create more reliable dependent variables, which in turn would improve statistical power. As it turns out, this strategy did prove helpful in detecting long-term effects, but the change in instrumentation complicates our assessment of how effects seemed to diminish over time. The discussion that follows, therefore, focuses primarily on whether treatment effects were detectable in the long-term.

Starting with attitudes toward forced marriage, it seems clear that statistically significant

Table 8: **Views about Gender Equality and Intimate Partner Violence, 2-3 Weeks After Exposure**

	Gender Equality		Intimate Partner Violence					
	Index		If disobeys (branched)		Norm		Reporting	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
EFM Treat	0.026	0.037	-0.045	-0.025	-0.048	-0.048	-0.025	-0.020
Standard Error	0.009	0.009	0.047	0.053	0.019	0.019	0.014	0.013
RI p-value	0.032	0.009	0.753	0.630	0.951	0.951	0.895	0.871
Hypothesis	+	+	+	+	+	+	+	+
Control Mean	0.69	0.69	2.38	2.38	0.71	0.71	0.46	0.46
Control Village SD	0.05	0.05	0.60	0.60	0.07	0.07	0.06	0.06
DV Range	[0-1]	[0-1]	[0-3]	[0-3]	[0-1]	[0-1]	[0-1]	[0-1]
Blocked FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	24	No	30	No	0	No	11
Adj-R^2	0.01	0.22	0.11	0.20	-0.00	-0.00	0.01	0.06
Observations	999	999	908	908	991	991	992	992

Note: * p < .1, ** p < 0.05, and *** p < 0.01. Standard errors clustered at the village level. Columns 1 and 2 report results of an index composed of responses to two questions related to gender equality: *"If a woman earns more money than her husband, it's almost certain to cause problems"* and *"It is more important that a boy goes to school than a girl."* Columns 3 and 4 report results of responses to the question: *"In your opinion, does a man have good reason to hit his wife if she disobeys him?"* If the respondent agreed with the statement, they were then asked: *"Should she be slapped or should more force be used than that?"* If the respondent disagreed with the statement, the respondent was asked *"What if she persists in disobeying the husband? Does he then have good reason to hit her?"* Responses were coded from 3 (man should not hit his wife even if she persistently disobeys him) to 0 (a man should hit his wife if she disobeys him, harder than a slap). Columns 5 and 6 report results from responses to the question: *"In some of the villages we have visited, people think that a man has good reason to hit his wife if she disobeys him, while people in other communities do not think this is a good reason to hit one's wife. In your community, do most people think a man has a good reason to hit his wife if she disobeys him?"* Columns 7 and 8 report results from responses to the question: *"Suppose you visit your cousin and she tells you that her husband beat her severely and asks you for help. Suppose there are only two actions that you can take. Please tell us which one you would prefer to take: report the incident to [randomly: Police, Village Chairperson, Parents] or advise the women to take care of the issue herself."*

effects persist through the endline. Respondents were again asked whether they agreed or disagreed with the statement, "A girl should not have a say in whom she marries; it is best if her father selects a suitable husband for her." Table 9 reports that the estimated average treatment effect, after covariate adjustment, declined from 9.7 percentage points at midline to 2.6 at endline. Fortunately, the endline questionnaire went on to ask respondents about the strength of their opinions, and the resulting outcome measure ranges from 0 (strongly agree) to 3 (strongly disagree). The estimated effect on this branched scale is 11.7 points on a 0-3 scale ($p < .05$), which is about one-half of a village-level standard deviation. When measured precisely, attitudes about forced marriage show signs of persistent treatment effects.

One innovation in the endline survey was to interview married respondents' partners in order to assess whether others in the household detected a shift in the respondents' attitudes about forced marriage. Partners, who were interviewed separately by enumerators of the same sex, were asked whether they thought their spouse agreed or disagreed with the forced marriage statement above. Suppose we were to take the respondents' binary response and the partners' binary response as two complementary readings of the respondents' underlying attitude about forced marriage. If the outcome measure were the average of the two readings (an approach we neglected to think of in advance of drafting our pre-analysis plan), the estimated ATE would have a LASSO-adjusted RI p-value of 0.04.

By contrast, attitudes about *early* marriage, which were less strongly affected by the treatment at midline, show weak and inconsistent effects at endline. Early marriage was measured at endline by a somewhat different set of questions. The first outcome measure is the response to "Imagine that a girl in your village was offered a very good marriage, but she was less than 18 years old. Do you think it would be acceptable for the girl to be married?" The second is a set of questions that give the respondent a set of possible scenarios: "Now, I am going to provide some situations in which families in Tanzania sometimes allow their daughters to marry before they are 18. Please tell me if the situation makes marriage before 18 always acceptable, rarely acceptable, or never acceptable."

Table 9: **Attitudes toward Early Forced Marriage, 15 Months After Exposure**

	Reject Forced Marriage						Reject Early Forced Marriage					
	Binary		Branched		Partner		General		Money		Pregnancy	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
EFM Treat	0.023	0.026	0.117	0.120	0.038	0.039	0.015	0.015	0.050	0.044	-0.003	-0.001
Standard Error	0.017	0.014	0.046	0.035	0.024	0.022	0.017	0.016	0.018	0.017	0.021	0.020
RI p-value	0.220	0.098	0.045	0.018	0.158	0.112	0.278	0.255	0.040	0.051	0.547	0.522
Hypothesis	+	+	+	+	+	+	+	+	+	+	+	+
Control Mean	0.90	0.90	2.57	2.57	0.87	0.87	0.91	0.91	0.79	0.79	0.73	0.73
Control Village SD	0.10	0.10	0.27	0.27	0.14	0.14	0.06	0.06	0.08	0.08	0.12	0.12
DV Range	[0-1]	[0-1]	[0-3]	[0-3]	[0-1]	[0-1]	[0-1]	[0-1]	[0-1]	[0-1]	[0-1]	[0-1]
Blocked FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	19	No	17	No	15	No	9	No	9	No	16
Adj-R^2	0.04	0.12	0.04	0.12	0.05	0.10	0.01	0.03	0.02	0.03	0.04	0.07
Observations	1,003	1,003	1,003	1,003	703	703	1,003	1,003	1,003	1,003	1,003	1,003

