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

Abstract

Early and forced marriage (EFM) is widespread through the developing world and an increasing focus of international organizations and local non-government organizations. The present study assesses the extent to which attitudes and norms related to EFM can be changed by locally tailored media campaigns. A condensed version of a locally sourced radio drama set in a rural Muslim Tanzanian community was presented to villagers in Tanzania 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 attend a presentation of the radio drama, and 83% attended. 95% of baseline respondents were reinterviewed two weeks later. The radio drama produced sizable and statistically significant effects on attitudes and perceived norms concerning EFM but not about gender equality more generally. Opinion change proved to be strongest in villages that at baseline displayed the most conservative views regarding EFM. Exploratory analysis of individual-level effect heterogeneity also suggests that effects tended to be highest among the most conservative. Muslim and Christian listeners were equally affected.

Keywords— Edutainment, Media, Attitudes, Norms, Early and Forced Marriage

Word Count: 7,873

Since 2010, many international organizations, governments, and non-governmental organizations around the world have actively sought to end early and forced marriage (EFM) (Hodgkinson 2016; Cloward 2016). Like many transnational social movements, the campaign against early and forced marriage has placed considerable emphasis on influencing cultural norms and attitudes in addition to reforming laws and policies (Smaak and Varia 2015). In an effort to shape prevailing opinions about early and forced marriage, the campaign has deployed culturally-tailored messaging campaigns, often delivered through local media (Hodgkinson 2016). Few of these messaging initiatives, however, have been rigorously evaluated.

We present evidence from an experiment designed to test the effects of one such media campaign in Tanzania's Tanga Region on attitudes towards early and forced marriage and gender hierarchy. 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 anti-EFM message in locally recognizable Islamic religious teachings about a woman's right to refuse *idhini* – consent to marriage – to an unfit husband.

We investigate the campaign in an especially interesting setting. The study was conducted in remote, socially conservative, rural communities in Tanga with a relatively balanced mix of Muslims and Christians, offering an important opportunity to evaluate the effects of media messages across religious boundaries. The experiment also occured at a time when the issue of underage marriage and gender hierarchy more broadly were politically and socially contested in Tanzania. While the intervention was taking place, the Tanzanian Supreme Court was deliberating over government-supported legislation to allow early marriage for girls between the ages of 15 and 18.[1] Although villagers are largely unaware of prevailing law as it pertains to child marriage,[2] this is nonetheless an interesting historical juncture during which to study public opinion.

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 and forced marriage (9 percentage points) and perceived less community support for forced marriage (6 percentage points). We find that these effects were strongest in the most conservative villages and among the most conservative individuals, suggesting that culturally tailored media may be especially effective in communities that would ordinarily resist external messaging campaigns. We also find that the program's effect was remarkably consistent among Muslim and Christian respondents despite being tailored to appeal to Muslim religious norms.

Although the experiment provides robust evidence of opinion change, we are quick to acknowledge that exposure to the locally resonant messages changes some attitudes more readily than others. The radio drama's effects on social attitudes did not translate into changes in political attitudes, such as support for an EFM ban or voting for a candidate campaigning against EFM in a hypothetical local election. The campaign also did not produce changes in general attitudes

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

[2] 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).

towards gender hierarchy and intimate partner violence. Rather, the statistically robust attitude changes that we observe are confined to messages directly articulated by the radio drama, a finding that echoes other recent experimental tests of locally sourced entertainment-education campaigns in East Africa (Green et al. 2020). It would appear that to achieve more broad-ranging influence, such dramatizations must directly address a broader array of topics.

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 present results for each of our pre-registered analyses as well as exploratory analyses that are designed to shed light on which villages and villagers were most affected by the radio drama. We conclude by discussing the implications of our findings and by suggesting avenues for further investigation.

Background and Literature

Norm Diffusion

A rich interdisciplinary research tradition 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 also often aim to influence cultural attitudes and norms (Ausderan 2014; Davis et al. 2012). Rich case study evidence tracks 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). In the context of early marriage, Muriaas et al. (2018) found that government-led child marriage reforms prompted counter-mobilization by conservative religious actors in Sudan,[3] and Muriaas et al. (2019) found that randomly assigned anti-early marriage messages delivered by parliamentarians and male traditional authorities *increased* support for early marriage in Malawi.

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 foreground 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). Substantial case study and ethnographic research suggests that local tailoring is a commonly used strategy for encouraging the spread of both progressive and conservative social values (Levitt and Merry 2009; Bob 2012). Critics argue that localized framing strategies deliver narrow messages effectively but fail to challenge the broader matrix of cultural beliefs and institutions that sustain the targeted behavior (Ferree 2003). 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 in and real-world setting.

"Edutainment" and Social Attitudes

The small but growing experimental research literature evaluating the effects of entertainment-education 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. 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. Messages embedded in Nigerian

[3] Muriaas et al. (2018) found that anti-early marriage laws did not promote counter-mobilization by traditional authorities in Zambia.

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). By contrast, media messages that contain no dramatization often fail to generate the intended effect on attitudes or behaviors. For example, radio campaigns in Africa designed to encourage hand-washing (Galiani et al. 2016) and communication with public officials (Grossman et al. 2014) generated little apparent change in listener behavior.

Why might dramatization contribute to attitude change? 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 drawing lessons from observing others' behavior, including behavior modeled in fictional dramatizations. A complementary psychological theory ("transportation") suggests that audiences typically identify with the protagonist and become swept up in the storyline, even when the protagonist is struggling against social constraints that the audience might otherwise find normative (Slater 2002). These two forces together impel audiences to learn new behavioral repertoires and see social issues from new vantage points. Audiences that have relatively little access to mass media, as in rural East Africa, are thought to be especially susceptible to social messages conveyed through dramatization (Paluck 2010).

Early and Forced Marriage

Early marriage is defined by human rights law as marriage when at least one party is under the age of 18 (Bunting et al. 2016).[4] 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.[5] Despite the widespread ratification of international treaties prohibiting early and forced marriage, there remains considerable variation in the enactment and enforcement of national and customary laws against the practice Hodgkinson (2016). While only 18% of countries allow marriage under the age of 18, 52% allow for exemptions for parental consent, and 30% provide for such exemptions when the woman is younger than 15 years old (Arthur et al.

[4]Some scholars have challenged the goal of a universal mandatory minimum age of marriage. Fore example, Bunting (2005) argues that uniform age of marriage at 18 "obfuscates the diversity of childhoods...the complexity of both marriage and age...cultural constructions of childhood need to be considered."

[5]Forced marriage may occur when both parties are over 18 years old, and anthropological research suggests that girls under 18 experience varying degrees of autonomy in partner choice (Schaffnit et al. 2019). See Appendix 8 for more background.

2018). Even in countries where early and forced marriage is prohibited, gaps in enforcement are widespread (Wodon et al. 2017).

As a result, early marriage remains common worldwide. Given current trends, 150 million girls below the age of 18 will marry between 2018 and 2030 (ICRW 2018). 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 regions where early marriage is prevalent. The highest rates of early marriage are in Sub-Saharan Africa, where 40% of girls marry before they turn 18. Due in part to the difficulty of defining and measuring consent, especially for individuals under 18 years old, there are no credible figures on the prevalence of forced marriage worldwide.

Since 2010, a group of international organizations, governments, and non-governmental organizations have escalated an international campaign against early and forced marriage, premised on the belief that early and forced marriage threatens the autonomy, health, and well-being of young girls (Parsons et al. 2015). In addition to mobilizing campaigns to pressure governments to change marriage laws and funding programs to improve girls's educational and economic opportunities, the movement has built an expansive network of grassroots civil society and media organizations dedicated to changing cultural norms and attitudes around the practice.

Early and Forced Marriage in Tanzania

We investigate the effects of a locally tailored campaign against early and forced marriage in rural communities in Tanzania's Tanga Region. Rural Tanzania is an apt setting for the study of early and forced marriage. First, early and forced marriage is quite common: 36% of women in Tanzania between 20 and 24 were married before the age of 18, and approximately 30% of women nationwide report exercising little or no autonomy in choosing their spouse. The incidence of forced marriage is slightly lower in Tanga Region compared to the national average (29%), but early and forced marriage rates are highest in rural and economically disadvantaged communities, the focus of the present study (MoHCDEC 2017).[6]

Second, early and forced marriage is a timely political and legal issue in Tanzania. Tanzania has ratified all significant international treaties concerning early and forced marriage, including

[6]We discuss findings from qualitative interviews about motivations for early and forced marriage in Tanga and issues around consent in marriage in Appendix 8.

CEDAW, UNCRC, and ACRCW. Nonetheless, in 2002 the Tanzanian government passed the Law and Marriage act, which legalized marrage for girls as young as 15 conditional on parental consent and 14 conditional on court consent. 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. The Supreme Court was deliberating the decision as the intervention and data collection took place, and sustained the high court ruling banning marriage under the age of 18 in October 2019.

