Can media campaigns change attitudes and spark actions to reduce early child marriage? Impact evaluation of breakthrough's early marriage campaign in Jharkhand and Bihar states of India

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Note to readers

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Summary

A clustered randomized trial in two states of India examines alternate strategies to reduce child marriage, increase girls' education and change gender attitudes. GPs were randomized into four treatment and one control group in a 1:1:1:2:2 ratio. The GP level intervention from November 2012 delivered to treatment groups i) A Full Package, comprising mass-media, training and community mobilization programs; ii) a Training Package comprising a combination of mass media and a training program at the block level; iii) a Community Mobilization Package comprising a combination of mass-media and a community mobilization program; iv) and an only Mass Media program. Data from 2,542 households seven years after the start of the program shows that the intervention made significant improvements in impact indicators on girls' education and incidence and age at marriage. As compared to the control GPs, the Full Package intervention increased the age at marriage for girls aged 13-25 on an average by 6.5 months and their education by 9 months. The Full Package also increased the percentage of girls enrolled in school by an additional 9% over the level that control group achieved (92% in Full Package vs 83% in Control Group). The program impacts were similar after controlling for stratification and other household and GP level characteristics.

We found that the intervention made an outcome indicator - gender attitudes - more progressive; GP with Full Package had a 0.407 standard deviation (equivalent to approximately 16%) higher gender attitude index than control GPs ($p < 0.01$). The measure of attitudes is an index of aggregated indices on gender equality, education, marriage, mobility and knowledge. Attitude change was larger for education and mobility indices. For example, the households in the Full Package had 0.26 and 0.33 standard deviations more positive attitude towards girls' education and mobility than control GPs. We did not find any significant effect on attitudes pertaining to marriage and girl's work and responsibility. There is little change in norms related to gender roles within the home and education has mostly been perceived as a vehicle for better management of the home, rather than for empowering women to work and be independent.

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Abbreviations and Acronyms

CMS	Catalyst Management Services
DLHS	District Level Household and Facility Survey
FGD	Focus Group Discussion
GP	Gram Panchayat
NFHS	National Family Health Survey
OBC	Other Backward Castes
SC	Scheduled Castes
ST	Scheduled Tribes

1 Introduction

One in three of the world's child brides live in India. Of the country's 223 million child brides, 102 million were married before turning 15 (UNICEF, 2019). Despite child marriage being outlawed nearly a century ago, its prevalence persists even today. In rural India, 31.5% girls get married before the age of 18 (NFHS 2015-16). About 9% women in age group of 15-19 years are already mothers or pregnant at the time of the survey. The incidence of early marriage is declining but remains high. A more concerted and active approach is required to tackle the problem of child marriages and mitigate its negative consequences.

Considerable amount of research exists on causes of child marriage and its negative consequences. These drivers are context-specific, but poverty, imperfect marriage markets and gender norms are common impetus. The negative consequences are considerable at multiple levels. It affects girls, their family, their next generation, their communities and their countries. At individual level, child marriage deprives the girls of accumulating human capital limiting future employment choices (Field and Ambrus 2008, Bruce and Hallman 2008). Early marriage has multidimensional impacts on girls and women. It affects agency and decision-making, educational attainment, labor force participation, violence, and health. Early marriage is also associated with poor sexual and reproductive health. Married girls often lack the ability to negotiate sexual activity, contraceptive use, or birth spacing with their husbands (Raj 2010; UNFPA 2013). This makes them more susceptible to sexually transmitted infections, including HIV, and putting them at higher risk for early pregnancy (UNFPA 2013; Walker et al. 2013). Lack of education also makes it more difficult for girls to access information on health and welfare for themselves or their children (Abu-Ghaida and Klasen 2004; Semba et al. 2008).

Child brides often face overlapping vulnerabilities as they are young, often poor and undereducated. Married girls are typically out of school, and most have little to no say in decisions about whether they should continue or return to school, limiting their literacy skills (Malhotra et al. 2011; Plan UK 2011; Vogelstein 2013). Depriving a girl of the opportunity to learn restricts her prospects for employment and her ability to gain necessary skills (Khanna, Verma and Weiss 2013) or vocational training (UNESCO 2012) for the formal labor market, certainly impacting her lifelong earning potential. Due of their low levels of education, child brides are often not seen by their husbands and in-laws as capable of earning or making financial decisions for the household (Becker Fonseca-Becker and Schenck-Yglesias 2006; Blumberg et al. 1995; Jain and Kurz 2007; The World Bank 2012). These individual outcomes lead to several social consequences of early marriage including population growth, poor health for women and children. The reduced agency and voice of women and girls leads to loss of productivity and has long term effects on development goals (Klugman et al. 2014).

A number of studies have shown that reducing the cost of education or providing positive incentives for students to stay in school are effective in increasing education and can also reduce teenage pregnancy or cohabiting (Angrist and Lavy 2009; Schultz 2004; Baird et al. 2011; Duflo et al. 2015; Alam et al. 2011; Hong and Saar 2012; Hahn et al. 2015; Heath and Mobarak 2015, Angrist et al. 2006). Bandiera et al (2012) also show that vocational and life skills training intervention is successful in delaying marriage, childbirth and improving HIV and pregnancy related knowledge. Whereas another empowerment program in Tanzania did not have significant effects on education or marriage outcomes (Buehren et al. 2015). Field et al. (2018) find that inexpensive conditional stipend program targeted to the families of adolescent

girls in Bangladesh is effective in delaying the marriage of participants. However, there is little evidence of the effectiveness of alternative approaches to reducing child marriage. There is also no existing experimental evidence on the impact of delaying marriage on schooling outcomes.

In India, there have been multiple interventions to reduce incidence of early marriage. The assessments and evaluations of these interventions point towards the importance of media, community mobilization and youth empowerment. The community based and girl-focused Maharashtra Life Skills Program succeeded in increasing the mean age of marriage among girls in the intervention group by one year and found that the proportion marrying before age 18 declined by almost 20 percentage points in the intervention area, compared with no significant change in the control area (Pande et al, 2006). A study of Development Initiative Supporting Healthy Adolescents – the DISHA program in Bihar and Jharkhand, India found increase in the ideal age of marriage and in knowledge of the legal age at marriage and modern contraception method (Kanesathasan et al. 2008). Impact assessment of a Gram Panchayat (GP) based intervention that was conducted in Uttar Pradesh and focused on 10-24-year-olds illustrated how youth empowerment, community mobilization, and media are routes through which change can be brought upon within a GP. Specifically, this study finds that peer education and support through youth information centres within the GP was significantly associated with a decrease in the incidence of early marriage, pregnancy, and increase in school retention (Mehra et al 2018).

In this report, we study the effect of Breakthrough's intervention that intended to reduce the incidence of early marriage by challenging gender norms through training, community mobilization and mass media activities. Breakthrough is a global human rights organization that utilizes pop culture and unique education-based interventions to inspire leadership for social change. Breakthrough's primary focus is on addressing violence against women in various forms, including domestic violence, early marriage and gender biased selective elimination. Their interventions utilize pop culture and various forms of mass media to reach larges audiences and challenge norms. They build on the media intervention through training and partnership engagements with communities for lasting impact.

Catalyst Management Services (CMS) evaluated Breakthrough's program using a Randomized Control Trial design to evaluate the impact of the program by comparing outcomes for girls who reside in 200 GPs randomly assigned to one of four treatment packages, with that of girls residing in 80 control GPs. This design served to estimate the impacts of the program along the dimensions of the program targets: incidence of early marriage, education outcomes and gender attitudes.

This report presents the endline analysis of the impact of Breakthrough's early marriage campaign on various indicators in context of early marriage. It is organized into the following sections: Section 2 describes the intervention, theory of change and research hypothesis. Section 3 details the context of the of the study including the information regarding study area and survey sample. The time of the intervention and study is briefly outlined in section 4. Section 5 describes the study design, the treatment-assignment and identification strategy, and measures to ensure data quality. Section 6 provides information pertaining to how the intervention was implemented along with monitoring information. The results are described in

section 7. Section 8 discusses and interprets the results and section 9 provides specific insights for policy and practice, concludes and provides recommendations.

2 Intervention, theory of change and research hypothesis

Breakthrough's Early Marriage Campaign aimed to reduce the incidence of early marriage and increase the average age at marriage in three districts of the Indian states of Bihar and Jharkhand. The intervention employed mass media and popular culture campaign, and community engagement at the GP to address knowledge, attitudes and practices related to early marriage and gender norms and bring lasting social change.

Breakthrough's program blueprint was founded on the gender and human rights frameworks. The content of the campaigns and engagement modules were informed by a diagnostic/formative research conducted by PRAXIS in 2012 which identified prevalent marriage practices in the community, and existing programs on early marriage operating in the identified program districts.

The formative research determined six potential themes for intervention, namely, teenage pregnancies, education, livelihoods, sexuality, sexual harassment, and sexual and reproductive health awareness. The study found that existing programs adequately covered the themes of teenage pregnancies, education and livelihoods, but not of sexuality, sexual harassment and sexual and reproductive health. The research also indicated that the two most significant reasons for early marriage were, (a) the fear that unmarried girls would be sexually harassed, and (b) traditions and customs that encourage control over the sexuality of girls and seek to prevent interaction with the opposite sex outside of marriage. Norms and practices such as higher demands of dowry with an increase in the girl's age and girls being considered a burden on the natal household as they do not contribute to it financially were other drivers of the practice of early marriage (PRAXIS, 2012).

Based on the formative research and experiences of Breakthrough, four areas were identified for intervention:

- Perception about the safety and security and harassment of the girls if they are not married early;
- Stigma at the household and GP against unmarried girls;
- Lack of decision-making powers and platforms for youth to say no to early marriage;
- Deep rooted perception that "Girls are Bad Investment".

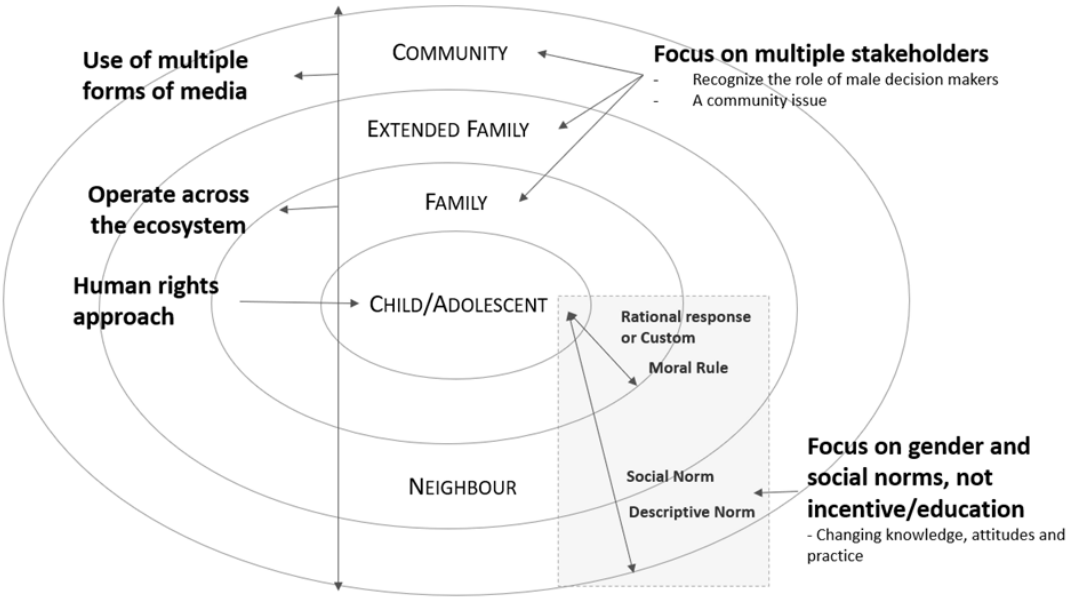
These findings and issues of interest guided the design of messages and engagement modules to shape and locate Breakthrough's intervention within a human rights framework – contextualizing the practice of early marriage within the discourse of child, women and community rights.

Child rights tenets hold all children as rights holders and "claimants" to rights of "survival, protection, and development", which they are denied with the adverse health and education impacts of early marriage. Furthermore, early marriage restricts children's ability to exercise the right to decision making for their own marriage, supressing their voice. Pursuant to the women's rights perspective, early marriage can be considered as a consequence of a patriarchal society that denies women and girls a plethora of rights. It is a form of discrimination

against the girl child which perpetuates patriarchal notions of honour and morality and restricts the girl child's access to education, livelihoods, better health and decision-making power. Once girls attain puberty, restrictions placed on their mobility prevent them from exercising their agency. In terms of community rights, early marriage is steeped in societal norms that arrest or slow the establishment of community structures and systems that encourage discussions and disagreement with these norms.