Note: * p < .1, ** p < 0.05, and *** p < 0.01. Columns 1 and 2 report results from responses to the question: *"A girl should not have a say in whom she marries; it is best if her father selects a suitable husband for her."* Columns 3 and 4 report results from responses the follow up question, which was "*Do you agree or strongly agree?*" if they agreed and "*Do you disagree or strongly disagree?*" if they disagreed. Columns 5 and 6 report results from the sample of partners of the original respondents, who are asked the same question: *"A girl should not have a say in whom she marries; it is best if her father selects a suitable husband for her."* followed by *"What do you think your partner thinks about this issue?*, which these columns report responses from. Columns 7 and 8 reports results from responses to: *"Imagine that a girl in your village was offered a very good marriage, but she was less than 18 years old. Do you think it would be acceptable for the girl to be married?"*. Columns 9 to 12 refer to the different hypothetical scenarios presented to the respondent *"Now, I am going to provide some situations in which families in Tanzania sometimes allow their daughters to marry before they are 18. Please tell me if the situation makes marriage before 18 always acceptable, rarely acceptable, or never acceptable. In your opinion, could the girl's marriage be acceptable if…"*, where Columns 9 and 10 pertain to *"If the family is facing economic hardship and the marriage will help the family with money issues"* and Columns 11 and 12 pertain to *"If the daughter family fears the daughter is at risk of getting pregnant."*

The endline survey is informative theoretically for what it reveals about perceived norms. Table A4 shows that treatment effects on community norms observed at midline entirely dissipated for both forced marriage and early marriage by endline.[12] Table A5 reinforces this conclusion, showing that by endline the treatment no longer shaped perceptions about whether the community favors reporting underage marriages.

6 Conclusion

Mass media campaigns have increasingly leveraged edutainment strategies to bring about social change, yet questions remain as to their impact. Are such interventions actually able to

[12]The only hint that norms changed at all comes from respondents' reports about what their partners think about forced marriage: here we see some indication that partners are perceived to be more opposed to forced marriage in treated households, but the estimates fall short of conventional statistical significance.

shift potentially deep-seated cultural attitudes, norms, and behaviors, or do audiences resist or shrug off these messages? Do effects persist over the long run or quickly diminish over time? And are effects narrowly limited to the primary subject of the drama, or can they be more far-ranging in nature? Our results shed light on each of these questions.

First, we find that an EFM-related radio drama had substantial and significant effects on core attitudes related to EFM. In the weeks following the intervention, listeners became more likely to reject early and forced marriage across a range of contexts, in line with the primary message of the drama. Listeners also became more likely to perceive others in the community as opposed to EFM and to say they would report EFM to village authorities, though these results are only marginally significant. Listeners did become unambiguously more likely to see others in the community as willing to report EFM. However, listeners did not appear to give substantially greater weight to EFM as a political priority.

Second, we find that the radio drama's effects on EFM-related attitudes persisted 15 months later, though effect sizes appear to diminish between midline and endline. That a single two-hour drama would lead to detectable attitude changes more than a year later is rather striking, indicating that the drama's core message stays with some listeners over the long run. Still, consistent with diminishing persuasive effects, the impact on villagers' EFM-related norms and willingness to report EFM – already rather weak at midline – dwindles to zero over this period.[13]

Third, we find suggestive evidence that the effects of the drama extend beyond the domain of EFM. While the drama primarily seeks to change attitudes and behaviors concerning EFM, it does so by depicting a sympathetic female protagonist who hopes to remain in school with the goal of attending university and pursuing a professional career. The drama does appear to shift more general attitudes related to gender equality, including the participation of women in schools and economic life. Although this radiating pattern of opinion change is clearer in the midline than the endline, it is remarkable that it occurs at all, given that the screening was not accompanied

[13]The empirical finding that attitude changes persist over the long run while norms changes dissipate over time may be of interest to scholars exploring the potential link between perceived social norms and beliefs (Bicchieri and Mercier 2014).

by a follow-up discussion or a clear take-home message for audiences delivered by a narrator.[14]

Taken together, the results show that locally tailored edutainment interventions can indeed meaningfully shift social attitudes, while challenging the notion that treatment effects are necessarily short-lived or narrow in scope.

That said, we are quick to acknowledge two limitations of the current study. First, unlike other placebo-controlled studies of entertainment-education in East Africa (Green et al. 2020), ours deployed the treatment in a relatively obtrusive manner, inviting baseline survey respondents to a local audio screening. This design may allow respondents to draw the connection between the content of the audio screening and the survey questions that measure outcomes. Therefore, although the weak treatment effects we obtained for several outcome measures suggest that respondents in the treatment group did not go out of their way to express egalitarian views, we cannot rule out "demand effects" entirely. Second, the study focuses on a single audio screening of a condensed narrative. Unlike Paluck (2009), which convened Rwandan listeners monthly over the course of one year, we were unable to present listeners with the broad range of issues that were raised in the 20-episode, 10-hour series of *Tamapendo*. Our abbreviated intervention may therefore understate the breadth of attitude change that the actual *Tamapendo* series brought about.

These design limitations highlight some potential avenues for more research. How do the effects of audio screenings compare to more naturalistic distribution of the same drama – for example, airing the drama during regularly scheduled programming? Relatedly, how might continual exposure to the full-length drama over a longer period of time compare to a single-shot intervention? These questions raise the possibility of both *over*estimation in the former case and of *under*estimation in the latter case. Finally, future research should investigate the extent to which persuasive effects travel across the audience's social network, especially in contexts such as Africa, where communal consumption of media is common.

[14]The one possible instance of radiating opinion change in the endline concerns EFM as a policy priority. As shown in the appendix, estimated effects are significant.

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Appendix

A Intervention Summary

Tamapendo was an episodic radio drama produced by the non-governmental organization UZIKWASA focusing on a range of issues related to women's empowerment. Together with representatives from UZIKWASA and Innovations for Poverty Action, we produced a 1 hour and 50 minute abridged version of Tamapendo focusing on the storyline related to early and forced marriage. The plot follows the plot of Fatuma, a young girl whose father arranged a marriage between her and an older man from outside of town. Over the course of the story, Fatuma moves from passive acceptance of the arrangement to active defance and ultimately rejects the marriage with the support of some community members in the fial, climactic scence. We summarize the plot of Tamapendo in more detail below.

Scene 1: Fatuma and her friend Sijali travel to get water. Fatuma reveals that she is unhappy at home becuase her father abuses her mother and expresses a desire to go to school outside of town when she graduates from primary school.