Although cultural attitudes and norms are an important determinant of early and forced marriage (Schaffnit et al. 2019), surprisingly little 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 endline survey (n = 612), which, as we explain below, is a stratified random sample of Tanga Region villagers. We presented respondents with a vignette 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 price offered for the marriage, the age of the girl, and the motivation of the parents[7]:

> **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 [rin 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 about here.]

[7] The bride prices on the low end of the spectrum were suggested to us by the NGO 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 husband was a father or his son and whether the potential husband came from inside or outside the village. We did not observe significant differences in attitudes towards marriage under either condition.

We find that acceptance of early and forced marriage is common but not predominant. Averaged across all conditions, 15% of respondents approved of forced marriage. Respondents were significantly more accepting of forced marriage than early marriage: across scenarios, approval of forced marriage substantially declines when the potential bride is below 18, from 23% to 6%. There is no discernable 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 16% to 12%. Perhaps surprisingly, the acceptability of early and forced marriage does not change in a consistent manner with the offered bride price.

[Table 2 about here.]

Turning to perceived community norms, we find that 44% of respondents think that their community would accept early and forced marriage, averaged across all circumstances. In other words, perceived opposition to EFM grossly exaggerates actual opposition, which opens the door to messaging strategies that dramatize resistance to EFM. As with respondents' own attitudes, respondents perceive an increased acceptance of forced marriage when the woman is above 18 years old (from 38% to 51%) and when the parents are motivated by concerns about their daughter's behavior (from 40% to 48%). Respondents do not perceive that the offered bride price affects their community's acceptance of early and forced marriage.

Finally, we asked respondents about their preferences for laws restricting early marriage. Over 93% of respondents supported a law to ban marriage for brides under the age of 15, but only 67% support banning marriage for brides younger than 18. Fewer than 2% of respondents preferred no law restricting early marriages.

Materials and Methods

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 grassroots non-governmental organization UZIKWASA. UZIKWASA focuses on long-term 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.[8] In the beginning of the drama, Fatuma is portrayed as an intelligent, motivated girl who wants to continue her education after graduating 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 more 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 religious teachings about a woman's right to refuse *idhini*, or consent, at her wedding if she feels that her prospective husband is unsuitable. 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 1.

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* focused on HIV/AIDS education and destigmitization. The effects of the placebo on HIV-related opinions are reported in a separate study. 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 drama were perceived via an open-ended manipulation check question asked at the end of the post-treatment survey. Fully 93% of

[8]Fatuma's age is not stated directly in the plot, but she is understood to be between 14 and 17 years old.

those who attended the placebo drama said that it was about HIV/AIDS; among those who attended the EFM drama, 67% said that was about child marriage, and another 27% said that it was about gender and family issues.

In both treatment and placebo villages, 40 randomly selected respondents were invited to attend a community screening of the abridged radio drama. In each village, a single screening 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.

Ethical Considerations

The intervention was designed in collaboration with the local non-governmental organization UZIKWASA and deployed by a local 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 2.

Site Selection

The study sites were 30 rural villages distributed evenly across 15 wards in Tanzania's northeastern 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.

Random Assignment

We conducted random assignment to experimental conditions at the village level after blocking at the ward level. Appendix 3 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 nearly identical in treatment (82.84%) and placebo (82.80%) villages. Furthermore, as expected, random assignment was not significantly correlated with pre-treatment characteristics of baseline respondents or screening attendees. Of 41 pre-specified pre-treatment covariates, two covariates (4.8%) show differences between treatment and placebo attendees greater in magnitude than the largest 5% of differences obtained under 10,000 hypothetical re-randomizations, and four covariates (9.7%) show differences larger than the largest 10%. Analysis of pre-treatment balance between treatment and placebo groups appears in Appendix 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 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.

Sample Characteristics

Appendix 5 shows village and individual-level characteristics of the resulting sample. Three features stand out. First, the villages in the sample are remote. On average, villages are 6km from

the nearest paved road and 20km from the nearest town. The average respondent was born in the village where they currently reside and visited a city or town less than once in the previous year. Second, the average level of economic development in the sample is low. Just over half of villages have access to electricity, and fewer than one third of villages have access to piped water. Less than half of respondents reported owning a radio, and just 12% live in a homestead with more than one hut.

Finally, the sample contains a mix of Muslim and Christian respondents characteristic of coastal Tanzania. 66% of the sample self-identified as Muslim in the baseline survey. The remainder of respondents self-identified as non-denominationl Christian (12%), Catholic (11%), or a specific Protestant denomination (11%).[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 primarily appealed to Muslim religious teachings and local Islamic authorities. Although Muslims and Christians in Tanzania coexist with less sectarian conflict than elsewhere in sub-Saharan Africa, the two groups are relatively unfamiliar with each others' religious practices. For example, a 2010 survey using a nationwide sample found that 62% of Christians reported knowing "not very much" or "nothing" about Muslims' religion or practices (Lugo and Cooperman 2010).

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, and end-line evaluation at similar points in time. Appendix 6 reports the timeline of the surveys and the intervention in more detail. Cooperation rates were extremely high. All 1,200 targeted respondents completed a baseline survey and were invited to attend a screening with others surveyed from their village three or four days later. 998 (83%) attended. The end-line survey team collected outcome measures 13-16 days after the village screenings. 95% of baseline respondents completed the end-line survey.

In order to minimize demand effects, the interviewer teams were distinct from the teams that

[9] At the village level, the average proportion of the population identifying as Muslim is 0.65 and the village-level standard deviation is 0.26. Only three villages in the sample are exclusively Muslim, and none are more than 90% Christian.

hosted the screenings. We also ensured that respondents were interviewed by different people at baseline and end-line.

Estimation

In order to estimate the effects of the early and forced marriage radio drama on attitudes and perceived norms, we perform a series of ordinary least squares regressions. 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_j denote the survey outcome for subject j, and d_j denote this subject's assigned treatment (1 if early and forced marriage, 0 if HIV). The regression model

$$y_j = \beta d_j + \gamma_1 ward_{1j} + \gamma_2 ward_{2j} \ldots + \gamma_k ward_{kj} + u_j$$

expresses the outcome as a linear function of the randomly assigned treatment, indicator variables for each of the wards (blocks), and an unobserved disturbance term u_j. The key parameter of interest is β, which represents the average causal effect among compliers (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.

In keeping with our pre-analysis plan, we also report covariate-adjusted regression results using the LASSO procedure to select prognostic covariates from the set of variables collected during the baseline survey. These covariates range in number from to zero to twenty-one. Whether we consider the estimates or their standard errors, the results after adjustment look very similar to results without adjustment.

Results

Our analysis begins with the primary outcome measures, which gauge support for forced marriage and early forced marriage. On average, villagers who attended the radio drama screening became 8.8 percentage points less likely to agree with the statement "an 18 year-old daughter should

accept the husband that her father decides for her." This estimate is 9.0 percentage points after controlling for LASSO-selected covariates. Both estimates have randomization inference p-values of less than 0.001. The estimated effect is quite large substantively, amounting to more than half of a village-level standard deviation.

In an effort to gather another indication of villagers' attitudes toward forced marriage, elsewhere in the questionnaire we posed a question about whether "a girl should not have a say in who she marries; it is best if her father selects a suitable husband for her." We obtain almost identical results. The estimates are again large, highly statistically significant, and on the order of more than half a village-level standard deviation.

We turn finally 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. Averaging over all variations in the girl's age and other features of the scenario, we find the treatment to have a significant effect on resistance to forced marriage, again on the order of more than half a village-level standard deviation. Respondents were then asked about 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 much more likely to say that others in their community would approve of the forced marriage. In other words, absent exposure to the treatment, respondents believed the community to be more conservative than themselves on this issue. However, this perception was reduced by approximately 6 percentage points in the treatment group, a significant effect that again amounts to more than half a village-level standard deviation.

To isolate the effect of the radio drama on *early* marriage, we disaggregate the results by the age of the bride in the vignette in Appendix 7. The drama's effect on attitudes towards forced marriage is smaller when the bride is younger than 18 (2.6 percentage points) than when the potential bride is 18 or older (5.6 percentage points), in part because baseline support for early forced marriage is already less than 6%. The effect of the radio drama on perceived community norms about the marriage remains consistent when the potential bride is above or below 18 years old.

Taken together, the results leave little doubt that the radio drama substantially diminished support for forced marriage. We see large and significant declines across all three measures of

respondents' own attitudes towards forced marriage, although the effects are reduced when the potential bride is younger than 18. Moreover, the airing of the radio drama also changed perceptions about how others in the community view early and forced marriage.

[Table 3 about here.]