Given these constructs, any successful intervention in early marriage would need to examine the individual, familial and community level norms and practices and contextualize strategies appropriate to each level. As depicted through Figure 1, Breakthrough's intervention did just that. It was central to the rights of children and adolescents, but extended to all other influencers across the ecosystem, recognizing their part in determining marriage practices. Its intervention sought to replace prevailing notions and beliefs about the value of the girl child, the desire to restrict her mobility and decision-making power, with notions that perceive women and girls as equal contributors to the household and need to be treated with respect and afforded equal rights. The normative underpinning of these prevailing notions (explained in greater details through the qualitative analytic framework in Section 5.2) warranted a response couched in social norms and behaviour change theories. Its focus on gender and social norms was geared towards understanding the grounding of practices and served as a base for intervention strategies.

Figure 1: **Key features of Breakthrough's intervention**



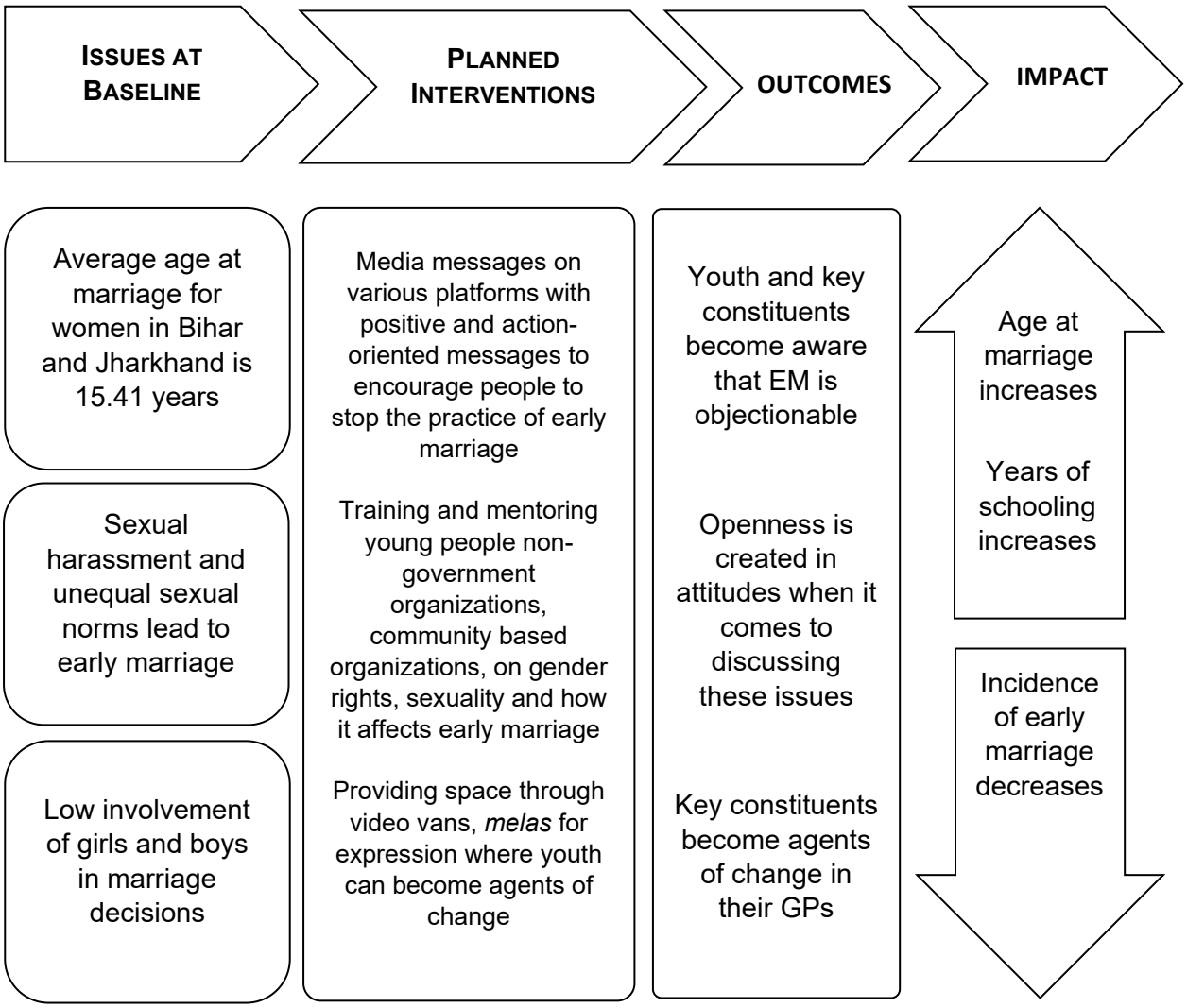
The need to address deep rooted social issues and operate across the system required multiple forms of engagement, namely:

1. **Mass media campaign:** Within this segment of the intervention, messages were aired on radio, television, in newspapers and cinemas. The messages were positive and urged young fathers and boys to act against early marriage. It encouraged young fathers to see their daughters as productive members of the household.

2. **Training:** At the block level, Breakthrough conducted programs to sensitize, train and mentor representative of Youth Groups, Self-Help Groups, Educational Institutes, etc. and key field staff in the government departments (education, health, women and child) on modules around the themes of gender rights, sexuality and sexual harassment. It was expected that the representatives from community groups and the government field staff reached at the block level would carry messages and share the same at the GP level and below in their interactions.
3. **Community mobilization and interactive media:** This program component was employed at the GP level. As a part of this segment of the program, Breakthrough organized GP level events such as *Kishori melas* (youth festivals), puppet shows, and video vans and used ambient media such as posters and wall paintings, all geared towards combating the norms around early marriage. Two types of trainings were conducted: school-based and GP-based. The school-based trainings involved Breakthrough's staff working with adolescents and their teachers, and GP-based trainings were targeted towards community influencers such as Anganwadi Workers and Panchayat members. The basic premise of these trainings was to combine the internal capacity within these groups with information and awareness regarding early marriage, towards creating agents of change within the GP.

The impact evaluation for Breakthrough's early marriage initiative was designed to assess whether these strategies would lead to Breakthrough's intended impact, and if so, which strategies were relatively more effective. For this purpose, a program theory of change was developed in consultation with Breakthrough (Figure 2).

Figure 2: **Breakthrough's program theory of change**



The evaluation employed a cluster randomized control design employing a mixed method procedure. The study sought to examine the changes in impact level indicators such as age at marriage and incidence of early marriage across each treatment package. It sought to assess the extent, if any, of attributability of these changes to the program. This was a panel study with baseline (in 2012) and endline (in 2019) with a midline verification (in 2014).

The impact evaluation was designed to answer the following evaluation questions:

1. What are the impacts of media interventions on knowledge, attitudes, and practice of early childhood marriage?
2. Does block-level training affect the outcomes on knowledge, attitudes, and practice of early marriage? (Are the two interventions complementary?)

The main assumptions underlying the theory of change were:

- Intervention packages are effectively delivered by Breakthrough with the right intensity to ensure outreach, and these results in increased awareness among the stakeholders

(particularly adolescents, their parents and key GP leaders) on causes and consequences of early marriage.

- Key constituencies in the GPs, particularly adolescents, realize that early marriage is objectionable, and they find spaces to express this. Increased awareness and understanding on gender norms along with better communication skills helps adolescents to share their aspirations and participate in decisions.
- Individual level awareness and engagement is supported with the engagements at family, community and other stakeholders' level, thereby creating an enabling ecosystem to talk about these issues and extend support at GP level. Mass media is expected to reach out to individuals with key messages without the constraints of the resource intensive field engagements.
- Government schemes and other non-government organizations' programs are appropriately leveraged by communities to address aspirations for education, employment and other services and reduce the pressure for early marriage due to these constraints. One of the key changes expected is increasing years of schooling for the girl children.
- With increasing numbers of participants standing up and acting against early marriage, more agents of change from GPs emerge, sustaining the change and start creating a new norm.

3 Context

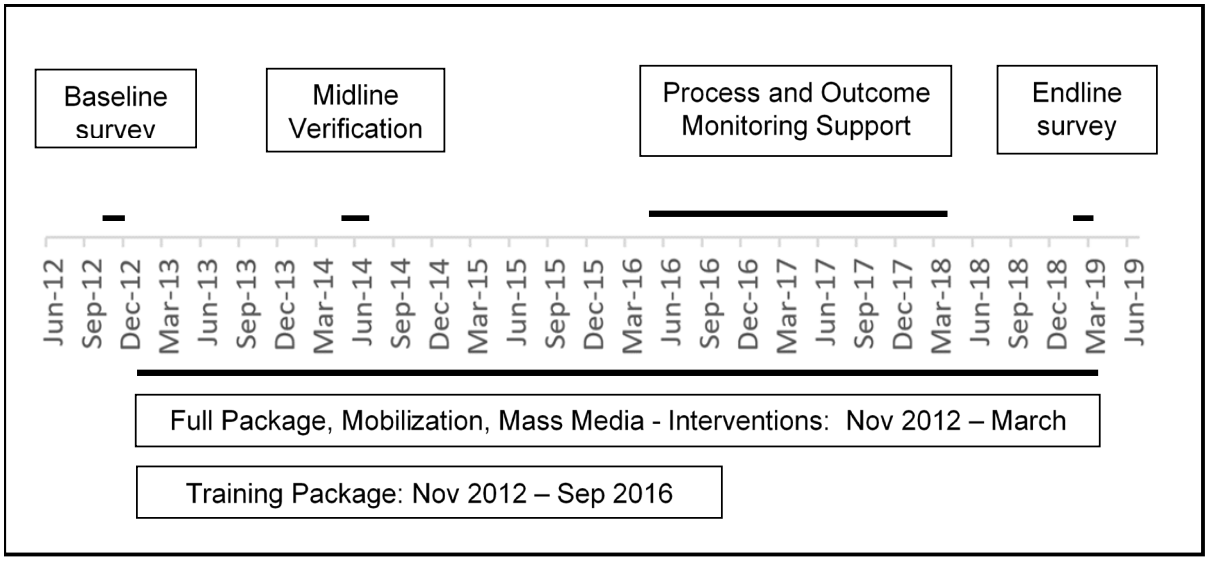
As per the District Level Health Survey (NFHS-3 2005-06) data from 2005-06, in India, more than a quarter (27%) of women aged 20-24 were married before they turned 15, 58% were married before the legal age of 18. The rates of prevalence of early marriage varied considerably across the country. The rates of incidence of early marriage in Bihar and Jharkhand were higher than the all-India average. In Bihar, the percentage of women who were married early (before 18) was 69% and it was 63% in Jharkhand. In Jharkhand, the median age at first marriage was 16.2 years among women age 20-49 years and 20.8 among men age 25-49. In Bihar, the median age at first marriage was 15 years among women age 20-49 years and 20 years among men age 25-49 years. Even in terms of the divide between the rural and urban, the differences in rates of incidence were found to be highest in a handful states and Bihar and Jharkhand were among them.

As explained in Section 2, Breakthrough's program emerged from its work on domestic violence and the critical need to address the issue of early marriage and its constituent causes. Building on its expertise in media and popular culture, Breakthrough designed multiple channels of communication to bring sustained changes in the communities. The evaluation study was conducted in the three districts in Bihar and Jharkhand where Breakthrough planned this program.

4 Timeline

The program implementation began in November 2012 after the baseline survey. CMS collected the first round of data in September and October 2012. Midline verification followed in April to June 2014. The intervention ended in December 2018 in all 200 intervention GPs. We scheduled end line surveys to start in December 2018 as soon as the program ended but were delayed by about 2 months and were able to conduct the endline between February and March 2019.