Scene 2: Sijali returns home and tells her mother that she would also like to go to school. Her mother scoffs and replies that she is needed around the home.

Scene 3: Tests scores are posted, and Fatuma receives a division one score and is selected to Standard 5. Sijali is not selected.

Scene 4: Sijali's mother yells at Sijali for her low score and indicates she will refuse to support her further schooling.

Scene 5: Fatuma's father gets angry at Fatuma's mother for setting aside money to support Fatuma's schooling. He reveals that he is not interested in further support for Fatuma's education. He physically threatens Fatuma's mother.

Scene 6: Fatuma talks her with her friend Chabala. She reveals that her father is not allowing her to go to school.

Scene 7: Community members observe Fatuma and Chabala's close relationship, and Sijali's

mother verbally attacks Fatuma for her success in school.

Scene 8: Fatuma's brother, Kidau, talks about his job owning a motorcycle, while Fatuma's mother compares Chabala's work ethic favorably to Kidau.

Scene 9: Chabala asks Fatuma if she is in a relationship. She says she does not want to be in a relationship after observing her father and mother's abusive relationship. Chabala expresses his romantic interest.

Scene 10: Chabala's father warns him that Fatuma's father would be angry to see Chabala pursuing Fatuma. He also argues that early relationships can prevent women from pursuing education, to which Chabala agrees.

Scene 11: Sijali informs Fatuma that an older rich man, Farouk, is interested in marrying her.

Scene 12: Fatuma's father abuses her mother and throws Fatuma and her money out of the house in front of the rest of the community.

Scene 13: A council of elders advises Fatuma's mother and father to avoid divorce so that they do not need to split up their assets. They do not take significant measures to avoid the threat of future abuse.

Scene 14: Ali threatens Chabala for spending time with Fatuma. In conversation with Fatuma, Chabala expresses positive views about gender equality in relationships.

Scene 15: Farouk tells Fatuma's father of his desire to marry Fatuma. Farouk offers him money to secure approval. Fatuma observes her father having the conversation and pocketing the money.

Scene 16: Fatuma thinks that her father is just borrowing money, but Chabala tells her it is probably for marriage and recommends that she speak to her uncle about what to do, because her uncle supports Fatuma's education.

Scene 17: Sijali and Sijali's mother discuss the prospective marriage, including that Farouk is bad husband with his two wives in a nearby area.

Scene 18: Chabala discusses his support for Fatuma continuing her education.

Scene 19: Fatuma tells her mother her concerns about getting married. Her mother alternates

between denial that it will happen and expressions of powerlessness. Fatuma tells her mother to reach out to her uncle, but her mother says that Fatuma's uncle and father do not get along.

Scene 20: Fatuma and Chabala discuss the marriage process. Fatuma reminds Chabala that they are taught in Madrasa that a marriage should not occur without a woman's consent and that a woman has a right to reject marriage proposals. Fatuma reminds Chabala that early marriage will threaten her well-being and educational prospects, and asks for Chabala's help to avoid the marriage to Farouk.

Scene 21: Fatuma tells her teacher about her situation and asks for help.

Scene 22: Fatuma's mother reveals that she also did not want to be married but was forced to marry Fatuma's father after he raped her, and no laws were enforced to protect her. She also revealed that she is depressed about her current relationship to Fatuma's father and does not want the same for Fatuma, but feels powerless to stop the inevitable.

Scene 23: Farouk expresses concern to Fatuma's father that Fatuma will reject the marriage on the marriage day and the sheik will refuse to affirm the marriage. Fatuma's father says he will control the situation.

Scene 24: Chabala and Chabala's mother console Fatuma.

Scene 25: Farouk's representatives come to Fatuma's father to offer the formal marriage proposal. They remind Fatuma's father that Fatuma must accept the marriage for it to be culturally legitimate. Fatuma's father assures them that it will be accepted by Fatuma.

Scene 26: Chabala tells Fatuma that he is leaving town to pursue his music career, even though he has feelings for her.

Scene 27: Chabala speaks with other boys, and they reveals that Fatuma's friend Sijali and others have been sending her messages threatening her if she continues talking to Chabala.

Scene 28: Sijali tells Fatuma not to spend time with Chabala.

Scene 29: Fatuma's teacher speaks to the village council about the marriage proposal and threats against Fatuma, and tells them that these issues will continue unless village authorities take action against that kind of behavior. The village authorities agree that it is a problem, but

remind the teacher that they have difficulty taking action unless members of the community are willing to report and take action against early and forced marriages when they happen in the community.

Scene 30: Villagers discuss the importance of ending the practice of threats and abuse.

Scene 31: Chabala's mother visits Fatuma's mother and encourages her to stand up on Fatuma's behalf.

Scene 32: Fatuma's mother stands up to Fatuma's father, tells him she will not accept abuse and has given Fatuma permission to go to Fatuma's grandmother.

Scene 33: Sijali tells her mother that she wishes she could have followed Fatuma's footsteps.

Scene 34: Chabala tells Fatuma he is leaving, but encourages her to stand up for herself. Fatuma expresses her feelings for Chabala and desire to avoid the arranged marriage.

Scene 35: A friend informs Fatuma that Sijali has been spreading rumors about her and Chabala.

Scene 36: Fatuma confronts her friend Sijali, and Sijali apologizes for spreading rumors and promises to be a more supportive friend.

Scene 37: Fatuma's father tells Fatuma's mother that the marriage is arranged. Fatuma's mother reminds her father that the head religious leader will not approve a marriage without the uncle, grandmother, and/or Fatuma's consent. Fatuma's father expresses his desire to end an alternative religious leader who will overlook these objections.

Scene 38: Chabala calls back to the village to Fatuma's brother. Chabala reminds Fatuma's brother that Fatuma should not be married without her consent, but Fatuma's brother indicates that there is an alternative religious leader who does not care about traditions or laws.

Scene 39: Fatuma hears Chabala on the radio playing his music and hears him express his desire to support young women who want to continue their education rather than being forced into marriage.

Scene 40: Fatuma's father negotiates the marriage with religious authorities. One religious authority rejects the marriage without full consent of family and the bride. The other younger

religious authority agrees to move forward with the marriage.

Scene 41: Farouk bribes the junior religious authority to conduct the marriage in private and without the senior religious authority present so that it will not require familial and bridal consent. Chabala's friend overhears the bribe discussion and calls Chabala.