We turn next to what social psychologists refer to as conative attitudes (Fishbein and Ajzen 1975), or attitudes about taking action. In this case, the action in question is whether the respondent would report a neighbor who was about to marry off his 13-year old daughter. Reporting such things to village leaders was not something that was modeled in the radio drama, and so it was unclear ex ante whether listeners would become more inclined to do so. We find suggestive evidence of a positive treatment effect on the order of one-half standard deviation, although this estimate falls just short of the conventional 0.05 level of statistical significance. We also find a marginally significant increase in the perception that others in the community would report a forced marriage of a young girl. Taken together, it appears that the radio drama shifted the inclination to report and the perception that the community would support such action on behalf of an underage girl, but the evidence is somewhat equivocal.

[Table 4 about here.]

To what extent does exposure to the dramatization change policy priorities? On the one hand, the drama clearly succeeded in raising the salience of forced marriage as a local issue. Respondents were invited to sort a deck of cards listing six different policy priorities, indicating which issue they regarded as least important and which they would rank first, second, and third. We created a rough scale ranging from 0 (least important) to 4 (top ranked), depending on where forced marriage fell among the six possible priorities.[10] The radio drama produced a substantial increase in the average importance ranking amounting to more than one village-level standard deviation ($p < 0.05$). On the other hand, we see no effects on candidate choice or policy preferences. Hypothetical candidates in a conjoint experiment whose platform would limit forced marriage garner no additional support

[10] We removed the respondents' HIV ranking before calculating the 0-4 score to avoid the possibility that the placebo intervention increased the ranking of HIV (thereby decreasing the relative ranking of EFM) in placebo villages.

in the treatment group. By the same token, proposals to make legal restrictions on forced marriage more stringent are no more attractive to treatment group respondents than their counterparts in the control group. This finding is not altogether surprising, as the drama does not explicitly advocate for policy reform or urge action by elected officials.

[Table 5 about here.]

As we pan away from the issue of forced marriage to more general attitudes about gender equality, we find no evidence that the radio drama changed respondents' outlook. An index of responses to general questions about gender equality in housework, earnings, schooling, and job opportunities does not move in a more egalitarian direction in the wake of the radio drama.

Nor do we find any evidence that that drama changed minds on issues such as intimate partner violence. For example, we find no movement in an index of items measuring whether respondents believe a husband is justified in beating his wife in each of five scenarios (e.g., she disobeys him). Nor do we find that the drama makes audiences more willing to help a woman who has been beaten by her husband. Finally, we see no evidence that the drama changes perceived norms in the community about whether others would tolerate or report violence against women. Each of the point estimates is weakly and insignificantly negative.

The lack of an effect on attitudes toward intimate partner violence is theoretically instructive, especially when contrasted with the strong effects on attitudes toward EFM. The abridged drama's central narrative revolves around the hardship Fatuma faces as a prospective child bride, the decision she, her mother, her romantic interest, and her best friend make to resist the early-marriage arrangement, and their ultimate success working together to do so. In other words, *Tamapendo* not only demonstrates the harms of EFM; it models effective responses to EFM and rewards the characters who resist.

By contrast, although characters in *Tamapendo* suffer from intimate partner violence, the drama neither models an effective response to their treatment nor delivers a clear moral. In one scene, for example, Fatuma's father beats Fatuma's mother and throws Fatuma and her mother out of the house while community members watch. In response, community leaders meet with the mother and father and encourage them to reconcile rather than protect the mother or sanction the father. The

same may be said about the depiction of gender hierarchy more generally: the drama shows Fatuma's friend Sijali suffering from her mother's preconceptions about women's intellectual abilities but does not show Sijali confronting or overcoming them. The fact that the drama strongly affected some attitudes and not others is consistent with the idea that entertainment-education changes attitudes by modeling appropriate behavior and consolidating its pedagogic message though narration and an unambiguous plot resolution.

[Table 6 about here.]

Where Did the Drama Have Its Largest Persuasive Effects?

Village-level Responsiveness to Treatment

The results thus far suggest that the radio drama is an effective means by which to change attitudes about the propriety of early and forced marriage and the salience of the issue as a community concern. Although the results do not suggest far-reaching attitude change on issues such as gender equality more generally, the changes we do see are quite large and statistically robust at least two weeks after exposure to the radio drama. The question we now ask concerns heterogeneous treatment effects: Where did the radio drama have its largest persuasive effects?[11] The question is important from both a theoretical and policy standpoint.

On theoretical grounds, it would be instructive to learn whether the effects are largest in villages that are, at baseline, relatively receptive to the idea that young girls should have a say in whom they marry. If so, we may infer that the radio drama consolidates pre-existing sympathy for self-determination among young girls. Alternatively, we might see that the largest effects are in the most conservative villages, implying that the radio drama sparked new sensitivity to the rights and well-being of the young girls. From a policy perspective, the investigation of heterogeneous effects may help guide the dissemination of education-entertainment campaigns such as this one are deployed – should those staging these dramatizations prioritize the relatively egalitarian villages or more conservative villages?

[11] This line of investigation was not registered in our pre-analysis plan and therefore should be regarded as exploratory. The same holds for the exploration of individual-level effect heterogeneity; we originally planned to look at a handful of moderators but eventually opted for a machine learning driven exploration of a broader set.

[Figure 1 about here.]

Our analysis of heterogeneous effects by village is depicted graphically in Figure 1. The horizontal axis arrays villages according to the average support for forced marriage at baseline. The vertical axis arrays villages according to the average support for forced marriage at end-line. Treatment villages are marked with an X, while control villages are marked with an O. Separate regression lines are passed through the treatment points and the control points. For any given level of baseline support for forced marriage, the vertical distance between these two lines indicates the conditional average treatment effect.

The figure shows that the regression lines are close together at low baseline levels of support for forced marriage, implying a small average treatment effect for relatively egalitarian villages. As we move rightward along the horizontal axis toward villages that are more inegalitarian at baseline, average treatment effects grow larger. It appears, therefore, that the largest effects obtain for villages that were initially most supportive of forced marriage. This interaction between baseline support for forced marriage and the experimental treatment is confirmed by regression (see Figure 1). When support for forced marriage at the village level is modeled as a function of treatment assignment, baseline support for forced marriage, and the interaction between the two, we find a large and statistically significant interaction. When baseline support for forced marriage is 10%, the predicted effect of the treatment is 5 percentage points. When baseline support for forced marriage is 40%, the predicted effect of the treatment grows to 28 percentage points (see Appendix 11).

Individual-level Responsiveness to Treatment

Building on our village-level analysis of treatment effect heterogeneity, we explore a wide array of possible individual-level moderators. These moderators may be grouped into four conceptual categories. The first are demographic attributes that could, in principle, be observed in census micro data. These variables include years of schooling, sex, age, marital status, and whether the respondent was born in the village. The next category are background attributes that would not ordinarily be gathered by census enumerators: whether Kiswahili is the respondent's main language, whether the respondent's household occupies multiple dwellings, the number of times that a respondent has ever been to a city, cell phone ownership, frequency of listening to radio, religion (Muslim or Christian), and the frequency of religious worship. The third category comprises attitudes that bear directly

on the topic of EFM; here, we use the same baseline question that was used in the village-level analysis above. A final category comprises attitudes and orientations that are not directly about EFM. This category includes belief in witchcraft, the desired number of children, attitudes about social change, and deference to traditional authority.

We explore individual-level treatment heterogeneity using the causal forest alogorithm developed by Athey and Imbens (2016) and Athey and Wager (2019). When the sources of treatment effect heterogeneity are not known *ex ante*, restricting analyses to pre-registered hypotheses may hinder the discovery of unanticipated results. However, ad hoc exploration of treatment effect heterogeneity runs the risk of false discovery. Machine learning tools originally developed to predict individualized responses to medical interventions automate and synthesize the search for treatment effect heterogeneity across many covariates.

The causalForest R package developed by Wager and Athey (2017) proceeds in three steps. First, it splits the data into a training sample used to partition the data into sub-groups and an estimation sample used to estimate treatment effects across each sub-group. Second, the algorithm uses the training sample to build regression trees using recursive partitioning.[12] Third, the estimation sample is fit to the regression tree and a treatment effect is estimated at each terminal node and assigned to every observation in the node. An observation's predicted conditional average treatment effect (CATE) is its average predicted treatment effect across 25,000 trees.