Figure 3: **Timeline of intervention and data collection**

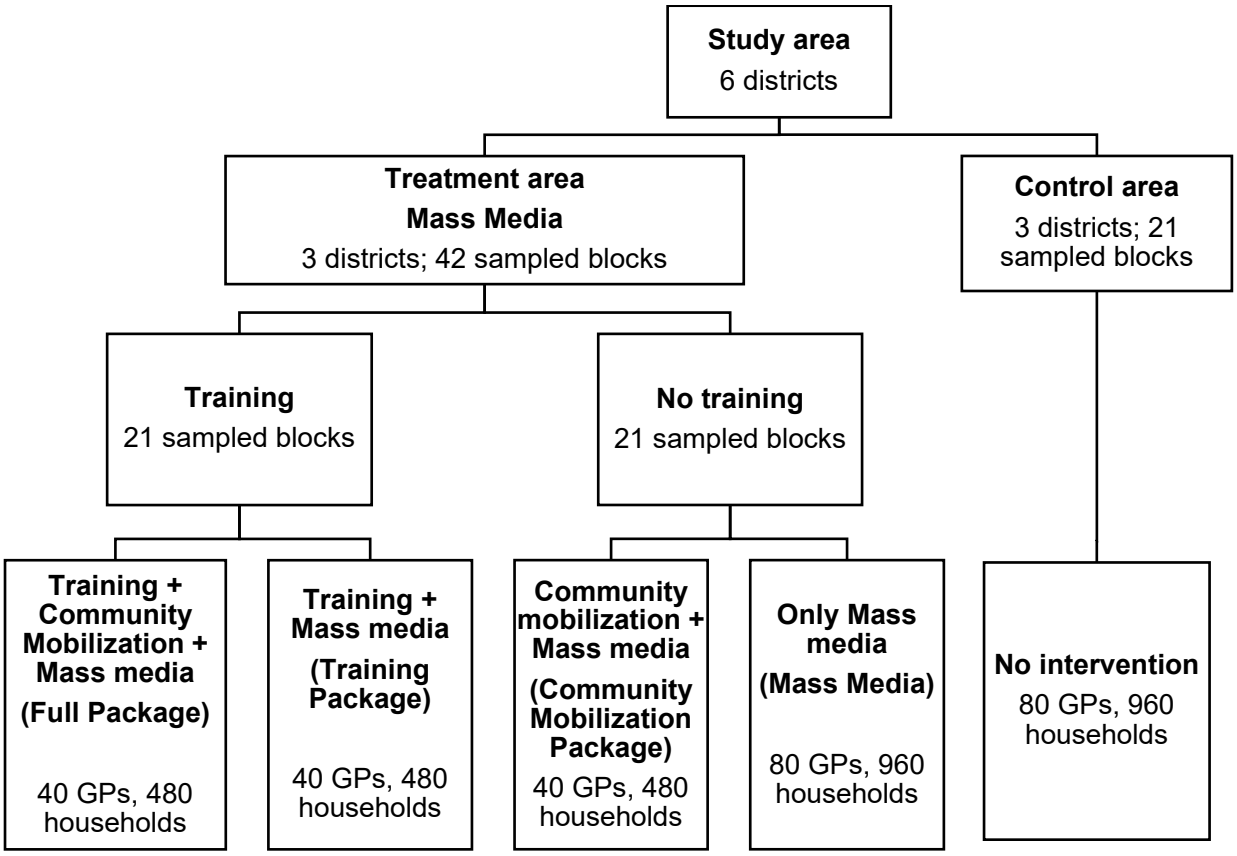


5 Evaluation design, methods and implementation

5.1 Quantitative design

The early marriage program ran in three districts, two in Jharkhand (Ranchi and Hazaribagh) and one in Bihar (Gaya). Districts in India are divided into administrative blocks. The three districts consist of 55 blocks, 13 of which were inaccessible to the program due to Left Wing Extremism. Therefore, the program operated in 42 blocks. In each block, on average, there are about 10-15 GPs. a single GP comprising approximately five villages.

Figure 4: **Study design**



From the available 42 blocks in the sample, we randomly allocated 21 blocks to receive the training component (Full Package and the Training Package) of the interventions. Each block included in the sample had approximately 16 GPs. Of all the available GPs in the 21 training blocks, we randomly sampled 80 GPs to receive the training components of the interventions, 40 to receive the Full Package and the remaining 40 to receive the Training Package.

Of the 21 blocks that had no training component of the intervention, we randomly selected 120 GPs. Of these 120 GPs, we randomly assigned 40 to receive the Community Mobilization Package and the remaining 80 GPs did not receive any additional intervention except Mass Media. The reason for the higher number of sampled GPs in the Mass Media Treatment arm was that in this case the evaluation was trying to detect even smaller effect size than other treatment arms; and in the control arm higher numbers would be required in case there was a need to undertake Propensity Score Matching. Details of this recommendation is provided in the Appendix B.

The interventions were composed of four packages with combinations of the mass media, training and community mobilization interventions.

- **Mass-media**: This included airing of messages on radio, TV, in newspapers and cinemas. It consisted of messages urging young fathers and boys to act against early marriage. It encouraged young fathers to see their daughters as productive members of the household. It operated in all GPs of intervention districts.

- **Training Package**: This included the mass-media with addition of block level training on gender rights, sexuality and sexual harassment; implemented in 21 blocks.
- **Community Mobilization Package**: This included the mass-media with GP level events such as *Kishori melas*, puppet shows, and video vans and use of ambient media such as posters and wall paintings which cover the same messages; implemented in 40 GPs.
- **Full Package**: This included all the three components of mass-media, training and community mobilization; implemented in 40 GPs.

In the initial design, the intention was to study the relative impact of the training and community mobilization intervention and not mass-media specifically, which would be saturated across the program area. Based on the reviewer comments, the design was revised to include control districts. It was not possible to add control groups for mass-media within Ranchi, Hazaribagh and Gaya. We therefore included contiguous districts or districts that have over time been carved out of Ranchi, Hazaribagh and Gaya, and matched the control districts based on a set of indicators that might affect the outcomes of the study and reception of the program. This included media access, standard of living, literacy, initial condition of gender empowerment, early marriage incidence, and health seeking behaviour (especially related to sexual and reproductive health).

Due to the lack of availability of the granular data, we used the data from Provisional Census 2011 and the District Level Household and Facility Survey to generate an average index for matching the control districts. Accordingly, Bokaro was the closest match to Ranchi; Seraikela Kharsawan and Lohardaga were both potential matches for Hazaribagh; and Nawada was the closest match to Gaya. After the selection of 3 control districts, we randomly sampled 21 blocks, and randomly selected and allocated 80 GPs to the control group (Appendix A).

Thus, we randomly assigned the 280 sampled GPs into i) **Full Package**, where along with mass-media, training as well as community mobilization programs were conducted; ii) **Training Package** which had a combination of mass media and training program at the block level; iii) **Community Mobilization Package**, which included mass-media and community mobilization program; iv) **Mass Media** with only the mass-media component; or v) **Control** the control using cluster randomized design in the ratio **1:1:1:2:2.**

We chose GPs as the unit of randomization to control for any spill over of information. Also, the community factors would influence at the GP level. Randomization at this level helped us to limit the possibility of contamination of treatments. The objective of our experiment's design was to test the effectiveness of the salience and nature of communication on the attitude, knowledge and practice of the community.

Survey instruments and data collection

A household survey was the primary survey instrument (Appendix C). Besides the conventional demographic details of the household members, the survey had a section on knowledge, attitude and practices that sought information on gender attitudes and behavior, awareness and attitude towards early marriage and perception of duties of girls versus boys. In addition, there were questions on school attendance and participation, as well as participation in household chores and activities. This section was administered to the household head and separately to an adolescent in the household.

We created gender norms indices for attitude towards education, work, girls' mobility and knowledge based on these questions. For early marriage index, we posed 11 statements to surveyed parents and asked whether they agreed or disagreed with each statement. We created a binary variable that equalled zero if the respondent answered 'Agree' and one if they answered 'Disagree'. The questions for each of these indices are listed in Appendix F. We also created an Aggregate Gender Norm Index to aggregate all questions into a single index. We created each index by demeaning all variables per outcome, and then converting them into effect sizes by dividing each variable by control group's standard deviation. This normalized variables so that they were on a comparable scale. The Gender Norm Index was the weighted average value of the binary variables, with weights constructed by normalizing the variables to have the same standard deviation and then recovering the weights given by the inverse covariance matrix. This is similar to the gender indices used by Dhar et. al. (2018) in their study on intergenerational transmission of gender attitudes. Anderson (2008, 1481–1495) outlines detailed step by step procedure. Higher the Gender Norms Index score the more equitable were the gender views. We further normalized the indices to be mean zero with standard deviation one for the entire sample.

Other surveys included school surveys that covered the school profile, information on awareness and attitudes towards gender and early marriage; and a GP survey to capture information related to socio-economic and cultural profiles of the GP, availability of basic services and access to facilities. The survey was conducted by field teams identified and trained by CMS. The same survey team administered the survey in the different treatment packages. Some of the enumerators changed between various survey rounds.

Attrition:

The endline survey was conducted in February and March 2019. The cohort of households were followed from the baseline (Appendix B). We covered 3,360 households at baseline, of which 818 households could not be tracked at endline. The attrition at endline was 24.34%. Our analysis sample thus constituted 2,542 households. As Table 1 shows, the attrition across the treatment packages between baseline and endline was balanced.

Table 1: **Attrition between baseline and endline**

	Attrition at Endline	**Number of Households interviewed at Endline**
	(1)	
Full Package	21.31%*	373
	(0.032)	
Training Package	25.57%	361
	(0.026)	
Community Mobilization Package	22.08%	374
	(0.027)	
Mass Media	24.06%	729
	(0.025)	
Control	26.56%	705
Total	24.35%	2542
Observation	3,359	
Unit of analysis	Households	

Note: Robust standard errors clustered at GP level in parentheses.
*** Significant at 1% level.
** Significant at 5% level.
* Significant at 10% level.

The attrition rate across the Full Package, the Training Package and the Mass Media was not significantly different than that of control arm. Attrition was significantly lower only for the Community Mobilization Package. The high rate of attrition was due to the long period between the baseline and the follow-up survey. We made efforts to keep attrition to a minimum, however a large sample had migrated out of the survey area and the data collection team could not locate them. This was expected and an attrition of 33% was accounted for in the sampling power calculations, and the attrition was well-within the expected range.

Table 2: **Attrition at endline**

	Attrition at endline
	(1)
Full Package	-0.073**
	(0.030)
Training Package	-0.023
	(0.027)
Community Mobilization Package	-0.054**
	(0.026)
Mass Media	-0.022
	(0.023)
Religion	
Islam	0.005
	(0.024)
Christian	0.119

	(0.073)
Sikh	0.175
	(0.331)
Sarnaism	0.019
	(0.048)
Others	0.094
	(0.112)
Education of head of household	
Primary	-0.025
	(0.022)
Secondary	-0.062***
	(0.019)
Graduate and Above	-0.001
	(0.046)
Social Category	
SC	-0.053
	(0.034)
ST	0.042
	(0.044)
OBC	-0.05
	(0.032)
Others	-0.021
	(0.044)
Female headed household	0.137***
	(0.030)
Education Attitude Index	0.004
	(0.011)
Work Index	0.01
	(0.011)
Mobility Index	0.011
	(0.012)
Knowledge Index	0.006
	(0.012)
Early Marriage Attitude Index	0.012
	(0.018)
Aggregate Index	-0.021
	(0.027)
Observation	3,334
Unit of analysis	Households

Note: Robust standard errors clustered at GP level in parentheses.
*** Significant at 1% level.
** Significant at 5% level.
* Significant at 10% level.

Given high level of attrition, we checked whether the characteristics of attrition households at endline were systematically different than the households that the researchers were able to track and survey. As shown in Table 2, the probability of a household being not surveyed at endline was not systematically correlated with their observable characteristics. Only female-headed households had a higher probability of dropping out of endline survey. Despite the attrition being significantly lower in the full package, the coefficients for the observable characteristics of the household were insignificant. This validates that the sample attrition was random and not selective in across the treatment arms.

5.2 Qualitative design

Given that the issues to be studied involved legal norms and deep-rooted social norms, we designed a mixed-method procedure combining quantitative and qualitative methods (Appendix D). We employed a "Sequential Connecting Strategy". This approach comprised of one method being applied sequentially after the other, with the findings from each method connecting to the other. The primary (quantitative) method for the evaluation was followed by the secondary (qualitative) method. The main evaluation questions were answered by the quantitative method and the qualitative method was employed for complementarity (elaboration, enhancement, illustration, clarification and triangulation of the results from the quantitative method) and focusing on developing insights into findings that need greater examination or elaboration. In addition, the qualitative framework was based on the social norms' theory, which underpinned the program Theory of Change. Finally, the qualitative study also examined any spillover of the program components between treatment and control areas.

Since the study covered a relatively large geographical area (rather than working in just a few villages), concerns regarding external validity were somewhat mitigated; also, the qualitative data provided insights on reasons for change thereby increasing the validity of the evaluation.

The tools: The qualitative tools employed were: (a) Polling Booth, (b) Focused Group Discussions (FGD), and (c) Key Informant Interviews, (d) Case Studies (Appendix E).

The polling booth tool is administered in an environment that assures respondents of the confidentiality of their responses. As such it is useful to attenuate the Hawthorne effect. The FGDs follow the polling booth to discuss in-depth the core issues of early marriage identified.

Sampling: The qualitative sample was drawn from the quantitative data sets and preliminary findings. A rank for each GP was computed based on (a) age at marriage, (b) years of schooling, (c) distant from nearest statutory town and, (d) percentage of SC and ST population. The treatment type of each GP was also identified. A representative sample of 10 GPs was selected – two GPs of each treatment type, one with a high computed rank and one with a low one.

In each GP we conducted four polling booth exercises and four FGDs, one each with adolescent girls, adolescent boys, women with an adolescent daughter, and men with an adolescent daughter. The FGDs covered diverse caste groups. In addition, we interviewed at least two key informants such as the panchayat leader, schoolteacher, Anganwadi worker, Accredited Social Health Activist worker (commonly known as ASHA), or any other influencer in the GP. Depending on the availability, we also documented few interesting case studies across the 10 GPs. The sample selection for the interviews and case studies was purposive, and convenience based for the FGDs.

