Slow but Not Steady? Transitioning of Gender Norms and Agency Through Community-Based Empowerment Interventions for Adolescent Girls in India

Background:

Child marriage remains a persistent challenge in India, despite notable declines in recent years. A complex web of factors—ranging from poverty and social norms to limited opportunities for girls and lack of agency in marital decisions—continues to drive the practice. According to Psaki et al. (2021), these drivers vary by context, but one common factor is the absence of alternative pathways for girls, compounded by the fear or occurrence of premarital sex and pregnancy. In this context, community-based programs focused on girl empowerment have shown potential to delay marriage and increase school retention, but significant gaps in evidence remain.

Systematic reviews have highlighted the success of various interventions, particularly those offering incentives like cash transfers for school attendance (Kalamar et al. 2016). These have proven to be the most consistently successful strategy in reducing child marriage. Other promising interventions include employment opportunities and life skills training, which equip girls with the tools needed to challenge social norms and expand their life choices. However, most empowerment programs have been implemented as part of multicomponent interventions, leaving limited evidence on the standalone impact of gender rights and life skills training. Moreover, the impact of community-led initiatives, especially those targeting marginalized groups, is still underexplored.

Programs evaluated by the Population Council—such as the Adolescent Girls Empowerment Program (AGEP), Berhane Hewan, and the Adolescent Girls Initiative-Kenya (AGI-K)—have consistently emphasized empowerment alongside other components like sexual and reproductive health education. These programs have demonstrated positive effects, particularly in delaying marriage. Similarly, the More Than Brides Alliance (MTBA) program (Melnikas et al. 2023) showed that community-based, girl-centered initiatives with empowerment and sexual health components can significantly reduce child marriage. Yet, many programs remain fragmented in their delivery across communities, and the evidence on which specific components drive success remains scarce.

Context and Intervention:

The Girls First Fund (GFF) The Girls First Fund (GFF) supports community-led initiatives to combat child marriage by empowering girls and shifting community norms. In India, where one in four girls marry before 18, organizations like Mahila Mukti Sanstha (MMS) in Jharkhand play a crucial role. MMS, active since 1994, works through capacity building, skills development, and advocacy to address child marriage, gender-based violence, and related issues. With GFF support, MMS has implemented an intervention targeting girls aged 12-21, focusing on gender-transformative life skills education, sports coaching, and community engagement to challenge norms around age at marriage and promote girls' agency. This program not only empowers girls but also engages parents, local leaders, and community stakeholders to foster egalitarian attitudes and awareness of educational and social rights, contributing to broader societal change.

Objective of the paper:

The evaluation aimed at establishing a casual effect of program impact of GFF grantees. The core evaluation question asks: “Do girls in communities participating in GFF-led interventions have egalitarian gendered attitude, sense of self efficacy and negotiation skills that help them with safe transition to adulthood roles such delaying age at marriage and continuing education as desired and undertake livelihood.

Key outcome measures include girls’ agency, self-efficacy, educational aspirations, and gender-equitable attitudes. The evaluation employs a mixed-method approach, combining quantitative surveys with qualitative interviews to assess the influence of GFF interventions on these outcomes.

Data and Methodology:

Source of Dataset

Data is collected twice at baseline and endline from the 20 villages of Hazaribagh district of Jharkhand ,India where intervention was implemented. A total of 1989 girls aged 12-21 years were interviewed in 2022 and 2024. The survey was focused to understand the program effect in shifting norms and improving girls’ opportunities. Surveys also included interviews with girls who did not participate in the GFF program from the intervention villages as well to understand the overall community level effect. Although, program was already implemented prior to the baseline, thus quasi experimental design may not be appropriate as intended.

Treatment and Outcome Variables:

To measure gender egalitarian attitudes, girls were given a series of statements about education, gender roles, violence justification, and relationship power. Based on their responses an index of gender role attitude was computed as used at key outcome variable.

Similarly, an index of self-efficacy was computed to measure girls’ sense of self confidence, based on four questions around their perception of managing difficult situation, focussing on their aim, can maintain calm in difficult situation and find solution.

In addition, desire to pursue higher education, awareness about legal age at marriage and awareness about legal repercussion of child marriage were few other secondary outcomes on which program focused on improved girls’ knowledge.

