Father of the Bride, or Steel Magnolias? Targeting men, women or both to reduce child marriage.*

Rachel Cassidy†, Anaya Dam‡, Wendy Janssens§, Umair Kiani¶, and Karlijn Morsink‖

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Abstract

Interventions that aim to change outcomes for women and children typically target women. Yet in contexts where men are the dominant decision-makers, male preferences and beliefs may remain the binding constraint. We ask – when we target men, women or both, with the same intervention in the same context – how their information and beliefs about private and social returns, versus their power to change household outcomes, trade off. We conduct a cluster-randomized control trial of an edutainment intervention aimed at delaying marriage of adolescent children in rural Pakistan. Our treatment arms target men and boys, women and girls, or both. We find that targeting men, or both genders jointly, significantly reduces child marriage of girls in targeted households. Underlying this, we show that whenever men are treated, they focus on private returns to the household; whenever women are treated, they focus on both private and social returns; and only when both genders are treated jointly, does the focus on social returns also become salient to men.

Keywords: Targeting, Gender, Child Marriage, Edutainment, Field Experiment

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‡Utrecht University

§Vrije Universiteit Amsterdam, Tinbergen Institute & Amsterdam Institute for Global Health and Development

¶Centre for Economic Research in Pakistan

‖Corresponding Author. Utrecht University, Wageningen University, & Center for Economic Analysis of Risk (CEAR), Georgia State University. k.morsink@uu.nl

1 Introduction

Interventions that aim to change outcomes for women and children — such as female labor force participation, fertility, early marriage, and children's health, education and nutrition — have typically targeted women. Common interventions either address women's information and beliefs, or their bargaining power, including through teaching skills or providing resources (e.g., Duflo et al. (2015); Ashraf et al. (2020a); Bandiera et al. (2020); Edmonds et al. (2021)). Women's information and beliefs may indeed be more responsive to such interventions — for example if women perceive a higher private benefit from changing such outcomes, or have lower previous access to information. Yet, in many contexts, men remain the dominant decision-makers in households and communities. Hence, male preferences and beliefs may remain the binding constraint for promoting change in household outcomes (Ashraf et al., 2014; Bernhardt et al., 2018; Bursztyn et al., 2020; Cassidy et al., 2021; Lowe and McKelway, 2021). Targeting women only, without changing men's preferences, may even have perverse impacts — such as increasing intimate partner violence, or worsening marriage market conditions (Bloch and Rao, 2002; Bobonis et al., 2013; Buchmann et al., 2021). There is emerging evidence that targeting men's information and beliefs could be effective in changing outcomes such as female labor-force participation and gender-based violence (Bursztyn et al., 2020; Sharma, 2021; Shah et al., 2022). It is, however, unclear how household outcomes are affected when we target women only, men only, or women and men jointly with the same intervention in the same context.

We ask how changes in men's and women's information and beliefs, versus their intra-household bargaining power, trade off and lead to impacts on outcomes when we target the same intervention at women, men, or both jointly. We investigate this question in the context of household decisions to delay marriage of their adolescent children in rural Pakistan. We conduct a cluster-randomized control trial (RCT), targeting women and girls, men and boys, or both jointly, with the same educational entertainment ("edutainment") intervention that addresses households' private and social returns to delaying marriage. We collect panel survey data from mothers, fathers and adolescent boys and girls on marriage outcomes. To explain potential impacts of our interventions, we elicit measures of fathers', mothers' and children's beliefs about the household's private returns to delaying the girl's marriage; incentivized measures of their beliefs about social norms regarding the best and acceptable age of marriage (households' "social returns"); and measures of their decision-making power. We find that targeting men only, as well as women and men jointly, significantly

reduces child marriage of girl adolescents in panel households, while targeting women only has no impact. We explain these results by showing that when fathers are treated, either alone or jointly with their spouse, they update their beliefs about private returns. When mothers are treated, either alone or jointly with their spouse, they also update beliefs about the same private returns. Mothers even update these beliefs when men are treated alone, through spillovers. When mothers are treated either alone or jointly with their spouse, they also update their beliefs about social returns. Fathers only update their beliefs about social returns when they are treated jointly with their spouse. Furthermore, female bargaining power *decreases* when men or women are treated alone, but *increases* when women and men are treated jointly. It therefore appears that, although women and men are both responsive to information about private returns, women are more responsive than men to information about social returns, and bring this focus into household discussions when treated jointly with males.

Early marriage is a widespread and persistent problem: one third of women aged 20 to 49 globally, and more than half of women in the least developed countries, were married before 18 (UNICEF, 2014), and 110 million child marriages are expected in the next 10 years (UNICEF, 2021). The negative consequences of child marriage for health, education, domestic violence and labor market participation are well documented (e.g., Jensen and Thornton (2003); Field and Ambrus (2008); Chari et al. (2017); Hicks and Hicks (2019)). Individual preferences over delaying children's marriage typically weigh beliefs about private returns, such as household income and child health (Jensen and Thornton, 2003; Chari et al., 2017; Corno et al., 2020; Corno and Voena, 2021), as well as social returns arising from norms about the best age of marriage, and beliefs about the marriage market (Anderson, 2007; Adams and Andrew, 2021; Buchmann et al., 2021). Men and women within the household may systematically differ in their information and beliefs about these private and social returns, as well as the extent to which they weigh these returns in their individual utility functions. In contexts where early marriage is prevalent, men are typically the dominant decision-makers in the household, and hence household outcomes may depend more strongly on male preferences and beliefs.

In the areas of rural Pakistan where our study takes place, 90% of marriages happen between spouses from the same village. Traditional village-level norms strongly favor early marriage, especially for girls. Dowry (payment by the bride's family to the groom's family) is common and typically increases with a girl's age. Our intervention provides information

aimed at changing individuals' beliefs about the private and social returns to delaying marriage; and does so in a group setting to help facilitate coordination on a new village norm to delay marriage. This approach is distinct from existing interventions to delay marriage, which typically focus on household financial constraints and/or girls' education (Baird et al., 2010, 2011, 2019; Duflo et al., 2015; Buchmann et al., 2021).

Our intervention consists of a mobile cinema screening of a street-theater performance, developed by local NGOs and performed by local actors. The screening was followed by facilitated group discussions. We randomly assigned 177 villages across two provinces to receive the edutainment intervention which was targeted at households with adolescent children; with the treatment arms targeting either women and girls in the household, men and boys in the household, all jointly, or no intervention. We surveyed 1700 panel households, from whom we sampled 5100 individuals: an adolescent boy or girl aged 14-17, plus their primary male and female caregivers ("fathers" and "mothers"). The intervention took place over the first six months of 2019. We collected midline data six months after the intervention, and endline data approximately eighteen months after the intervention. We also collected monthly village-level observational data on all marriages in the village, and the origin and the ages of the bride and groom, via visits by our field teams to the villages for the entire study period.

We find that targeting the intervention at males only significantly reduces the probability of marriage and child marriage for girls in *panel households* — i.e., households who were surveyed and directly invited to participate in the intervention according to the treatment arm, with near-perfect compliance. The male arm causes a reduction of 4.6 percentage points in child marriage by midline, equivalent to 65% of the control group mean. This effect is sustained at endline, although it becomes marginally insignificant in some specifications. In contrast, the female arm has no significant impact on child marriages in panel households. The female+male arm leads to a significant reduction in child marriages of girl adolescents in panel households by endline, with a magnitude almost identical to the impact of the male-only arm. At midline, differences between the female arm and male arm are significantly different from each other, while there are no statistically significant differences between the male and female+male arm. Robustness checks show that reported marriages, and estimated treatment impacts, are highly consistent across fathers, mothers and adolescent respondents within the same households.

To explain this pattern of results, we first show that whenever males are treated, they

update their beliefs about the private returns to delaying their daughter's marriage in terms of expected quality of her future spouse. Fathers have the bargaining power to act on their private beliefs and delay their daughters' marriage: 85% of our panel households in the control group say that the father alone has the final say in marriage decisions. Treated mothers, whether treated alone or jointly with men, also significantly update their beliefs about the private returns to delaying marriage, and also update these beliefs through spillovers when men are treated alone. Moreover, treated mothers also update their beliefs about social returns, linked to the attitudes towards child marriage of other men and women in their community. However, mother's bargaining power in the household is further reduced when they are treated alone in the female arm. Only when fathers and mothers are treated jointly, do fathers also update their beliefs about community members' attitudes towards delaying marriage, and do both fathers and mothers show sustained changes in their own attitudes towards delaying the age of marriage. The female+male arm is also the only arm where mothers become *more* involved in decision-making. This, however, comes at a cost, as those women with high baseline involvement in decision-making experience an increase in physical intimate partner violence. Both of these effects occur at the same time as when we observe significant reductions in child marriage in the female+male arm. It therefore appears that females place more weight on social returns as a result of our interventions, and bring this focus into household discussions when treated jointly with males. Participation is not significantly different across treatment arms, hence this cannot explain the fact that we observe effects in the male arm and not in the female arm.

Targeting women and men jointly also leads to a decrease of 24 percentage points in the probability that a child marriage is observed in a given month *at the village level*, equivalent to 58% of the control group mean. Unlike in the panel households, targeting men does not lead to sustained reductions in child marriages in the village-level data, and effects at village level are statistically significantly different between the male and female+male intervention. Despite the lack of effects in panel households when only women are targeted, targeting women alone does lead to a significant reduction of 20 percentage points (50%) in the probability of observing a girl child marriage in the village level data. This effect, however, is not significantly different from the effect in the male arm. There is suggestive evidence that the impacts of the joint arm and the female-only arm at the village level are driven by villages where women are able to leave their compounds of residence (around 70% of the villages in our sample). We offer the interpretation that women spark coordination

on a new norm in the village, for example via conversations about the intervention and about reductions in child marriage as they emerge at the village level.

We expand a recent literature that **targets men to change outcomes for women and children**, with some success (Bursztyn et al., 2020; Ashraf et al., 2020b; Dhar et al., 2021; Sharma, 2021; Shah et al., 2022). We provide a clean test of the extent to which household outcomes change if men, women or both are targeted with the same intervention in the same context. We explain these results by showing that impacts relate to men's and women's updating of beliefs and information in response to the intervention, and their relative bargaining power in the household. A related literature provides evidence on the impacts of targeting the same conditional cash transfers at men versus women (Haushofer et al., 2019; Akresh et al., 2016), and adolescents versus parents (Berry, 2015; De Walque and Valente, 2018).

We also advance a literature that aims to **change information and beliefs of different members of the household** (e.g., Ricardo et al. (2011); Doyle et al. (2018); Bursztyn et al. (2020); Ashraf et al. (2020b); Vaillant et al. (2020)). Traditional models of intra-household decision-making typically assume symmetry of information between spouses (Lundberg and Pollak (1996); Chiappori (1992); Bourguignon et al. (1993)). However, subsequent empirical work finds that information asymmetry between spouses may explain household outcomes (e.g., Ashraf et al. (2014)). An emerging literature studies intra-household information flows and spillovers (Apedo-Amah et al., 2020; Ashraf et al., 2020b; Conlon et al., 2021; Fehr et al., 2022). We contribute to this literature by providing novel evidence that men and women in the household appear to update information and beliefs on different domains when provided with the same information; and that there may be subsequent intra-household spillovers, which are not symmetrical. Men treated alone update on only the private domain, which spills over to their untreated spouse; while women treated alone update on both private and social domains, but the updating on the social domain does not spill over to their spouse. Only information provision to both spouses leads men to update beliefs on the social domain as well as the private domain.

We also contribute to a literature on **interventions that seek to delay marriage;** see Malhotra and Elnakib (2021) for a review. Laws prohibiting child marriage — where they exist — often suffer from implementation issues in low-resource contexts and have limited to no impact on delaying child marriage (Collin and Talbot, 2017; Wilson et al., 2022). Economists have typically focused on poverty and consumption-smoothing as drivers

of early marriage (Corno et al., 2020; Corno and Voena, 2021; Tapsoba, 2022). Many child marriage interventions address these drivers by seeking to ease households' private financial constraints, for example through cash transfers and education subsidies (Baird et al., 2010, 2011, 2019; Duflo et al., 2015). While such interventions have been shown to delay marriage, they require relatively large upfront costs, and are typically conditional on schooling or provided through the schooling system. Such interventions may have less impact in contexts such as Pakistan where girls leave school very early, several years before the age where they are at greatest risk of child marriage (14-17 years). Instead, we provide evidence on an intervention that is aimed at information and beliefs. Our intervention is low-cost and does not depend on costly financial transfers or girls being in school, and can be straightforwardly replicated by local NGOs elsewhere. It produces sizeable impacts on delaying marriage, with spillovers at the village level as well as the household level.

In contexts such as Pakistan where child marriage is prevalent, marriage markets tend to coordinate on an early age of marriage due to social norms related to chastity and obedience (Bicchieri et al., 2014), and expectations about match quality and dowry payments, both of which typically worsen with a girl's age (Anderson, 2007; Adams and Andrew, 2021). Even if parents wish to deviate from the prevailing norm and delay their daughter's marriage, marriage markets may get stuck at an early-marriage norm due to coordination failure. In theory, a signal to coordinate on a new norm could shift the norm in the community to later marriage (Buchmann et al., 2021). We provide evidence that a community-based intervention delivered to the right decision-makers (in our case, audiences involving women) can do so.

Related, we contribute to a growing literature on the effectiveness of **edutainment interventions** in promoting improvements in outcomes for women, e.g., health, education, women's empowerment, as well as in broader social cohesion (Jensen and Oster, 2009; La Ferrara et al., 2012; Banerjee et al., 2019; Roy et al., 2019; Armand et al., 2020; Green et al., 2020; Glennerster et al., 2021; Donati et al., 2022). We directly test the impact of broadcasting the same content to different groups of individuals within a community.

2 Context and child marriage intervention

Pakistan is a context with particularly high rates of early marriage: even among girls currently aged 20-24, 21% were married before 18 (UNICEF, 2019). Only 13% of girls study beyond the ninth year of school, corresponding to approximately age 14 (*ibid.*). Our

study takes places in the provinces of Sindh, where the legal marriage age for girls and boys is 18 years, and Punjab, where a legal change in 2019 increased the legal marriage age for girls from 16 to 18 (to match that of boys). We worked with local NGOs to design an intervention to inform participants of the costs and benefits to delaying marriage. In our setting, early marriage happens in a context of dowry and village-level age of marriage norms. The intervention was deliberately designed to be delivered in a social setting within the village, so that it may facilitate coordination on a new norm with delayed age of marriage.

The intervention was implemented by local NGO partners. Local NGO staff invited individuals from our panel households (see below) to participate in the intervention, selecting the gender of the individuals according to the village's treatment status (see below) — men and adolescent boys, women and adolescent girls, or both. High temperatures and the need to ensure that participants could see the screen meant that the intervention was mainly held indoors, and that spaces were naturally limited to twenty participants. Therefore, only households from our panel sample were invited. The intervention consisted of an educational entertainment (edutainment) intervention through a mobile cinema screening of a pre-recorded street-theatre play, developed by the local NGOs and performed by local actors, followed by a facilitated group discussion. Approximately three months later, the local NGO held a follow-up facilitated group discussion with the same participants, focusing on the themes raised in the screening. The intervention took place over the first six months of 2019.

The content of the play focused on everyday situations related to marriage and education that had been observed by the local NGOs in these communities. Focus group discussions (FGDs) were held separately with men, adolescent boys, women, and adolescent girls in these communities to inform the details of the intervention content. The characters in the play embodied the various positions on early marriage and girls' education that emerged in the FGDs. The characters discussed motivations for marrying a child early or late, and keeping a child in school or not, again as mentioned by participants in the FGDs. In particular, the script stressed the rights of women and girls; the costs of early marriage in terms of health, education, and potential labor-market opportunities for both the young married couple and their children; perceived costs of deviating from prevailing age-of-marriage norms; and other potential impacts on the match quality in terms of desirable spousal attributes. The play lasted approximately ten minutes.

The format of "street theater" was chosen to make the content engaging and because it

is familiar to participants. Street theater is a popular art form in South Asia, and is widely used to to address social and political themes and raise awareness among the public in an entertaining way. The theater performance was written, directed and performed by local actors and organizations with extensive feedback and piloting from the research team. The seriousness of the educational content was juxtaposed with scenes of situational humor, to enhance engagement with the intervention.

The movie screening was followed by a group discussion, which followed a standardized format and was facilitated by a gender specialist from the local NGOs. The facilitator asked questions about participants' experiences with the movie, the views of the various characters, and the consequences of early marriage and low levels of education for households. The discussion lasted for 30 minutes, and facilitators encouraged active participation from all attending. Community discussion, sometimes with facilitation, is common after a street theater performance. In the second visit to each village approximately three months later, the implementing organizations again conducted structured group discussions based around the content of the movie with the same participants. The same gender specialist led these discussions, which were 50 minutes long.

3 Experimental design

We conducted a cluster-randomized controlled trial in 177 villages in Sindh and Punjab provinces in Pakistan. The villages were randomly assigned into four treatment groups:

1. The female intervention (F): Targeting women and girls only;
2. The male intervention (M): Targeting men and boys only;
3. The female+male intervention (F+M): Targeting the intervention at both genders simultaneously; or
4. The control group (C): No intervention.

The screening of the theater performance and the group discussions were held in communal areas in the village: typically a compound or a room of a community building. In most villages men and women were not allowed to attend the intervention jointly in the female+male arm. In these villages, men and women attended separately but simultaneously. Care was taken to inform both groups that the other group would be watching the same screening and would be discussing the same topics at the same time.

Our "panel households" were mobilized to participate in the intervention a few days prior to the theater performance screening, by a designated focal person from the village who announced the intervention to them. This focal person, along with the staff of the local NGO encouraged these panel households to attend.[1]

3.1 Sampling and randomization

We conducted the sampling and randomisation in three stages. First, the local NGOs selected villages for inclusion in the study. To minimize the risk of contamination across villages, we excluded villages that had less than 1.6 kilometers between their outer boundaries, based on a mapping exercise conducted with the local NGOs and local government offices. This left 80 eligible villages from Sindh Province and 97 eligible villages from Punjab Province. Next, we collected baseline village-level data on key village characteristics including presence of and distance to primary and secondary boys/girls/mixed schools, presence of female teachers, distance to nearest town, presence of health center and tea shop, population size, and mobility of women in the village.