We further designed an analytic framework to guide tool design. We identified field investigators with experience in qualitative research and gender themes. They underwent a two-day training that included detailed program understanding, training on social norms and qualitative techniques, and tool administration.

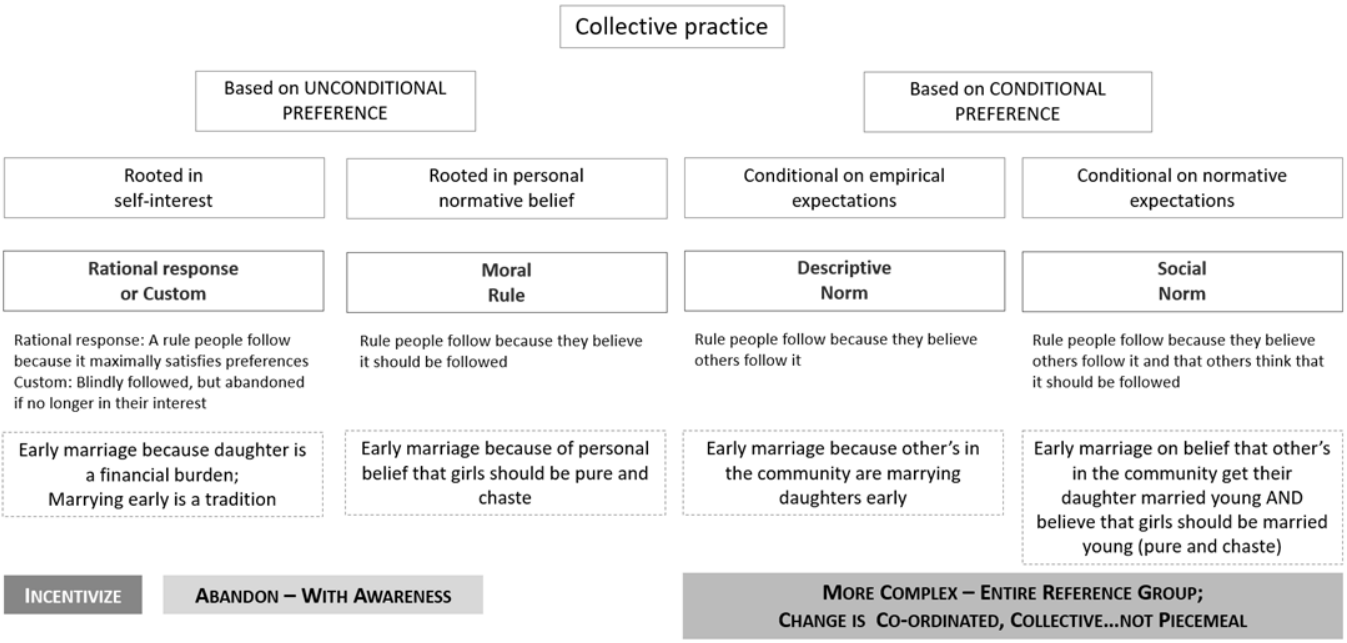
The transcripts of the interviews and FGDs were coded in Nvivo9. A single coder was involved in this process, ensuring consistent coding. In addition to the field survey, the qualitative analysis also incorporated insights from the Most Significant Change exercise conducted by Breakthrough during the course of the program implementation.

Rigor: Through the qualitative study design we addressed reliability and validity issues. Reliability was ensured by removing bias in the selection of GPs covered, and drawing up a large enough sample that would result in concept saturation. Field Investigators were recruited from a firm, Oxi4utures Greens Pvt. Ltd. that provides qualitative field investigators. All the investigators were experienced qualitative researchers. Training of field investigators focused on getting them to reflect on their biases and maintaining neutral verbal and body language. Coding consistency was guaranteed through a single coder. Validity was taken care of by providing comprehensive insights to investigators on the Breakthrough intervention and local knowledge.

Analytic lens: The complexity of the issue being addressed by the program and examined through the evaluation necessitated an in-depth understanding of the drivers of collective behavior. The social norm's framework of the University of Pennsylvania of Bicchieri, Jiang, and Lidemens (2014) provided the backbone to the design and analysis of the qualitative study. The framework explains collective practices as either unconditional preferences driven by independent needs and beliefs, or conditional practices that are dependent on the practices of others in the reference ecosystem. The unconditional practices derive rational responses or customs that are rooted in self-interest. Alternately they may apply to moral rules that are rooted in personal normative beliefs. Behaviors driven by unconditional preferences tend to be easier to change through awareness and incentive offerings. Conditional preferences, on the other hand, are more complex. Descriptive norms, or rules people follow on the belief that other's also follow them are founded on empirical expectations, or the beliefs of what people do. Social norms, on the other hand are conditional on normative expectations, rules that are followed on the belief not only that others follow it, but that they also are in turn expected to follow them. Challenging or changing social norms is a difficult, slow and arduous process requiring a coordinated and collective process across the entire reference ecosystem.

We designed the qualitative study to probe the respondents to understand the conditionality of their practices, the expectations associated with normative behaviors and the consequent repercussions on refusal to follow norms. Figure 5 gives an illustration of the social norms framework as laid out by Bicchieri, Jiang and Lidemens (2014).

Figure 5: **The social norms framework**



6 Program – design, methods and implementation

Breakthrough's program on early marriage, was based on learning from the experiences of its successful domestic violence program that effectively harnessed the power of media. Breakthrough understood the need to address early marriage since it denied a girl access to education, health and other opportunities. It was a violation of human rights and violence against young women, the consequences of which followed them well into adulthood.

Breakthrough recognized that early marriage is a deep-rooted social norm that can only be countered if norms which perpetuate early marriage for girls are challenged. Its goal was not merely that girls are married post 18 years of age, rather that they enjoy the right to pursue their own dreams and aspirations. The model assumed that social and behavior change is possible with dialogue between all stakeholders in a GP. Through partnerships with a range of private, public and community partners Breakthrough raised awareness on early marriage and enabled partners to understand the multiple ways in which early marriage impacts their constituencies. They developed the capacities of key allies to reframe critical social justice issues to build a culture of human rights using communication strategies, such as multi-media and popular culture, as a key mode to build human rights culture(s) for mainstream audiences. Finally, their model also sought to strengthen the effort of existing government schemes to create an optimum leveraging of resources to create better impact.

These experiences informed the theory of change and intervention packages for the program. Breakthrough recognized that the 'ideal' intervention was very resource intensive, but important. At the same time, there could be packages that used fewer resources to effect change. It was important to test multiple packages for their relative effectiveness in delivering impact. Based on this consideration, four intervention packages were developed, as explained under Section 5.1 – Quantitative Design.

In terms of the delivery method, the unit of engagement by Breakthrough at the field level for the Full Package and Community Mobilization Package was the GP. The Training Package

was delivered at the block level and the Mass Media at the district/ state level. In terms of implementation arrangements, Breakthrough delivered these interventions initially through its consultants and later through it field offices and program staff. The Training Package could not be continued beyond 2016 due to inadequacy of resources; and the implementation of Community Mobilization Package was limited. However, the impact evaluation endline included samples from these two packages as per the original design.

7 Impact analysis and results of the key evaluation questions

7.1 Descriptive statistics

Tables 3, 4 and 5 show the balance in outcome variables, demographic and socio-economic variables across the treatment packages and control at the baseline. On an average, the characteristics of sampled households across GPs with different treatment packages did not differ significantly in outcome variables prior to the program interventions. In column 1, we show the average characteristics of the control group, while columns 2-5 show the difference between the control and each of the four treatment groups. Table 3 suggests that household characteristics were largely comparable across the groups. As seen in table 4, there were some significant differences in average schooling for girls aged 13 to 17 in the Training Package compared to the control group. However, while statistically significant, the difference in means was small. This suggests that the randomization at the GP level was successful.

Table 3: **Sample characteristics at baseline for endline sample**

(proportions and means)

	Control	Full Package	Training Package	Community Mobilization Package	Mass Media
	(1)	(2)	(3)	(4)	(5)
Age					
0-18	0.54	0.52	0.54	0.55	0.55
19-25	0.08	0.10	0.09	0.08	0.08
26-35	0.13	0.10	0.12	0.11	0.11
36-45	0.15	0.16	0.15	0.16	0.15
46-55	0.05	0.06	0.05	0.05	0.05
56 and above	0.04	0.06	0.05	0.06	0.05
Girls (Age 13-25)	0.31	0.35	0.36**	0.32	0.32
Boys (Age 13-25)	0.32	0.33	0.31	0.31	0.31
Ever married	0.43	0.43	0.42	0.43	0.42
Males	51.01	49.22	49.94	51.18	49.87
Head of Household age	44.24	45.57	44.29	45.09	44.77
Female headed HH (%)	5.67	7.51*	4.99	5.09	5.49
Social Category (%)					
General	7.38	8.04	9.42	8.58	7.96
SC	26.1	25.2	23.27	23.06	24.55
ST	9.79	20.64	15.24	9.12	7.54
OBC	53.33	39.14	44.32	52.55	53.50
Religion (%)					
Hinduism	83.69	77.48	79.5	77.27	76.41
Islam	11.06	12.87	12.19	14.44	17.01
Christianity	0.43	2.95	1.66	1.87	0.96
Sikhism	0.14	0	0	0	0
Sarnaism	4.68	5.63	4.43	6.42	5.49
Literacy – Male (%)	82.89	83.86	83.53	82.09	84.67
Literacy – Female (%)	65.51	70.84	71.2	70.09	71.99
Monthly Per-capita Consumption Expenditure	1015.09	1072.81	1029.65	1028.09	989.87
Observations	705	373	361	373	729
Unit of analysis	Households	Households	Households	Households	Households

Source: Baseline survey data

Note: Standard errors in parentheses.

*** Significant at 1% level.

** Significant at 5% level.

* Significant at 10% level.

Table 4: **Baseline balance for impact indicators**

	Control	**Full Package**	**Training Package**	**Community Mobilization Package**	**Mass Media**
	(1)	(2)	(3)	(4)	(5)
Incidence of marriage<15 (Girls Age 13-25)	0.053	0.063	0.039	0.061	0.048
		(0.019)	(0.017)	(0.022)	(0.015)
No. of Observations	*[666]*	*[429]*	*[434]*	*[394]*	*[768]*
Incidence of marriage<18 (Girls Age 13-25)	0.132	0.131	0.088*	0.140	0.124
		(0.028)	(0.023)	(0.029)	(0.021)
No. of Observations	[666]	[429]	[434]	[394]	[768]
Mean age at marriage (Girls Age 13-25)	16.070	15.878	16.645	15.551	15.958
		(0.540)	(0.586)	(0.538)	(0.414)
No. of Observations	[129]	[82]	[76]	[78]	[144]
School enrolment	0.836	0.845	0.824	0.848	0.875
		(0.024)	(0.029)	(0.027)	(0.024)
No. of Observations	[451]	[258]	[277]	[270]	[538]
Highest level of schooling	8.110	8.193	8.406	7.992	8.185
		(0.158)	(0.200)	(0.190)	(0.154)
No. of Observations	[618]	[409]	[404]	[360]	[718]
Unit of analysis	Individuals	Individuals	Individuals	Individuals	Individuals

Source: Baseline survey data.
Note: Standard errors clustered at GP level in parentheses, number of observations in square parentheses.
*** Significant at 1% level.
** Significant at 5% level.
* Significant at 10% level.

Table 5: **Baseline balance for gender attitude indices**

	Control	Full Package	Training Package	Community Mobilization Package	Mass Media
	(1)	(2)	(3)	(4)	(5)
Education Attitude Index	0.000	-0.104	-0.191**	-0.076	-0.090
		(0.0883)	(0.094)	(0.083)	(0.078)
Work Index	0.000	0.045	-0.124	-0.013	-0.146*
		(0.112)	(0.089)	(0.092)	(0.078)
Mobility Index	0.000	0.054	-0.134	0.192**	-0.039
		(-0.099)	(-0.085)	(-0.094)	(-0.068)
Knowledge Index	0.000	-0.002	0.050	0.027	0.009
		(-0.088)	(-0.080)	(-0.078)	(-0.065)
Early Marriage Attitude Index	0.000	-0.184*	-0.305***	-0.183*	-0.089
		(-0.095)	(-0.098)	(-0.103)	(-0.074)
Aggregate Index	0.000	-0.121	-0.317***	-0.078	-0.132*
		(-0.107)	(-0.095)	(-0.102)	(-0.077)
Observations	705	373	361	373	729
Unit of analysis	Households	Households	Households	Households	Households

Source: Baseline survey data.
Note: Standard errors clustered at GP level in parentheses, number of observations in square parentheses.
*** Significant at 1% level.
** Significant at 5% level.
* Significant at 10% level.

Table 6 presents the summary statistics pertaining to GPs. The table suggests that household characteristics were largely comparable across the groups. The female literacy rate was significantly higher across all treatment arms compared to control arm. However, the data from household sample did not suggest a significant difference across treatment arms in relation to female literacy confirming that the randomization was successful at large.