Scene 42: A teacher informs Fatuma how she is supposed to submit to her husband on her wedding day and stay silent rather than defying the marriage. Fatuma appeals to her mother, but her mother says that without her uncle's support, she is powerless to do anything on Fatuma's behalf.

Scene 43: Chabala returns to the village. He speaks to his friends about the situation, and they congratulate him on his success in town. Chabala asks about forced marriage, and the friends discuss the negative impacts of early and forced marriages and the importance that community members stand up for religious and legal restrictions against early marriage. Chabala says that he wants to stand up on Fatuma's behalf. Fatuma's father confronts him.

Scene 44: Sijali tells her mother that she feels sorry for Fatuma and does not belief a woman should have to marry someone without her consent.

Scene 45: Chabala gives Sijali a letter to deliver in secret to Fatuma as Fatuma is prepared for marriage.

Scene 46: Fatuma's father confronts Chabala and his father. Chabala says that he believes that women should not have be married if they have an opportunity to continue their education. Fatuma's father warns Chabala not to interfere in Fatuma's marriage.

Scene 47: Sijali delivers Chabala's letter to Fatuma, pretending it is a letter from Fatuma's father.

Scene 48: Farouk and Fatuma's father congratulate one another on the arranged marriage, and Farouk reveals that he will purchase Fatuma's father a fishing vessel.

Scene 49: Chabala's friend tells Chabala that his efforts have failed - there is nothing he can do to prevent the marriage.

Scene 50: Chabala arrives at the wedding. At the moment of consent, Fatuma, having read

Chabala's letter promising to support her education, refuses the marriage. Villagers in the crowd come together to reject Fatuma's father from trying to force the marriage anyway.

B Early Forced Marriage Background

In the summer of 2018, the researchers and UZIKWASA held three focus group discussions of between 5-10 villagers to investigate the dynamics of early and forced marriage in and around Pangani District, where *Tamapendo* is set. The following discussion combines insights from those focus group discussions with input from UZIKWASA's program officers, who have conducted community outreach to villages in Pangani since the 2010. Where the findings reflect other research on early and forced marriage in Tanzania and East Africa, we include relevant citations.

B.1 Motivations Early and Forced Marriage

Parents have both financial and cultural motivations for encouraging or forcing early marriage in Pangani. One financial motivation for many parents is securing their daughter's long-term financial security. Many parents say that they would encourage their daughter to marry a successful man even if the daughter was younger than 18 because the marriage would offer their daughter the most plausible path to upward mobility in Pangani (Archambault 2011; MoHCDEC 2017).

A second financial motivation is social insurance. It is culturally acceptable for parents who are struggling financially to request food and financial support from their daughter and her husband or move in to their daughter's household. UZIKWASA's program officers said that in their experience, social insurance was a more important financial motivation for encouraging early marriage than bride price. Similarly, parents may encourage early marriage to escape financial debts. For example, respondents in one village discussed a mother who borrowed from a village savings group and pressured her daughters into early marriage to secure help responding to her mounting debt burdens.

A final financial motivation for parents to encourage or force their daughter to marry is to avoid the costs of supporting the daughter at home. Respondents emphasized that these motiva-

tions were especially common when the girl was born out of wedlock, was sent to the village by a family member working in town to be cared for by extended family, or if the father had several wives and was struggling to support them.

In addition to financial motivations, some girls in Tanga reported seeking out early marriage to gain community status and respect (Schaffnit et al. 2019). This is especially true for girls who are no longer in school, either because they finished primary school and were not accepted into secondary school or because they dropped out of school. To many individuals in Tanga, "adulthood" is defined more by marriage status than any specific age (Stark 2018). The status conferred by marrying allows girls to participate in civic and economic activities that might otherwise be closed to them (MoHCDEC 2017). Many girls report feeling peer pressure to marry and enter adult life (MoHCDEC 2017). Parents, too, may be motivated by status concerns to encourage or force early marriage. A particularly common example is parents who try to force marriage when they are concerned that their daughter is engaging in pre-marital sex. "Marriage on the mat" (ndoa ya mkeka), refers to the practice of parents recruiting a witness and local imam (shehe) to catch their daughter and partner sleeping together and perform a marriage ceremony on the spot (Stark 2018).