We next conducted a household listing exercise to obtain a census of households in each village that were eligible to participate in our study. The eligibility criteria were that households needed to have at least one unmarried adolescent son or daughter aged 14-17 years and needed to have at least one adult father or male caregiver and one adult mother or female caregiver in the household. A household was defined as eating from the same stove ("choola"). Ages of adolescents were verified either through National Identity Card (NIC), or a Birth Registration Certificate (B-Form) where applicable.[2]

From the census of eligible households, we randomly selected ten households per village to participate in our study: five households with an adolescent boy ("boy households") and five households with an adolescent girl ("girl households"). As a result, the planned sample size was 1,770 households (10 households in each of the 177 villages – with three respondents per household: father, mother, and either an unmarried adolescent boy or an unmarried adolescent girl). Some villages did not have a sufficient number of households meeting the selection criteria due to their small size, leading to a final sample size of 1,687

[1] High temperatures and practicalities of being able to see the screen implied that spaces were limited as the intervention was mainly held indoors. Therefore, only panel households were invited.

[2] In Pakistan, citizens who are age 18 years and older are eligible for a National Identity Card. It is possible, given that our villages are remote and rural, that not all households have applied for these cards. Birth Registration Certificates (B-Form) are issued by the local government at the time of birth. They contain the name and date of birth (DOB) of the individual in question and the name and DOB of their parents as well as siblings.

households (5,061 respondents): 756 households (2268 respondents) in Sindh province, and 931 households (2793 respondents) in Punjab province.

After the baseline survey, we randomly assigned villages to one of the four treatment arms, after stratification first by district and second by Mahalanobis distance matching on village-level characteristics.[3] 44 villages were assigned to receive the male intervention; 45 villages were assigned to receive the female intervention and 44 villages the female+male intervention. The remaining 44 villages were assigned to the control group.

4 Data and descriptive statistics

Baseline data were collected in July and August 2018, before the intervention was introduced in the treatment villages. In Punjab Province, we were able to conduct the baseline household listing exercise (including adolescent's gender, age and marital status) and select our panel sample households; but we were unable to conduct a full baseline survey due to the security situation at the time of the baseline. Randomization of villages into treatment arms was conducted after the baseline survey, and before the start of the interventions. The security situation in Punjab subsequently eased, and allowed the intervention to go ahead in Punjab according to the assigned treatment arms. The midline survey was conducted from November 2019 until March 2020, i.e. four to six months after the intervention had ended in the treatment villages and just before the start of the COVID-19 pandemic. When we visited the panel sample households in Punjab for the midline survey, we included retrospective baseline questions on some outcomes of interest. An endline survey was conducted between September 2020 and March 2021, i.e., 16 months after the intervention and during the later stages of the COVID-19 pandemic. We pre-registered the RCT and submitted pre-analysis plans for the analysis of the baseline, midline and endline.

[3] Our study area covered two districts in Sindh, and two in Punjab. Within each district, the Mahalanobis distance score was computed for each of our sample villages based on the following list of village-level baseline variables: boys only primary school; girls only primary school; mixed gender primary school; girls only secondary school; distance to nearest primary girls' school (in minutes); distance to nearest girls' secondary school (in minutes); are girls allowed to leave the compound; distance to the nearest town (in minutes); presence of teashop; whether the village is a main village or sub-village; total number of households; availability of female teachers in girls' school; and presence of a primary health care center. If in a district, the variable had less than or equal to 2 observations or a correlation $>= 0.6$ with other variables it was not included in its score computation. Villages were grouped into groups of 8 villages based on the Mahalanobis distance score, and these 8 villages were subsequently randomly assigned to either one of the treatment arms or the control arm.

4.1 Household survey data

Household survey data were collected at baseline in Sindh, and at midline and endline in both provinces with three respondents per household: the father, the mother and the adolescent child. From the father we collected data on household demographic information; education, employment, and marital status of all household members; household financial and wealth indicators; and expenditures. From both the father and mother we collected data on their marital history and on decision-making in the household. From all three respondents we collected data on preferences, attitudes, expectations, and beliefs about marriage, with a focus on child marriage (i.e., marriage before age 18) and early marriage of girls. We also asked all three household members about the adolescent child's education, marital status, and (conditional on marriage) the age at the time of marriage and spousal characteristics. Finally, we elicited all three respondents' attitudes towards domestic violence, but elicited actual experiences of violence from the mother only.

4.2 Village-level observational data on marriages

Throughout the entire study period from September 2018 until March 2021, we collected monthly village-level marriage data in both Sindh and Punjab provinces. We do not use official administrative data on marriage registrations, since pilot investigation showed that few marriages are registered, and we would especially expect child marriage to remain unregistered due to its illegal nature. Instead our research field coordinators visited a central location in each village every month until July-August 2019, and once every two months from then on (asking about the two previous months). The field coordinator mapped out all marriages that happened in the village since their last visit (typically one or two marriages per village per month) by interviewing a series of individuals independently, and continuing to question different individuals until they had cross-checked that the information was complete and correct. For the bimonthly observations, we divide the total marriage observations by two to aggregate with the monthly observations and create a panel of "village-months." Village-months after and including July 2019 are considered post-treatment months, i.e., after completion of the intervention; while village-months before (not including) July 2019 are considered pre-treatment months, i.e. before or during intervention. The data provide a listing of each marriage that took place in that month, the age of the bride and groom,

and the origin of the bride and groom as either from the village or another village.[4]

4.3 Balance

Table 1 shows descriptive statistics and balance checks for household-level variables,[5] while Table A1 shows the same for a pre-specified list of pre-specified village-level variables.[6] We report the mean and standard deviation in each experimental arm, the p-value for the test that the difference in means between each combination of experimental arms is zero, and the normalized differences between each combination of experimental arms. Our household- and village-level variables are well balanced across treatments. The p-value on the difference in means for each household-level variable is never statistically significant. Only one out of 72 tests for village-level variables has a p-value of less than 0.10. The p-value of the F-statistic of joint significance is never significant. Normalized differences in means are never above 0.13 for the household-level variables; and mostly below the rule of thumb of 0.25, as suggested by Imbens and Rubin (2015), for the village-level variables.

Table 1 confirms that, by construction, 50% of panel households had an adolescent girl surveyed ("girl households") and 50% of panel households had an adolescent boy surveyed ("boy households"). The average age of the surveyed adolescent was 15.3 years, and consistent with our selection criteria, their ages ranged from 14 to 17 years at baseline. 36% of the surveyed adolescents were promised/engaged to be married at baseline, but as per our selection criteria none were married. 56% of adolescents were in school at baseline, with the percentage of girls who are in school much lower than that for boys. Parents' average years

[4] In this paper, we present results on marriage related variables from the household survey and village-level marriage data. We also collected data on education outcomes, preferences, attitudes, expectations, and beliefs about education of girls in the household survey; and monthly village-level data on school enrollment and attendance for boys and girls for the villages in our sample for the entire study period. Education-related variables will be analyzed in a separate paper.

[5] Adolescents' age and gender were the only household-level variables pre-specified for balance checks, since there was only a pre-survey listing in Punjab rather than a full baseline survey due to the security situation. In case there were inconsistencies between adolescents' age at midline compared to their age at baseline (Sindh province) or pre-survey listing (Punjab province), age was verified at midline by the enumerator using National Identity Card, Child Registration Certificate or Birth registration Certificate as applicable. For adolescent age, we report balance checks on this verified midline age minus one year. For 32 adolescents we do not have their age at midline, so we use their baseline age instead. Robustness checks using different ways to address inconsistencies in adolescent age are available from the authors upon request. In Punjab, during the midline survey we asked 'retrospective baseline' questions. For balance checks on non-pre-specified variables, we use the baseline values for Sindh, and the responses to the retrospective baseline questions for Punjab. These variables are primarily presented for descriptive statistics, and not balance checks.

[6] In Table A1, two pre-specified dummy variables (whether there is a girls' secondary school in the village and whether there is a primary health care center in the village) had to be dropped since there was insufficient variation in the data.

of schooling is low: 4.5 years for fathers and just 1.2 years for mothers. The average age of (first) marriage of the father was 22.4 years, and the average age of the father's (first) spouse was 18.4 years. Most of parents' marriages (72%) involved a dowry, i.e., a transfer of money or property by the family of the bride to the family of the groom at the time of marriage. Meanwhile, Table A1 highlights that in about 70% of the study villages females can leave their compound of residence unaccompanied by a male family member; and on average sample villages have about 170 households.

4.4 Attrition

Tables A2 and A3 present attrition rates by treatment arm for midline and endline respectively; for fathers, mothers and entire households. In Columns 5-10, we test for differential attrition between each experimental arm. In Sindh, where we conducted a baseline survey, we consider a household or individual respondent to have attrited if they participated in the baseline survey but they were not available during the midline or endline survey respectively. In Punjab, since we were not able to conduct a full baseline survey due to security concerns, we consider a household or individual to have attrited if they were randomly selected at baseline from the household listing to participate in the surveys and intervention, and we were not able to survey them during the midline or endline respectively.

The average attrition rates in the control group are low: 5.3% for fathers, 1.2% for mothers, and 0.7% for households at midline; 13% for fathers, 6% for mothers, and 4.6% for households at endline.[7] We are able to recover detailed information on outcome variables for adolescents from their parents or other household members even when the adolescent is absent, as long as the whole household has not attrited.

5 Results: Marriage and child marriage in panel households

Our preferred estimations for the household-level data are logit regressions for the binary outcomes "marriage" and "child marriage," and OLS regressions for the continuous variable "age of marriage" of the following form:

[7] At midline, even though we find that the p-value of one of the 18 tests is significant at the 10% level and one out of the 18 tests is significant at the 5% level, after correcting for the false discovery rate (FDR) across the 6 experimental arm comparisons at the household or the level of each individual, we find that the q-value is not significant. We also note that for the p-values that are significant, the raw difference in the number of attriters is comparatively low: 13 mothers attrited in the male intervention versus 5 in the control group; 9 households attrited in the male intervention versus 3 in the control group.

Table 1: Household-level Descriptives and Balance.

	(1) C	(2) F	(3) M	(4) F+M	(5) F vs C	(6) M vs C	(7) F+M vs C	(8) F vs M	(9) F vs F+M	(10) M vs F+M
Adolecent is female	0.509	0.488	0.475	0.504	-0.022	-0.035	-0.005	0.013	-0.016	-0.029
	(0.500)	(0.500)	(0.500)	(0.500)	(0.320)	(0.125)	(0.847)	(0.578)	(0.421)	(0.177)
					[-0.043]	[-0.069]	[-0.011]	[0.026]	[-0.032]	[-0.058]
Adolecent's age	15.332	15.448	15.473	15.408	0.116	0.142	0.077	-0.025	0.040	0.065
	(1.170)	(1.243)	(1.251)	(1.173)	(0.212)	(0.107)	(0.457)	(0.774)	(0.655)	(0.456)
					[0.096]	[0.117]	[0.065]	[-0.020]	[0.033]	[0.055]
Adolescent is engaged	0.360	0.279	0.324	0.266	-0.081	-0.035	-0.094	-0.045	0.013	0.059
	(0.481)	(0.450)	(0.469)	(0.443)	(0.297)	(0.651)	(0.194)	(0.533)	(0.841)	(0.385)
					[-0.174]	[-0.075]	[-0.204]	[-0.099]	[0.030]	[0.133]
Adolescent in school	0.561	0.540	0.553	0.584	-0.021	-0.007	0.023	-0.014	-0.044	-0.030
	(0.497)	(0.499)	(0.498)	(0.494)	(0.663)	(0.891)	(0.661)	(0.771)	(0.346)	(0.559)
					[-0.042]	[-0.015]	[0.047]	[-0.028]	[-0.089]	[-0.062]
Years of schooling father	4.464	4.835	5.045	5.052	0.371	0.581	0.588	-0.210	-0.217	-0.007
	(4.821)	(4.759)	(5.091)	(5.104)	(0.333)	(0.158)	(0.229)	(0.650)	(0.669)	(0.957)
					[0.078]	[0.117]	[0.118]	[-0.043]	[-0.044]	[-0.001]
Years of schooling mother	1.187	1.274	1.647	1.511	0.087	0.460	0.324	-0.373	-0.237	0.136
	(3.192)	(3.000)	(3.506)	(3.394)	(0.700)	(0.105)	(0.249)	(0.190)	(0.389)	(0.755)
					[0.028]	[0.137]	[0.098]	[-0.114]	[-0.074]	[0.040]
Marriage age - father	22.386	22.492	22.726	22.054	0.106	0.341	-0.332	-0.235	0.438	0.672
	(4.923)	(5.176)	(5.882)	(5.114)	(0.718)	(0.467)	(0.439)	(0.688)	(0.288)	(0.186)
					[0.021]	[0.063]	[-0.066]	[-0.042]	[0.085]	[0.131]
Marriage age - father's spouse	18.363	18.386	18.540	18.297	0.023	0.177	-0.067	-0.153	0.090	0.243
	(3.467)	(3.707)	(4.042)	(3.967)	(0.855)	(0.552)	(0.831)	(0.677)	(0.731)	(0.489)
					[0.006]	[0.047]	[-0.018]	[-0.040]	[0.023]	[0.061]
Parents had dowry	0.723	0.733	0.718	0.691	0.010	-0.006	-0.032	0.015	0.042	0.027
	(0.448)	(0.443)	(0.451)	(0.463)	(0.878)	(0.933)	(0.630)	(0.815)	(0.522)	(0.700)
					[0.021]	[-0.013]	[-0.071]	[0.034]	[0.093]	[0.058]

Notes: Columns 1-4 show the mean of the variable in each experimental arm, i.e. control (C); intervention is targeted at women and girls only (Female intervention: F); at men and boys only (Male intervention: M); or at both genders simultaneously (Female+male intervention: F+M). Standard deviations are reported in parentheses. Column 5-10 shows the difference in means for each combination of experimental arms. In Columns 5-10, values in parentheses are p-values from robust standard errors clustered at the village level (unit of randomization) using a logit regression for binary variables, and an OLS regression for continuous variables. Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance. Normalized differences are reported in square brackets, calculated as the difference between the sample means of experimental arms divided by the square root of the sum of the sample variances.

"Adolescent is engaged" uses baseline data from Sindh province only, as we did not have a retrospective measure for this in Punjab province. Marriage age of father is of his first marriage, and marriage age of father's spouse is of his first spouse. "Dowry" is a transfer of money or property by the family of the bride to the family of the groom at the time of marriage.

$$Y_{ivst} = \alpha + \beta T_v + \phi T_v \times G_i + \theta G_i + \delta_s + \epsilon_{ivst} \quad (1)$$

where Y_{ivst} is the outcome variable of interest at survey round t, midline or endline; for individual i, where i is father, mother, or adolescent child; in village v, in strata s. T_v is a vector of dummies for the village being assigned to each of our treatment arms — male-only, female only, or female+male — relative to the control group. G_i is a dummy that is one if the gender of the adolescent child in the household is a girl. The vector of estimated coefficients β, therefore, represent the intent-to-treat effects on households with an adolescent boy, and $\beta + \phi$ represents the intent-to-treat effects on households with an adolescent girl. We estimate the intent-to-treat effects since not all targeted individuals in targeted households in villages assigned to treatment were always able to attend the intervention. δ_s are strata fixed effects based on the Mahalanobis distance strata per district, which are included for inference since randomisation was blocked on strata (Bruhn and McKenzie, 2009). Standard errors are robust to village-level heteroskedasticity, as this was the level of randomisation (Abadie et al., 2017). We also report additional p-values for the treatment coefficients as calculated from randomisation inference tests (Young, 2016). Finally, we report q-values correcting for false discovery rate within each pre-specified family using the Benjamini–Hochberg procedure (Benjamini and Hochberg, 1995; Anderson, 2008).

Table 2 presents marginal effect of the impacts on marriage, age at the time of marriage, and child marriage (i.e. marriage age less than 18) of the adolescent girl in our "girl" panel households post-estimated from Equation 1. In the control group, marriage rates of these girls increased across survey rounds from 11% at midline to 22% endline as the girls got older. Conditional on being married, the average age of marriage is 16.6 years at midline and 17.0 years at endline in the control group. Respectively 7% and 12% of girl adolescents in our panel households are child-married in the control group at midline and at endline. We note that the rate of child marriage in our control group is substantially smaller than the rate that is reported in the Pakistan Demographic and Health Survey of 2017-2018, due to our selection criteria of adolescents being unmarried and between 14-17 years old at baseline. By midline 75 %, and by endline 55% of girls in our panel households are still under the age of 18, and hence could still be at risk of being child-married.

Table 2: Household - Marriage & Child Marriage Outcomes - Adolescent Girls.

	Married		Marriage age		Child Marriage	
	Midline	Endline	Midline	Endline	Midline	Endline
Female	-0.006	-0.064	0.126	0.079	0.008	-0.026
	(0.866)	(0.184)	(0.795)	(0.863)	(0.791)	(0.491)
	[0.877]	[0.194]	[0.716]	[0.747]	[0.816]	[0.547]
Male	-0.058	-0.096	0.475	0.456	-0.046	-0.054
	(0.030)**	(0.026)**	(0.350)	(0.256)	(0.022)**	(0.083)*
	[0.043]**	[0.047]**	[0.471]	[0.117]	[0.035]**	[0.129]
Female+Male	-0.034	-0.083	-0.036	-0.125	-0.019	-0.052
	(0.227)	(0.051)*	(0.941)	(0.744)	(0.396)	(0.081)*
	[0.335]	[0.096]*	[0.919]	[0.894]	[0.531]	[0.150]
Observations	828	798	67	131	828	798
(Child) Married	67	131	67	131	44	73
Control Mean	0.105	0.222	16.636	17.022	0.067	0.123

Notes: Table presents marginal treatment effects on marriage outcomes for girl adolescents from our panel households, post-estimated as the sum of coefficients β and ϕ estimated from Equation 1. Marriage outcomes are as reported by the adolescent themselves as pre-specified in the pre-analysis plan. In Columns 1-2, marginal treatment effects on marriage for girl adolescents are reported for midline and endline. The dependent variable is a dummy that takes on value one (zero otherwise) if the adolescent said "yes" when asked if she is married. Columns 3-4 present marginal treatment effects on age at the time of marriage, conditional on being married at midline and endline. Columns 5-6 present marginal treatment effects on child marriage, i.e a dummy variable that takes on value one if the adolescent was less than 18 years old at the time of marriage, for midline and endline. Regressions are estimated using logit regressions for dummy variables (marriage and child marriage), and OLS for continuous variables (age at marriage). *P*-values for marginal treatment effects are based on standard errors clustered at village level (unit of randomization), and are indicated in parentheses. Exact *p*-values for marginal treatment effects from randomization inference tests based on 1000 permutations are provided in square brackets. Fixed effects for randomization strata are not included at midline, due to perfect prediction. Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance. The row "Control Mean" indicates the marriage rate, average age of marriage and child marriage rate in the control group. The row "(Child) Married " indicates the total number of (child) marriages of girl adolescents.