Table 6: **Summary Statistics, GP - Showing baseline balance for key indicators**

	Control	Full Package	Community Mobilization Package	Training package	Mass Media Package
Sex Ratio	0.946	0.960	0.957	0.945	0.945
	(0.0377)	(0.0485)	(0.0485)	(0.0454)	(0.0319)
Under 6 Sex	0.941	0.958	0.970*	0.940	0.952
Ratio	(0.0635)	(0.0790)	(0.0780)	(0.0671)	(0.0680)
Female Literacy	0.426	0.461**	0.465**	0.468***	0.461***
Rate	(0.0704)	(0.0862)	(0.0827)	(0.0728)	(0.0886)
Male Literacy	0.627	0.633	0.643	0.643	0.625
Rate	(0.0665)	(0.0748)	(0.0758)	(0.0547)	(0.0761)
Proportion	0.328	0.430**	0.382	0.304	0.324
SC/ST	(0.165)	(0.241)	(0.203)	(0.121)	(0.145)
Number of	0.400	0.775*	0.425	0.550	0.713**
Secondary	(0.851)	(1.291)	(0.636)	(0.932)	(0.917)
Schools in GP					
Number of	0.138	0.125	0.125	0.150	0.250
Senior	(0.413)	(0.404)	(0.404)	(0.427)	(0.540)
Secondary					
Schools in GP					
Observations	80	40	40	40	80
Unit of analysis	GPs	GPs	GPs	GPs	GPs

Source: Census of India, 2011
Note: Standard deviations in parentheses.

7.2 Empirical specification

The intervention was hypothesized to make attitudes more gender progressive, change gender biased practices and increase girls' age at marriage. Given the randomization, the basic empirical strategy was fairly straightforward. In our basic specification, we regressed the endline measure of each outcome on an indicator for each treatment group (the control group is the omitted category) and baseline measures for each of the outcomes in the family, i.e.,

$$Y_{ij} = \alpha + \beta_1 T_1 + \beta_2 T_2 + \beta_3 T_3 + \beta_4 T_4 + \delta_{ij} + \varepsilon_{ij} \qquad (1)$$

where i indexes the households, j indexes the GP.

The Y_{ij} is the outcome variable measured at endline for household i in gram-panchayat j. Running this regression on the set of households the coefficients β_1, β_2, β_3 and β_4 provide an estimate of the intent to treat effect of the Full Package, Community Mobilization Package, Training Package and Mass Media package on outcome Y for households compared to the households in control GPs. δ_{ij} is the baseline analogue of the outcome for our attitude indices. We added the baseline analogue to control for differences across treatment arms at baseline. The outcomes were constructed so that

a higher value represents more progressiveness, so the hypothesis is $\beta_k > 0$. ε_{ij} is the error term. This was our specification with basic controls. We also presented estimates from another specification with extended controls at household and GP level.

$$Y_{ij} = \alpha + \beta_1 T_1 + \beta_2 T_2 + \beta_3 T_3 + \beta_4 T_4 + \delta_{ij} + X_{ij} + C_j + \varepsilon_{ij} \qquad (2)$$

X are the set of household level controls and C are the set of GP level covariates. X and C form extended household and GP level controls. The household controls included social category, religion, if any household member was a self-help group member, gender and age of head of household, and log of monthly per capita consumption expenditure measured at baseline to control for socio-economic differences and any imbalance across treatment arms. The GP level controls included the distance from the GP to the district headquarters and closest town (a proxy for remoteness), number of secondary schools in the GP, and the ratio of adult boys to adult girls in the GP (a proxy for marriage market conditions). For our impact estimates, we ran the specification same as (2) without the baseline analogue δ_{ij}. We clustered the standard errors at the GP level to reflect the fact that randomization was done at GP level.

7.3 Effect on attitude and knowledge outcomes

Table 7 reports the main treatment effects on gender attitudes, knowledge using the basic specification. The measure of attitudes is an index calculated by aggregating several survey responses about attitudes regarding gender equality, education, marriage mobility, knowledge and consent of girls/boys for marriage into indices (both an endline index and a baseline index). We found that the intervention made gender attitudes more progressive: Column (6) shows that GPs with Full Package had a 0.407 standard deviation (equivalent to approximately 16%) higher gender attitude index than control GPs ($p < 0.01$). The coefficient is stable (0.429) when the extended controls were included, as shown in Table 8. The increase in gender attitude index for Training Package and Mass Media was 0.27($p < 0.05$) (equivalent to approximately 11%) and 0.36($p < 0.01$) standard deviations (equivalent to approximately 14%) compared to control.

Table 7: **Gender attitude outcomes (basic controls)**

	Education Attitude Index	**Work Attitude Index**	**Girls' Mobility Index**	**Knowledge Index**	**Early Marriage Attitude Index**	**Aggregate Gender Attitude Index**
	(1)	(2)	(3)	(4)	(5)	(6)
Full Package	0.264**	-0.0190	0.332***	0.430***	-0.0472	0.407***
	(0.103)	(0.124)	(0.117)	(0.0983)	(0.112)	(0.120)
Training Package	0.224*	-0.163	0.264**	0.137	0.0198	0.236**
	(0.133)	(0.129)	(0.112)	(0.0976)	(0.107)	(0.110)
Community Mobilization Package	0.239*	-0.0112	0.160	0.147	-0.213*	0.187
	(0.124)	(0.145)	(0.107)	(0.0940)	(0.110)	(0.122)
Mass Media	0.303***	0.117	0.274**	0.175*	-0.0755	0.332***
	(0.114)	(0.127)	(0.113)	(0.0910)	(0.100)	(0.108)
Basic Controls	Yes	Yes	Yes	Yes	Yes	Yes
Extended Controls	No	No	No	No	No	No
Observations	2,541	2,541	2,541	2,541	2,541	2,541
Unit of analysis	Households					

Note: Standard errors clustered at GP level in parentheses. Asterisks denote significance: ∗p < .10, ∗ ∗ p < .05, ∗ ∗ ∗p < .01. All columns control for the baseline analogue of the outcome variable, district fixed effects.

Table 8: **Gender attitude outcomes (extended controls)**

	Education Attitude Index	**Work Attitude Index**	**Girls' Mobility Index**	**Knowledge Index**	**Early Marriage Attitude Index**	**Aggregate Gender Attitude Index**
	(1)	(2)	(3)	(4)	(5)	(6)
Full Package	0.266**	-0.0660	0.324**	0.487***	-0.0591	0.429***
	(0.116)	(0.131)	(0.125)	(0.0977)	(0.112)	(0.116)
Training Package	0.213	-0.201	0.280**	0.199**	0.00923	0.269**
	(0.143)	(0.133)	(0.128)	(0.0968)	(0.115)	(0.115)
Community Mobilization Package	0.223	-0.0620	0.179	0.198**	-0.224*	0.215*
	(0.138)	(0.147)	(0.119)	(0.0970)	(0.117)	(0.129)
Mass Media	0.294**	0.0717	0.279**	0.220**	-0.0888	0.359***
	(0.128)	(0.130)	(0.128)	(0.0956)	(0.106)	(0.114)
Basic Controls	Yes	Yes	Yes	Yes	Yes	Yes
Extended Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,541	2,541	2,541	2,541	2,541	2,541
Unit of analysis	Households					

Note: Standard errors clustered at GP level in parentheses. Asterisks denote significance: ∗p < .10, ∗ ∗ p < .05, ∗ ∗ ∗p < .01. All columns control for the baseline analogue of the outcome variable, district fixed effects, plus a set of additional extended controls.

We began by examining thematic sub-indices to show which specific attitudes and behaviours the intervention affected. Table 8 also shows a small effect of the treatment on education index. The average effect of the program on education index was 0.26 standard deviations ($p < 0.01$) for Full Package (equivalent to about 10%). However, this result remained robust to extended controls. From discussions with communities, we learned about the difference between treatment and control areas in the attitudes towards girls' education. In the two control GPs, while all the groups acknowledged that girls were studying to higher levels, they suggest that nearly half may drop out of school before or at the metric (class 10) level. Reasons for this could be girls' own interest in not studying, being forced to drop out by parents in favor of working on the farm, on the fear of girls getting involved in 'illicit' relationships, or the belief that education holds no value for the household role post-marriage. The few counter voices were from women of the General caste in the control area of Nawada who, citing their own experiences of limited capacities and low self-confidence due low levels of education, felt that all girls should study, earn, be independent and "make something of themselves. Treatment group participants told us that many girls study beyond metric, even till graduation. In the Sakir Bigha GP in Gaya, Bihar, the adolescent girls explained that even though the metric (class 12) school was at a distant, rather than dropping out after metric, girls enrolled at the school, didn't attend and instead took tuitions, and went to school only to write exams. The increase in the level of girls' education was being driven by empirical expectations, of families educating their daughters on seeing others do the same.

We found that households in GPs with Full Package had 0.43 standard deviations higher knowledge about the legal age of marriage, laws, and negative consequences for early marriage (equivalent to approximately 17%) as compared to households in control GPs. All FGD groups and key informants across all treatments and controls had correct knowledge about the legal age of marriage and laws. They were also able to articulate negative consequences of early marriage, particularly as regards the health of young girls and difficulties in adjusting to new environments. A couple of respondents told us of girls married early, becoming pregnant and dying in childbirth. Most acknowledged that girls are attaining menarche as early as 12-13 years, ages too early to get them married. This was a significant shift from the baseline where menarche was a life event considered as transition to adulthood and therefore marriage. Yet on being asked why families marry their girls early despite awareness of negative effects, respondents rationalized that when the family honor is at stake on account of socially unsanctioned relationships, or the threats by young couples of elopement or suicides, early marriage was the only course.

One outcome of the knowledge on the law was the attempts by community leaders and members to stop incidents of early marriage. We learned of such incidents from one GP receiving the Full Package and one the Community Mobilization Package. From the Community Mobilization Package GP, adolescent girls specified the role of Breakthrough explaining, "Breakthrough has had a lot of impact. People have become afraid of the consequences of early marriage. Girls tell their parents that they will approach Breakthrough if they are pressured into early marriage."

The questions on mobility were related to girls being able to go to school, health-centers and their interaction with male peers. There was large and significant positive effect of treatment on attitude towards girls' mobility. The girls' mobility attitude index increased by 0.33 standard deviations in Full Package (equivalent to approximately 13%), 0.26 standard deviations

(equivalent to approximately 10%) in the block level Training Package and 0.27 standard deviations in Mass Media (equivalent to approximately 11%).

Qualitative findings showed that mobility of girls was related to their higher education since the schools in most villages were only up to class 8 or 10. Even where the higher school was at a distance from the village, drop-out of girls from education was not because of parents' intent to restrict mobility, but rather on account of the cost of sending their girls to the school or their low performance in schooling.

Another important outcome reported in Table 7 is early marriage attitude. We did not find any significant effect of the program on early marriage attitude for any treatment group. The results remained the same when the model was run with extended controls. Insignificant effects were found for norms towards work. Girls' education was perceived as the means to secure a good match for them and provide them the ability to manage the household and help their children study. It is not believed as necessary for securing a livelihood or being economically independent.

We noticed a discernible change between the baseline and endline on the education attributes of a desirable match. Unlike at the baseline, girls' education levels were no longer compared to those of boys and were also not a limiting factor in securing matches. At the endline, families were agreeable to offer the hand of a well-educated girl to a much lesser educated boy from a wealthy family or having a job. The desire for getting an educated girl married into the family had become so important that a few people noted that a girl perceived as not beautiful but educated could get a better match than one who was beautiful but not well educated.

These insights show the considerable shift in social norms around girls' education resulting in delay in age at marriage. Yet, the gender norms have not kept pace.

Our analysis suggests that the intervention led to a sizeable reduction in gender-based discrimination and gender-stereotyped behavior. However, the gender-egalitarian attitude was driven majorly through the treatment effect on education norms, mobility norms and knowledge norms, and not through attitudes related to women's workforce participation or to early marriage.

7.4 Effect on education and marriage outcome

The Full Package had a large positive impact on school enrolment as compared to control. As shown in Table 9 the Full Package increased the percentage of girls enrolled in school by an additional 9% over the level that control group achieved (92% in Full Package vs 83% in Control Group). The age groups of interest aged 13–17 was chosen as it corresponded roughly with the secondary education. We found positive yet insignificant coefficients for enrolment for other treatment arms (which was quite high at the baseline for all treatment arms). For education, we restricted our sample to girls who were adolescents during the program period because they were extremely likely to drop out of school and be married before the marriage age. Girls aged 13-25 in Full Package were more likely to have on an average 9 months of additional schooling as compared to girls in the control group. The coefficient was significant for the block level Training Package at 7 months ($p<0.05$) of additional schooling as compared to control.