Figure 2 graphs the predicted conditional average treatment effects for each category of each moderator, net of the moderating effects of all other variables. The graphs report the distribution of predicted CATEs for all observations sharing a given moderator value. Across the tiled graphs, some noteworthy patterns emerge. First, in keeping with the village-level results presented above, we see strong evidence of interactions with baseline attitudes about EFM. The average treatment effect is roughly twice as large among those who initially expressed the view that a father may choose his daughter's. Of the background attributes, the most noteworthy moderators are years of

[12] Regression tree "branches" are built by partitioning the data into two sub-groups at covariate values when the partition (1) increases the variation in treatment effect estimates between the two sub-groups and (2) ensures at least 10 treatment and 10 placebo observations remain in each branch. (We obtain similar estimates when the minimum number of observations per leaf is set to 5, 10, or 15.) When no partition increases treatment effect heterogeneity while maintaining the minimal number of treatment and placebo observations in each node, the branch has reached its terminal node, or "leaf." When all branches of a tree reach their terminal node, the tree is considered defined.

schooling (with stronger treatment effects among the unschooled) and lack of exposure to radio.

Noteworthy for their lack of moderating effect are two variables, sex and religion. Holding constant their background attributes and baseline attitudes, men and women respond similarly to the radio drama, despite the gender-related themes that suffuse the storyline. Perhaps even more surprising is the lack of interaction between the treatment and religion.[13] The story is written with Muslim main characters who interact within a world shaped by Muslim customs and values; thus, vernacularization might be understood to mean that the story would resonate more with Muslim than Christian listeners. The fact that this is not the case suggests that Christian listeners could appreciate and absorb the pedagogic message even though the main characters were from a different religious faith. Evidently, vernacularization can be achieved by making the storyline suitably realistic and proximal without necessarily involving characters from the listener's own immediate social group.

[Figure 2 about here.]

Discussion

Our research makes three contributions to the study of early and forced marriage. First, it offers one of the few portraits of public opinion from a developing country in which EFM is common. We find an interesting discrepancy between Tanzanians' actual support for EFM, which is low under most circumstances, especially when the girl is very young, and perceptions of community opinion, which is much more permissive of EFM. This gap presents an opportunity to those who seek to change opinion through dramatization, which has the potential to change opinions directly and undercut perceived community support.

Our second contribution is to show that a locally sourced radio drama was able to do just that: by highlighting the plight of girls who are forced into marriage and who exercise traditional rights of resistance, the drama produced a marked change in listeners' support for forced marriage. Although this drama did not cause audiences to rethink broader issues of gender hierarchy or to accord more weight to EFM as an election issue, such broad-ranging opinion change might have been too much

[13]Note that this lack of moderation is not due to the inclusion of frequency of religious worship, which is correlated with Muslim self-identification. Excluding the frequency of religious worship has no effect on the apparent moderating role of religion.

to expect from a radio drama consumed in a single sitting. The constraints of the experimental setting did not allow us to present listeners with the broad range of issues that were raised in the 20 episode, 10 hour series of *Tamapendo*, and the results presented here may well understate the scope of attitude change that the series brought about.

Our third contribution is to show which kinds of communities and individuals are most susceptible to change when exposed to this form of entertainment-education. Our exploration began at the village level, where we found that treatment effects tended to be much larger in places that were more socially conservative at baseline. At the individual level, there is suggestive evidence indicating that effects were strongest among those who at baseline held more traditional views about forced marriage, had less schooling, and listened to the radio less frequently. Despite the focus of the storyline on Muslim characters and customs, treatment effects are similar among Muslim and Christian respondents.

That said, we are quick to acknowledge two limitations of the current study. Unlike other recent studies of entertainment-education in East Africa (e.g., Green et al. (2020)), which found substantial effects at least eight months after exposure), ours assesses opinion change over a relatively short duration, two weeks. Although those listeners became significantly more likely to report discussing EFM with others, given the compressed time frame we cannot say whether the direct and spillover effects of *Tamapendo* changed the treatment of girls who might ordinarily be forced to marry. Detecting this kind of village-level effect with reasonable statistical power may require a different research design, one that oversamples villages with more conservative views and practices concerning EFM in the hopes of producing strong persuasive effects initially and strong behavioral effects eventually. By establishing the persuasive potential of locally sourced edutainment, this study lays the groundwork for more ambitious research on the durability and scope of dramatization's effects.

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Table 1: **Anti-EFM Attitudes**

	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)	(15)	(15)	(43)	(24)	(17)	(15)	(56)	(99)
16-17	0.94	0.88	1.00	0.94	0.89	0.92	0.98	0.94	0.94
	(33)	(25)	(27)	(85)	(28)	(24)	(44)	(96)	(181)
18-19	0.73	0.63	0.78	0.73	0.78	0.79	0.85	0.81	0.77
	(41)	(41)	(69)	(151)	(40)	(47)	(68)	(155)	(306)
Total	0.84	0.77	0.86	0.82	0.87	0.85	0.90	0.88	0.85
	(87)	(81)	(111)	(279)	(92)	(88)	(127)	(307)	(586)

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) $\approx$ 0.45 USD. Number of observations reported in parentheses.

Table 2: **Anti-EFM Norms**

	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	0.54	0.67	0.60	0.60	0.83	0.71	0.53	0.71	0.67
	(13)	(15)	(15)	(43)	(24)	(17)	(15)	(56)	(99)
16-17	0.48	0.64	0.63	0.58	0.57	0.71	0.68	0.66	0.62
	(33)	(25)	(27)	(85)	(28)	(24)	(44)	(96)	(181)
18-19	0.51	0.37	0.48	0.46	0.47	0.47	0.57	0.52	0.49
	(41)	(41)	(69)	(151)	(40)	(47)	(68)	(155)	(306)
Total	0.51	0.51	0.53	0.52	0.60	0.58	0.61	0.60	0.56
	(87)	(81)	(111)	(279)	(92)	(88)	(127)	(307)	(586)

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

Table 3: **Anti-FM Attitudes and Perceived Norms**

	Anti-FM Attitudes						*Anti-FM Norms*	
	Reject FM (18 years old)		Reject FM		Reject FM (Vignette)		Others Reject FM (Vignette)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Anti-FM Media	0.088***	0.090***	0.093***	0.094***	0.046**	0.042**	0.062**	0.060**
Standard Error	0.025	0.032	0.027	0.026	0.014	0.024	0.021	0.036
RI p-value	0.007	0.003	0.006	0.006	0.017	0.017	0.031	0.031
Hypothesis	+	+	+	+	+	+	+	+
Control Mean	0.794	0.794	0.822	0.822	0.852	0.852	0.574	0.574
Village-Level SD (control)	0.160	0.160	0.162	0.162	0.067	0.067	0.110	0.110
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	2	No	6	No	0	No	6
Adj-R^2	0.097	0.154	0.088	0.217	0.015	0.003	0.020	0.029
Observations	996	996	997	992	998	998	998	998

Note: * p $<$ .1, ** p $<$ 0.05, and *** p $<$ 0.01. Standard errors clustered at the village level.

Table 4: **Opinions about Anti-EFM Reporting**

	Attitudes		*Norms*	
	Would Report EFM		Others Would Report EFM	
	(1)	(2)	(3)	(4)
Anti-FM Media	0.057*	0.047*	0.072**	0.052**
Standard Error	0.028	0.029	0.028	0.024
RI p-value	0.083	0.078	0.043	0.043
Hypothesis	+	+	+	+
Control Mean	0.747	0.747	0.469	0.469
Village-Level SD (control)	0.110	0.110	0.098	0.098
DV Range	[0-1]	[0-1]	[0-1]	[0-1]
Blocked FE	Yes	Yes	Yes	Yes
Controls	No	10	No	21
Adj-R^2	0.016	0.056	0.029	0.068
Observations	997	997	973	971

Note: * p $<$ .1, ** p $<$ 0.05, and *** p $<$ 0.01. Standard errors clustered at the village level.

Table 5: **Anti-EFM Policy Attitudes among Compliers**

	FM Priority Ranking		Vote for FM Platform		Support EFM Ban	
	(1)	(2)	(3)	(4)	(5)	(6)
Anti-FM Media	0.286**	0.281**	-0.020	-0.033	-0.018	-0.018
Standard Error	0.078	0.077	0.039	0.027	0.024	0.024
RI p-value	0.012	0.012	0.612	0.631	0.704	0.704
Hypothesis	+	+	+	+	+	+
Control Mean	1.456	1.456	0.588	0.588	1.684	1.684
Village-Level SD (control)	0.257	0.257	0.122	0.122	0.069	0.069
DV Range	[0-4]	[0-4]	[0-1]	[0-1]	[0-2]	[0-2]
Blocked FE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	7	No	8	No	0
Adj-R^2	0.057	0.082	0.008	0.061	-0.003	-0.003
Observations	998	995	508	506	995	995

Note: * p $<$ .1, ** p $<$ 0.05, and *** p $<$ 0.01. Standard errors clustered at the village level.