B.2 Consent in Early Marriage

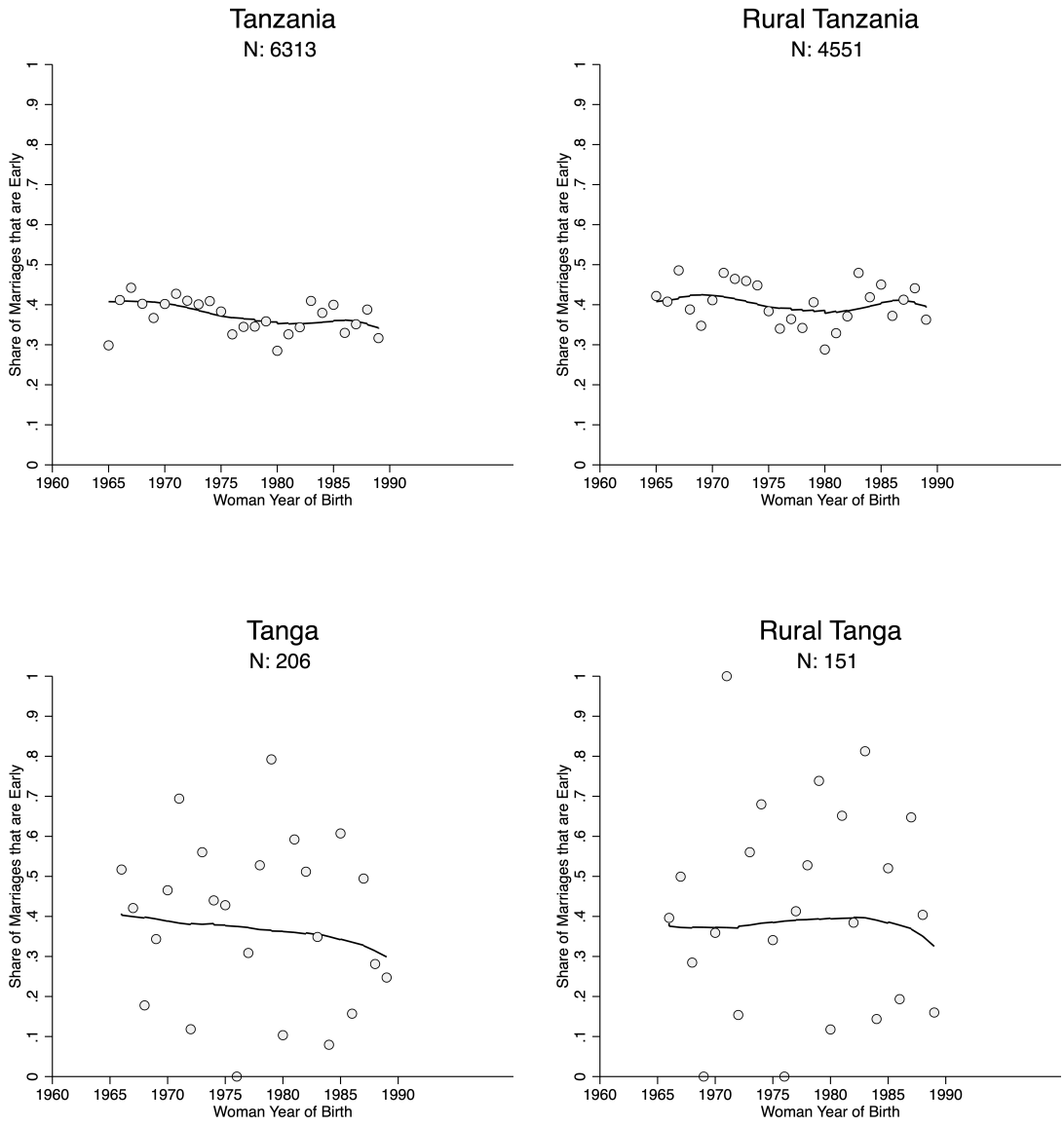
The discussion in the previous section forshadowed that determining consent in early marriage is more difficult than is often assumed in traditional human rights advocacy discourse (Mahmood 2004; Bunting et al. 2016; Schaffnit et al. 2019). Respondents reported that girls who marry when they are younger than 18 may still exercise substantial autonomy in deciding when and whom to marry, a finding that reflects anthropological research elsewhere in Tanzania (Stark 2018).

However, most parents still exercise significant influence on their children's marriage preferences. In many community discussions, respondents indicated that girls "consented" to early marriage because their parents pressured or encouraged them to do so. Human rights advocacy organizations argue that consent is not meaningful for girls under the age of 18 (Hodgkinson

2016). Estimates of the degree of autonomy exercised by women in deciding their partner vary widely between studies, reflecting definitional and measurement challenges (Schaffnit et al. 2019). In a Tanzanian Department of Health survey in Coastal Region (which neighbors Tanga), 21% of women who were married before the age of 18 reported exercising discretion in the decision to marry (MoHCDEC 2017).

B.3 Available data on Early Marriage

Figure 2: Early Marriage in Tanzania

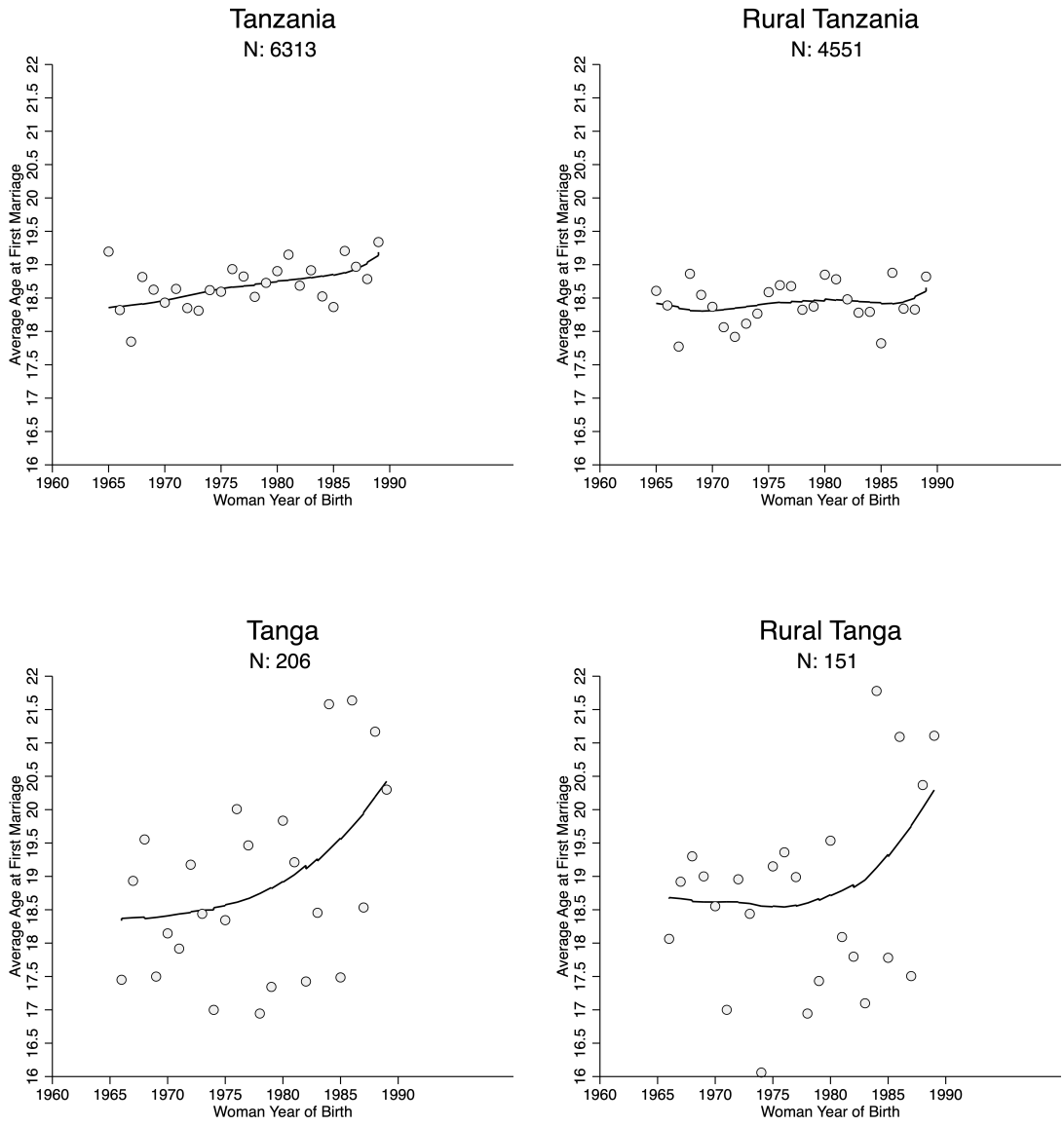


Note: Each dot represents the weighted average of early marriages across each year of birth of all women first married by the time they were 25.