We next examined how the program impacts marriage outcomes. A large part of our sample was still unmarried, and hence our marriage age data was censored. To avoid problem of censored data arising from excluding girls that have never been married, we also used binary outcomes that takes the value 1 if the girl is married before the age of 18. The data on age at marriage was recorded based on detailed roster of all household members and children staying away from the surveyed households. The data was cross verified based on four questions in the roster – year of marriage, age at marriage of member and their spouse, and age when negotiations began. As shown in Table 9, in Full Package the proportion of girls marrying before age of 18 years was 0.09 lower than those in control group. The proportion was lower by 0.10 for the block level Training Package. However, the results for this Training Package must be interpreted cautiously since it has on an average 6 months' higher age at marriage for the same cohort at baseline. The Community Mobilization Package also showed positive significant treatment effects. Table 9 describes the marriage outcomes in greater detail.

We next tested whether the any treatment had increased the age at marriage for girls. As shown in column (1) of Table 9, the Full Package increased the age at marriage by 6.5 months as compared to control. We did not observe a significant effect of the Community Mobilization Package on marriage outcomes, despite the coefficients being largely positive.

Table 9: **Marriage and education outcomes**

	Age at marriage (13-25)	**Married < 18 (13-25)**	**Whether enrolled (13-17)**	**Highest education (13-25)**
	(1)	(2)	(4)	(5)
Full Package	0.540*	-0.089***	0.089**	0.750***
	(0.321)	(0.030)	(0.045)	(0.283)
Training Package	1.033***	-0.108***	0.039	0.586**
	(0.361)	(0.031)	(0.050)	(0.283)
Community Mobilization Package	0.456	-0.054*	0.039	0.0482
	(0.352)	(0.032)	(0.055)	(0.287)
Mass Media	0.402	-0.045	0.043	0.347
	(0.319)	(0.028)	(0.042)	(0.238)
Basic Controls	Yes	Yes	Yes	Yes
Extended Controls	Yes	Yes	Yes	Yes
Observations	1,653	3514	965	3,562
Unit of analysis	Individuals	Individuals	Individuals	Individuals

Source: Endline survey data
Note: Whether married <18 is an indicator variable that takes the value 1 if the girl is married before the age of 18. Standard errors clustered at GP level in parentheses. Asterisks denote significance: $*p < .10$, $**p < .05$, $***p < .01$. All columns control for the stratification and baseline characteristics.

We asked adolescent girls and boys during the polling booth exercise whether they thought they were likely to get married before the legal age, and parents if they were likely to marry their daughters before legal age. We found that fewer boys and girls in the treatment packages (8%, 21%) responded yes, as compared to the control (30%, 29%). However, a significant number of women in the treatment packages also responded yes as compared to those in the control (52%, 13%). There was no difference in the response of fathers between treatment and control (21%, 20%). Between the treatments, significantly fewer boys and girls from the Full, Training and Community Mobilization Package felt they may get married before legal age as compared to those from the Mass Media Package (Full Package: 5%, 7%; Training Package: 0%, 13%; Community Mobilization Package: 11%, 17%; Mass media: 18%, 41%).

8 Discussions

Our analysis suggests that the intervention led to a sizeable reduction in gender-based discrimination and gender-stereotyped behaviour. However, the gender-egalitarian attitude was driven majorly through the treatment effect on education norms, mobility norms and knowledge norms, and not through attitudes related to women's workforce participation or to early marriage. We found that GPs with Full Package had a 0.407 standard deviation higher gender attitude index than control GPs ($p < 0.01$). The increase in gender attitude index for the block level Training Package and Mass Media was 0.27 ($p < 0.05$) and 0.36 ($p < 0.01$) standard deviations. In terms of specific areas, attitude change was larger for education and mobility. For example, the households in Full Package had 0.26 and 0.33 standard deviations more positive attitude towards girls' education and mobility as compared to the control group. We did not find any significant effect on attitudes pertaining to marriage and girl's work and responsibility. Education was considered the means to secure better matrimonial prospects and manage traditional household roles, rather than to empower women to be financially independent. This was consistent with parents facing more external constraints on their perceptions regarding complex issues like marriage as evident from our qualitative findings. These insights show that there has been considerable change in social norms around girls' education resulting in delay in age at marriage. Yet, the gender norms have not kept pace.

We also found that the Full Package had a large positive impact on school enrolment, increasing the percentage of girls enrolled in school by an additional 9% over the level that control group achieved (92% in Full Package vs 83% in Control Group). We noticed positive yet insignificant coefficients for enrolment for other treatment arms (which was quite high at the baseline for all treatment arms). Girls aged 13-25 in Full Package were more likely to have on an average 9 months of additional schooling than the control group. The coefficient was significant for the block level Training Package and Community Mobilization Package, 7 ($p<0.05$) and 0.6 months ($p<0.05$) of additional schooling.

Our results on program impact on marriage outcomes showed that the Full Package reduced the proportion of likelihood of early marriage by 0.09 compared to the control group for girls aged 13 to 25. The block level Training Package reduced the proportion of likelihood of early marriage below the legal age by 0.11. However, the results for this Training Package must be interpreted cautiously since it has on an average 6 months' higher age at marriage for the same cohort at baseline. The Community Mobilization Package and Mass Media Package also showed positive significant treatment effects. We saw that the Full Package increased

the age at marriage by 6.5 months as compared to the control. We did not observe a statistically significant effect of the Community Mobilization Package on marriage outcomes, despite the coefficients being largely positive.

Finally, years of schooling results provided strong evidence that the effects are real and likely to sustain and bring social change. This is further strengthened through the understanding that increased schooling was driven by descriptive norms and the belief that it provides a real value to girls in their married life. We found that though mass-media intervention in isolation created positive impacts, supplementing it through community mobilization and trainings generated larger multidimensional impact. Our results complemented the growing literature suggesting that media and community engagement can help change long-held attitudes often believed to be culturally entrenched and immutable.

The study area - Bihar and Jharkhand, India - has particularly strong gender discrimination and among highest rate of early marriage. The impacts of a similar intervention might be either larger or smaller in places with less gender biased attitude. The coefficients observed are large and positive, but we are unable to test their statistical significance for want of larger sample size. One possible concern with the validity of our estimates is the lack of data on compliance. However, the intent-to-treat estimates are robust on socio-economic controls. Another possible concern given the randomization at GP level is potential contamination, as marriages take place to some extent outside GPs.

One direction for future research is to observe if the changes in the gender norms have materialized into gender equitable intrahousehold allocation of resources. While our data shows significant positive effect of the mass media coupled with community mobilization and training programs on education gender norms and level of schooling for adolescents, gender differential education resource allocations are not explored here. Another important question is whether the effects of this program are sustained in the long run, leading to improvement in women empowerment, labour force participation and occupational choice, reproductive health and fertility years after the intervention has ended.

9 Specific findings for policy and practice

The Breakthrough program was an ambitious initiative addressing the critical issue of early marriage through changing attitudes and gender norms in difficult geographies and social contexts. The program took on the challenge to bring stakeholder-led social change, and effective yet challenging means to strike at the root causes of early marriage. Four intervention packages were tested for their efficacy, with the Full Package reflecting a comprehensive strategy that encompassed Mass Media, Training and Community Mobilization components, and employed a context-specific community-led approaches covering multiple layers and stakeholders of the social strata.

Despite being resource intensive, a multi-pronged, multi-stakeholder focused and comprehensive intervention that reinforces messages at different segments of the society, it has potential to bring change in areas influenced by sticky social norms like early marriage. The changes in attitudes that are emerging among key constituencies have to be sustained to bring a large social change. This requires further intensification through standard protocols and committed resources. The evaluation study results show slower improvements within certain social groups and geographies. It is here that a higher level of engagement needs to be focused.

Change agents from key constituencies are emerging. At the same time, it is also important to scale up to saturate a block and a district with the intervention towards reaching a tipping point from where the social change advances untethered.

While Breakthrough can facilitate this change process, it will be difficult for them to go at it alone. There are four possible streams to achieve this long-term change:

(a) Breakthrough facilitates communities to reach a level of sustenance by saturating the intervention in a few of the blocks where it has already initiated the social transformation process and intensifying the engagement at the GP level. These locations should be developed as learning sites for other interventions to learn from and adopt.
(b) In the geographies where Breakthrough works there are already several civil society organizations running interventions at the grassroot level. Most programs have mobilized communities, facilitated forming their institutions and have local resource persons. Collaborating with these agencies and incorporating appropriate components from the Full Package will be a way to reach scale.
(c) Similarly, the community outreach created by state and central government programs such as National Rural Livelihood Mission affords another expansive base that can be leveraged by incorporating select components of the early marriage initiative in these programs.
(d) Breakthrough should develop detailed documentation and communication materials and codification of its packages for uptake by organizations interested in working on reducing early marriage or addressing gender norms.

There are few pointers emerging for the donors and supporters who are interested to support these causes. The results and the implementation show that the change process is slow and requires multiple layers and long-term engagement. While the engagements with implementers are on a fixed time and resources-based projects, this kind of work once initiated needs to be continued for few years without break. It is also emerging that the engagements should be intensive and at multiple levels. Donors may consider supporting collaborative/joint programs that can help saturate areas and bringing different expertise to make the investment impactful.

10 Appendices

10.1 Appendix A: Selection of control districts

Details of the selection of control districts for the study is given here. These were finalized during the proposal stage based on the reviewers' comments and suggestions.

Reviewers suggested incorporating a control for the mass-media campaign which would be rolled out at the district level. Since most mass-media forms can be controlled at the district level (regional cable channels, newspapers, radio) it was decided to add 1-3 matched control districts to the design where Breakthrough would not be operating. The control districts were to be selected based on certain key indicators that might affect the outcomes of the study and reception of the program: These included media access, standard of living, literacy, initial condition of gender empowerment, early marriage incidence and health seeking behavior (especially related to sexual and reproductive health).

Based on these discussions we looked into finding matching districts that could serve as control for the mass-media campaign. We referred two sources of district level data (Provisional Census 2011 data and the District Level Household and Facility Survey - DLHS). Table 10,11 and 12 provide details of correlation analysis for these two sets of data.

- In the case of Census 2011 we looked into data for two sets of parameters: Gender Empowerment (using sex ratio as a proxy) and literacy rates (both male and female separately). Both parameters were equally weighted.

- In the case of the DLHS data there were 3 parameters: Literacy (rural, male, female), Standard of Living (which considers access to mobile phones, TV, and electrification), and finally early marriage and reproductive health related indicators. The third parameter was weighted 40%, while the first two were weighted 30% each.

- Based on this Bokaro was the closest match to Ranchi; Seraikela Kharsawan and Lohardaga were both potential matches for Hazaribagh; and Nawada was the closest match to Gaya.

- Neighboring districts or districts that have over time been carved out of Ranchi, Hazaribagh and Gaya were included in this comparison.

- Of Note: the DLHS data does not contain information for the two newest districts in Jharkhand carved out of Ranchi and Hazaribagh respectively. However, both of these did not match with Ranchi and Hazaribagh based on the Census 2011 data.

Building on these matched districts, the design for the study as given in the main report was arrived.

Table 10: **Matching district for Gaya**

Key Indicators ↓ Districts→	**Gaya**	Jehanabad	Aurangabad	Nawada
Average Literacy	66.35%	68.27%	72.77%	61.63%
Avg Literacy Male	76.02%	79.30%	82.52%	71.40%
Avg Literacy Female	55.90%	56.24%	62.05%	51.09%
Urban Population	13.14%	11.76%	9.38%	9.72%
Rural Population	86.86%	88.24%	90.62%	90.28%
Rural Male Literacy	73.88%	78.66%	82.06%	70.07%
Rural Female Literacy	52.42%	54.22%	60.81%	48.91%
Urban Male Literacy	89.08%	83.75%	86.79%	83.25%
Urban Female Literacy	78.18%	71.03%	73.77%	71.09%
Rural Sex Ratio	938	923	917	939
Urban Sex Ratio	891	880	902	910
Rural Child Sex Ratio	965	920	946	988
Urban Child Sex Ratio	904	903	929	950
Sex Ratio	932	918	916	936
Child Sex Ratio	959	918	945	985
Gender Empowerment				
SEX RATIO				
Total Sex Ratio	932	918	916	936
Rural Sex Ratio	938	923	917	939
Rural Child Sex Ratio	965	920	946	988
Total Child Sex Ratio	959	918	945	985
		0.1722648	0.983083122	**0.9876192**
Literacy (Option 1)				
Average Literacy	66.35%	68.27%	72.77%	61.63%
Avg Literacy Male	76.02%	79.30%	82.52%	71.40%
Avg Literacy Female	55.90%	56.24%	62.05%	51.09%
Rural Population	86.86%	88.24%	90.62%	90.28%
Rural Male Literacy	73.88%	78.66%	82.06%	70.07%
Rural Female Literacy	52.42%	54.22%	60.81%	48.91%
Average Rural Literacy	63.52%	66.93%	71.93%	59.88%
		0.9935618	0.992875435	0.98775
LITERACY (Option 2)	**Gaya**	Jehanabad	Aurangabad	Nawada
Average Literacy	66.35%	68.27%	72.77%	61.63%
Difference with male	9.67%	11.03%	9.75%	9.77%
Difference with female	10.45%	12.03%	10.72%	10.54%
Average Rural Literacy	63.52%	66.93%	71.93%	59.88%
Difference with Male	11.10%	12.71%	11.12%	10.97%
Difference with Female	10.36%	11.73%	10.13%	10.19%
		0.9998493	0.999710094	**0.9999385**
Combined with 50% each weightage (option 1)		0.4106485	0.987979278	**0.9876846**
Combined with 50% each weightage (option 2)		0.4137923	0.991396608	**0.9937789**