Table 6: **Attitudes about Gender Hierarchy**

	Attitudes				*Reporting*		*Norms*			
	Gender Hierarchy		Accept IPV		Self Report IPV		Comm Reject IPV		Comm Outraged IPV	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Anti-FM Media	-0.003	-0.009	-0.007	-0.006	-0.029	-0.027	-0.037	-0.037	-0.040	-0.045
Standard Error	0.009	0.010	0.013	0.014	0.013	0.012	0.017	0.017	0.044	0.042
RI p-value	0.820	0.820	0.714	0.714	0.157	0.157	0.146	0.146	0.517	0.517
Hypothesis	Two	Two	Two	Two	Two	Two	Two	Two	Two	Two
Control Mean	0.576	0.576	0.795	0.795	0.462	0.462	0.700	0.700	1.356	1.356
Village-Level SD (control)	0.037	0.037	0.088	0.088	0.058	0.058	0.056	0.056	0.113	0.113
DV Range	[0-1]	[0-1]	[0-1]	[0-1]	[0-1]	[0-1]	[0-1]	[0-1]	[0-2]	[0-2]
Blocked FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	6	No	19	No	7	No	0	No	6
Adj-R^2	-0.002	0.080	0.026	0.192	0.008	-0.003	-0.003	-0.003	0.006	0.079
Observations	985	981	948	943	991	990	990	990	993	993

Note: * p $<$ .1, ** p $<$ 0.05, and *** p $<$ 0.01. Standard errors clustered at the village level.

Figure 1: **Village-Level Treatment Effect Heterogeneity**
by Baseline EFM Support

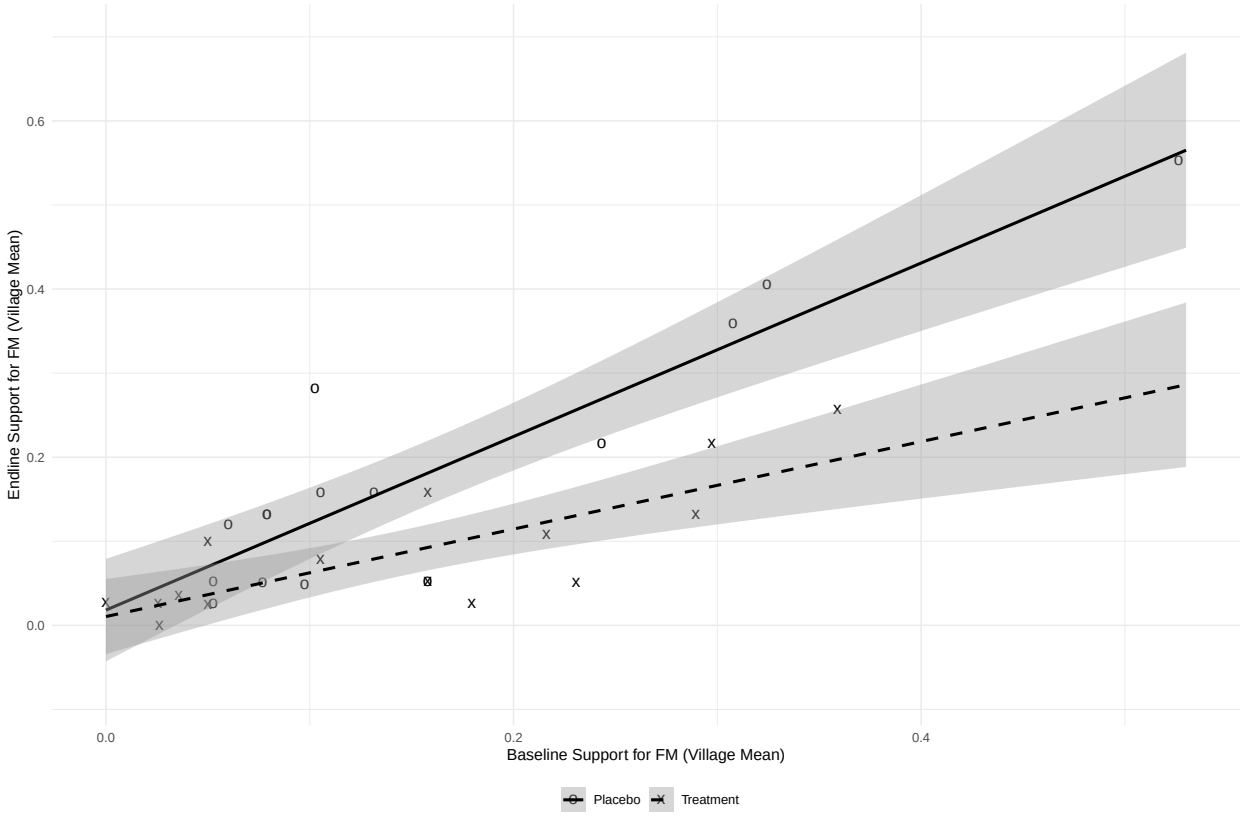
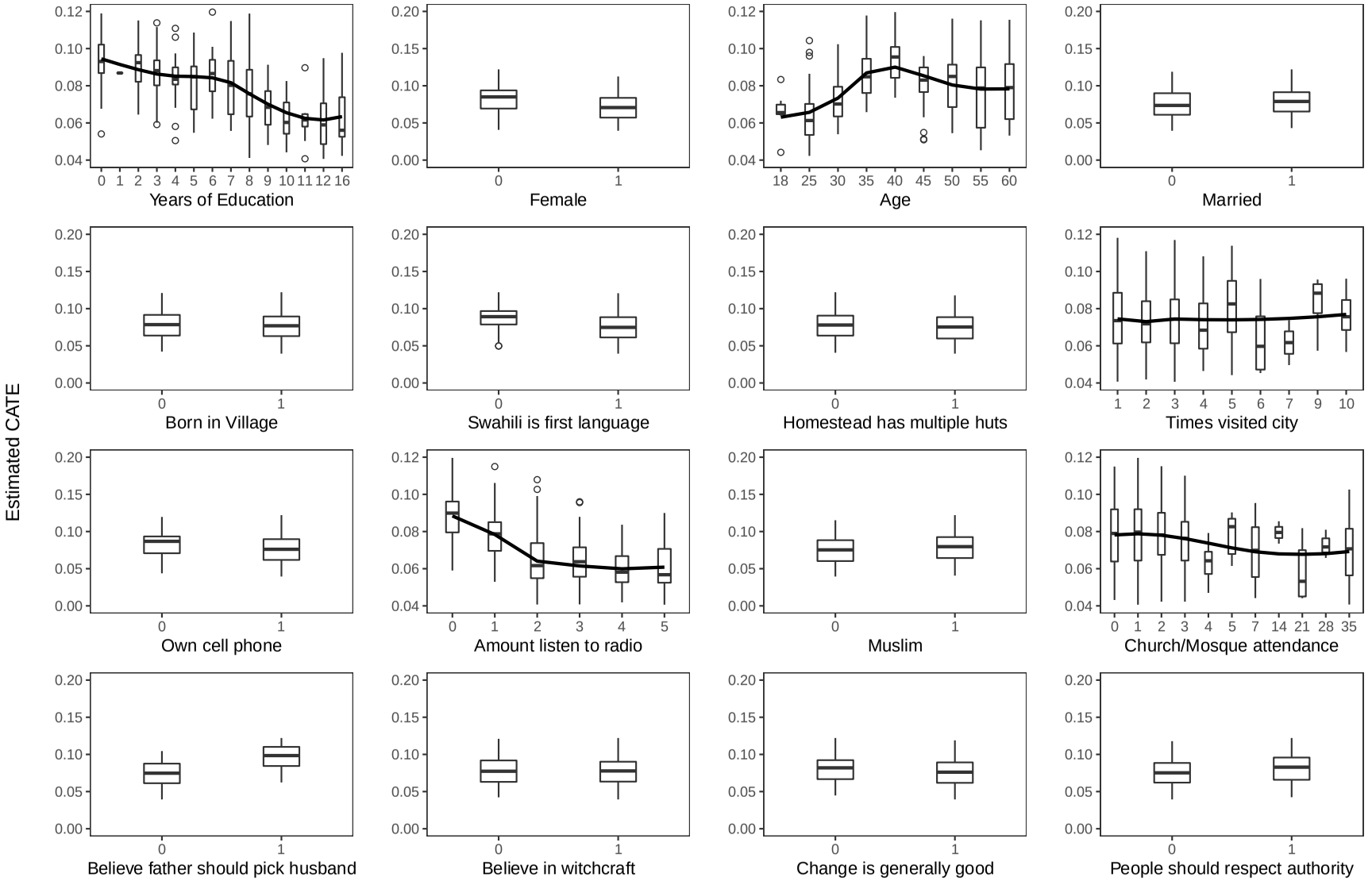


Figure 2: **Individual-Level Treatment Effect Heterogeneity**



Estimated using grf package (Wagner and Athey 2016)

Appendices

1 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 defiance and ultimately rejects the marriage with the support of some community members in the final, 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 form five. 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 teahcer 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 find 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.