A woman is considered "married if she reports her age at first cohabitation, and such marriage is considered "early" if the reported age of first cohabitation is below 18. The sample considered is of all women born before 1990 and who first married by the time they were 25. The sample is restricted in such a way in order to deal with the missing data problem on overall rates of marriages driven by marriages performed after 25 in younger cohorts.

Data source is the DHS Individual Surveys 2015/2016 wave, which imply the sample considered is any cohort available before 1990. Weights represent the inverse probability of being sampled in the DHS.

Figure 3: Average Age of First Marriage in Tanzania



Note: Each dot represents the weighted average age at first marriage across each year of birth of all women first married by the time they were 25. Data source is the DHS Individual Surveys 2015/2016 wave, which imply the sample considered is any cohort available before 1990. Weights represent the inverse probability of being sampled in the DHS. The sample considered is of all women born before 1990 and who first married by the time they were 25. The sample is restricted in such a way in order to deal with the missing data problem on overall rates of marriages driven by marriages performed after 25 in younger cohorts.

C Ethics

Research on early and forced marriage and intimate partner violence presents a number of important ethnical considerations. Here, we discuss steps the research team took to ensure the autonomy and well-being of study participants and surveyors.

First, we sought to ensure that the community screening intervention did not do psychological harm to individuals who had been subject to forced marriage or intimate partner violence. UZIKWASA, the non-governmental organization that produced the *Tamapendo* program, developed the content through over a year of discussions and pilot testing with Tangan communities to ensure that the content did not produce adverse impacts. The research team also piloted the abridged version of *Tamapendo* used in the intervention in two communities, and found that the program was well received across age and gender lines. Finally, the field team collected and shared daily qualitative reports about community discussions and feedback following the screenings with the rest of the research team as a precaution against adverse events. We received no negative reports about the reception of *Tamapendo* during the intervention.

Second, we designed the data collection process to ensure that neither the baseline nor endline surveys undermined the safety of research participants. The survey asked about general attitudes towards intimate partner violence and forced marriage in general rather than the about the respondents' direct experience with EFM or IPV. Second, we worked closely with UZIKWASA and Tanzanian researchers to ensure that the wording of questions, in particular vignettes depicting early and forced marriage scenarios, reflected realistic situations without provoking adverse emotional effects.

Third, we took several measures to ensure the safety of research staff. There is a historical legacy of strong resistance to outsider interventions and research in rural Tanga, including accusations of witchcraft and religious interference. To mitigate these risks, a two-person survey scoping team visited every village before baseline data collection to discuss the survey and intervention with political and religious leaders in each village. In two villages, when the baseline survey team flagged the potential for community resistance, we delayed the implementation of

treatment and endline data collection until community acceptance and survey team safety could be assured.

C.1 COVID-19

This project was implemented and data were collected in the midst of the COVID-19 pandemic. The research team took special precautions to protect subjects and staff. We obtained approval from [redacted] University and Innovations for Poverty Action COVID-19 review board to carry out the data collection, and designed transportation and data collection procedures with COVID-19 risks in mind. During endline data collection, special precautions were taken by enumerators, staff, and drivers to prevent the spread of COVID-19. Data collection teams lived and ate in isolated quarters and took daily temperature readings. Interviewers wore masks during interviews, which were conducted outside at appropriate distances. Respondents were offered masks but not required to use them. Before moving between Districts, the survey team spoke with District officials and health care workers to find out whether COVID-19 cases had been identified in the area; on one occasion, data collection was paused and the data collection schedule was re-organized to respond to concerns of a potential COVID outbreak. Thankfully, no cases of COVID-19 were reported among survey staff or in participating villages during the data collection period.

D Project Timeline

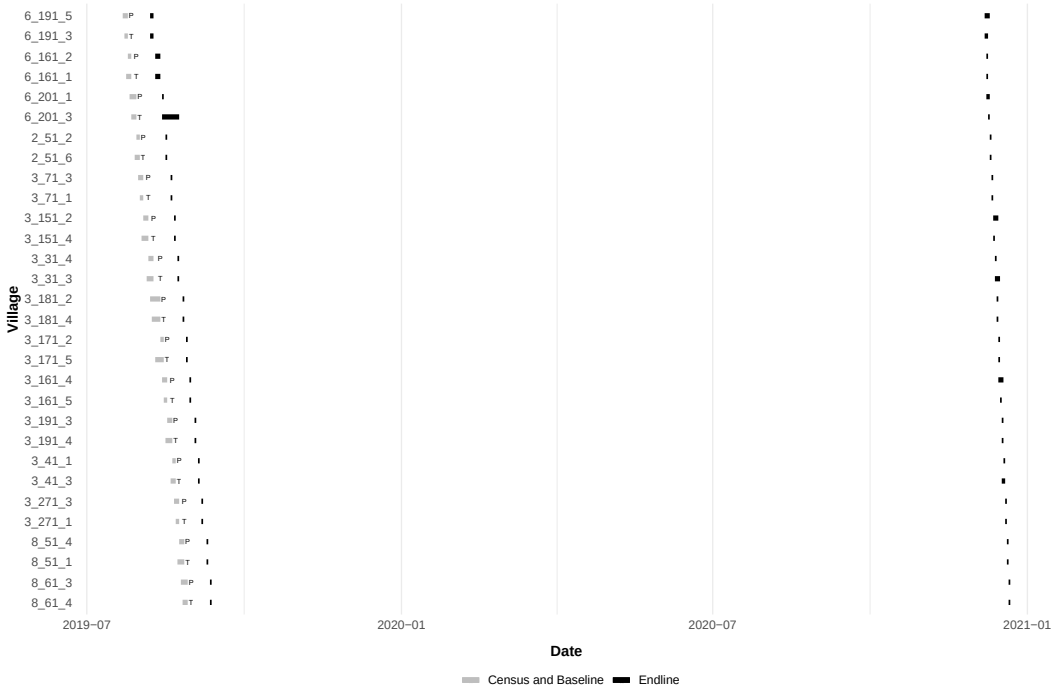


Figure 4: Timeline of baseline, intervention, midline and endline, for each village