Table 11: **Matching district for Hazaribagh**

Key Indicators ↓	Hazaribagh	Kodarma	Ramgarh	Lohardaga	Seraikela	Chatra
Average Literacy	70.48%	68.35%	73.92%	68.29%	68.50%	62.14%
Avg Literacy Male	81.15%	81.25%	83.51%	78.62%	81.01%	71.85%
Avg Literacy Female	59.25%	54.77%	63.49%	57.86%	56.19%	51.91%
Urban Population	15.88%	19.71%	44.13%	12.43%	24.29%	6.03%
Rural Population	84.18%	80.29%	55.87%	87.57%	75.71%	93.97%
Rural Male Literacy	79.07%	79.33%	78.96%	76.82%	78.48%	70.71%
Rural Female Literacy	55.20%	50.71%	55.94%	54.54%	50.42%	50.43%
Urban Male Literacy	91.39%	88.66%	88.95%	90.56%	88.53%	87.90%
Urban Female Literacy	80.22%	71.07%	73.19%	80.54%	74.67%	75.10%
Rural Sex Ratio	953	957	950	989	973	957
Urban Sex Ratio	911	917	886	958	910	868
Rural Child Sex Ratio	926	957	946	966	945	964
Urban Child Sex Ratio	911	917	897	921	912	941
Sex Ratio	946	949	921	985	958	951
Child Sex Ratio	924	944	926	961	937	963
Gender Empowerment						
Total Sex Ratio	946	949	921	985	958	951
Total Child Sex Ratio	924	944	926	961	937	963
Rural Sex Ratio	953	957	950	989	973	957
Rural Child Sex Ratio	926	957	946	966	945	964
		0.368642	0.175152	0.99266962	0.9671298	-0.807246
Literacy Option 1						
Average Literacy	70.48%	68.35%	73.92%	68.29%	68.50%	62.14%
Avg Literacy Male	81.15%	81.25%	83.51%	78.62%	81.01%	71.85%
Avg Literacy Female	59.25%	54.77%	63.49%	57.86%	56.19%	51.91%
Rural Male Literacy	79.07%	79.33%	78.96%	76.82%	78.48%	70.71%
Rural Female Literacy	55.20%	50.71%	55.94%	54.54%	50.42%	50.43%
Average Rural Literacy	67.39%	65.32%	67.65%	65.72%	64.60%	60.80%
		0.999534	0.984954	0.99974759	0.999483	0.995999
LITERACY Option 2						
Average Literacy	70.48%	68.35%	73.92%	68.29%	68.50%	62.14%
Difference with male	10.67%	12.90%	9.59%	10.33%	12.51%	9.71%
Difference with female	11.23%	13.58%	10.43%	10.43%	12.31%	10.23%
Average Rural Literacy	67.39%	65.32%	67.65%	65.72%	64.60%	60.80%
Difference with Male	11.68%	14.01%	11.31%	11.10%	13.88%	9.91%
Difference with Female	12.19%	14.61%	11.71%	11.18%	14.18%	10.37%
		0.999992	0.999493	0.9999607	0.9998283	0.999785
Combined with 50% each weightage (option 1)		0.684088	0.580053	**0.9962086**	0.9833064	0.094377
Combined with 50% each weightage (option 2)		0.684317	0.587323	**0.99631516**	0.983479	0.09627

Table 12: **Matching district for Ranchi**

Key Indicators ↓	**Ranchi**	Bokaro	Lohardaga	Seraikela	Khunti
Average Literacy	77.13%	73.48%	68.29%	68.50%	64.51%
Avg Literacy Male	85.63%	84.50%	78.62%	81.01%	75.33%
Avg Literacy Female	68.20%	61.46%	57.86%	56.19%	53.71%
Urban Population	43.18%	47.69%	12.43%	24.29%	8.51%
Rural Population	56.82%	52.31%	87.57%	75.71%	91.49%
Rural Male Literacy	80.80%	78.70%	76.82%	78.48%	73.91%
Rural Female Literacy	57.26%	50.75%	54.54%	50.42%	51.40%
Urban Male Literacy	92.48%	90.50%	90.56%	88.53%	89.75%
Urban Female Literacy	82.48%	73.09%	80.54%	74.67%	77.94%
Rural Sex Ratio	973	938	989	973	997
Urban Sex Ratio	921	892	958	910	967
Rural Child Sex Ratio	959	934	966	945	953
Urban Child Sex Ratio	901	882	921	912	924
Sex Ratio	950	916	985	958	994
Child Sex Ratio	937	912	961	937	951
Gender Empowerment					
Total Sex Ratio	950	916	985	958	994
Total Child Sex Ratio	937	912	961	937	951
Rural Sex Ratio	973	938	989	973	997
Rural Child Sex Ratio	959	934	966	945	953
		0.935527	0.6659208	0.8255342	0.5629276
Literacy (Option 1)					
Average Literacy	77.13%	73.48%	68.29%	68.50%	64.51%
Avg Literacy Male	85.63%	84.50%	78.62%	81.01%	75.33%
Avg Literacy Female	68.20%	61.46%	57.86%	56.19%	53.71%
Rural Male Literacy	80.80%	78.70%	76.82%	78.48%	73.91%
Rural Female Literacy	57.26%	50.75%	54.54%	50.42%	51.40%
Rural Population	56.82%	52.31%	87.57%	75.71%	91.49%
Average Rural Literacy	68.81%	65.17%	65.72%	64.60%	62.63%
		0.995161	0.23852	0.6055456	0.0960161
LITERACY (Option 2)					
Average Literacy	77.13%	73.48%	68.29%	68.50%	64.51%
Difference with male	8.50%	11.02%	10.33%	12.51%	10.82%
Difference with female	8.93%	12.02%	10.43%	12.31%	10.80%
Average Rural Literacy	68.81%	65.17%	65.72%	64.60%	62.63%
Difference with Male	11.99%	13.53%	11.10%	13.88%	11.28%
Difference with Female	11.55%	14.42%	11.18%	14.18%	11.23%
		0.999834	0.9981158	0.9991677	0.9976357
Combined with 50% each weightage (option 1)		**0.965344**	0.4522204	0.7155399	0.3294719

Key Indicators ↓	**Ranchi**	Bokaro	Lohardaga	Seraikela	Khunti
Combined with 50% each weightage (option 2)	**0.967681**	0.8320183	0.912351	0.7802817	

10.2 Appendix B: Sample size for quantitative survey and power calculations

To increase the likelihood of observing differences between different treatment households at the program level, a sample as large as resources allow, would produce the narrowest confidence interval width and hence the likelihood of observing statistically significant differences. It should be remembered that the resources required to reduce confidence interval widths limits from +/-10% to +/-5% percentage points quadruples the sample size, and similarly for the level of confidence (i.e. the probability of the confidence interval been observed). Therefore, in designing surveys, realism must be employed and often practical limitations of funds available for surveys ensures that a confidence limit of +/-10 percentage points 90% of the time is considered adequate. Below the steps required to produce this level of precision are explained. The following are the assumptions that were made when arriving at the sample size:

1. Desired intervention-level confidence interval precision +/- 10 percentage points 90% of time.
2. Binomial distribution of 0.5.
3. Baseline-Endline household attrition rate of one-third.
4. Design effect of 2.5 based on previous experience.
5. Finite population correction factors not utilized.

Only when the size of the population is relatively small in comparison to the size of the sample is it relevant to consider the sample size in relation to the population. If this is the case, a finite correction factor is employed, and results in a small reduction in the sample size where the size of the universe is small. With the intervention (40 GPs) as the unit of analysis, the number of households per unit was relatively large for all interventions and therefore finite population correction factors would not have resulted in any meaningful sample size reduction. It follows that the most efficient sampling scheme would sample the same number of households per cohort per sub-universe (training and non-training), regardless of the size of the sub-universe and produce the same level of precision of indicators for each intervention.

Initial Sample Size Assuming Random-Sampling

$$n = \frac{K2 * p(1-p)}{D2}$$

Where:
n is the required sample size, in number of households to be sampled
K is the required level of confidence (measured as the standard normal deviate, obtainable from standard statistical tables of the normal distribution)
D represents the acceptable width of the confidence interval (in percentage points)
p is the population variability under a binomial (either/or) distribution, where p = the proportion of positive responses with range 0<p<1

Substituting values for the calculation of the sample size to result in a precision of the confidence interval width of +/- 10 percentage points 90% of time.

$$n = \frac{1.6452 * 0.5(1-0.5)}{0.10 * 0.10} = 67.65 = 68\ (rounded)$$

Loss of Households between Baseline and Endline

If the sample was a pure random sample (i.e. no clustering) and there was no loss of households between the baseline and the endline, 68 households per sub-universe would be enough to produce estimates with a precision of +/- 10 percentage points 90% of the time. Panel studies (repeated measures on the same household) inevitably suffer erosion of participating households for various legitimate reasons, and this must be compensated at the outset by over sampling the baseline to provide a strong probability that there will still be sufficient number of "surviving" households to be sampled during the endline survey to still produce the minimum appropriate level of precision. Previous work with panel studies by CMS indicated anticipating a loss of no more than a third of the households to be a conservative estimate. Therefore, the sample size of 68 was multiplied by 1.33, resulting in 90.4 (91) households to ensure against a one-third household attrition rate.

Design Effect

Resources did not allow for a pure random sample of 91 households for each treatment package and thus clustering was inevitable. Given that the intervention took place at the GP level, the GP was an appropriate cluster. Previous surveys showed a large correlation in within-GP outcome measures, indicating a strong design effect would need to be considered. Previous panel studies by CMS indicated a clustering design effect of 2, though an even more conservative 2.5 has been assumed here, giving a total sample of 91*2.5 = 227.5 for each of the four intervention packages. This gives an average of 5.7 or 6, households per GP. Given that additional resources required to cover additional households in a GP are minimal, we increased this to 12 households per GP, giving the following sampling schema:

Selection of Gram Panchayats

In the first three intervention packages, 40 GPs were randomly selected from the relevant blocks of the treatment districts. In the mass-media only package, there were 80 GPs which were selected randomly.

Similarly, 80 GPs were randomly selected from the 21 sample blocks in the control districts. Though ideally block level matching should also be included while selecting the control sample, this was possible due to the lack of block-level secondary data.

Selection of Households within Gram Panchayat

In each GP, 12 households were selected on the field. Since the households might be in several villages within a GP a probability proportionate to size scheme was used to select households at the village level. Households are sampled from all the villages in each GP based on the total population size of the village, such that the sample was representative of the distribution of the actual population. Only households with an adolescent girl or boy were included in the study. If the field investigators arrived at a household with no adolescent member, they moved to the adjacent household in the neighbourhood.

Reasons for increasing the number of sample GPs in the Mass Media Treatment Arm and Control Arm:

Extract from the document - **Pre-requisites for enhancing the quality of the project -** PW2 01-c4r-Final, 03 July 2012:

xxviii. "We suggest that the team consider using a larger sample of blocks and gram panchayats in the control districts, particularly if Propensity Score Matching will be utilized. This is important because we are interested in an even smaller minimum detectable effect size for the mass media campaign. Because the mass media campaign is easily scalable and relatively cheap at scale, small effects are more interesting than they would be for more expensive components. We suggest that the team consider increasing the sample size for both the 'pure' control districts and that mass media only gram panchayats."

10.3 Appendix C: Survey instruments – quantitative tools

The tools are attached in the link below:

1. Household Questionnaire – Baseline and Endline
2. GP Profile Questionnaire
3. General Key Informant Questionnaire
4. School Teacher Informant Questionnaire

10.4 Appendix D: Qualitative methodology

The quantitative component of the impact evaluation for Breakthrough was a quasi-experimental design. Given the complex, multidimensional nature of the Breakthrough program and the sensitivity of issues being explored, a qualitative method was included in the design to deepen understanding of people's views and experiences, their relationship to the program's theory of change and the sensitive topic of child marriage.

Evaluations combining qualitative and quantitative methodologies are referred to as 'mixed methods. From the multiple schema that can be used for categorizing mixed methods, the Breakthrough impact evaluation adopted the 'Sequential Connecting Strategy'. This approach comprised of one method being applied sequentially after the other, with the findings from each method connecting to the next. The primary (quantitative) method for the evaluation was followed by the secondary (qualitative) method.