2 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.

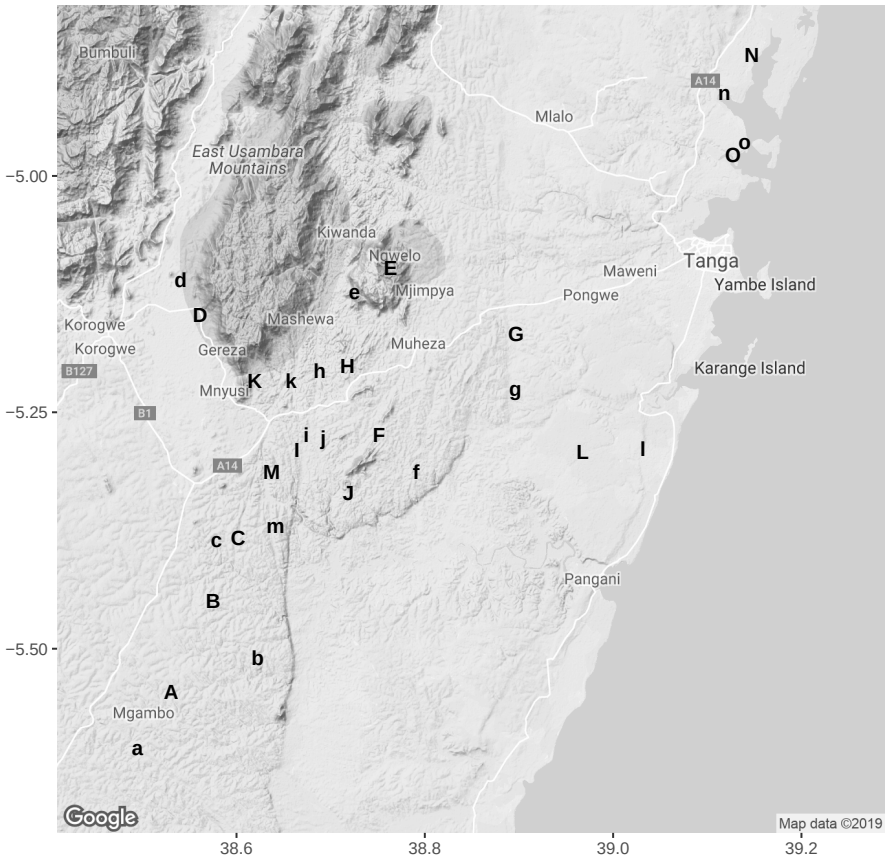
First, we sought to ensure that the community screening intervention did not do psychological harm to individuals who had been subject to forced marriage or intimate partner violence. UZIKWASA, the non-governmental organization that produced the *Tamapendo* program, developed the content through over 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.

3 Village Sampling and Blocked Random Assignment

Figure A3: **Village Sampling and Blocked Random Assignment**



A: Treatment Village in Block A

a: Placebo Village in Block A

4 Balance

4.1 Compliers

Table A7: **Balance** (Subjects Who Attended Screening)

Variable	Treatment	Control	RI p-value	Observations
equallearningbad	0.592	0.533	0.075	997
cellown	0.855	0.799	0.104	998
readwrite	2.277	2.226	0.155	995
longcellbattery	0.141	0.116	0.172	998
headofhousehold	0.595	0.554	0.203	998
radiocommunity	0.375	0.350	0.219	997
trustelders	0.802	0.779	0.261	997
churchattendance	5.085	4.663	0.378	985
dadchoosehusband	0.153	0.142	0.404	998
married	0.658	0.655	0.456	998
muslim	0.648	0.647	0.464	998
technologygood	0.963	0.962	0.469	994
anytv	0.248	0.252	0.480	998
swahilimain	0.815	0.817	0.487	998
workedcity	0.446	0.444	0.488	998
hivexclude	0.778	0.787	0.531	998
christian	0.350	0.351	0.537	998
nonews	0.275	0.278	0.571	998
mudwalls	0.752	0.761	0.587	998
hivsafe	0.444	0.452	0.593	998
hivacceptonbus	1.084	1.093	0.597	998
age	38.285	38.531	0.597	998
goodday	0.558	0.566	0.612	998
hivaware	0.998	0.998	0.614	998
ownradio	0.440	0.460	0.635	998
believewitchcraft	0.754	0.769	0.645	998
cellinternet	0.210	0.231	0.652	998
anyradio	0.650	0.667	0.658	998
equalchildcare	0.104	0.124	0.660	998
borninvillage	0.560	0.584	0.660	998
likechange	0.681	0.697	0.675	994
villattend	37.884	39.176	0.690	998
standard7	0.731	0.759	0.730	998
respectauthority	0.306	0.325	0.730	997
multiplehuts	0.112	0.130	0.746	998
timesincity	0.874	0.978	0.760	995
gender	1.493	1.521	0.776	998
kidsever	3.646	3.776	0.782	996
hhsize	4.843	4.998	0.789	996
numberofkids	0.620	2.674	0.809	943
timeinvillage	23.925	25.365	0.829	995

4.2 All Subjects

Table A8: **Balance** (All Subjects, Regardless of Screening Attendance)

Variable	Treatment	Control	RI p-value	Observations
kidsever	3.540	3.805	0.013	1,203
tvown	0.147	0.188	0.035	1,205
equallearningbad	0.596	0.552	0.036	1,204
cellown	0.855	0.797	0.041	1,205
hivexclude	0.843	0.766	0.106	1,205
timeinvillage	23.469	24.951	0.106	1,202
hhsize	4.798	4.993	0.124	1,203
numberofkids	0.916	2.675	0.138	1,136
longcellbattery	0.138	0.116	0.166	1,205
age	37.467	38.346	0.189	1,205
headofhousehold	0.592	0.559	0.222	1,205
gender	1.494	1.508	0.257	1,205
technologygood	0.952	0.962	0.260	1,200
villattend	37.914	39.181	0.276	1,205
radiocommunity	0.369	0.344	0.334	1,204
respectauthority	0.316	0.332	0.335	1,204
trustelders	0.802	0.778	0.343	1,203
timesincity	0.938	1.018	0.376	1,201
hivsafe	0.435	0.456	0.417	1,205
equalchildcare	0.103	0.124	0.424	1,205
christian	0.363	0.324	0.427	1,205
muslim	0.636	0.675	0.436	1,205
knowallvillage	0.341	0.359	0.437	1,205
nonews	0.272	0.284	0.441	1,205
ownradio	0.438	0.461	0.467	1,205
cellinternet	0.218	0.235	0.469	1,205
anytv	0.233	0.248	0.483	1,205
standard7	0.720	0.745	0.528	1,205
hivaware	0.997	0.998	0.539	1,205
multiplehuts	0.115	0.124	0.582	1,205
swahilimain	0.809	0.797	0.589	1,205
churchattendance	5.053	4.653	0.669	1,190
likechange	0.678	0.690	0.673	1,199
dadchoosehusband	0.147	0.157	0.678	1,205
anyradio	0.649	0.657	0.736	1,205
goodday	0.551	0.557	0.799	1,205
borninvillage	0.562	0.570	0.817	1,205
readwrite	2.270	2.261	0.866	1,202
believewitchcraft	0.752	0.750	0.905	1,205
mudwalls	0.745	0.752	0.921	1,205
workedcity	0.457	0.459	0.969	1,205