Columns 1-2 of Table 2 show that targeting the intervention at men only significantly reduces the likelihood of marriage for girl adolescents both in the short and in the long run. At midline, the reduction is 5.8 percentage points (p-value<0.05); while at endline, 1.5 years after the intervention, the reduction is 9.6 percentage points (p-value<0.05). Compared to the control means, these estimates imply a 55% reduction in the likelihood of marriage at midline and a 43% reduction at endline. We do not find significant increases in the age of marriage for girl adolescents (Columns 3-4); although the point estimates are large, at 0.48 and 0.46 years at midline and endline respectively. Given that we find a significant reduction in marriage in the male intervention, we do not yet observe the delayed marriages that are likely to happen at older ages beyond our survey period, and so the point estimate

on age of marriage is likely to be an underestimate. Figure A1 (midline) and Figure A2 (endline) plot the kernel densities of age of marriage in the control and treatment arms. We see that in the male treatment arm, a substantial mass of the distribution is missing in the lower tail at midline and endline, as well as in the upper tail at endline. This suggests that, in the male treatment arm, a substantial share of girls in our panel households have not been married at the youngest ages by midline and endline. Furthermore, some girls at older ages were married in the control group, but have not yet been married at endline in the male treatment arm. Columns 5-6 in Table 2 show that a substantial proportion of the decline in marriages for girl adolescents in the male intervention arm comes from a reduction in child marriages, i.e., marriages that occur before the girl has reached the age of 18. At midline, we find a large and significant decrease of 4.6 percentage points (p-value$<$0.05) in child marriages for girl adolescents in the male intervention. These effects on marriages and child marriages are significantly different from the female arm (Appendix Table A7). At endline, we find a point estimate of 5.4 percentage points (p-value$<$0.10), although this is marginally insignificant in some specifications we run for robustness.[8] Compared to the control mean of 7% and 12%, this implies a 65% and 45% reduction in child marriage at midline and endline respectively.

When both women and men are jointly treated, there is also a reduction in the likelihood of marriages for girl adolescents; but these impacts are only significant in the long run. At midline, we find an insignificant reduction in marriage of 3.4 percentage points; while at endline we find a significant reduction of 8.3 percentage points (p-value$<$0.05). Impacts are not statistically different from the male arm (Appendix Table A7). We find no impacts on the average age of marriage, and point estimates are small. That said, when we look at the age-of-marriage distributions in Figure A1 and A2, we see patterns similar to that of the male treatment arm: a substantial mass of the distribution is missing at the lower tail in both survey rounds, and also at the upper tail at endline. We find a significant reduction in the likelihood of child marriage of girl adolescents at endline of 5.2 percentage points (p-value$<$0.10), although this is marginally insignificant in some specifications. This impact is approximately a 45% reduction compared to the control mean. Impacts on child

[8]We note that by endline, 45% of girl adolescents in our panel sample are 18 or older, implying that the sample of adolescents that can potentially be child-married has substantially reduced. This implies lower effective statistical power to detect an effect on child marriages as our sample gets older. This may contribute to the marginal insignificance of the impacts on child marriage in the male arm at endline in some specifications, including randomization inference tests. In addition, endline child marriage outcomes could be noisier due to other circumstances such as the COVID-19 pandemic affecting marriages at endline.

marriage at endline in the female+male arm are not significantly different from the male arm (Appendix Table A7).

Finally, we find that targeting the intervention at women only does not lead to significant impacts on any of our marriage outcomes for girl adolescents. Distributions of age of marriage trace the control group distribution quite closely (See Figure A1 and Figure A1). At midline, estimated reductions in marriages and child marriage in the male arm are significantly different from impacts in the female arm (Appendix Table A7), although we lose precision to make this comparison at endline.

For adolescent boys, we find no impact of the intervention on marriage or age of marriage, at midline or endline. For child marriage, we find a marginally significant increase in the female+male intervention at midline, but no significant impact at endline (Appendix Tables A4 and A8). Boy adolescents aged 14-17 are much less likely to get married than girls: just 3% of boys in the control group are married at midline, and 7% at endline. Boys are also much less likely to be child-married: 1% and 4% of boys in the control group at midline and endline respectively, compared to 7% and 12% of girls at midline and endline respectively.

Our findings are robust to using randomization inference p-values. As explained above, our main specifications in Table 2 and Appendix Table A4 use the reports from the adolescents in the households. Our results on marriage of girl and boy adolescents are, however, robust to using reports by the father, the mother, or any of the three respondents in the household, as presented in Table A5 and A6 in the Appendix.[9]

We focus on early marriage instead of early engagement, since most of the documented severe negative consequences to girls and to future children arise from practices that take place only after the actual ritual of marriage, such as conjugal living, the girl leaving her birth family's household, and consummation. We note that in this context, girls and boys can be promised or engaged by their families at a very early age or even at birth, while they continue to live with their birth family until the time of marriage. Nevertheless, for the majority of adolescent girls that are not yet engaged, we might be concerned that even though households decide to delay marriages, they might substitute this practice with engagements. Reassuringly, we show that, for girl adolescents who are unmarried at midline and endline, there is no significant increase in the likelihood of being engaged or newly engaged between survey rounds (Appendix Table A9).

[9]The qualitatively irrelevant differences in point estimates can largely be accounted for by a small number of respondents having attrited.

6 Mechanisms: household bargaining over delaying marriage

To explain the pattern of impacts on (child) marriages across treatment arms, we collected panel data on decision-making in the household, as well as on the information and beliefs of fathers and mothers about the costs and benefits of delaying marriage. We separate these costs and benefits into private returns and social returns to the household. In terms of private returns, we measure information and beliefs about the costs of early marriage to the child and grandchild, as well as the expected quality of the child's future spouse. In terms of social returns, we measure the fathers' and mothers' beliefs about other community members' attitudes towards the best age of marriage.

6.1 Household decision-making

We start by looking at our baseline data to understand who in the household is involved in decision-making, and to what extent. Our baseline data show that in most households, fathers make final decisions on family matters including matters related to the adolescent. Fathers make final decisions about education or health of the adolescent in approximately 90% of households. Fathers are expected to make the final decision about marriage of girl adolescents in 85% of households. Almost 85% of mothers and fathers support this, believing that fathers should make the final decision in all family matters.

Next we investigate impacts of our intervention on midline and endline decision-making. Table 3 shows the impacts of our intervention on whether the mother makes the final decision or is involved in the decision regarding the girl adolescent's health and education at midline and endline. This involvement was measured by first asking who was involved in the decision-making about the adolescent, and subsequently asking the father to distribute ten tokens across each of the individuals involved, whereby the number of tokens assigned represented the weight of each individual in the decision-making. We also asked who made the final decision. We find that mothers are significantly less likely to be to involved in decisions about the adolescent in the female arm (p-value<0.05), and less likely to make final decisions in the male arm (p-value<0.05) at endline. In contrast, in the female+male arm, mothers are significantly more likely to make the final decision at endline (p-value<0.10), with no significant changes to their overall involvement.

Table 3: Mother's involvement in decision-making about girl adolescent

	Involvement in Decision		Final Decision	
	(1) Midline	(2) Endline	(3) Midline	(4) Endline
Female	−0.316	−0.356**	−0.062	−0.012
	(0.208)	(0.174)	(0.042)	(0.030)
Male	−0.079	0.050	0.003	−0.061**
	(0.202)	(0.154)	(0.044)	(0.028)
Female+Male	0.114	0.094	−0.036	0.056*
	(0.211)	(0.131)	(0.044)	(0.033)
Observations	810	789	810	791
Control Mean	3.808	4.133	0.209	0.125

Notes: Table presents marginal treatment effects from OLS regressions for girl households. The dependent variable in Columns 1-2 is the mother's involvement in decisions over the adolescent's health and education, and takes values from 1-10. Elicitation of involvement was done using 10 counters. The dependent variable in Columns 3-4 is a dummy variable that takes on value 1 if the mother makes the final decision on matters regarding the girl adolescent's health and education. Regressions include fixed effects for randomization strata. Standard errors are clustered at village level (unit of randomization), and are indicated in parentheses. Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance. In Column 1 the row "Control Mean" indicates that at midline mothers in the control group, on average, have a 38% involvement in decision-making about health and education of the girl adolescent. At endline this percentage is 41% (Column 2). In Column 3 the row "Control Mean" indicates that at midline mothers in the control group, on average, make the final decision about health and education of the adolescent in 21% of the households. At endline this percentage is 13% (Column 4).

While the decision-making power of mothers in the female+male arm increases, this unfortunately comes at a cost. For mothers who are highly involved in decision-making in the female+male arm, i.e. above the median, we find a significant increase in physical violence perpetrated by their spouse at endline (Appendix Table A30). These impacts do not seem to be driven by reporting bias: for example, we find that the intervention did not lead to changes in mothers' perceptions of social stigma around intimate partner violence (IPV); nor their understanding of what constitutes "violence" (available from the authors on request). We observe no such effects when fathers are treated alone or mothers are treated alone. The impacts on violence in the female+male arm for mothers with high baseline involvement in decision-making are significantly different from the impacts for mothers with low involvement in decision-making, which are not significantly different from zero. The timing of the impacts in the female+male arm on women's likelihood of taking the final decision about the adolescent, experiences of IPV by women who have high involvement in

decision-making, and significant reductions in child marriage, all align: none are significant at midline, but all are significant at endline. This is consistent with a mechanism in which fathers and mothers engage in substantial renegotiation over adolescents' marriage, with some conflict, in the female+male arm.

6.2 Expectations about private returns to delaying marriage

These effects in the female+male arm lead us to ask which beliefs about costs and benefits fathers and mothers update on, and what they bargain over, when deciding to delay marriage when they are jointly treated. A first dimension that our intervention could have made salient was information about costs of child marriage to their adolescent child and any potential grandchildren. However, Appendix Tables A16 to A19 show that there is no consistent pattern of updating beliefs about the costs to the child or grandchild in terms of health (mental and physical); ability to make decisions or to take on household responsibilities; ability to raise children; or likelihood of marriage failure if a girl is married as a child. Both fathers and mothers already seem aware at baseline about the most extreme risks of early childbearing — namely the risk of death to young mothers and to their children — suggesting limited scope for interventions to make such costs even more salient.

In contrast, we find that both fathers and mothers significantly update their beliefs about the returns to delaying marriage in terms of spousal education. We measure this as the expectation that the spouse will have completed secondary (grade 9 or 10) or high school education (grade 11 or 12), conditional on the adolescent being married at age 16, 18, or 20. Table 4 shows impacts on these beliefs if a girl's marriage is delayed until she is 20. We find a similar pattern of impacts when we ask about delaying until 18 (Appendix Table A12). Columns 1-4 show that at midline across all treatment arms, mothers believe that if they delay their daughter's marriage age, her future spouse is significantly more likely to have completed secondary education and high school. These effects remain significant after correcting for multiple hypothesis testing. Thus, mothers update their beliefs about these private returns to the household both when they are treated directly, and when they experience spillovers in the male arm.

Fathers also consistently update their expectations about returns to delaying marriage in terms of spousal quality when they are treated alone; and to a lesser extent when they are treated together with their spouse. These effects remain (marginally) significant after correcting for multiple hypothesis testing. We see suggestive evidence of spillovers onto

fathers' beliefs in the female arm, but the marginal significance disappears after correcting for multiple hypothesis testing.

At endline however, effects on both mothers' and fathers' beliefs remain significant only in the male arm (Column 5-8). This is in line with the significant reductions in child marriage in the male arm at endline. Despite similar reductions in child marriage at endline in the female+male arm, however, the treatment effects on expected returns in terms of spousal education appear to fade out.

Table 4: Expected returns to delaying marriage to 20 in terms of education of the future spouse.

	Midline				Endlline			
	Secondary School		High School		Secondary School		High School	
	(1) Father	(2) Mother	(3) Father	(4) Mother	(5) Father	(6) Mother	(7) Father	(8) Mother
Female	0.031	0.118	0.105	0.121	0.094	0.049	0.093	0.123
	(0.435)	(0.030)**	(0.059)*	(0.029)**	(0.066)*	(0.373)	(0.102)	(0.032)**
	[0.580]	[0.061]*	[0.235]	[0.061]*	[0.137]	[0.400]	[0.137]	[0.127]
Male	0.056	0.160	0.121	0.150	0.087	0.097	0.112	0.123
	(0.181)	(0.003)***	(0.025)**	(0.009)***	(0.072)*	(0.077)*	(0.040)**	(0.036)**
	[0.363]	[0.012]**	[0.100]	[0.012]**	[0.097]*	[0.095]*	[0.080]*	[0.073]*
Female+Male	0.067	0.132	0.097	0.100	0.027	0.064	0.052	0.026
	(0.075)*	(0.011)**	(0.065)*	(0.075)*	(0.619)	(0.229)	(0.377)	(0.684)
	[0.100]	[0.036]**	[0.100]	[0.100]	[0.812]	[0.305]	[0.812]	[0.685]
Observations	769	815	769	815	721	783	721	783
Control Mean	0.765	0.668	0.480	0.473	0.702	0.734	0.492	0.487

Notes: Table presents post-estimated marginal treatment effects from Logit regressions for girl households. The dependent variable takes on value one if the respondent - mother or father - states that they expect that the future spouse of their adolescent daughter will have at least completed secondary (Grade 10 and above) or high school (Grade 12 and above), if she is married at 20 at midline (Columns 1-4) and endline (Columns 5-8). Regressions include fixed effects for randomization strata. In parentheses, p-values from standard errors clustered at the village level (unit of randomization) are reported. In square brackets, q-values correcting for false discovery rate within each family using the Benjamini–Hochberg procedure are reported (Benjamini and Hochberg, 1995; Anderson, 2008). In each survey round, the family consists of the four schooling levels (secondary 18, high school 18, secondary 20, high school 20) we elicited per respondent per treatment arm. Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance. The row "Control Mean" indicates the share of respondents in the control group who expect the future spouse to have this respective education level when they marry their daughter at 20.

6.3 Beliefs about social returns to delaying marriage

We also investigate the impact of the treatment on beliefs about attitudes of other community members towards child marriage, i.e., the "social returns". Since 90% of the marriages we observe during the study period happen between a bride and groom from the same village, the attitudes of community members towards age of marriage of girls is likely important to parents, both as a social norm (with concomitant social returns and social sanctions) and because it impacts the relevant marriage market. We asked respondents to guess, out of ten men and ten women in a community just like theirs, how many would agree or strongly agree with a number of statements regarding the best age to marry a girl (e.g., "the best age to marry a girl is under 14") and the acceptability to marry a girl at a certain age (e.g., "marrying off a girl when she is 12-15 years old is acceptable"). We incentivized fathers and mothers to give their best guess of the correct responses, which we measured through pilot data collected separately in each province at the start of each survey round. In the pilot, we directly elicited individual attitudes towards these statements (unincentivized) from ten male and ten female respondents in villages similar to our study communities.

Table 5 shows the midline results. The first panel shows that treated mothers consistently update their beliefs about other men and other women in the community. Specifically, in the female and female+male arm, mothers are less likely to believe that other men and women find early marriage desirable or acceptable; and these effects remain significant after correcting for multiple hypothesis testing. In the male treatment arm, there are no significant effects on mothers' beliefs. The second panel shows that fathers marginally significantly update on some of these beliefs, but only when they are treated jointly with their spouse, updating in the same direction mothers do. At endline (Appendix Table A20), effects on mother's beliefs about the attitudes of other men and women only remain consistent and marginally significant in the female+male arm. Effects on beliefs of fathers in the female+male arm only remain significant for ages 16 or 17 being acceptable.

This pattern of updating of beliefs about attitudes of other men and women in the community (second-order beliefs) mirrors a pattern of updating of personal attitudes of fathers and mothers towards the best age of marriage (first-order beliefs). Appendix Table A14 shows impacts on the attitudes of mothers and fathers at midline and endline. In the female+male arm, we see significant increases in mothers' and fathers' first-order beliefs about the best age of marriage both at midline and at endline. The point estimates are large, amounting to an average increase of six months in the best age of marriage. Mothers

in the female-only and male-only treatment arms do significantly update their beliefs at midline, but these impacts do not remain significant at endline. We also see that in the female+male arm, mothers and fathers show sustained updating of their own attitudes towards the acceptability of girl child marriages (Appendix Table A15).

The pattern of updating second-order beliefs is not driven by our intervention correcting a misperceived social norm from baseline, by facilitating a platform to share information about attitudes. We do not find a significant reduction in the difference between second-order beliefs of fathers and mothers, and the corresponding average first-order beliefs of men and women surveyed in their village in any treatment arm (Appendix Table A21 - A24). Instead, it seems likely that mothers and fathers update their second-order beliefs in line with real changes in behavior that they observe at the village level. We explore this in the next section.

To summarize, we explain the results in each of our treatment arms as follows:

- When men are treated — either alone or jointly with women — fathers update their beliefs about the private returns to delaying their daughter's marriage in terms of expected quality of her future spouse. Fathers have the bargaining power to act on their private beliefs and delay their daughters' marriage: 85% of our panel households in the control group say that the father alone has the final say in marriage decisions.

- Women, when treated either alone or jointly with men — or even through spillovers in the male arm — significantly update their beliefs about the private returns to delaying marriage too. Unlike fathers, treated mothers also update their beliefs about attitudes of other men and women in their community. However, mothers' attempts to change outcomes within their own households are restricted by low bargaining power. Moreover, treating women alone leads to a *negative* impact on mothers' involvement in decision-making.

- Only when men are treated jointly with women do fathers also update their beliefs about community member's attitudes towards delaying marriage. Treating women and men jointly also leads mothers to become *more* involved in decision-making. This, however, comes at a cost, as those women with high baseline involvement in decision-making experience an increase in physical intimate partner violence. Altogether, we take this as suggestive evidence that women are more responsive to information about social returns, and bring this focus into household discussions when treated jointly

with males, but with some potential for backlash. Finally, only in this treatment arm do both fathers and mothers show sustained changes in their own attitudes towards delaying the age of marriage in the long run.