E Supplementary Tables

E.1

Table A1: **Afrobarometer Comparisons**

Variable	Sample		Afrobarometer - Rural		Afrobarometer - TZ Rural	
	Mean	N	Mean	N	Mean	N
Demographics						
Education: Completed Primary School	0.76	1,033	0.78	20,364	0.86	834
Village connected to electrical grid	0.29	500	0.92	20,467	0.94	840
Media						
Personally owns radio	0.66	1,035	0.61	20,414	0.71	840
Television in household	0.16	1,035	0.60	20,374	0.54	838
Mobile phone with internet access	0.23	1,035	0.61	17,917	0.41	769
Attitudes						
Women have equal right to jobs	0.79	500	0.61	20,309	0.63	837
Never justified for men to beat wives	0.77	499	0.75	20,322	0.94	839
Women are as good as men as political leaders	0.87	1,035	0.76	20,293	0.77	835
National ID at least as strong as Tribal ID	0.95	501	0.88	17,370	0.97	784

Note: Sample refers to the overall sample used in the analysis of this paper. When the same question was asked both at baseline and at midline/endline, the table reports the baseline mean; when the question was only asked at midline/endline, the table reports the midline/endline mean for controls. The Afrobarometer surveys used are between 2016 and 2018.

E.2 Attendance and Attrition

Table A2: **Attrition and Compliance**

	Attended Any Screening		Midline Attrition		Endline Attrition	
	(1)	(2)	(3)	(4)	(5)	(6)
EFM Treat	-0.025	-0.020	0.001	-0.002	0.004	-0.001
Standard Error	0.023	0.021	0.006	0.005	0.010	0.008
RI p-value	0.453	0.5361	0.949	0.717	0.765	0.924
Hypothesis	Two-sided	Two-sided	Two-sided	Two-sided	Two-sided	Two-sided
Control Mean	0.84	0.84	0.04	0.04	0.03	0.03
Control SD	0.07	0.07	0.02	0.02	0.03	0.03
DV Range	[0-1]	[0-1]	[0-1]	[0-1]	[0-1]	[0-1]
Blocked FE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	17	No	5	No	11
Adj-R^2	0.04	0.07	-0.01	0.01	0.00	0.03
Observations	1,205	1,205	1,205	1,205	1,205	1,205

Standard errors clustered at the village level.

E.3 Covariate Balance

Table A3: **Balance**

Variable	Treatment	Comparison	RI $p-value$	Observations
Assets - cell phone	0.851	0.800	0.170	1,205
Gender equality - earning	0.406	0.446	0.182	1,205
Assets - TV	0.147	0.188	0.197	1,205
Years Lived in Village	23.419	25.033	0.206	1,205
Listen PFM	0.147	0.105	0.260	1,205
Gender Equality - index	0.709	0.729	0.275	1,205
Kids in HH	2.525	2.675	0.330	1,205
Persons in HH	4.800	4.999	0.342	1,205
Perceive HIV Exclusion	0.831	0.777	0.370	1,205
Gender equality - leadership	0.845	0.872	0.379	1,205
Age	37.485	38.309	0.396	1,205
Assets: Rooms	3.200	3.281	0.397	1,205
Never listen to news or current events?	0.272	0.285	0.433	1,205
HIV Transmissible	0.432	0.459	0.446	1,205
Never visits city?	0.161	0.176	0.467	1,205
Values - trust elders	0.804	0.775	0.480	1,205
Gender equality - kid pref	0.687	0.722	0.483	1,205
Gender equality - childcare	0.899	0.874	0.523	1,205
Listen VOA	0.230	0.216	0.526	1,205
Any TV Yesterday?	0.232	0.250	0.540	1,205
Assets: Cell Internet	0.217	0.244	0.540	1,205
Muslim	0.640	0.678	0.547	1,205
Female	0.504	0.504	0.557	1,205
Ever listen to radio with community?	0.366	0.348	0.548	1,205
Values - technology good	0.954	0.962	0.573	1,205
Multiple huts in compound?	0.113	0.126	0.592	1,205
Head of Household?	0.583	0.567	0.603	1,205
Values - respect authority	0.315	0.333	0.612	1,205
Listen to news or current events every day?	0.267	0.293	0.622	1,205
Finished Standard 7	0.722	0.747	0.631	1,205
Living Conditions	0.373	0.314	0.649	1,205
Listened to radio yesterday	0.644	0.664	0.700	1,205
Church/Mosque attendance per week	5.039	4.668	0.701	1,205
Assets: Radio	0.435	0.464	0.723	1,205
Values - support change	0.679	0.689	0.745	1,205
Listen TBC	0.285	0.303	0.761	1,205
Listen Clouds	0.175	0.188	0.791	1,205
Lived Same Village at 16	0.560	0.572	0.809	1,205
Reject forced marriage	0.853	0.844	0.856	1,205
Can read and write	0.820	0.827	0.862	1,205
Assets: Mud Walls	0.745	0.752	0.864	1,205
Ever call or text radio programs?	0.495	0.491	0.907	1,205
Married	0.662	0.666	0.988	1,205

Standard errors clustered at the village level. Variables are ordered by increasing RI p-value.

E.4 15 month Endline Results

Table A4: **Perceived Community Norms about Early Forced Marriage, 15 Months After Exposure**

	Reject Forced Marriage				Reject Early Forced Marriage	
	Community Rejects		Partner Rejects		Community Rejects	
	(1)	(2)	(3)	(4)	(5)	(6)
EFM Treat	0.000	0.000	0.037	0.036	-0.005	-0.005
Standard Error	0.014	0.014	0.021	0.016	0.026	0.025
RI *p*-value	0.502	0.502	0.142	0.062	0.571	0.566
Hypothesis	+	+	+	+	+	+
Control Mean	0.91	0.91	0.90	0.90	0.74	0.74
Control Village SD	0.09	0.09	0.10	0.10	0.13	0.13
DV Range	[0-1]	[0-1]	[0-1]	[0-1]	[0-1]	[0-1]
Blocked FE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	2	No	8	No	17
Adj-R^2	0.03	0.03	0.04	0.10	0.05	0.05
Observations	803	803	758	758	968	968

Note: * p < .1, ** p < 0.05, and *** p < 0.01. Standard errors clustered at the village level. Columns 1 and 2 report results of responses to the question: "*What do you think that most others in your community think about this issue?*" after the forced marriage question reported in Table 9. Columns 3 and 4 report results of responses to the question: *"What do you think your partner thinks about this issue?"*, referring to the forced marriage question reported in Table 9. Columns 5 and 6 report responses to the question: *"What do you think that most others in your community think about this issue?"* following the general early marriage question reported in Table 9.