5 Sample

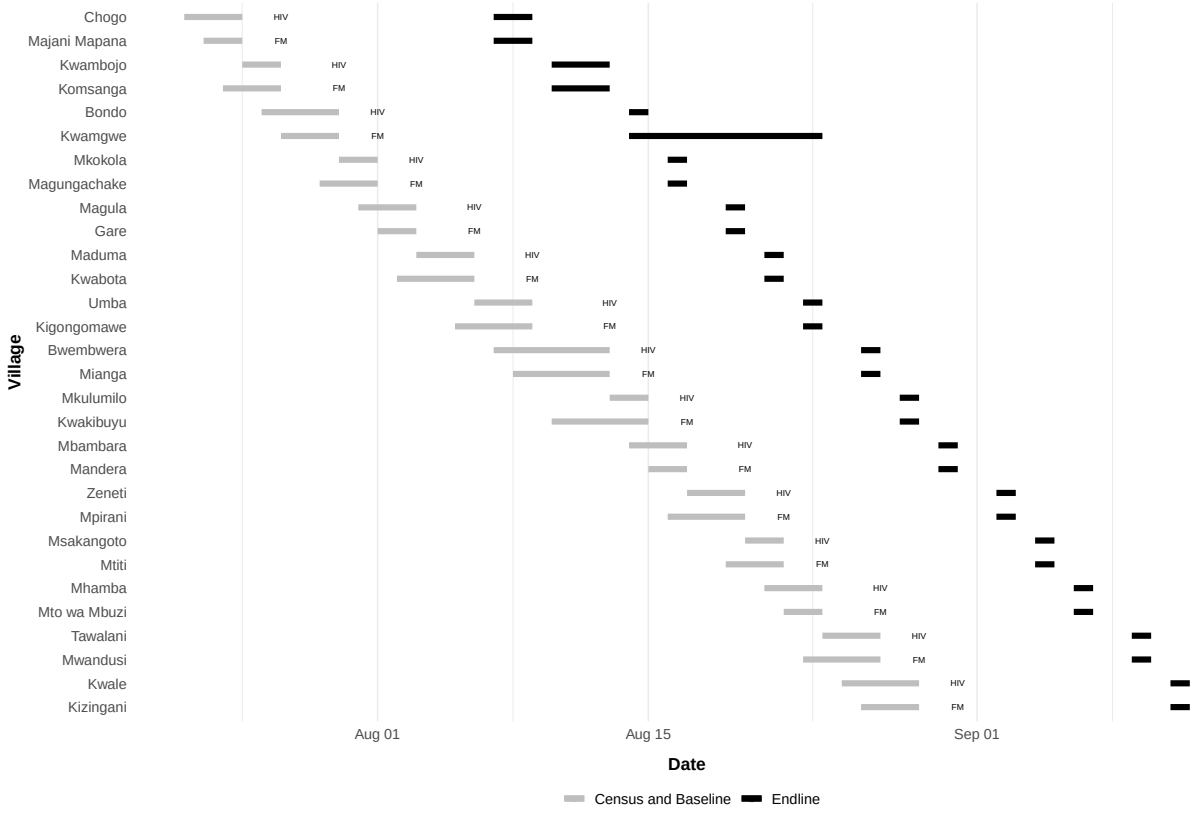
Table A9: **Sample Characteristics**

Variable	Sample Mean
Village-Level Variables	
Electiricity	0.53
Piped Water	0.30
Well Water	0.93
Distance to paved road (km)	6.35
Distance to town (km)	19.75
Churches	2.34
Mosques	2.37
Individual-Level Variables	
Female	0.50
Age	37.91
Married	0.66
Born in village	0.57
Years of education	7.19
Swahili as main language	0.80
Home has multiple huts	0.12
Times visited city	0.98
Own cell phone	0.83
Own radio	0.45
Muslim	0.66
Non-demoninational Christian	0.12
Catholic	0.11
Christian (Other)	0.11
Church Attendance per week (Muslims)	6.51
Church Attendance per week (Christians)	1.68
Believe in witchcraft	0.75

Note: Full list of pre-treatment covariates appears in Appendix 12.

6 Timeline

Figure A4: **Data Collection and Intervention Timeline**



7 Treatment Effects by Vignette Condition

7.1 Attitudes

Table A10: **Effect of Tamapendo on Attitudes about EFM** by Vignette Condition

Panel A: Family Situation

Condition	*Financial Need*	*Risk of Pregnancy*	*Difficult at Home*	*Failing at School*
	(1)	(2)	(3)	(4)
Anti-FM Media	0.032	0.121	0.060	0.012
Standard Error	0.021	0.038	0.086	0.077
RI p-value	0.126	0.015	0.392	0.479
Hypothesis	+	+	+	+
Control Mean	0.891	0.788	0.850	0.848
Village-Level SD (control)	0.073	0.129	0.332	0.295
DV Range	[0-1]	[0-1]	[0-1]	[0-1]
Adj-R^2	0.024	0.036	0.126	0.030
Observations	505	322	71	100

Panel B: Suitor Characteristics

Condition	*Older Man*	*Son*	*From Inside Village*	*From Outside Village*
	(1)	(2)	(3)	(4)
Anti-FM Media	0.041	0.041	0.078	0.009
Standard Error	0.015	0.018	0.017	0.017
RI p-value	0.044	0.040	0.002	0.287
Hypothesis	+	+	+	+
Control Mean	0.856	0.847	0.856	0.848
Village-Level SD (control)	0.080	0.087	0.080	0.099
DV Range	[0-1]	[0-1]	[0-1]	[0-1]
Adj-R^2	0.038	0.017	0.029	0.055
Observations	541	457	505	493

Panel C: Bride Price (x 100,000 TZS)

Condition	*400-5000*	*600-700*	*800-900*	*1,000-1,500*	*2,000-2,500*
	(1)	(2)	(3)	(4)	(5)
Anti-FM Media	0.002	0.027	0.034	0.080	0.049
Standard Error	0.029	0.039	0.040	0.027	0.047
RI p-value	0.483	0.255	0.168	0.026	0.274
Hypothesis	+	+	+	+	+
Control Mean	0.893	0.814	0.817	0.831	0.899
Village-Level SD (control)	0.102	0.143	0.149	0.127	0.221
DV Range	[0-1]	[0-1]	[0-1]	[0-1]	[0-1]
Adj-R^2	-0.001	0.016	0.052	0.027	0.072
Observations	227	189	201	180	201

Panel D: Daughter Age

Condition	*14-15*	*16-17*	*18+*
	(1)	(2)	(3)
Anti-FM Media	0.021	0.031	0.056
Standard Error	0.021	0.025	0.026
RI p-value	0.211	0.225	0.086
Hypothesis	+	+	+
Control Mean	0.942	0.941	0.772
Village-Level SD (control)	0.090	0.106	0.112
DV Range	[0-1]	[0-1]	[0-1]
Adj-R^2	0.057	-0.017	0.036
Observations	312	180	506

Note: Outcome coded as 1 if respondent said that community would reject EFM under the given condition, 0 otherwise. Standard errors clustered at the village level. All regressions include fixed effects by ward block and the following covariates: gender, head of household, aware of HIV, believe HIV is safe, know most/all others in the village, and ever visited a city. Standard Errors clustered at the village level.

7.2 Norms

Table A11: **Effect of Tamapendo on Perceptions of Community Attitudes about EFM** by Vignette Condition

Panel A: Family Situation

Condition	*Financial Need*	*Risk of Pregnancy*	*Difficult at Home*	*Failing at School*
	(1)	(2)	(3)	(4)
Anti-FM Media	0.003	0.191	0.066	-0.057
Standard Error	0.034	0.054	0.128	0.100
RI p-value	0.453	0.009	0.222	0.614
Hypothesis	+	+	+	+
Control Mean	0.608	0.506	0.600	0.587
Village-Level SD (control)	0.141	0.204	0.382	0.319
DV Range	[0-1]	[0-1]	[0-1]	[0-1]
Adj-R^2	0.032	0.100	0.110	0.054
Observations	505	322	71	100

Panel B: Suitor Characteristics

Condition	*Older Man*	*Son*	*From Inside Village*	*From Outside Village*
	(1)	(2)	(3)	(4)
Anti-FM Media	0.051	0.075	0.023	0.092
Standard Error	0.032	0.028	0.031	0.029
RI p-value	0.125	0.032	0.255	0.020
Hypothesis	+	+	+	+
Control Mean	0.593	0.550	0.610	0.535
Village-Level SD (control)	0.133	0.120	0.131	0.154
DV Range	[0-1]	[0-1]	[0-1]	[0-1]
Adj-R^2	0.049	0.017	0.023	0.070
Observations	541	457	505	493

Panel C: Bride Price (x 100,000 TZS)

Condition	*400-5000*	*600-700*	*800-900*	*1,000-1,500*	*2,000-2,500*
	(1)	(2)	(3)	(4)	(5)
Anti-FM Media	0.015	0.030	0.103	-0.017	0.143
Standard Error	0.040	0.066	0.066	0.048	0.049
RI p-value	0.431	0.303	0.168	0.602	0.029
Hypothesis	+	+	+	+	+
Control Mean	0.583	0.539	0.606	0.652	0.505
Village-Level SD (control)	0.228	0.158	0.223	0.181	0.210
DV Range	[0-1]	[0-1]	[0-1]	[0-1]	[0-1]
Adj-R^2	0.037	0.045	0.029	0.012	0.099
Observations	227	189	201	180	201

Panel D: Daughter Age

Condition	*14-15*	*16-17*	*18+*
	(1)	(2)	(3)
Anti-FM Media	0.086	0.025	0.037
Standard Error	0.036	0.040	0.026
RI p-value	0.076	0.308	0.123
Hypothesis	+	+	+
Control Mean	0.639	0.694	0.498
Village-Level SD (control)	0.106	0.127	0.143
DV Range	[0-1]	[0-1]	[0-1]
Adj-R^2	0.007	-0.039	0.069
Observations	312	180	506

Note: Outcome coded as 1 if respondent said that community would reject EFM under the given condition, 0 otherwise. Standard errors clustered at the village level. All regressions include fixed effects by ward block and the following covariates: gender, head of household, aware of HIV, believe HIV is safe, know most/all others in the village, and ever visited a city. Standard Errors clustered at the village level.