6.4 Child marriages at the village level

We use our village-level observational data to estimate impacts on all marriages in our sample villages. Our preferred estimates are village fixed-effects regressions with data aggregated into village-months, i.e. monthly summary statistics. at village-level. The village fixed-effect regressions take the following form:

$$Y_{vst} = \alpha + \beta_1 T_v + \beta_2 T_v \times post_t + \beta_3 post_t + \beta_4 \delta_s + \beta_5 \delta_s \times post_t + \epsilon_{vst} \quad (2)$$

where Y_{vst} is the outcome variable of interest at midline or endline for village v in stratum s at village-month t. T_v is a vector of dummies for the village being assigned to each of our treatment arms — male-only, female only, or female+male — relative to the control group. $post_t$ is a dummy that indicates that an village-month falls in the period after completion of the intervention, i.e. after and including July 2019. β_2 therefore combines the treatment effect of the intervention on treated households in the village, as well as spillover effects on other households in the village. We estimate β_2 for the period upto midline (January 2020) and endline (March 2021). δ_s are strata fixed effects, and $\delta_s \times post_t$ is included for inference since randomization was blocked on strata (Bruhn and McKenzie, 2009). Standard errors are robust to village-level heteroskedasticity, as this was the level of randomization (Abadie et al., 2017).

In Table 6, the variable "child marriage" is a dummy that takes the value 1 if, conditional on there being a marriage in the village in that month, there was at least one girl bride that was below the age of 18. The outcome "average age of marriage" is the average age of all girls who got married in the village in that month.[10] In Column 1 of Table 6, at midline, we find a significant reduction in child marriages of girls at the village level across all treatment arms. At endline (Column 2), we see that significant reductions are only sustained when women are treated alone or jointly, i.e. in the female and female+male arm. We estimate a 20 percentage points (p-value<0.05) reduction in the likelihood that at least one girl is married below 18 in each month in the female arm. In the female+male treatment arm, the effect is 24 percentage points (p-value<0.01). This reduced likelihood is

[10] Appendix Table A25 presents corresponding tables for boys (grooms).

Table 5: Midline – Beliefs about attitudes of **other men and women** in the community towards early marriage for girls.

	Best Age < 14		Best Age 14-15		Best Age 16-17		Accept 12-15		Accept 16-17	
	(1) Men	(2) Women	(3) Men	(4) Women	(5) Men	(6) Women	(7) Men	(8) Women	(9) Men	(10) Women
					Mother					
Female	-0.255	-0.388	-0.605	-0.732	-0.237	-0.379	-0.641	-0.590	-0.097	-0.452
	(0.205)	(0.090)*	(0.007)***	(0.000)***	(0.271)	(0.071)*	(0.003)***	(0.010)**	(0.631)	(0.043)**
	[0.271]	[0.090]*	[0.020]**	[0.002]***	[0.271]	[0.090]*	[0.007]***	[0.021]**	[0.631]	[0.044]**
Male	-0.185	-0.220	-0.230	-0.036	-0.138	-0.070	-0.309	-0.290	-0.095	-0.070
	(0.283)	(0.262)	(0.323)	(0.876)	(0.520)	(0.753)	(0.148)	(0.191)	(0.661)	(0.753)
	[0.485]	[0.787]	[0.485]	[0.877]	[0.521]	[0.877]	[0.296]	[0.382]	[0.662]	[0.753]
Female+Male	-0.350	-0.408	-0.490	-0.367	-0.208	-0.173	-0.594	-0.499	-0.214	-0.170
	(0.039)**	(0.027)**	(0.033)**	(0.093)*	(0.314)	(0.438)	(0.005)***	(0.024)**	(0.287)	(0.450)
	[0.059]*	[0.083]*	[0.059]*	[0.140]	[0.315]	[0.439]	[0.011]**	[0.049]**	[0.287]	[0.451]
Observations	1649	1650	1649	1650	1649	1650	1649	1649	1648	1649
Control Mean	2.034	2.179	3.618	3.598	5.037	5.152	3.613	3.556	5.098	5.279
					Father					
Female	-0.117	-0.085	0.240	-0.010	-0.038	-0.171	-0.014	-0.150	-0.030	-0.252
	(0.474)	(0.654)	(0.190)	(0.960)	(0.853)	(0.402)	(0.930)	(0.416)	(0.893)	(0.257)
	[0.712]	[0.961]	[0.569]	[0.961]	[0.853]	[0.961]	[0.931]	[0.417]	[0.931]	[0.417]
Male	-0.043	-0.179	0.310	0.159	0.333	0.256	0.130	-0.163	0.137	-0.094
	(0.788)	(0.362)	(0.130)	(0.450)	(0.172)	(0.282)	(0.418)	(0.313)	(0.535)	(0.692)
	[0.789]	[0.450]	[0.258]	[0.450]	[0.258]	[0.450]	[0.535]	[0.626]	[0.535]	[0.693]
Female+Male	-0.227	-0.382	-0.059	-0.216	-0.355	-0.268	-0.367	-0.263	-0.335	-0.376
	(0.229)	(0.044)**	(0.734)	(0.291)	(0.086)*	(0.212)	(0.018)**	(0.150)	(0.151)	(0.082)*
	[0.344]	[0.133]	[0.734]	[0.291]	[0.259]	[0.291]	[0.037]**	[0.151]	[0.151]	[0.151]
Observations	1560	1558	1559	1558	1560	1558	1559	1558	1559	1558
Control Mean	1.811	2.256	2.925	3.297	5.488	5.742	3.018	3.248	5.525	5.646

Notes: Table presents average treatment effects from OLS regressions. The dependent variable is the respondent's belief about the number of other men out of 10 in their community and other women out of 10 in their community who find less than 14 the best age (Columns 1-2), 14-15 the best age (Columns 3-4), 16-17 the best age (Columns 5-6), 12-15 an acceptable age (Columns 7-8), and 16-17 an acceptable age (Columns 9 and 10). The top panel displays responses from mothers, and the bottom panel responses from fathers. The dependent variable takes a value from 0-10. Regressions include fixed effects for randomization strata. In parentheses, p-values from standard errors clustered at the village level (unit of randomization) are reported. In square brackets, q-values correcting for false discovery rate within each family using the Benjamini–Hochberg procedure are reported. The family over which we correct reflects the three categories of best age per respondent per treatment arm and the two categories of acceptability per respondent per treatment arm. Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance. The row "Control Mean" multiplied by 10 indicates the average percentage of other men and women in the community that respondents in the control group believe would agree or strongly agree with the specific statement.

more than a 50% reduction in child marriages as compared to the control mean. At endline, we find no significant impacts on girl child marriage when the intervention is targeted at men only. Our findings are robust to estimating impacts with marriages as the unit of observation (Appendix Table A26) .

Figure 1 decomposes the effect over time by plotting cumulative marriages in each of our post-intervention study months. The Figure illustrates how the significant reductions in child marriages are sustained over time in the female and female+male arm. The 95% confidence intervals for the estimated coefficient in each village-month are always below the horizontal red line (zero threshold). Prior to and during midline (left shaded region), we observe significant reductions in child marriages in all three arms. This impact, however, fades out for the male arm over time but remains significantly different from zero for the female and female+male arm until the end of our study period. A possible explanation for the initial village-level reduction in all three treatment arms may be the visits of the local NGO to the community under the auspices of reducing early marriage of girls, which is legally prohibited. Our baseline survey shows that most respondents at baseline are aware of the legal age of marriage. In contrast, the sustained reductions in child marriages long after the intervention ends, which are only observed when women are treated individually or jointly, provide suggestive evidence that treated women play a key role in sustaining the reduction in child marriages at the village level.[11]

Column 3 and 4 in Table 6 show that targeting the intervention at women only significantly increases the average age of marriage of girls by 1.26 years (15 months) at midline and 0.65 years (8 months) at endline; while targeting women and men jointly only leads to a significant increase at endline, by 0.83 years (10 months). We find no significant impacts on the average marriage age of girls when the intervention is targeted at men only. The results are qualitatively similar when we estimate our impacts at the level of marriages, and are robust to using *minimum* age of marriage in a village-month instead of the *average* age.

The number of marriages observed at the village level (N=1383) substantially exceeds

[11] Women may share information because of strategic concerns. They may either aim to influence decisions of other households in the community per se (e.g., if women place some altruistic weight on reducing child marriage in other households); or they may aim to change the decisions by other households, community norms, or beliefs of local leaders, to affect the marriage market faced by their own children. Women may also spread information because of social returns to sharing new information, such as improved status. Women who do not participate in the intervention may also seek information from those women who do participate, more so than non-participating men seek information from participating men, for example given women's lower exposure than men to other sources of information. Alternatively or additionally, it may be that non-participating men and women feel more comfortable seeking information from participating women rather than participating men. We are not able to distinguish empirically between these potential mechanisms.

the number of marriages observed in our panel households (N=188), implying that the large village-level effects are not driven only by marriages in our panel households. We find no significant impacts on the likelihood of any marriage nor on the number of marriages per month. This finding suggests that the intervention does not change the general marriage market, but only impacts the likelihood of *child* marriages specifically (Appendix Table A29).

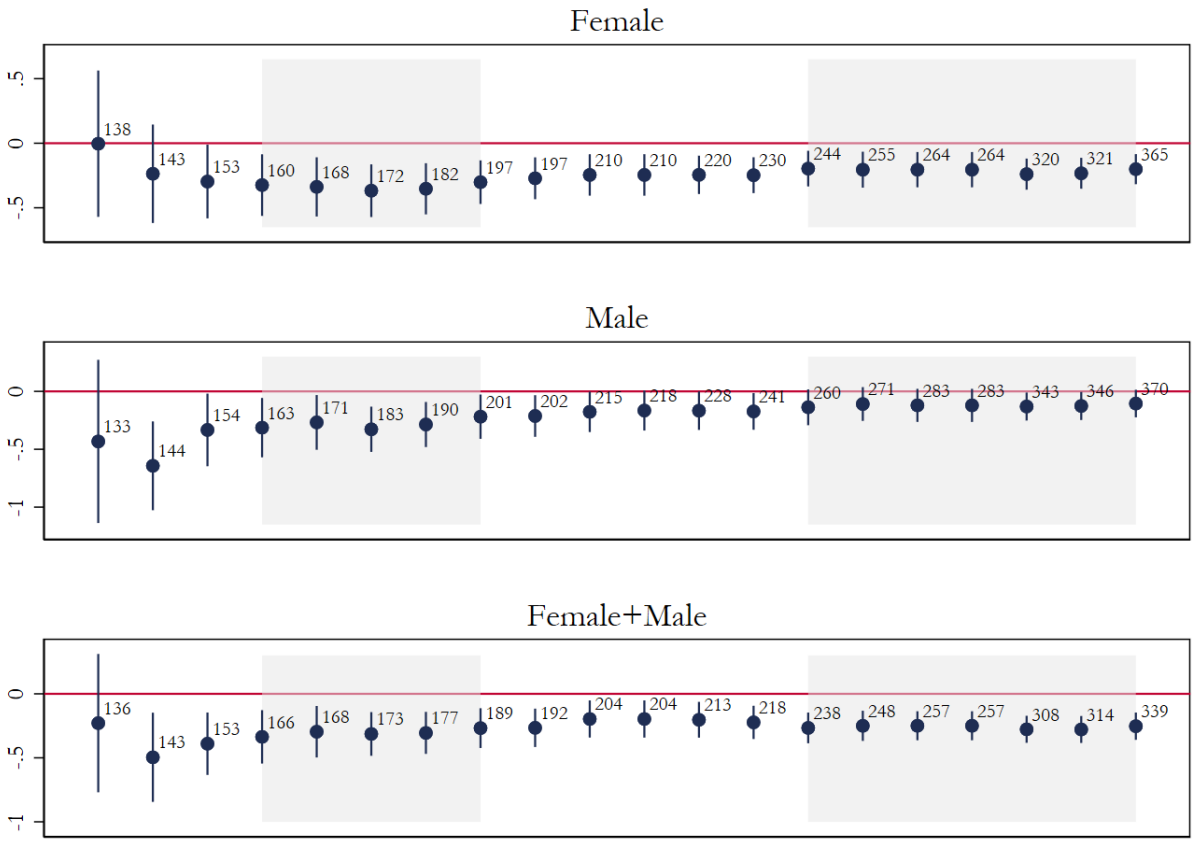
We provide suggestive evidence that women's mobility may be a key mechanism for the fact that sustained effects at village level only occur when women are treated, either alone or jointly with their spouses. We exploit village-level data on the ability of women to leave the compound of the household where they live, since in our study setting female mobility is "regulated" at the village level. In 30% of the villages in our sample, women are not allowed to leave their compounds. Appendix Table A28 shows that the impacts of the female and female+male arm are driven by the villages where women *are* allowed to leave their compound of residence. In villages where female mobility is restricted, we observe no significant impacts. We offer the suggestive interpretation that women who are treated, if mobile, spark coordination on a new norm in the village, for example via conversations about the intervention and about reductions in child marriage observed at the village level.

Table 6: Village-month level: (Child) Marriage Outcomes for Girls

	Child Marriage		Marriage age	
	(1) Midline	(2) Endline	(3) Midline	(4) Endline
Post × Female	−0.402***	−0.201**	1.265**	0.645*
	(0.132)	(0.082)	(0.577)	(0.341)
Post × Male	−0.335***	−0.097	0.725	0.253
	(0.117)	(0.081)	(0.458)	(0.343)
Post × Female+Male	−0.255**	−0.239***	0.732	0.831**
	(0.115)	(0.074)	(0.510)	(0.334)
Observations	673	1123	673	1123
Control Mean	0.643	0.413	17.333	18.458

Notes: Village fixed effects regressions with marriage data aggregated at the village-month level. Reported coefficients are estimates of β_2 from Equation 2. In Columns 1-2, the dependent variable is a dummy that takes value one if, conditional on at least one marriage taking place in the village during the observation month, any marriage had a girl (bride) that was below the age of 18 at the time of marriage. In Columns 3-4, the dependent variable is the average age of marriage of girls in the village in that month. If no marriages were observed in that month, the village-month was coded as missing. "Midline" counts observations between the pre-treatment months and January 2020 and "Endline" counts observations between the pre-treatment months and March 2021. The variable "post" is a dummy variable that takes on the value zero if the village-month lies in the period before (not including) July 2019, the period before or during the intervention; and takes on value one if the observation month lies in the period after the intervention was completed. All regressions include randomization strata dummies and their interaction with "post." Standard errors are clustered at the village level and are presented in parentheses. Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance. The row "Control Mean" reports the specific variable in the control group.

Figure 1: Village-marriage level: Cumulative Child Marriage Impacts by Study Month.



Notes: Cumulative treatment effects on child marriage per observation month using village fixed effects regressions at the level of marriages estimated at each subsequent month. All regressions include randomization strata dummies and their interaction with 'post' period. Standard errors are clustered at the village level. The dependent variable is a dummy that takes value one if the marriage involved a girl that was married at an age below 18. The marker represents the point estimate in that month, and the vertical lines above and below the marker the 95% confidence interval. The number above the marker presents the cumulative number of marriages upto that month in the respective treatment arm. The red horizontal line represents the zero threshold. The shaded region on the left represents our midline survey period (November 2019 until March 2020) and the shaded region on the right represents our endline survey months (September 2020 and March 2021). The top panel presents the treatment effects of the female arm versus the control arm over time. The middle panel presents the treatment effect of the male arm versus the control arm over time. The bottom panel presents the treatment effect of the female+male arm versus the control arm over time.

7 Robustness and extensions

7.1 Alternative mechanisms

We use our data to rule out alternative explanations for the differential patterns of impact across our treatment arms. First, Appendix Table A31 shows that, on average, 18 women and/or girls participated in the Female arm; on average 16 men and/or boys participated in the Male arm; and 15 men and/or boys and 16 women and/or girls participated in the Female+Male arm.[12] This suggests it is unlikely that differential participation of men and women across our treatment arms explains the main results of our intervention, since the average number of participants of women and men across the treatment arms is very similar and not significantly different. If anything, an insignificantly larger number of women participate in the female-only arm: the arm where no significant impact is observed in our panel households.

Second, we consider to what extent differential altruism by fathers and mothers over their sons and daughters may explain the difference in treatment effects in the household and village-level data. For example, if fathers care more about daughters, and mothers care more about sons, that could explain stronger treatment effects in the treatment arms where fathers get treated. Appendix Table A32 shows evidence from a one-shot dictator game in which each respondent was asked to distribute an amount of money across the father, mother, and adolescent. Fathers and mothers do not appear to be differentially altruistic towards their daughters or sons; nor do daughters and sons appear to be differentially altruistic towards their father or mother (the p-values of t-tests of differences in mean amounts given to or received from adolescents are never statistically significant).

Finally, the differential impacts observed across the panel household data and the village-level data could not be explained by a hypothetical mechanism in which fathers and mothers have differential decision-making power over daughters who marry out of their household and the village, and daughters-in-law who marry into their household and the village. The vast majority of marriages are within-village, and so both daughters and daughters-in-law from new marriages in panel households should be captured in the village-level data.

[12] There were no men who attended in the Female arm and no women who attended in the Male arm.

7.2 Impacts on proposals, dowry, and match quality

As we showed above, household members pay attention to the perceived attitudes of other community members towards early marriage. This makes sense if household members considering the marriage of their adolescent child take into account norms about the age of marriage within the village, and expectations about the marriage market — in our case the latter largely overlaps with the village, since 85% of marriages observed in our village-level data happen between a bride and groom from the same village. Conversely, we may ask if the observed effects of our interventions on child marriage also have consequences for the village marriage market, dowry and the actual quality of the match.

Appendix Table A10 shows a significant reduction in marriage proposals for all girls in the female+male arm, as compared to the control arm; and a significant reduction for girls below the age of 18 in the female and female+male arm, as compared to the control. Effects are, however, not significantly different between treatment arms. It seems unlikely that effects are entirely driven by proposals from panel households: first, our households represent only a small fraction of households in the village with adolescents of marriageable age; and second, proposals normally come from boys older than the age of our panel households. It therefore seems likely that the reduction in proposals to the girls in our panel households reflects a shift in behavior by other households in the village; consistent with the village-level spillovers observed in Section 6.4.