Sequential models are preferred when there is sufficient time to conduct more than one round of field survey, because they make it possible for the results of one method to inform the other. In this evaluation the main evaluation questions were answered by the quantitative method and the qualitative method was employed for complementarity (elaboration, enhancement, illustration and clarification of the results from the quantitative method), focusing on developing insights into findings that need greater exploration. The quantitative study provided data and analysis related to the extent of impact and its attributability, the qualitative design provided 'in-depth' information on the 'why' and 'how' of the changes. There was also a development purpose, where the quantitative method findings were used to design the qualitative study which included sampling and inputs to the analytic framework. Given the sequential design, the qualitative design generated patterns to explain the concordance and discordance.

Table 13: **Purpose of the qualitative method**

1	**Triangulation**	Seeking convergence and corroboration of results from different methods and designs studying the same phenomenon
2	**Complementarity**	Seeking elaboration, enhancement, illustration and clarification of the results from one method with results from the other method
3	Initiation	Discovering paradoxes and contradictions that lead to a re-framing of the research question
4	**Development**	Using the findings from one method to help inform the other method
5	Expansion	Seeking to expand the breadth and range of research by using different methods for different inquiry components
6	**Concordance and Discordance**	Exploring the nature of differences, if any, in opinions, experiences, perceptions, using different methods

Shaded cells show the purpose for this study

Method

Polling booth and Focus Group Discussions

The polling booth methodology creates an environment that assures confidentiality of response, increasing the likelihood that participant groups will honestly respond to questions that otherwise tend to have a social desirability bias. Such a context is critical for attenuating the Hawthrone effect associated with sensitive issues such as child marriage. In this method, ten to eleven questions were developed with “yes” or “no” responses, and participants were placed in an environment where they could answer the questions without fear that others within the group or the facilitators would know how they responded.

The finding from the polling booth drives the focus group discussions. For instance, the polling booth may tell us that 4 of the 10 women with adolescent daughters consider getting their daughters married before the age of 18. While we do not know who these 4 are from the group, we facilitate discussions on why families get daughters married early, what it means for a girl to be an adult, etc.

Facilitation of Polling booth and FGDs:

The facilitation of polling booth and FGDs was done by experienced and trained field staff.

Participant groups:

Four main groups are identified for Polling booth and the subsequent FGD:

- Adolescent Girls
- Adolescent boys
- Married women having adolescent children
- Married men having adolescent children

The groups were identified based on convenience sampling.

Key informant interviews:

Key Informant Interviews generated information related to the village and community norms and practices. Two-three key informant interviews were conducted in each GP. The following persons were identified as key informants: *Aanganwadi* workers, Panchayat Functionaries, ASHA Workers, Religious Leaders, and School Teachers or Principals. Information about community norms regarding marriage and opinions of key informants on gender roles and early marriage was collected through the key informant interviews.

Narrative case studies

During the interviews and FGDs investigators identified case studies to get a deeper understanding from:

- Families where early child marriage occurred that can be explored further to get insights into social practices.
- Families that resisted child marriage, their efforts and strategies to stand up to social pressures.
- Women who have been able to study to higher classes, or after marriage.
- Women running successful enterprises.

Sampling

Ten GPs were selected for the qualitative study. To remove bias from the process a score was computed from the quantitative data sets on the variables of age at marriage, distance from nearest town, level of girl's education and proportion of SC and ST. From the scores the highest and lowest scoring GP across each treatment package and control area was identified. The resultant 10 GPs were selected for the qualitative study.

In each GP four Polling booth and FDGs were conducted, one each with adolescent girls, adolescent boys, and women and men with adolescent daughters.

In addition, two to three key informants were identified, based largely on availability at the time of the study team's visit to the GP.

A two-member study team spent two days in each GP.

The qualitative sample:

Table 14: **The sample for the qualitative study at the endline**

Sl No	State	District	GP name	Treatment type	Score
1	Jharkhand	Lohardaga	Gadrapo	Control	80
2	Bihar	Nawada	Kadir Ganj	Control	19
3	Bihar	Gaya	Dharhara	Full Package	33
4	Jharkhand	Ranchi	Jonha	Full Package	95
5	Jharkhand	Hazaribagh	Urimari	Training Package	23
6	Jharkhand	Ranchi	Badachangdu	Training Package	71
7	Jharkhand	Ranchi	Irba	Community Mobilization Package	15
8	Jharkhand	Hazaribagh	Saraya	Community Mobilization Package	89
9	Bihar	Gaya	Sakir bigha	Mass Media	16
10	Jharkhand	Ranchi	Brambe	Mass Media	92

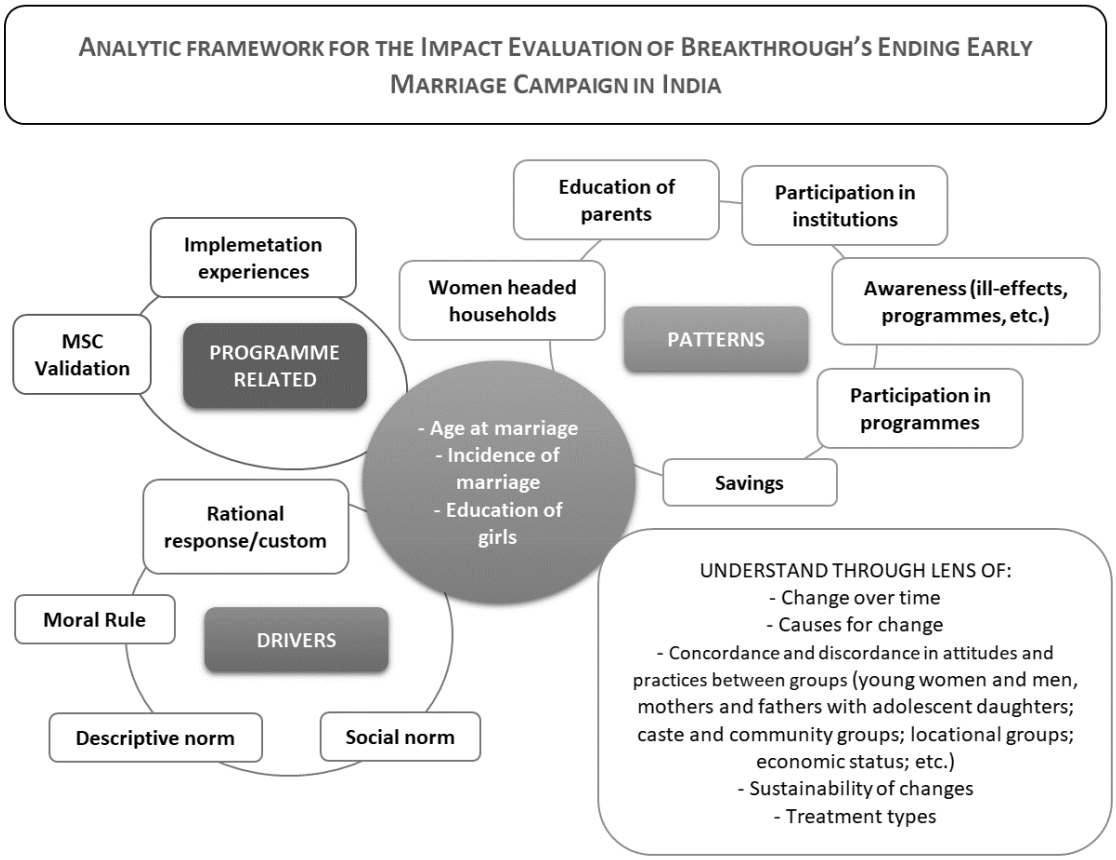
The qualitative analytical framework

The objective of the qualitative study was to understand the behaviors around marriage in the community and explain the drivers that influence the age/period when girls and boys are married.

Specific issues were identified based on findings from the quantitative analysis that need more in-depth understanding.

Insights gained from the quantitative findings at the endline on age at marriage, incidence of marriage, awareness of ill effects of marriage, early marriage in women headed households and differences among castes led to the design of the qualitative analytical framework and tools.

Figure 6: **Analytic framework for the qualitative method at the endline**



Rigor of the qualitative design

The qualitative design considered strategies to achieve reliability and validity.

Reliability in qualitative study refers to the consistency with which the research will produce the same results if repeated. Reliability was achieved by:

- Ensuring concept saturation: The sampling for GP was done through a process that eliminated bias by computing a score and selecting two GPs for each treatment type, one with the highest and one with the lowest score. In each GP four polling booth exercises and FGDs were conducted to ensure that all groups (adolescents and parents) were covered. A total of 40 polling booth and FGDs were conducted. Representation of different castes was also ensured.
- Training field investigators: Field investigators underwent a two-day training on qualitative methodologies. A critical component of the training plan included getting them to reflect on their own biases and how to control verbal and body language to ensure that the biases did not taint the respondents' responses. The investigators were also taught to probe and understand the meanings of terms as per the respondent's perspectives.
- Coding errors: Potential errors that arise with multiple coders was not relevant since the coding was undertaken by the senior researcher.

Validity refers to the integrity and application of the methods undertaken and the precision in which the findings accurately reflect the data. Validity was ensured by:

- Local knowledge: The sequential design ensured that the field team had knowledge of the local context. A support team who had been involved in managing the quantitative study accompanied the investigators. As such investigators had an idea of the indicators on early marriage, girl's education, etc. and were able to probe on issues accordingly.
  In addition, program personnel from Breakthrough participated in the training and shared their experiences of the intervention in detail. They shared the details of their activities so that the investigators would be able to recognize Breakthrough activities if communities described them without referring to Breakthrough.
- Local language: The investigators were proficient in the local language, Hindi. However, the study areas included those with local dialects. Among the respondents, women were most likely to understand and speak only the local dialect. The support team who accompanied the investigators knew local dialects. In FGDs there were 2-3 women who spoke Hindi and they too helped translate. The Breakthrough team also shared the relevant colloquial terms and how communities identified their intervention.

10.5 Appendix E: Qualitative study instruments

1. Polling Booth tool
2. Focus Group Discussion tool
3. Key Informant Interview tool
4. Case Study tool

10.6 Appendix F: Gender attitude index

We have six primary outcomes on gender attitudes

1. Education Attitudes index
2. Work Attitudes index
3. Girls' Mobility Index
4. Knowledge Index
5. Early Marriage Attitude Index
6. Aggregate Gender Norm Index

Below is a detailed list of the variables that has been used to construct each index.

1. Education Attitude Index
   1.1. What according to you is the ideal level of schooling for? (for boys and girls)
   1.2. In a marriage, who should be more educated?
   1.3. Is there any married woman in your household enrolled in school or any other training program?

2. Work Attitude Index:
   2.1. Who is responsible for performing cleaning and cooking and doing household chores in your house?
   2.2. Who is responsible for looking after younger siblings in your house?
   2.3 Who is responsible for supporting the family financially in your house?

3. Girls' Mobility Index:
   3.1 Do unmarried girls in the house usually:
      3.1.1 Go to school?
      3.1.2 Visit a health centre/clinic?
      3.1.3 Interact with male peers?

4. Knowledge Index:
   4.1 As per your knowledge, what is the legal age for marriage? (for boys and girls)
   4.2 Are there any negative consequences of marrying before the legal age?
   4.3 Have you heard of the Prohibition of Child Marriage Act?

5. Early Marriage Attitude Index:
   Do you agree with, disagree with or can't say about the following statements?
   5.1 If children do not marry early, they will not agree to a bride or groom chosen by their parents or family.
   5.2 It is important for girls to marry early to avoid sexual harassment.
   5.3 If children are not married early, they will engage in pre-marital sex.
   5.4 Girls should get married early since their main responsibility is to take care of the family and bear children.
   5.5 It is good to get married at a young age if a good match is found?
   5.6 If a girl or boy is not engaged in any other activity like work or education, it is good to get married?
   5.7 If a girl or boy is not married early, they may elope.
   5.8 Early marriage is required to prevent the interaction of boys/girls with the opposite sex outside of marriage.
   5.9 Early marriage is required to prevent inter-caste/inter-religious marriages.
   5.10 Early marriage is required to prevent love marriages.
   5.11 Early marriage is required to prevent girls/boys from falling into illegal activities.

Aggregate Gender Norm Index is an aggregate index formed by all the above questions.

10.7 Appendix G: Descriptive statistics for households who had heard of Breakthrough

Our empirical approach presented the intent to treat estimates of program impact on the outcomes of interest – mainly marriage, education and knowledge outcomes. The intent to treat analysis includes every subject who is randomized according to randomized treatment assignment. It ignores noncompliance, protocol deviations, withdrawal, and anything that happens after randomization. The data suggested that not all households in the village had heard about the Breakthrough program. Therefore, it became imperative to understand the program effects on complying households to estimate the treatment effect of the program. For doing so, we assumed that the households who had heard of Breakthrough or any of its program were delivered the intended program. Figure 7 describes the proportion of households who had heard of Breakthrough, *Desh Banam Balvivah*, and issues of early marriage respectively.

Figure 7: **Percentage households having heard of any program of Breakthrough**

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