8 Background on Forced Marriage in Tanga Region

In the summer of 2018, the research team held six 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 focus group discussions with input from UZIKWASA's program officers, who have conducted community outreach to villages in Pangani since the 2002. Where the findings reflect existing research on early and forced marriage in Tanzania and East Africa, we include relevant citations.

8.1 Parent/Guardian Motivations for Promoting Early and Forced Marriage

Parental motivations for encouraging or forcing early marriage in Pangani can be grouped into two broad categories: fincancial and cultural. One financial reason is to secure their daughter's future financial security. Many respondents indicated that if the opportunity arose, they would encourage their daughter to marry a succesful man even if the daughter was younger than 18 because such a marriage offered their daughter the most plausible path to financial security and upward mobility in Pangani (Archambault 2011; MoHCDEC 2017).

A second financial motivation is social insurance. Respondents said that parents who are struggling financially can request food and financial support from their daughter and her husband, and may move in to their daughter's new household if they become sick, grow old, or fall on hard times. 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 motivations were especially common when the girl was born out of wedlock, was sent to the village to be cared for a a family member working in town, or if the father had several wives and was struggling to support them.

In addition to financial motivations, respondents in Tanga Region reported that marriage repre-

sents an important strategy for gaining community status and respect (Schaffnit et al. 2019). This is especially true for girls who are no longer in school, either because they finish primary school or because they had drop out. 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 activites 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 2020).

8.2 Consent in Early and Forced Marriage

The discussion in the previous section forshadowed that determining consent in early marriage is much more difficult than is often assumed in traditional human rights advocacy discourse (Mahmood 2004; Bunting et al. 2016; Schaffnit et al. 2019). Even in early marriage, respondents reported than young girls exercise substantial autonomy deciding when and whom to marry, a finding that reflects anthropological research in Tanzania (Stark 2018). Issues around consent are further complicated by the fact that parents exercise significant influencingce on their children's 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).

9 Attrition

Table A12: **Screening Attendance and Attrition**

	Attended Screening	Attrition
Anti-FM Media	0.001	0.001
Standard Error	0.019	0.006
p-value	0.958	0.912
Hypothesis	+	+
Control Mean	0.867	0.044
Village-Level SD (control)	0.056	0.023
DV Range	[0-1]	[0-1]
Blocked FE	Yes	Yes
Controls	No	No
Adj-R^2	0.020	-0.008
Observations	1,151	1,205

Note: * p < .1, ** p < 0.05, and *** p < 0.01. Standard errors clustered at the village level. Screening Attendance = 1 if respondent reported attending a screening on any topic, 0 otherwise. Attrition = 1 if respondent who participated in baseline survey was not reachable or refused to participate in endline survey.

10 Compliance

Table A13: **Tamapendo Screening Attendance and Discussion**

	Attended EFM Screening	Remembered EFM Topic	Discussed EFM
Anti-FM Media	0.829***	0.759***	0.717***
Standard Error	0.018	0.021	0.025
p-value	0.000	0.000	0.000
Hypothesis	+	+	+
Control Mean	0.000	0.029	0.032
Village-Level SD (control)	0.000	0.041	0.051
DV Range	[0-1]	[0-1]	[0-1]
Blocked FE	Yes	Yes	Yes
Controls	No	No	No
Adj-R^2	0.716	0.605	0.549
Observations	1,205	1,205	998

Note: * p < .1, ** p < 0.05, and *** p < 0.01. Standard errors clustered at the village level. Attend FM EFM Screening = 1 if reported attending the screening in EFM assigned village, 0 otherwise. Remember EFM Topic = 1 if respondent reported attending the screening concerning child marriage, family issues, or intimate partner violence, 0 otherwise. Discussed EFM = 1 if respondent reported attending FM screening and reported discussing the screening in two weeks following the screening, 0 otherwise.

11 Village-Level Treatment Effect Heterogeneity

Table A14: **Village-Level Treatment Effect Heterogeneity**
by Baseline EFM Support

	Reject FM	
	(1)	(2)
Anti-FM Media * Baseline FM Support	0.78***	0.69**
Standard Error	0.14	0.22
p-value	0.017	0.017
Anti-FM Media	-0.03	-0.02
Standard Error	0.05	0.04
Baseline FM Support	-0.95	-0.84
Standard Error	0.14	0.22
Hypothesis	Two	Two
Control Mean	0.82	0.82
Village-Level SD (control)	0.13	0.13
DV Range	[0-1]	[0-1]
Blocked FE	Yes	Yes
Controls	No	1
Adj-R^2	0.78	0.77
Observations	30	30

Note: * p $<$ .1, ** p $<$ 0.05, and *** p $<$ 0.01. Outcome and baseline variable: *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.* Standard errors clustered at the village level.

12 Variable Construction

Table A15: **Variable Construction** (EFM Attitudes, Norms, and Reporting)

Variable Name	Survey Question	Variable Construction
	Table 1 - FM Attitudes and Norms	
Reject EFM	*3.2) A girl should not have a say in who she marries; it is best if her father selects a suitable husband for her.*	1 = Disagree 0 = Agree
Reject FM Father	*8.2) 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.*	1 = Disagree 0 = Agree
Reject FM (Vignette)	*[Following story] 6.6a) In this situation, two of your friends make the following two statements. Which friend would you agree with?*	1 = Statement 1: No, a family should never allow their daughter to marry at X years old 0 = Statement 2: Yes, under these circumstances the family should marry their daughter even though she is X years old
Others FM (Vignette)	*[Following story] 6.6b) What do you think most others in your community think about this issue?*	1 = Statement 1: No, a family should never allow their daughter to marry at X years old 0 = Statement 2: Yes, under these circumstances the family should marry their daughter even though she is X years old
	Table 2 - FM Reporting	
Would Report FM	*6.8) 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.*	*6.8) 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.*
	Table 3 - Policy Attitudes	
Priority Ranking	*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 number of people who do not have enough food to eat; reduce the incidence of forced marriage; increase the number of roads; increase the availability of water; increase the availability of electricity; reduce the amount of crime; increase the availability of medicine for HIV/AIDS*	4 = Forced marriage 1st 3 = Forced marriage 2nd 2 = Forced marriage 3rd 1 = Forced marriage not ranked 0 = Forced marriage ranked last
Support FM Ban	*6.7) There have been recent discussions in Tanzania about the law on child marriage, which forbids girls from being married before they are 15. Villagers we talk to have three different views about the law, and we want to know which view comes closest to yours*	2 = Some think the law should prevent marriage before the girl is 18 1 = Some think the law is a good idea for banning marriage before 15 0 = Some think there shouldn't be a law.
Vote for FM Platform	*3.4b) Let me ask you about one more village nearby that is holding an election for village Chairperson. The first candidate is named [Mr. Salim / Mr. John / Mrs. Neema / Mrs. Mwanaidi] and [he/she]promises to [fight against child marriage / make hiv-aids treatment more available / improve roads / crack down on stealing in the village]. The second candidate is named [...] and [...] promises to [...].* *Which of these candidates do you think should be selected?*	1 = Child marriage candidate 0 = Alternative candidate **Note**: The election question was asked twice, and each name / platform appeared once. The variable only concerns the hypothetical election in which child marriage appeared as an option

Table A16: **Variable Construction** (Gender Hierarchy)

Variable Name	Survey Question	Variable Construction
	Table 4 - Gender Hierarchy	
Gender Hierarchy Index	*(6.1-6.4) Do you agree or disagree with the following statements?* *(1) (+) A husband and wife should share equally in cooking meals and raising children.* *(2) (-)If a woman earns more money than her husband, it's almost certain to cause problems.* *(3) (-) It is more important that a boy goes to school than a girl* *(4) (-) It is more important for parents to support a boy going to the city to look for work than a girl*	Variables set so that 1 means less gender hierarchy, summed, and divided by 4
Accept IPV Index	textitIn your opinion, does a man have good reason to hit his wife if...? (1) 7.10a) She disobeys him (2) 7.10b) He finds out she has been unfaithful (3) 7.10c) She neglects taking care of the children (4) 7.10d) She disobeys elders in the family? (5) 8.12) She gossips with the neighbors?	Variables set so that 1 means less approval of IPV, summed, and divided by 5
Self Report IPV	*8.1) 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.* *Random selection of [Police, Village Chairperson, Parents]*	1 = Report 0 = Don't Report
Communtiy Reject IPV	*8.14) 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?*	1 = No 0 = Yes
Communtiy Outraged IPV	*8.15. If people in your community were to find out that a man was slapping his wife or girlfriend, how would most of them react?*	2 = Outraged 1 = Depends 0 = Accept