We also present information on dowry and match quality for the 131 girl adolescents who were married by endline. These results are exploratory, since the sample of marriages is not only small but selected, as later marriages have not yet taken place by endline (especially in the male and female+male arm where marriages are significantly delayed). To proxy the quality of the match, we measured the spouse's age, education and income. We also measure whether the couple has any children; and whether there was a dowry and if so how much. Appendix Table A11 shows that in the male and female+male arm, i.e. the arms where we observe delayed (child) marriage, there do not appear to be significant reductions in the quality of the spouse. The average age of the spouse in the male arm is significantly younger (which is generally considered desirable, as long as the man is an adult) compared to the control group and female+male arm. There are no significant effects on the education and income of the spouse, and point estimates are relatively small relative to the control mean. We find suggestive evidence of a significant increase in the likelihood of dowry in the female arm, as compared to the control; and marginally insignificant reductions in the male and

female+male arm, as compared to the female arm. Finally, we observe a large and negative impact on the likelihood of already having children for married girls in the female+male arm, as compared to the male arm.

8 Conclusion

We provide novel empirical evidence that impacts on delaying marriage for girls differ if the same intervention in the same context is targeted at women, men or both women and men jointly. We find that targeting the intervention at men only significantly reduces the probability of child marriage for girls in *panel households* — i.e., households who were surveyed and directly invited to participate in the intervention according to the treatment arm, with near-perfect compliance. The effects are large: the male arm causes a reduction of 4.6 percentage points in child marriage by midline, equivalent to 65% of the control group mean and is sustained at endline, 16 months after the intervention. The female+male arm leads to a significant reduction in child marriages of girl adolescents in panel households by endline, with a magnitude almost identical to the impact of the male-only arm. In contrast, the female arm has no significant impact on child marriages in panel households.

Targeting women and men jointly also leads to a decrease of 24 percentage points in the probability that a marriage observed *at the village level* in an given month over the entire study period is a child marriage, equivalent to 58% of the control group mean. Unlike in panel households, targeting men only does *not* lead to sustained reductions in child marriages at the village level. Also unlike in panel households, targeting women alone *does* lead to a significant reduction of 20 percentage points (50%) in the probability of observing a girl child marriage in the village. There is suggestive evidence that the village-level impacts of the joint arm and the female-only arm are driven by villages where women are allowed to leave their compounds of residence (around 70% of the villages in our sample).

We offer mechanisms to explain this pattern of results: Fathers are dominant decision-makers. When they are treated alone, they update beliefs about private returns and can translate this into delayed marriage outcomes. Treated mothers, i.e., in the female and female+male arm, update beliefs about both private and social returns. However, when treated alone, mothers cannot influence final decisions and marriage outcomes do not change. When women and men are treated jointly, both of them update beliefs about private as well as social returns; and mothers become more involved in decision-making. This translates into delayed marriage outcomes as well as attitudinal change in the long-run.

However, intimate partner violence increases when men and women are jointly treated.

Our findings indicate that a relatively low-cost edutainment intervention, which could be straightforwardly replicated by local NGOs elsewhere, produces sizable impacts on reducing child marriage. This approach and finding is novel relative to previous interventions to delay early marriage, as our intervention does not depend on girls being in school or costly financial transfers. The question of whom to target with limited resources also matters from a practitioners' perspective: while our intervention is relatively low-cost, attendance is rationed to small groups by the broadcasting reach of low-tech equipment that are not reliant on reliable electricity supply (given the low-income and rural context); the need to include all participants in group discussions; and constraints on NGO staff time.

More broadly, gender differences in responsiveness to intervention, and in power to enact change, raise the question of whom to target with interventions to address other important development issues: for example female labor-force participation; intimate partner violence; children's health, education & nutrition; and savings. The relative effectiveness and mechanisms to impact from targeting men, women or both in such domains remain important questions for future research.

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A Appendix

Table A1: Village-level Descriptives and Balance.

	(1) C	(2) F	(3) M	(4) F+M	(5) F vs C	(6) M vs C	(7) F+M vs C	(8) F vs M	(9) F vs F+M	(10) M vs F+M
Boys primary school	0.227	0.311	0.364	0.364	0.084	0.136	0.136	-0.053	-0.053	0.000
	(0.424)	(0.468)	(0.487)	(0.487)	(0.372)	(0.157)	(0.157)	(0.601)	(0.601)	(1.000)
					[0.188]	[0.299]	[0.299]	[-0.110]	[-0.110]	[0.000]
Girls primary school	0.182	0.200	0.273	0.273	0.018	0.091	0.091	-0.073	-0.073	0.000
	(0.390)	(0.405)	(0.451)	(0.451)	(0.828)	(0.307)	(0.307)	(0.419)	(0.419)	(1.000)
					[0.046]	[0.216]	[0.216]	[-0.170]	[-0.170]	[0.000]
Mixed primary school	0.432	0.400	0.409	0.500	-0.032	-0.023	0.068	-0.009	-0.100	-0.091
	(0.501)	(0.495)	(0.497)	(0.506)	(0.761)	(0.829)	(0.522)	(0.931)	(0.342)	(0.391)
					[-0.064]	[-0.046]	[0.135]	[-0.018]	[-0.200]	[-0.180]
Girls can leave compound	0.636	0.733	0.750	0.773	0.097	0.114	0.136	-0.017	-0.039	-0.023
	(0.487)	(0.447)	(0.438)	(0.424)	(0.324)	(0.246)	(0.157)	(0.858)	(0.667)	(0.803)
					[0.207]	[0.245]	[0.299]	[-0.038]	[-0.090]	[-0.054]
Teashop in village	0.432	0.444	0.455	0.477	0.013	0.023	0.045	-0.010	-0.033	-0.023
	(0.501)	(0.503)	(0.504)	(0.505)	(0.905)	(0.831)	(0.669)	(0.924)	(0.757)	(0.831)
					[0.025]	[0.045]	[0.090]	[-0.020]	[-0.065]	[-0.045]
Female teachers in girls' school	0.636	0.711	0.727	0.750	0.075	0.091	0.114	-0.016	-0.039	-0.023
	(0.487)	(0.458)	(0.451)	(0.438)	(0.457)	(0.364)	(0.251)	(0.867)	(0.683)	(0.811)
					[0.158]	[0.194]	[0.245]	[-0.036]	[-0.087]	[-0.052]
Distance to nearest primary girls' school (km)	2.703	2.453	2.690	2.767	-0.250	-0.013	0.064	-0.237	-0.314	-0.078
	(1.486)	(1.499)	(1.520)	(1.634)	(0.504)	(0.972)	(0.873)	(0.542)	(0.437)	(0.852)
					[-0.168]	[-0.009]	[0.041]	[-0.157]	[-0.200]	[-0.047]
Distance to nearest primary girls' school (min)	14.741	13.964	17.038	15.704	-0.776	2.298	0.963	-3.074	-1.739	1.335
	(9.197)	(7.560)	(10.570)	(9.603)	(0.734)	(0.401)	(0.707)	(0.225)	(0.458)	(0.632)
					[-0.092]	[0.232]	[0.102]	[-0.335]	[-0.201]	[0.139]
Distance to nearest secondary girls' school (km)	8.128	6.993	6.695	7.219	-1.135	-1.433*	-0.909	0.298	-0.226	-0.524
	(3.901)	(3.524)	(3.043)	(3.711)	(0.157)	(0.062)	(0.273)	(0.676)	(0.773)	(0.482)
					[-0.305]	[-0.410]	[-0.239]	[0.091]	[-0.062]	[-0.141]
Distance to nearest secondary girls' school (min)	30.000	30.182	32.325	31.667	0.182	2.325	1.667	-2.143	-1.485	0.658
	(15.392)	(11.384)	(12.799)	(13.098)	(0.950)	(0.454)	(0.591)	(0.420)	(0.576)	(0.818)
					[0.013]	[0.164]	[0.117]	[-0.177]	[-0.121]	[0.050]
Distance to nearest town (min)	30.523	32.267	28.227	28.500	1.744	-2.295	-2.023	4.039	3.767	-0.273
	(14.788)	(13.223)	(12.115)	(11.744)	(0.559)	(0.427)	(0.478)	(0.135)	(0.157)	(0.915)
					[0.124]	[-0.170]	[-0.151]	[0.319]	[0.301]	[-0.023]
Number of households	172.000	198.689	220.909	204.500	26.689	48.909	32.500	-22.220	-5.811	16.409
	(214.764)	(369.649)	(340.191)	(187.771)	(0.677)	(0.421)	(0.451)	(0.768)	(0.925)	(0.780)
					[0.088]	[0.172]	[0.161]	[-0.063]	[-0.020]	[0.087]
Joint Significance(p-value)					0.855	0.180	0.312	0.541	0.826	0.983

Notes: Column 1-4 show the mean of the variable in each experimental arm, i.e. intervention is targeted at women and girls only (Female intervention: F), at men and boys only (Male intervention: M), at both genders simultaneously (Female+male intervention: F+M), and control (C). In Column 1-4 in parentheses, standard deviations are reported. Column 5-10 shows the difference in means for each combination of experimental arms. In Column 5-10 in parentheses , p-values from standard errors clustered at the village level (unit of randomization) using an OLS regression are reported. In box brackets, normalized differences are reported. Normalized difference is the difference in the sample means of experimental arms divided by the square root of the sum of the sample variances. The last row "Joint Significance (p-value)" reports the p-value on the chi-squared test that coefficients and p-values from all 12 regressions on balance variables are jointly unrelated to the treatment assignment. Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance.

Table A2: Attrition at midline by experimental treatment arms

	(1) M	(2) F	(3) F+M	(4) C	(5) M vs C	(6) F vs C	(7) F+M vs C	(8) F vs M	(9) F+M vs M	(10) F+M vs F	(11) Observations
Father	0.061	0.062	0.073	0.053	0.008	0.009	0.020	0.002	0.012	0.010	1687
	25	*27*	*31*	*22*	(0.682)	(0.587)	(0.354)	(0.931)	(0.600)	(0.633)	
					[0.818]	[0.818]	[0.818]	[0.932]	[0.818]	[0.818]	
Mother	0.032	0.016	0.014	0.012	0.020	0.004	0.002	-0.015	-0.017	-0.002	1687
	13	*7*	*6*	*5*	(0.098)*	(0.616)	(0.799)	(0.217)	(0.158)	(0.818)	
					[0.435]	[0.818]	[0.818]	[0.435]	[0.435]	[0.818]	
Household	0.022	0.005	0.012	0.007	0.015	-0.003	0.005	-0.017	-0.010	0.007	756
	9	*2*	*5*	*3*	(0.107)	(0.616)	(0.530)	(0.048)**	(0.315)	(0.293)	
					[0.321]	[0.617]	[0.617]	[0.290]	[0.473]	[0.473]	

Notes: Panel consists of 1687 households, with 756 households in Sindh province, and 931 households in Punjab province. In each household, three respondents were to be surveyed, i.e. father, mother and adolescent. In Column 1-4, the attrition rate for each individual respondent, and the household attrition rate (Sindh only) by experimental arm - the female intervention (F), the male intervention (M), the female+male intervention (F+M), and control (C), are presented. An individual respondent is considered an attritor if we were unable to survey him/her at midline. For Sindh province only, a household is considered an attritor if we were unable to survey all three respondents who were part of our baseline panel at midline. Attrition for adolescent respondent is the same as household attrition, that is, attrition rate for adolescents in non-attrited households is 0%. In italics, the raw number of individuals (or household) that attrited are reported. In Column 5-10, the difference in attrition rate between experimental arms is estimated using logit regressions, without fixed effects for randomization strata (due to perfect prediction given our low attrition rate). Reported estimates are in predictive margins. In parentheses, p-values from standard errors clustered at the village level (unit of randomization) from the corresponding logit regression are reported. In box brackets, q-values correcting for false discovery rate using the Benjamini–Hochberg procedure are reported (Benjamini and Hochberg, 1995; Anderson, 2008). Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance.

Table A3: Attrition at endline by experimental treatment arms

	(1) M	(2) F	(3) F+M	(4) C	(5) M vs C	(6) F vs C	(7) F+M vs C	(8) F vs M	(9) F+M vs M	(10) F+M vs F	(11) Observations
Father	0.143	0.122	0.155	0.130	0.013	-0.007	0.025	-0.021	0.012	0.033	1687
	59	*53*	*66*	*54*	(0.637)	(0.782)	(0.387)	(0.455)	(0.697)	(0.254)	
					[0.782]	[0.782]	[0.782]	[0.782]	[0.782]	[0.782]	
Mother	0.080	0.046	0.080	0.060	0.020	-0.014	0.020	-0.034	-0.000	0.034	1687
	33	*20*	*34*	*25*	(0.381)	(0.434)	(0.385)	(0.101)	(0.991)	(0.102)	
					[0.521]	[0.521]	[0.521]	[0.306]	[0.991]	[0.306]	
Household	0.063	0.035	0.061	0.046	0.017	-0.011	0.015	-0.028	-0.002	0.026	756
	26	*15*	*26*	*19*	(0.391)	(0.466)	(0.444)	(0.131)	(0.928)	(0.155)	
					[0.559]	[0.559]	[0.559]	[0.465]	[0.929]	[0.465]	

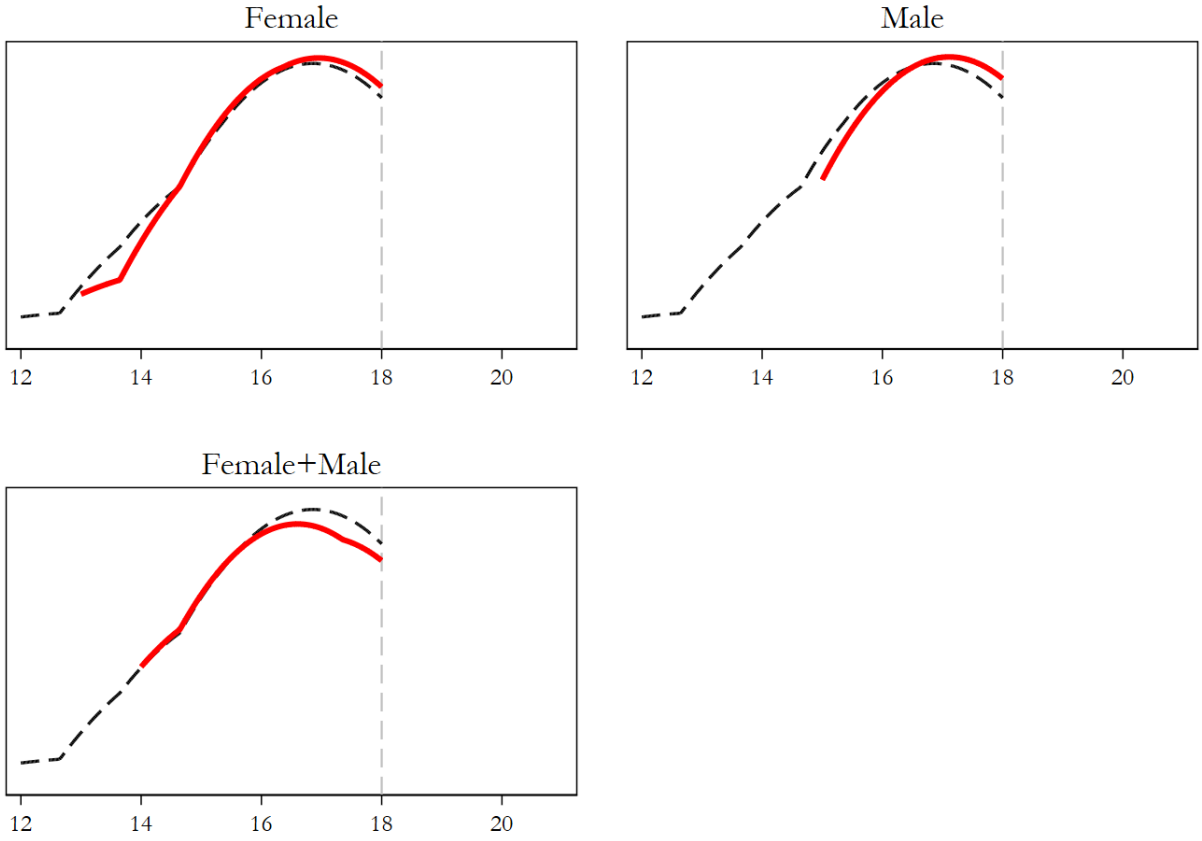
Notes: Panel consists of 1687 households, with 756 households in Sindh province, and 931 households in Punjab province. In each household, three respondents were to be surveyed, i.e. father, mother and adolescent. In Column 1-4, the attrition rate for each individual respondent, and the household attrition rate (Sindh only) by experimental arm - the female intervention (F), the male intervention (M), the female+male intervention (F+M), and control (C), are presented. An individual respondent is considered an attritor if we were unable to survey him/her at endline. For Sindh province only, a household is considered an attritor if we were unable to survey all three respondents who were part of our baseline panel at endline. Attrition for adolescent respondent is the same as household attrition, that is, attrition rate for adolescents in non-attrited households is 0%. In italics, the raw number of individuals (or household) that attrited are reported. In italics, the raw number of individuals (or household) that attrited are reported. In Column 5-10, the difference in attrition rate between experimental arms is estimated using logit regressions, without fixed effects for randomization strata (due to perfect prediction given our low attrition rate). Reported estimates are in predictive margins. In parentheses, p-values from standard errors clustered at the village level (unit of randomization) from the corresponding logit regression are reported. In box brackets, q-values correcting for false discovery rate using the Benjamini–Hochberg procedure are reported (Benjamini and Hochberg, 1995; Anderson, 2008). Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance.

Table A4: Household: (Child) Marriage Outcomes - Adolescent Boys.