Table A5: **Views about Reporting an Underage Marriage to Authorities, 15 Months After Exposure**

	Attitudes		Norms	
	Would Report EFM		Community Would Report EFM	
	(1)	(2)	(3)	(4)
EFM Treat	-0.004	-0.005	-0.003	-0.007
Standard Error	0.024	0.024	0.030	0.028
RI *p*-value	0.551	0.562	0.533	0.586
Hypothesis	+	+	+	+
Control Mean	0.70	0.70	0.47	0.47
Control Village SD	0.14	0.14	0.12	0.12
DV Range	[0-1]	[0-1]	[0-1]	[0-1]
Blocked FE	Yes	Yes	Yes	Yes
Controls	No	12	No	8
Adj-R^2	0.04	0.09	0.02	0.06
Observations	970	970	944	944

Note: * p < .1, ** p < 0.05, and *** p < 0.01. Standard errors clustered at the village level. Columns 1 and 2 report results of responses to the question: *"Imagine in your village, a father is going to marry their 16 year-old daughter off. Is that something you would report to the village leader, or would you prefer to keep out of it because it is outside your own family?"* Columns 3 and 4 report results from responses to the question: "*What do you think others in your community think about this issue?*" following the previous reporting question.

Table A6: **Importance of Reducing Forced Marriage as a Political Priority, 15 Months After Exposure**

	Top Priority		Vote for EFM platform	
	(1)	(2)	(3)	(4)
EFM Treat	0.033	0.033	0.014	0.017
Standard Error	0.012	0.012	0.023	0.020
RI p-value	0.047	0.047	0.340	0.282
Hypothesis	+	+	+	+
Control Mean	0.06	0.06	0.56	0.56
Control Village SD	0.04	0.04	0.10	0.10
DV Range	[0-1]	[0-1]	[0-1]	[0-1]
Blocked FE	Yes	Yes	Yes	Yes
Controls	No	0	No	11
Adj-R^2	0.02	0.02	0.00	0.04
Observations	1,003	1,003	1,003	1,003

Note: * p < .1, ** p < 0.05, and *** p < 0.01. Standard errors clustered at the village level. Columns 1 and 2 report results of responses to the question: *"Here is another set of cards, which show different goals for your village. Please put them in order, from most important to you to least important to you. (Options: Reducing early forced marriage, Reducing crime in the village, Availability of health services like increasing access to HIV/AIDS medication, Improvement of infrastructure and roads, Availabilitiy of electricity, Sanitation/waste management, Education / schools, Increasing agriculture and fishing equipment, Justice and resolving of problems e.g. land problems.)"* Respondents were scored 1 if they ranked EFM 1st or EFM 2nd and HIV 1st, and 0 otherwise. Columns 3 and 4 report results from responses to the question: *"Imagine a village about one day's walk from here is having an election for village chairperson. There are two candidates giving speeches. Let me tell you about each one and you can tell me which of the two you think should be elected. The first candidate [...] promises to [randomly: reduce the number of early marriages / improve roads / reduce crime] in the village. The second candidate [...]. Which of these two candidates do you think should be elected?"* Responses were coded 1 if the respondent selected the EFM platform, 0 otherwise.

Table A7: **Views about Gender Equality and Intimate Partner Violence, 15 Months After Exposure**

	Gender Equality		Intimate Partner Violence					
	Index		If disobeys (branched)		Norm		Reporting	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
EFM Treat	0.012	0.019	0.072	0.092	0.015	0.015	0.020	0.021
Standard Error	0.012	0.008	0.037	0.039	0.027	0.027	0.018	0.019
RI p-value	0.239	0.067	0.105	0.071	0.357	0.357	0.229	0.223
Hypothesis	+	+	+	+	+	+	+	+
Control Mean	0.86	0.86	2.48	2.48	0.66	0.66	0.37	0.37
Control Village SD	0.06	0.06	0.19	0.19	0.10	0.10	0.09	0.09
DV Range	[0-1]	[0-1]	[0-3]	[0-3]	[0-1]	[0-1]	[0-1]	[0-1]
Blocked FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	24	No	17	No	9	No	29
Adj-R^2	0.03	0.18	0.04	0.09	0.01	0.06	0.00	0.04
Observations	1,003	1,003	1,000	1,000	993	993	1,002	1,002

Note: * p < .1, ** p < 0.05, and *** p < 0.01. Standard errors clustered at the village level. Columns 1 and 2 report results of an index composed of responses to four questions related to gender equality: *"It is more important that a boy goes to school than a girl"*, *"When jobs are scarce, men should have more right to a job than women"*, *"In general, women make equally good village leaders as men"*, and *"In general, women are just as able to run a successful business as men"*. Columns 3 to 8 report the same measures as Table 8. Columns 3 and 4 report results of responses to the question: "*In your opinion, does a man have good reason to hit his wife if she disobeys him?*" If the respondent agreed with the statement, they were then asked: "*Should she be slapped or should more force be used than that?*" If the respondent disagreed with the statement, the respondent was asked: "*What if she persists in disobeying the husband? Does he then have good reason to hit her?*" Responses were coded from 3 (man should not hit his wife even if she persistently disobeys him) to 0 (a man should hit his wife if she disobeys him, harder than a slap). Columns 5 and 6 report results from responses to the question: "*In some of the villages we have visited, people think that a man has good reason to hit his wife if she disobeys him, while people in other communities do not think this is a good reason to hit one's wife. In your community, do most people think a man has a good reason to hit his wife if she disobeys him?*" Columns 7 and 8 report results from responses to the question: "*Suppose you visit your cousin and she tells you that her husband beat her severely and asks you for help. Suppose there are only two actions that you can take. Please tell us which one you would prefer to take: report the incident to [randomly: Police, Village Chairperson, Parents] or advise the women to take care of the issue herself.*"