	Married		Marriage age		Child Marriage	
	Midline	Endline	Midline	Endline	Midline	Endline
Female	-0.002	-0.006	-1.000	-0.100	0.008	0.006
	(0.904)	(0.817)	(0.356)	(0.867)	(0.445)	(0.757)
	[0.872]	[0.812]	[0.472]	[0.951]	[0.385]	[0.747]
Male	0.009	0.012	-0.000	0.469	0.014	0.009
	(0.636)	(0.637)	(1.000)	(0.392)	(0.254)	(0.668)
	[0.644]	[0.675]	[1.000]	[0.511]	[0.240]	[0.690]
Female+Male	0.018	-0.011	-0.500	0.022	0.028	0.005
	(0.384)	(0.665)	(0.497)	(0.967)	(0.095)*	(0.829)
	[0.364]	[0.634]	[0.547]	[0.579]	[0.082]*	[0.804]
Observations	840	800	30	57	840	800
(Child) Married	30	57	30	57	19	33
Control Mean	0.030	0.073	17.000	16.929	0.010	0.036

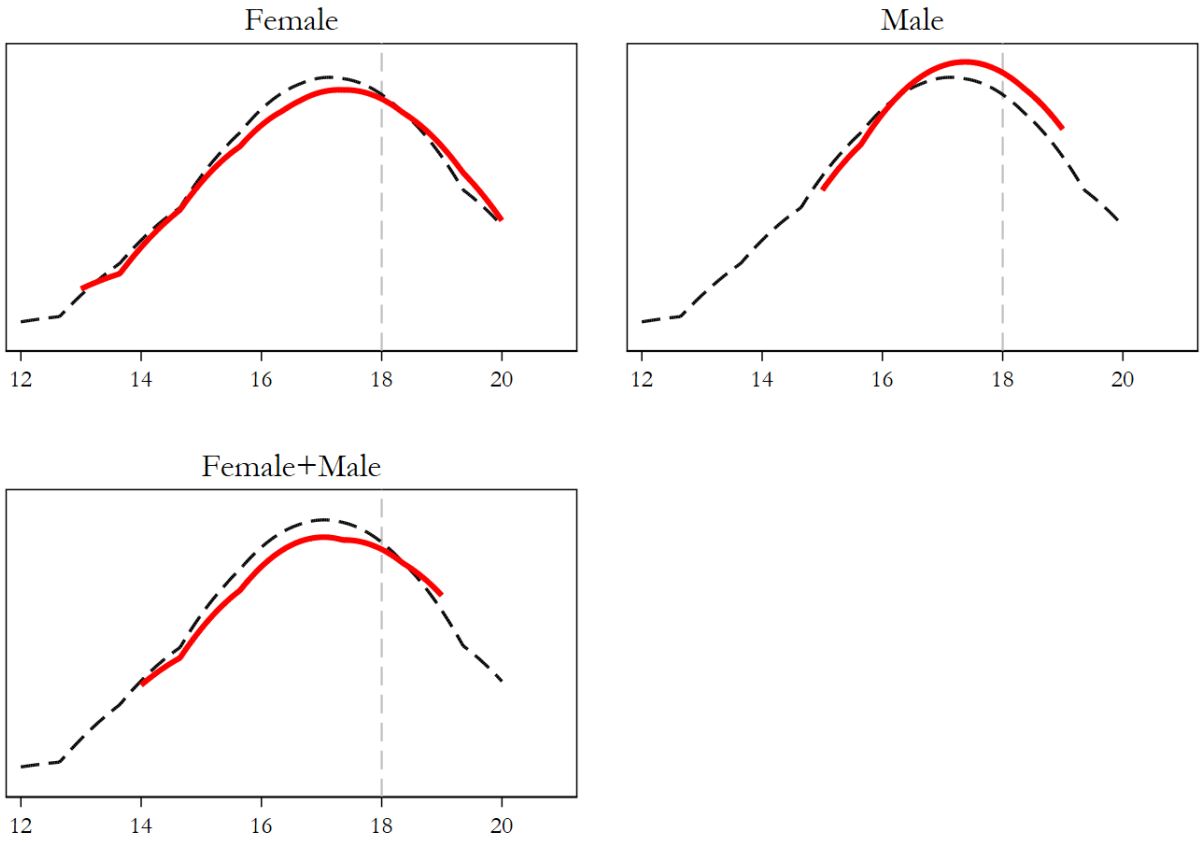
Notes: Table presents marginal treatment effects on marriage outcomes for boy adolescents from our panel households, i.e., coefficient β estimated from Equation 1. Marriage outcomes are as reported by the adolescent themselves, as pre-specified in the pre-analysis plan. In Column 1-2, marginal treatment effects on marriage for boy adolescent, are reported for midline and endline. The dependent variable is a dummy that takes on value one (zero otherwise) if the adolescent said yes he is married. Column 3-4 presents marginal treatment effects on age at the time of marriage conditional on being married at midline and endline. Column 5-6 presents marginal treatment effects on child marriage, i.e a dummy variable that takes on value one if the adolescent was less than 18 years old at the time of marriage, for midline and endline. Regressions are estimated using logit regressions for dummy variables (marriage and child marriage), and OLS for continuous variables (age at marriage). *P*-values for marginal treatment effects are based on standard errors clustered at village level (unit of randomization), and are indicated in parentheses. Exact *p*-values for marginal treatment effects from randomization inference tests based on 1000 permutations are provided in square brackets. Fixed effects for randomization strata are not included at midline, due to perfect prediction. Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance. Row "Control Mean" indicates the marriage rate, average age of marriage and child marriage rate in the control group. The row "(Child) Married " indicates the total number of (child) marriages of boy adolescents.

Figure A1: Age of Marriage Midline.



Notes: Kernel density plots of age at the time of marriage for girl adolescents from our panel households at midline. Age at the time of marriage is plotted on the x-axis. Black dashed line represents the variable's distribution in the control group. Red line represents the distribution of the variable in each treatment arm, i.e., Female arm (top-left), Male arm (top-right), Female+Male arm (bottom-left). Vertical grey line is the 18 years threshold, below which a marriage is considered to be a child marriage as per the law in our study regions.

Figure A2: Age of Marriage Endline.



Notes: Kernel density plots of age at the time of marriage for girl adolescents from our panel households at endline. Age at the time of marriage is plotted on the x-axis. Black dashed line represents the variable's distribution in the control group. Red line represents the distribution of the variable in each treatment arm, i.e., Female arm (top-left), Male arm (top-right), Female+Male arm (bottom-left). Vertical grey line is the 18 years threshold, below which a marriage is considered to be a child marriage as per the law in our study regions.

Table A5: Household: Marriage of Girl Adolescent reported by Father, Mother, Any.

	Father's response		Mother's response		Any respondent	
	(1) Midline	(2) Endline	(3) Midline	(4) Endline	(5) Midline	(6) Endline
Female	0.005	−0.050	−0.006	−0.056	−0.006	−0.052
	(0.036)	(0.051)	(0.036)	(0.049)	(0.038)	(0.049)
Male	−0.047*	−0.098**	−0.054**	−0.088**	−0.057**	−0.089**
	(0.025)	(0.046)	(0.026)	(0.045)	(0.027)	(0.044)
Female+Male	−0.039	−0.106**	−0.030	−0.099**	−0.034	−0.086*
	(0.027)	(0.045)	(0.028)	(0.042)	(0.030)	(0.045)
Observations	775	722	820	784	828	793
Married	59	113	65	124	75	137
Control Mean	0.096	0.220	0.101	0.216	0.114	0.228

Notes: Table presents marginal treatment effects on marriage outcomes for girl adolescents from our panel households, post-estimated as the sum of coefficients β and ϕ estimated from Equation 1. Marriage outcomes of the adolescent is reported separately by the father, mother or any respondent. That is, Column 1-2 if the father said the adolescent was married, Column 3-4 if the mother said the adolescent was married, and Column 5-6 if any respondent (father, mother or adolescent) said that the adolescent was married. Regressions are estimated using logit regressions. Standard errors for marginal treatment effects are clustered at village level (unit of randomization) and are indicated in parentheses. Fixed effects for randomization strata are not included at midline due to perfect prediction. Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance. Row "Control Mean" indicates the marriage rate for girl adolescents in the control group. Row "Married" indicates the total number of girl adolescents that are married at midline and endline.

Table A6: Household: Marriage of Boy Adolescent reported by Father, Mother, Any.

	Father's response		Mother's response		Any respondent	
	(1) Midline	(2) Endline	(3) Midline	(4) Endline	(5) Midline	(6) Endline
Female	−0.002	−0.004	−0.002	−0.005	−0.007	0.003
	(0.018)	(0.025)	(0.017)	(0.025)	(0.017)	(0.025)
Male	0.009	0.011	0.009	0.013	0.008	0.012
	(0.019)	(0.027)	(0.018)	(0.026)	(0.019)	(0.025)
Female+Male	−0.001	−0.037*	0.009	−0.026	0.004	−0.026
	(0.018)	(0.022)	(0.018)	(0.022)	(0.018)	(0.021)
Observations	787	735	836	789	840	802
Married	26	51	28	54	30	56
Control Mean	0.032	0.078	0.030	0.073	0.034	0.072

Notes: Table presents marginal treatment effects on marriage outcomes for boy adolescents from our panel households, i.e., coefficient β estimated from Equation 1. Marriage outcomes of the adolescent is reported separately by the father, mother or any respondent. That is, Column 1-2 if the father said the adolescent was married, Column 3-4 if the mother said the adolescent was married, and Column 5-6 if any respondent (father, mother or adolescent) said that the adolescent was married. Regressions are estimated using logit regressions. Standard errors for marginal treatment effects are clustered at village level (unit of randomization) and are indicated in parentheses. Fixed effects for randomization strata are not included at midline due to perfect prediction. Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance. Row "Control Mean" indicates the marriage rate for boy adolescents in the control group. Row "Married" indicates the total number of boy adolescents that are married at midline and endline.

Table A7: Household Marriage Outcomes - Girls (other treatments comparisons)

	Married		Marriage age		Child Marriage	
	Midline	Endline	Midline	Endline	Midline	Endline
Male vs. Female	-0.052	-0.032	0.349	0.377	-0.054	-0.027
	(0.101)	(0.443)	(0.506)	(0.468)	(0.056)*	(0.423)
	[0.067]*	[0.410]	[0.513]	[0.285]	[0.026]**	[0.383]
Female+Male vs. Female	-0.028	-0.019	-0.162	-0.204	-0.028	-0.024
	(0.398)	(0.643)	(0.751)	(0.672)	(0.361)	(0.452)
	[0.395]	[0.669]	[0.702]	[0.728]	[0.396]	[0.418]
Female+Male vs. Male	0.024	0.013	-0.511	-0.581	0.026	0.003
	(0.258)	(0.715)	(0.339)	(0.174)	(0.138)	(0.911)
	[0.292]	[0.702]	[0.408]	[0.097]*	[0.133]	[0.896]
Observations	828	798	67	131	828	798
(Child) Married	67	131	67	131	44	73
Control Mean	0.105	0.222	16.636	17.022	0.067	0.123

Notes: Table tests the difference in marginal treatment effects in each treatment arm against the other - by experimental arm - the male arm versus the female, the Female+male arm versus the female arm, and the Female+male arm versus the male arm, on marriage outcomes for girl adolescents from panel households. Comparison against the control group is presented in Table 2. Marriage outcomes are as reported by the adolescent themselves as pre-specified in the pre-analysis plan. In Column 1-2, marginal treatment effects on marriage for girl adolescent, are reported for midline and endline. The dependent variable is a dummy that takes on value one (zero otherwise) if the adolescent said yes she is married. Column 3-4 presents difference in marginal treatment effects on age at the time of marriage conditional on being married at midline and endline. Column 5-6 presents difference in marginal treatment effects on child marriage, i.e a dummy variable that takes on value one if the adolescent was less than 18 years old at the time of marriage, for midline and endline. Estimated using logit regressions for dummy variables (marriage and child marriage), and OLS for continuous variables (age at marriage). *P*-values for marginal treatment effects are based on standard errors clustered at village level (unit of randomization), and are indicated in parentheses. Exact *p*-values for marginal treatment effects from randomization inference tests based on 1000 permutations are provided in square brackets. Fixed effects for randomization strata are not included at midline, due to perfect prediction. Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance. Row "Control Mean" indicates the marriage rate, average age of marriage and child marriage rate in the control group. The row "(Child) Married " indicates the total number of (child) marriages of girl adolescents.

Table A8: Household Marriage Outcomes - Boys (other treatments comparisons)

	Married		Marriage age		Child Marriage	
	Midline	Endline	Midline	Endline	Midline	Endline
Male vs. Female	0.011	0.018	1.000	0.568	0.005	0.002
	(0.516)	(0.505)	(0.303)	(0.395)	(0.685)	(0.915)
	[0.544]	[0.515]	[0.583]	[0.491]	[0.695]	[0.915]
Female+Male vs. Female	0.020	-0.005	0.500	0.121	0.020	-0.002
	(0.299)	(0.850)	(0.612)	(0.847)	(0.266)	(0.941)
	[0.313]	[0.784]	[0.491]	[0.679]	[0.306]	[0.932]
Female+Male vs. Male	0.010	-0.023	-0.500	-0.447	0.014	-0.004
	(0.635)	(0.389)	(0.370)	(0.454)	(0.437)	(0.860)
	[0.670]	[0.368]	[0.741]	[0.194]	[0.504]	[0.866]
Observations	840	800	30	57	840	800
(Child) Married	30	57	30	57	19	33
Control Mean	0.030	0.073	17.000	16.929	0.010	0.036

Notes: Table tests the difference in marginal treatment effects in each treatment arm against the other - the male arm versus the female, the female+male arm versus the female arm, and the Female+male arm versus the male arm, on marriage outcomes for boy adolescents from panel households. Comparison against the control group is presented in Table A4. Marriage outcomes are as reported by the adolescent themselves as pre-specified in the pre-analysis plan. In Column 1-2, marginal treatment effects on marriage for boy adolescent, are reported for midline and endline. The dependent variable is a dummy that takes on value one (zero otherwise) if the adolescent said yes she is married. Column 3-4 presents difference in marginal treatment effects on age at the time of marriage conditional on being married at midline and endline. Column 5-6 presents difference in marginal treatment effects on child marriage, i.e a dummy variable that takes on value one if the adolescent was less than 18 years old at the time of marriage, for midline and endline. Regressions are estimated using logit regressions for dummy variables (marriage and child marriage), and OLS for continuous variables (age at marriage).*P*-values for marginal treatment effects are based on standard errors clustered at village level (unit of randomization), and are indicated in parentheses. Exact p-values for marginal treatment effects from randomization inference tests based on 1000 permutations are provided in square brackets. Fixed effects for randomization strata are not included at midline, due to perfect prediction. Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance. Row "Control Mean" indicates the marriage rate, average age of marriage and child marriage rate in the control group. The row "(Child) Married " indicates the total number of (child) marriages of girl adolescents.

Table A9: Household Engagement Outcomes - Girls

	Engaged		Newly Engaged	
	(1) Midline	(2) Endline	(3) Midline	(4) Endline
Female	−0.020	−0.016	0.033	0.009
	(0.049)	(0.057)	(0.041)	(0.036)
Male	0.042	0.094	0.058	0.044
	(0.052)	(0.059)	(0.041)	(0.032)
Female+Male	−0.015	0.008	0.012	0.012
	(0.053)	(0.054)	(0.041)	(0.031)
Observations	746	665	736	665
Control Mean	0.283	0.293	0.177	0.076

Notes: Table presents marginal treatment effects (MTE) on marriage outcomes for girl adolescents from our panel households, post-estimated as the sum of coefficients β and ϕ estimated from Equation 1. In Column 1-2, marginal treatment effects on engagement for girl adolescent, are reported for midline and endline. The dependent variable is a dummy that takes on value one (zero otherwise) if the adolescent is engaged/promised. Column 3-4 presents marginal treatment effects on new engagements that is adolescents who were not engaged at baseline by engaged at midline (Column 3: midline) and those who were not engaged at midline but engaged at endline (Column 4). For engagement between baseline and midline, for Sindh province we use responses form the baseline survey, from Punjab where security concerns prevented us from having a baseline survey, we estimate newly engaged as those adolescents who are engaged at midline, and their age at engagement is one year less than or equal to their age at midline, as these adolescents are most likely to be engaged between our survey rounds. Regressions are estimated using logit regressions for dummy variables (marriage and child marriage), and OLS for continuous variables (age at marriage). Standard errors for marginal treatment effects are based on clustered at village level (unit of randomization), and are indicated in parentheses. Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance. Row "Control Mean" indicates the engagement rate and engagement rate for newly engaged in the control group.

Table A10: Proposals coming in for girl adolescents.

	(1) All	(2) Age <18	(3) Age >=18
Female vs. Control	-0.058	-0.127	0.131
	(0.283)	(0.026)**	(0.176)
Male vs. Control	-0.077	-0.109	0.021
	(0.189)	(0.104)	(0.844)
Female+Male vs. Control	-0.114	-0.141	-0.019
	(0.020)**	(0.010)**	(0.865)
Male vs. Female	-0.019	0.018	-0.110
	(0.729)	(0.774)	(0.267)
Female+Male vs. Female	-0.057	-0.014	-0.150
	(0.213)	(0.761)	(0.152)
Female+Male vs Male	-0.037	-0.032	-0.039
	(0.464)	(0.590)	(0.725)
Observations	722	548	174
Control Mean	0.324	0.336	0.289

Notes: Table presents marginal treatment effects on marriage proposals coming in to the household for girl adolescents from panel households at endline. The dependent variable is a dummy that takes on value one (zero otherwise) if the adolescent received a marriage proposal. In Column 1, effects on proposals coming in for all girl adolescents are reported. In Column 2, effects are estimated on the sub-sample of girl adolescents who are below 18 prior to the endline and in Column 3 for those who are 18 and over. Estimated using logit regressions and reported estimates are in predictive margins. *P*-values from standard errors clustered at village level (unit of randomization) are indicated in parentheses. Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance. Row "Control Mean" indicates the marriage proposal rate in the control group.

Table A11: Impacts on quality of the match and dowry for married girl adolescents.

	Quality of Spouse			Dowry		
	(1)	(2)	(3)	(4)	(5)	(6)
	Age	Education	Income	Any	Amount	Children
Female vs. Control	-0.173	-0.164	1,560.887	0.095	-22,603.687	0.023
	(0.844)	(0.888)	(0.593)	(0.094)*	(0.447)	(0.814)
Male vs. Control	-1.310	0.151	864.881	-0.000	-8,095.238	0.079
	(0.090)*	(0.906)	(0.777)	(1.000)	(0.817)	(0.496)
Female+Male vs. Control	0.693	0.389	-1,273.214	-0.079	-2,919.255	-0.041
	(0.412)	(0.724)	(0.605)	(0.528)	(0.938)	(0.658)
Male vs. Female	-1.137	0.315	-696.006	-0.095	14,508.449	0.056
	(0.178)	(0.808)	(0.843)	(0.163)	(0.631)	(0.630)
Female+Male vs. Female	0.865	0.553	-2,834.101	-0.174	19,684.432	-0.064
	(0.343)	(0.623)	(0.350)	(0.120)	(0.555)	(0.498)
Female+Male vs Male	2.002	0.238	-2,138.095	-0.079	5,175.983	-0.120
	(0.014)**	(0.848)	(0.498)	(0.546)	(0.892)	(0.293)
Observations	117	113	113	117	117	114
Control Mean	20.786	5.325	13987.500	0.905	143571.429	0.184

Notes: Table presents marginal treatment effects on quality of the match, dowry, and children for marriages of girl adolescents from panel households at endline. Columns 1-3 present effects on characteristics of the spouse, that is, age in years, education level, and income in PKR. Column 4 presents effects on whether there was a dowry (=1 or 0 otherwise). Column 5 presents effects on the size of the dowry in PKR. Column 6 presents effects on whether the married couple has any children (=1 or 0 otherwise). Regressions are estimated using logit regressions for binary variables and OLS for continuous variables. *P*-values from standard errors are clustered at village level (unit of randomization) are indicated in parentheses. Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance. Row "Control Mean" indicates average of the respective variable in the control group.

Table A12: Expected returns to delaying marriage to 18 in terms of education of the future spouse.

	Midline				Endlline			
	Secondary School		High School		Secondary School		High School	
	(1) Father	(2) Mother	(3) Father	(4) Mother	(5) Father	(6) Mother	(7) Father	(8) Mother
Female	0.077	0.104	0.054	0.115	0.101	0.074	0.063	0.049
	(0.111)	(0.063)*	(0.284)	(0.034)**	(0.074)*	(0.198)	(0.162)	(0.357)
	[0.395]	[0.127]	[0.395]	[0.127]	[0.173]	[0.358]	[0.216]	[0.358]
Male	0.115	0.103	0.072	0.141	0.110	0.121	0.074	0.105
	(0.019)**	(0.068)*	(0.152)	(0.010)***	(0.035)**	(0.041)**	(0.119)	(0.043)**
	[0.076]*	[0.091]*	[0.203]	[0.020]**	[0.142]	[0.058]*	[0.159]	[0.058]*
Female+Male	0.082	0.109	0.077	0.116	0.040	0.045	0.024	-0.018
	(0.082)*	(0.053)*	(0.124)	(0.031)**	(0.497)	(0.448)	(0.589)	(0.743)
	[0.246]	[0.071]*	[0.246]	[0.062]*	[0.794]	[0.598]	[0.794]	[0.743]
Observations	769	814	769	814	721	783	721	783
Control Mean	0.597	0.566	0.265	0.254	0.536	0.553	0.265	0.307

Notes: Table presents post-estimated marginal treatment effects from Logit regressions for girl households. The dependent variable takes on value one if the respondent - mother or father - states that they expect that the future spouse of their adolescent girl will have atleast completed secondary (Grade 10 and above) or high school (Grade 12 and above), if she is married at 18 at midline (Column 1-4)and endline (column 5-8). Regressions include fixed effects for randomization strata. In parentheses, p-values from standard errors clustered at the village level (unit of randomization) are reported. In box brackets, q-values correcting for false discovery rate within each family using the Benjamini–Hochberg procedure are reported. In each surveyround, the family is the four schooling levels per respondent per treatment arm comparison. Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance. The row "control mean" indicates the percentage in the control group stating the above expectation at the given age.

Table A13: Expected returns to delaying marriage to 16 in terms of education of the future spouse.

	Midline				Endlline			
	Secondary School		High School		Secondary School		High School	
	(1) Father	(2) Mother	(3) Father	(4) Mother	(5) Father	(6) Mother	(7) Father	(8) Mother
Female	0.082	0.097	0.020	0.027	0.071	0.054	-0.001	0.003
	(0.121)	(0.083)*	(0.468)	(0.392)	(0.097)*	(0.334)	(0.973)	(0.895)
	[0.243]	[0.302]	[0.469]	[0.523]	[0.371]	[0.446]	[0.973]	[0.896]
Male	0.128	0.143	0.031	0.001	0.094	0.090	-0.009	0.040
	(0.019)**	(0.010)**	(0.312)	(0.986)	(0.061)*	(0.095)*	(0.612)	(0.187)
	[0.038]**	[0.042]**	[0.313]	[0.987]	[0.140]	[0.127]	[0.613]	[0.188]
Female+Male	0.100	0.085	0.006	-0.006	0.024	-0.018	-0.012	0.010
	(0.048)**	(0.146)	(0.827)	(0.846)	(0.590)	(0.747)	(0.500)	(0.721)
	[0.096]*	[0.289]	[0.827]	[0.847]	[0.591]	[0.748]	[0.591]	[0.748]
Observations	769	814	769	814	721	783	721	783
Control Mean	0.383	0.361	0.066	0.073	0.293	0.352	0.039	0.060

Notes: Table presents post-estimated marginal treatment effects from Logit regressions for girl households. The dependent variable takes on value one if the respondent - mother or father - states that they expect that the future spouse of their adolescent girl will have atleast completed secondary (Grade 10 and above) or high school (Grade 12 and above), if she is married at 16 at midline (Column 1-4)and endline (column 5-8). Regressions include fixed effects for randomization strata. In parentheses, p-values from standard errors clustered at the village level (unit of randomization) are reported. In box brackets, q-values correcting for false discovery rate within each family using the Benjamini–Hochberg procedure are reported. In each surveyround, the family is the four schooling levels per respondent per treatment arm comparison. Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance. The row "control mean" indicates the percentage in the control group stating the above expectation at the given age.

Table A14: Attitudes of fathers and mothers about the age of marriage for an adolescent girl.

	Father best age		Mother best age	
	(1) Midline	(2) Endline	(3) Midline	(4) Endline
Female	0.175	−0.015	0.545**	0.306
	(0.169)	(0.171)	(0.253)	(0.259)
Male	0.253	−0.108	0.540**	0.335
	(0.172)	(0.167)	(0.250)	(0.257)
Female+Male	0.408**	0.352**	0.514**	0.494*
	(0.158)	(0.153)	(0.258)	(0.255)
Observations	1558	1456	1655	1574
Control Mean	18.235	18.457	18.261	18.668

Notes: Table presents average treatment effects from OLS regressions. The dependent variable is a continuous variable that takes on the value of what the respondent - mother or father - personally believed is the best age for a girl to be married at. Regressions include fixed effects for randomization strata. Standard errors clustered at village level (unit of randomization) are indicated in parentheses Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance. The row "control mean" indicates the average belief on the best age to marry a girl in the control group.

Table A15: Fathers and Mothers own attitudes regarding acceptability of girl child marriage.

	Father Accept 12-15		Mother Accept 12-15		Father Accept 16-17		Mother Accept 16-17	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Midline	Endline	Midline	Endline	Midline	Endline	Midline	Endline
Female	0.015	0.052	-0.046	-0.045	-0.045	0.034	-0.058	-0.088
	(0.589)	(0.051)*	(0.189)	(0.162)	(0.217)	(0.425)	(0.150)	(0.057)*
	[0.767]	[0.152]	[0.190]	[0.162]	[0.650]	[0.426]	[0.190]	[0.143]
Male	0.024	0.017	-0.018	-0.037	-0.063	0.050	-0.051	-0.044
	(0.365)	(0.478)	(0.613)	(0.210)	(0.074)*	(0.197)	(0.253)	(0.380)
	[0.366]	[0.488]	[0.645]	[0.570]	[0.224]	[0.488]	[0.645]	[0.570]
Female+Male	-0.026	-0.025	-0.027	-0.076	-0.077	-0.065	0.017	-0.064
	(0.301)	(0.233)	(0.446)	(0.005)***	(0.044)**	(0.097)*	(0.728)	(0.191)
	[0.412]	[0.350]	[0.669]	[0.017]**	[0.133]	[0.291]	[0.729]	[0.192]
Observations	1561	1457	1656	1574	1560	1457	1656	1574
Control Mean	0.140	0.089	0.226	0.189	0.699	0.565	0.596	0.588

Notes: Table presents post-estimated average treatment effects from Logit regressions. The dependent variable takes on value one if the respondent - mother or father - agrees or strongly agrees that 12-15 years (Columns 1-4) or 16-17 an acceptable age to marry a girl (Columns 5-8). Regressions include fixed effects for randomization strata. In parentheses, p-values from standard errors clustered at the village level (unit of randomization) are reported. In box brackets, q-values correcting for false discovery rate within each family using the Benjamini–Hochberg procedure are reported. Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance. The row "control mean" indicates the percentage of respondents in the control group who agreed or strongly agreed that the specific age is the acceptable age to marry a girl.

Table A16: Father's personal expectations about risks to a girl in case of child marriage at midline.

	(1) Decisions/rights	(2) Raising children	(3) Household responsibility	(4) Depression	(5) Young birth health issues	(6) Marriage failure
Female	−0.068	0.059	−0.039	−0.016	0.077**	0.074***
	(0.052)	(0.046)	(0.044)	(0.030)	(0.038)	(0.026)
Male	−0.070	0.055	−0.042	−0.008	0.042	0.047**
	(0.049)	(0.045)	(0.042)	(0.032)	(0.038)	(0.023)
Female+Male	−0.033	0.066	0.015	0.004	0.038	0.047*
	(0.054)	(0.044)	(0.042)	(0.032)	(0.037)	(0.025)
Observations	1545	1545	1545	1545	1545	1545
Control Mean	0.493	0.428	0.438	0.207	0.276	0.079

Notes: Table presents post-estimated average treatment effects from Logit regressions. The dependent variable takes on value one if the respondent, father in this case, at midline mentions that the expected risks to a girl in case of child marriage are: incapable to take decision/assert rights (column 1), incapable of raising children (column 2), incapable of household responsibility (column 3), depression to mother (column 4), health issues due to giving birth young (column 5) or marriage failure (column 6). Regressions include fixed effects for randomization strata. Standard errors clustered at village level (unit of randomization) are indicated in parentheses. Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance. The row control mean is the percentage of fathers with the above expectation in the control group.

Table A17: Mother's personal expectations about risks to a girl in case of child marriage at midline.

	(1) Decisions/rights	(2) Raising children	(3) Household responsibility	(4) Depression	(5) Young birth health issues	(6) Marriage failure
Female	0.059	0.021	0.010	0.015	0.030	−0.014
	(0.036)	(0.044)	(0.045)	(0.027)	(0.044)	(0.014)
Male	−0.003	0.041	0.043	−0.044*	0.039	−0.001
	(0.034)	(0.040)	(0.044)	(0.024)	(0.040)	(0.017)
Female+Male	0.015	0.041	0.017	0.006	0.004	0.003
	(0.033)	(0.041)	(0.044)	(0.027)	(0.041)	(0.016)
Observations	1650	1650	1650	1650	1650	1650
Control Mean	0.394	0.452	0.643	0.122	0.291	0.051

Notes: Table presents post-estimated average treatment effects from Logit regressions. The dependent variable takes on value one if the respondent, mothers in this case, at midline mentions that the expected risks to a girl in case of child marriage are: incapable to take decision/assert rights (column 1), incapable of raising children (column 2), incapable of household responsibility (column 3), depression to mother (column 4), health issues due to giving birth young (column 5) or marriage failure (column 6). Regressions include fixed effects for randomization strata. Standard errors clustered at village level (unit of randomization) are indicated in parentheses. Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance. The row control mean is the percentage of mothers with the above expectation in the control group.

Table A18: Father's personal expectations about risks to a girl in case of child marriage at endline.

	(1) Decisions/rights	(2) Raising children	(3) Household responsibility	(4) Depression	(5) Young birth health issues	(6) Marriage failure
Female	−0.124**	−0.062	−0.037	0.024	0.002	−0.003
	(0.049)	(0.045)	(0.041)	(0.031)	(0.033)	(0.017)
Male	−0.072	−0.056	−0.032	−0.019	0.027	−0.008
	(0.050)	(0.043)	(0.040)	(0.033)	(0.038)	(0.016)
Female+Male	−0.052	−0.022	0.024	−0.026	0.038	0.003
	(0.046)	(0.040)	(0.043)	(0.033)	(0.033)	(0.017)
Observations	1457	1457	1457	1457	1457	1457
Control Mean	0.634	0.496	0.407	0.180	0.222	0.064

Notes: Table presents post-estimated average treatment effects from Logit regressions. The dependent variable takes on value one if the respondent, father in this case, at endline mentions that the expected risks to a girl in case of child marriage are: incapable to take decision/assert rights (column 1), incapable of raising children (column 2), incapable of household responsibility (column 3), depression to mother (column 4), health issues due to giving birth young (column 5) or marriage failure (column 6). Regressions include fixed effects for randomization strata. Standard errors clustered at village level (unit of randomization) are indicated in parentheses. Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance. The row control mean is the percentage of fathers with the above expectation in the control group.

Table A19: Mother's personal expectations about risks to a girl in case of child marriage at endline.

	(1) Decisions/rights	(2) Raising children	(3) Household responsibility	(4) Depression	(5) Young birth health issues	(6) Marriage failure
Female	0.016	0.067	0.017	−0.001	−0.004	0.017
	(0.035)	(0.043)	(0.041)	(0.023)	(0.037)	(0.023)
Male	−0.023	0.067	0.006	0.003	−0.003	0.009
	(0.034)	(0.041)	(0.039)	(0.023)	(0.041)	(0.025)
Female+Male	0.009	0.028	0.050	−0.001	−0.052	0.011
	(0.037)	(0.046)	(0.038)	(0.024)	(0.034)	(0.024)
Observations	1572	1572	1572	1572	1572	1572
Control Mean	0.326	0.385	0.551	0.090	0.403	0.069

Notes: Table presents post-estimated average treatment effects from Logit regressions. The dependent variable takes on value one if the respondent, mothers in this case, at endline mentions that the expected risks to a girl in case of child marriage are: incapable to take decision/assert rights (column 1), incapable of raising children (column 2), incapable of household responsibility (column 3), depression to mother (column 4), health issues due to giving birth young (column 5) or marriage failure (column 6). Regressions include fixed effects for randomization strata. Standard errors clustered at village level (unit of randomization) are indicated in parentheses. Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance. The row control mean is the percentage of mothers with the above expectation in the control group.

Table A20: Endline beliefs of mothers and fathers about attitudes of **other men and women** in the community towards early marriage for girls.

	Best Age < 14		Best Age 14-15		Best Age 16-17		Accept 12-15		Accept 16-17	
	(1) Men	(2) Women	(3) Men	(4) Women	(5) Men	(6) Women	(7) Men	(8) Women	(9) Men	(10) Women
					Mother					
Female	0.032	0.229	-0.148	-0.066	-0.077	-0.148	-0.144	-0.126	-0.100	-0.039
	(0.851)	(0.153)	(0.493)	(0.768)	(0.741)	(0.506)	(0.506)	(0.560)	(0.644)	(0.866)
	[0.852]	[0.459]	[0.852]	[0.768]	[0.852]	[0.759]	[0.645]	[0.866]	[0.645]	[0.866]
Male	-0.069	-0.023	-0.352	-0.285	-0.090	-0.087	-0.016	-0.188	0.013	0.011
	(0.684)	(0.887)	(0.078)*	(0.166)	(0.670)	(0.672)	(0.936)	(0.330)	(0.952)	(0.955)
	[0.684]	[0.888]	[0.234]	[0.497]	[0.684]	[0.888]	[0.953]	[0.661]	[0.953]	[0.956]
Female+Male	-0.205	-0.282	-0.393	-0.369	-0.455	-0.213	-0.096	-0.039	-0.016	-0.003
	(0.227)	(0.075)*	(0.071)*	(0.098)*	(0.049)**	(0.340)	(0.675)	(0.858)	(0.945)	(0.989)
	[0.228]	[0.148]	[0.107]	[0.148]	[0.107]	[0.340]	[0.945]	[0.989]	[0.945]	[0.989]
Observations	1573	1573	1573	1573	1571	1572	1573	1573	1573	1573
Control Mean	1.783	1.785	3.417	3.327	4.895	4.713	3.100	3.128	4.754	4.675
					Father					
Female	0.454	0.394	0.125	0.046	-0.032	0.124	0.103	0.040	-0.134	0.004
	(0.001)***	(0.013)**	(0.513)	(0.818)	(0.880)	(0.573)	(0.571)	(0.826)	(0.518)	(0.986)
	[0.005]***	[0.040]**	[0.770]	[0.819]	[0.881]	[0.819]	[0.571]	[0.987]	[0.571]	[0.987]
Male	0.118	0.173	-0.010	0.024	0.098	0.116	0.033	0.190	-0.174	0.042
	(0.373)	(0.228)	(0.957)	(0.904)	(0.662)	(0.604)	(0.856)	(0.303)	(0.437)	(0.845)
	[0.958]	[0.684]	[0.958]	[0.904]	[0.958]	[0.904]	[0.856]	[0.607]	[0.856]	[0.846]
Female+Male	-0.061	-0.148	-0.003	-0.151	-0.206	-0.173	-0.228	-0.150	-0.552	-0.395
	(0.629)	(0.308)	(0.988)	(0.444)	(0.393)	(0.490)	(0.195)	(0.383)	(0.018)**	(0.072)*
	[0.945]	[0.491]	[0.989]	[0.491]	[0.945]	[0.491]	[0.195]	[0.384]	[0.037]**	[0.145]
Observations	1451	1451	1451	1451	1451	1451	1451	1451	1451	1451
Control Mean	1.308	1.628	2.517	2.792	4.761	4.869	2.628	2.644	5.158	5.061

Notes: Table presents average treatment effects from OLS regressions. The dependent variable is the respondent's belief about the number of other men out of 10 in their community and other women out of 10 in their community who find less than 14 the best age (Columns 1-2), 14-15 the best age (Columns 3-4), 16-17 the best age (Columns 5-6), 12-15 an acceptable age (Columns 7-8), and 16-17 an acceptable age (Columns 9 and 10). The top part of table is for responses from mothers, and the bottom part of the table for responses from fathers. The dependent variable takes on a value from 0-10. Regressions include fixed effects for randomization strata. In parentheses, p-values from standard errors clustered at the village level (unit of randomization) are reported. In square brackets, q-values correcting for false discovery rate within each family using the Benjamini–Hochberg procedure are reported. The family over which we correct reflects the three categories of best age per respondent per treatment arm and the two categories of acceptability per respondent per treatment arm. Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance. The row "Control Mean" multiplied by 10 indicates the average percentage of other men and women in the community that respondents in the control group believe would agree or strongly agree with the specific statement.

Table A21: Over- and underestimation of other men's and women's attitudes towards age of marriage for a girl by mothers

	Midline						Endline					
	Best age < 14		Best age 14-15		Best age 16-17		Best age < 14		Best age 14-15		Best age 16-17	
	(1) Men	(2) Women	(3) Men	(4) Women	(5) Men	(6) Women	(7) Men	(8) Women	(9) Men	(10) Women	(11) Men	(12) Women
Female	−0.040*	−0.024	−0.007	0.011	−0.046*	−0.037	−0.024	−0.002	0.027	−0.021	0.012	0.024
	(0.022)	(0.018)	(0.018)	(0.016)	(0.026)	(0.022)	(0.022)	(0.022)	(0.029)	(0.031)	(0.032)	(0.027)
Male	−0.014	0.002	−0.005	0.002	−0.003	0.041*	−0.039*	−0.014	0.015	0.004	−0.046	0.010
	(0.019)	(0.019)	(0.016)	(0.017)	(0.027)	(0.023)	(0.021)	(0.021)	(0.030)	(0.031)	(0.033)	(0.027)
Female+Male	−0.038**	−0.026	−0.018	−0.027*	−0.007	0.002	−0.040*	−0.002	0.009	0.007	−0.009	−0.032
	(0.019)	(0.018)	(0.016)	(0.016)	(0.025)	(0.025)	(0.023)	(0.022)	(0.030)	(0.033)	(0.033)	(0.031)
Strata	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	1649	1650	1573	1573	1649	1650	1573	1573	1649	1650	1571	1572
Control Mean	0.196	0.189	0.173	0.163	0.292	0.233	0.323	0.274	0.329	0.376	0.333	0.325

Note: Table presents average treatment effects from OLS regressions. The dependent variable is the difference between the percentage of men (women) in the corresponding village in the corresponding surveyround who find that less than 14 (Columns 1-2 & Columns 7-8) or 14-15 (Columns 3-4 & Columns 9-10) or 16-17 (Column 5-6 & Column 11-12) is the best age to marry a girl, and the respondent's belief about how many other men (women) in the village agree with the respective statements. The dependent variable takes on a value from 0-1. Regressions include fixed effects for randomization strata. Standard errors clustered at village level (unit of randomization), and are indicated in parentheses. Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance. The row 'control mean' multiplied by 100, indicates the average percentage point under- or over-estimation in the control group.

Table A22: Over- and underestimation of other men's and women's attitudes towards age of marriage for a girl by Fathers

	Midline						Endline					
	Best age < 14		Best age 14-15		Best age 16-17		Best age < 14		Best age 14-15		Best age 16-17	
	(1) Men	(2) Women	(3) Men	(4) Women	(5) Men	(6) Women	(7) Men	(8) Women	(9) Men	(10) Women	(11) Men	(12) Women
Female	−0.027	0.008	0.035**	0.027	0.044*	0.041	0.006	0.011	0.044	0.002	0.013	0.049
	(0.019)	(0.022)	(0.015)	(0.018)	(0.025)	(0.030)	(0.021)	(0.024)	(0.028)	(0.029)	(0.030)	(0.032)
Male	0.001	0.006	0.014	0.022	0.055**	0.066**	−0.003	0.022	0.061**	0.038	−0.026	0.027
	(0.018)	(0.020)	(0.013)	(0.016)	(0.024)	(0.031)	(0.020)	(0.026)	(0.031)	(0.029)	(0.031)	(0.037)
Female+Male	−0.025	−0.024	−0.003	−0.013	0.038*	0.023	0.001	0.024	−0.005	0.006	0.017	−0.026
	(0.019)	(0.022)	(0.013)	(0.016)	(0.020)	(0.028)	(0.021)	(0.024)	(0.026)	(0.033)	(0.026)	(0.040)
Strata	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	1560	1558	1451	1451	1559	1558	1451	1451	1560	1558	1451	1451
Control Mean	0.173	0.196	0.125	0.148	0.223	0.200	0.232	0.219	0.376	0.434	0.320	0.344

Note: Table presents average treatment effects from OLS regressions. The dependent variable is the difference between the percentage of men (women) in the corresponding village in the corresponding surveyround who find that less than 14 (Columns 1-2 & Columns 7-8) or 14-15 (Columns 3-4 & Columns 9-10)or 16-17 (Column 5-6 & Column 11-12) is the best age to marry a girl, and the respondent's belief about how many other men (women) in the village agree with the respective statements. The dependent variable takes on a value from 0-1. Regressions include fixed effects for randomization strata. Standard errors clustered at village level (unit of randomization), and are indicated in parentheses. Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance. The row 'control mean' multiplied by 100, indicates the average percentage point under- or over-estimation in the control group.

Table A23: Over- and underestimation of other men's and women's attitudes towards acceptability of girl child marriage by Mothers

	Midline				Endline			
	Accept 12-15		Accept 16-17		Accept 12-15		Accept 16-17	
	(1) Men	(2) Women	(3) Men	(4) Women	(5) Men	(6) Women	(7) Men	(8) Women
Female	−0.086***	−0.011	−0.065**	0.031	0.030	0.014	−0.050	0.084*
	(0.030)	(0.028)	(0.031)	(0.032)	(0.037)	(0.035)	(0.040)	(0.046)
Male	−0.058*	−0.010	−0.024	0.017	0.054	0.045	−0.048	0.044
	(0.032)	(0.030)	(0.030)	(0.031)	(0.038)	(0.037)	(0.041)	(0.048)
Female+Male	−0.030	−0.021	0.012	0.071**	0.053	−0.032	0.057*	0.063
	(0.030)	(0.033)	(0.029)	(0.030)	(0.040)	(0.039)	(0.034)	(0.049)
Strata	✓	✓	✓	✓	✓	✓	✓	✓
Observations	1649	1649	1573	1573	1648	1649	1573	1573
Control Mean	0.219	0.129	0.222	0.124	-0.190	-0.068	-0.092	-0.121

Note: Table presents average treatment effects from OLS regressions. The dependent variable is difference between the percentage of men (women) in the corresponding village in the corresponding surveyround who find that 14-15 (Columns 1-2 & Columns 5-6) or 16-17 (Columns 3-4 & Columns 7-8) an acceptable age to marry a girl, and the respondent's belief about how many other men (women) in the village agree with the respective statements. The dependent variable takes on a value from 0-1. Regressions include fixed effects for randomization strata. Standard errors clustered at village level (unit of randomization), and are indicated in parentheses. Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance. The row 'control mean' multiplied by 100, indicates the average percentage point under- or over-estimation in the control group.

Table A24: Over- and underestimation of other men's and women's attitudes towards acceptability of girl child marriage by Mothers

	Midline				Endline			
	Accept 12-15		Accept 16-17		Accept 12-15		Accept 16-17	
	(1) Men	(2) Women	(3) Men	(4) Women	(5) Men	(6) Women	(7) Men	(8) Women
Female	–0.019	0.033	–0.043	0.047	0.042	0.028	–0.049	0.082*
	(0.027)	(0.031)	(0.027)	(0.035)	(0.035)	(0.043)	(0.035)	(0.046)
Male	–0.014	0.001	–0.014	0.057	0.076**	0.038	–0.069*	0.045
	(0.027)	(0.033)	(0.025)	(0.036)	(0.032)	(0.048)	(0.036)	(0.050)
Female+Male	–0.011	0.006	0.002	0.065**	0.041	–0.046	0.009	0.027
	(0.027)	(0.037)	(0.023)	(0.033)	(0.035)	(0.051)	(0.032)	(0.048)
Strata	✓	✓	✓	✓	✓	✓	✓	✓
Observations	1559	1558	1451	1451	1559	1558	1451	1451
Control Mean	0.162	0.098	0.174	0.075	-0.146	-0.031	-0.049	-0.077

Note: Table presents average treatment effects from OLS regressions. The dependent variable is the difference between the percentage of men (women) in the corresponding village in the corresponding surveyround who find that 14-15 (Columns 1-2 & Columns 5-6) or 16-17 (Columns 3-4 & Columns 7-8) an acceptable age to marry a girl, and the respondent's belief about how many other men (women) in the village agree with the respective statements. The dependent variable takes on a value from 0-1. Regressions include fixed effects for randomization strata. Standard errors clustered at village level (unit of randomization), and are indicated in parentheses. Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance. The row 'control mean' multiplied by 100, indicates the average percentage point under- or over-estimation in the control group.

Table A25: Village-month level: (Child) Marriage Outcomes for Boys

	Child Marriage		Marriage age	
	(1) Midline	(2) Endline	(3) Midline	(4) Endline
Post × Female	−0.101	−0.063	2.617**	1.547***
	(0.087)	(0.049)	(1.251)	(0.524)
Post × Male	−0.147*	−0.114**	0.490	0.851*
	(0.076)	(0.053)	(0.784)	(0.510)
Post × Female+Male	−0.080	−0.035	1.198	0.810*
	(0.091)	(0.050)	(0.764)	(0.443)
Observations	673	1123	673	1123
Control Mean	0.163	0.118	19.826	21.171

Notes: Village fixed effects regressions with marriage data aggregated at the village-month level. Reported coefficients are estimates of β_2 from Equation 2. In Column 1-2, the dependent variable is a dummy that takes value one if, conditional on there being at least one marriage in the village during the observation month, any marriage had a boy (groom) that was below the age of 18 at the time of marriage. In Column 3-4, the dependent variable is the average age of marriage of boys in the village in that month. "Midline" counts observations between the pre-treatment months and January 2020, and "Endline" counts observations between the pre-treatment months and March 2021. The variable "post" is a dummy variable that takes on the value zero if the village-month lies in the period before (not including) July 2019, the period before or during the intervention; and takes on value one if the observation month lies in the period after the intervention was completed. All regressions include randomization strata dummies and their interaction with "post". Standard errors are clustered at the village level and are presented in parentheses. Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance. The row 'control mean' reports the specific variable in the control group.

Table A26: Village-marriage level: (Child) Marriage Outcomes for Girls

	Child Marriage		Marriage age	
	(1) Midline	(2) Endline	(3) Midline	(4) Endline
Post × Female	−0.407***	−0.206***	1.293**	0.676*
	(0.131)	(0.072)	(0.579)	(0.343)
Post × Male	−0.337***	−0.107	0.790*	0.350
	(0.116)	(0.072)	(0.462)	(0.344)
Post × Female+Male	−0.262**	−0.251***	0.678	0.949***
	(0.116)	(0.068)	(0.505)	(0.313)
Observations	697	1383	697	1383
Control Mean	0.614	0.348	17.386	18.429

Notes: Village fixed effects regressions at the level of marriages. In Columns 1 and 2, the dependent variable is a dummy that takes value one if the marriage involved a girl (bride) that was married at an age below 18. In Columns 3 and 4, the dependent variable is the age of marriage of the girl respectively. "Midline" counts observations between the pre-treatment months and January 2020, and "Endline" counts observations between the pre-treatment months and March 2021. The variable "post" is a dummy variable that takes on the value zero if the marriage lies in the period before (not including) July 2019, the period before or during the intervention; and takes on value one if the marriage lies in the period after the intervention was completed. All regressions include randomization strata dummies and their interaction with "post". Standard errors are clustered at the village level and are presented in parentheses. Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance.

Table A27: Village-marriage level: (Child) Marriage Outcomes for Boys

	Child Marriage		Marriage age	
	(1) Midline	(2) Endline	(3) Midline	(4) Endline
Post × Female	−0.113	−0.062	2.571**	1.592***
	(0.088)	(0.046)	(1.234)	(0.507)
Post × Male	−0.152**	−0.103**	0.568	0.948*
	(0.073)	(0.050)	(0.784)	(0.507)
Post × Female+Male	−0.076	−0.027	1.000	0.950**
	(0.088)	(0.045)	(0.777)	(0.433)
Observations	698	1382	698	1382
Control Mean	0.156	0.097	19.889	21.130

Notes: Village fixed effects regressions at the level of marriages. In Columns 1 and 2, the dependent variable is a dummy that takes value one if the marriage involved a boy (groom) that was married at an age below 18. In Columns 3 and 4, the dependent variable is the age of marriage of the boy respectively. "Midline" counts observations between the pre-treatment months and January 2020 and "Endline" counts observations between the pre-treatment months and March 2021. The variable "post" is a dummy variable that takes on the value zero if the marriage lies in the period before (not including) July 2019, the period before or during the intervention; and takes on value one if the marriage lies in the period after the intervention was completed. All regressions include randomization strata dummies and their interaction with "post". Standard errors are clustered at the village level and are presented in parentheses. Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance.

Table A28: Village-level child marriage outcomes by village-level mobility of women

	Cannot leave compound	Can leave compound	χ^2 p-value
Post X Female	-0.019	-0.297	0.100
	(0.143)	(0.118)**	
Post X Male	-0.038	-0.151	0.538
	(0.167)	(0.115)	
Post X Female+Male	-0.134	-0.322	0.172
	(0.104)	(0.110)***	
Observations	311	812	

Notes: Village fixed effects regressions with marriage data aggregated at the village-month level. The dependent variable is a dummy that takes value one if, conditional on there being at least one marriage in the village during the observation month, any marriage had a bride that was below the age of 18 at the time of marriage. Column 1 presents impacts on child marriage in the sample of villages where women *cannot* leave the compound of the household. Column 2, presents impacts on child marriage in the sample of villages where women *can* leave the compound of the household. Column 3 reports the p-value of the *chi-squared* test, that estimated treatment effects from the two seemingly unrelated regressions (SUR) are significantly different from each other. The variable "post" is a dummy variable that takes on the value zero if the village-month lies in the period before (not including) July 2019, the period before or during the intervention; and takes on value one if the observation month lies in the period after the intervention was completed. All regressions include randomization strata dummies and their interaction with endline. Standard errors are clustered at the village level and are presented in parentheses. Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance.

Table A29: Village-month: Number of Marriages

	Any Marriage		Number of Marriages	
	(1) Midline	(2) Endline	(3) Midline	(4) Endline
Post × Female	−0.015	0.041	−0.020	0.001
	(0.044)	(0.046)	(0.040)	(0.038)
Post × Male	0.055	0.068	0.043	0.043
	(0.045)	(0.043)	(0.039)	(0.034)
Post × Female+Male	−0.006	0.025	−0.003	0.012
	(0.040)	(0.041)	(0.037)	(0.033)
Observations	2452	4746	2452	4746
Control Mean	0.176	0.229	0.168	0.175

Notes: Village fixed effects regressions with marriage data aggregated at the village-month level. In Column 1-2, the dependent variable is a dummy that takes value one if there was at least one marriage in a given village during the month. In Column 3-4, the dependent variable is a count variable of the number of marriages in a given village during the month. "Midline" counts observations between the pre-treatment months and January 2020, and "Endline" counts observations between the pre-treatment months and March 2021. The variable "post" is a dummy variable that takes on the value zero if the village-month lies in the period before July (not including) 2019, the period before or during the intervention; and takes on value one if the observation month lies in the period after the intervention was completed. All regressions include randomization strata dummies and their interaction with "post". Standard errors are clustered at the village level and are presented in parentheses. Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance. The row 'control mean' reports the specific variable in the control group.

Table A30: Intimate partner violence experiences for mothers with high and low involvement in decision-making.

	Physical violence - midline			Physical violence - endline		
	(1)	(2)	(3)	(4)	(5)	(6)
	Low	High	Difference	Low	High	Difference
Female	0.031	0.012	-0.019	0.003	0.020	0.017
	(0.024)	(0.013)	(0.027)	(0.022)	(0.014)	(0.023)
Male	-0.003	0.005	0.008	-0.031**	0.010	0.042**
	(0.014)	(0.013)	(0.019)	(0.015)	(0.010)	(0.017)
Female+Male	0.024	0.014	-0.010	-0.015	0.050**	0.064***
	(0.019)	(0.013)	(0.018)	(0.019)	(0.022)	(0.023)
Observations	861	764		826	731	
Control Mean	0.019	0.011		0.038	0.006	

Notes: Table presents post-estimated average treatment effects from Logit regressions. The dependent variable takes on value one if the female respondent any type of physical violence perpetrated by their husband in the three months prior to midline (Columns 1-3) and endline (Columns 4-6). We provide estimate for two subsamples of households, i.e., where mothers involvement in decision-making is below the median, indicating relatively low involvement in decision-making (Columns 1 and 4), and where mothers involvement in decision-making is above the median, indicating relatively high involvement in decision-making (Columns 2 and 5). Columns 3 and 6 report differences between the estimates for mothers with high and low involvement. Regressions include fixed effects for randomization strata. Standard errors clustered at village level (unit of randomization) are indicated in parentheses. Stars indicate: *** 1 percent ** 5 percent * 10 percent level of significance. The row 'control mean' reports the specific variable in the control group.

Table A31: Participation in screening and group discussion per treatment arm

	Male attendees	Female attendees
Female		18.09
		(2.58)
Male	15.77	
	(2.38)	
Female+Male	14.94	16.15
	(2.71)	(3.75)

Notes: The average number of participants in each treatment arm, disaggregated by the gender of the attendees, with the standard deviation in parentheses. In the female+male intervention, two separate sessions were conducted - one for males and one for females from the same household. In this treatment arm participants were explicitly informed that the other gender was participating in the same intervention.

Table A32: Three-way dictator game between fathers, mothers, and boy and girl adolescents

	Amount given to adolescent		Amount given by adolescent	
	by father	by mother	to father	to mother
Girl adolescent	128.02	134.51	185.05	163.32
	(78.11)	(61.36)	(63.78)	(64.56)
Boy adolescent	119.72	131.96	191.49	163.66
	(74.22)	(59.14)	(68.43)	(64.55)
p-value difference	0.126	0.551	0.242	0.941
Observations	756	756	756	756

Notes: Columns 1 and 2 presents the average amount of money out of 500 Rs. that a father or mother give a girl adolescent or boy adolescent in a one-shot unincentivized dictator game. Columns 3 and 4 present the average amount of money out of 300 Rs. that a girl adolescent or a boy adolescent give to their mother or father, in a one-shot unincentivized dictator game. In parentheses, standard deviations are reported. Row 'p-value difference' is a t-test for the difference in means. Analysis is restricted to baseline responses (only Sindh province). Analysis on midline data (Sindh and Punjab province) controlling for treatment dummies yields similar results. Note that a panel household being a girl or boy household is independent of treatment assignment as explained in Section 3.1.