Approach

This paper uses Propensity Score Matching (PSM) introduced by Rosenbaum and Rubin (1983) to reconstruct the counterfactuals for the treated studied agents from the observational data pooled across time. For each subject in the treated class, PSM finds an observation(s) in the control group that has (have) similar characteristics to act as counterfactual(s). It does this by combining propensity score with an appropriate matching algorithm. A probit regression is fitted using the measured values of the covariates such as age, religion, caste, parental education and occupation. Once it has been computed, an observation in the control group whose propensity score is the same or close to the propensity score of another subject in the treated group is deemed as its counterfactual. The study used 1:1 matching. With this approach, each treated subject is paired to only one

observation in the control group. After that, matching without replacement where an untreated agent that has been paired to a treated subject is not used again for matching was used. Once the aforementioned procedure is done, the average treatment effect on the treated (ATT) can be computed as the mean difference in the outcome variable between treated group and their paired untreated counterparts after the treatment has been applied.

Key findings

Girls profile

Table 1 shows sample characteristics of girls from the study communities. On average, girls exposed to program and those not participating in program were around 16 years old. About one in ten girls were currently married, and about four-fifths (81%) were in school. Among currently married girls, over 74% had begun childbearing (70% in intervention; 78% in comparison communities). No significant differences were observed between participant and non-participant girls on most demographic characteristics, except for religion where almost 90% of girls from comparison communities were Hindu compared to 83% of girls from intervention communities.

Table 1. Sample characteristics, India

	% (mean)
Currently married (%)	14%
Currently enrolled in school (%)	79.7%
Mean age (years)	***15.9***
Religion [#]-Hindu (%)	82.6
Caste[##]-SC/ST (%)	29.0
% of father's illiterate	15.8
% mother's illiterate	37.6
Fathers were engaged in agricultural/ labour work	47.4
Mothers were home maker	56.3

Unadjusted outcome by program participation

The findings from Table 2 indicate that girls who participated in the program showed a slight increase in egalitarian gender role attitudes compared to those who did not. For example, a higher percentage of girls who participated in the program agreed with statements such as "Everyone in the family should receive equal food, regardless of gender" (92.5% vs. 90.1%), "Boys and girls are equally capable in Math" (54.7% vs. 48.7%), and "A woman should have equal rights in decision-making within the household" (28.7% vs. 19.6%). Although there were modest increases across most statements, some attitudes, such as the belief that "Boys and girls are equally capable in reading and writing," remained similar between both groups (65.2% vs. 65.0%). Notably, the program participants demonstrated stronger views against violence, with more girls rejecting the idea of using violence to defend their reputation (18.8% vs. 12%) and showing higher agreement that no one should tolerate violence for family cohesion (58.3% vs. 44.7%).

Table 2. Gender role attitudes-based statements posed to girls among those participated and those who did not participate in the program

Egalitarian Statement	Not Participated in Program (%)	Participated in Program (%)
Everyone in the family should receive equal food, regardless of gender.	90.1	92.5
Boys and girls are equally capable in Math.	48.7	54.7
Boys/young men should have the right to say no in an arranged marriage.	88.8	92.0
Girls/young women should have the right to say no in an arranged marriage.	52.9	50.4
Boys and girls are equally capable in reading and writing.	65.0	65.2
Both parents should share household and childcare responsibilities.	83.1	84.7
Sons and daughters deserve the same level of education.	62.7	65.1
A woman's role should not be limited to household work; she can pursue any career.	31.4	39.4
Male and female family members should receive equal care when they fall sick.	74.4	69.7
No one should tolerate violence for the sake of keeping a family together.	44.7	58.3
No one should use violence to defend their reputation.	12.0	18.8
Being a man does not require toughness; emotional strength is valuable for everyone.	14.5	18.0
People should be treated equally, regardless of gender.	83.5	87.0
A woman should have equal rights in decision-making within the household.	19.6	28.7
Decision-making in families should be shared equally between men and women.	29.0	36.9
Women should have the right to divorce their husband.	49.6	58.1
Index of gender role attitude, (range: 0-15; Cronbach's alpha: 0.6634)	***7.7***	***8.3***

Table 3 presents the self-efficacy and negotiation abilities of girls, showing that program participants consistently demonstrated higher self-confidence and negotiation skills. A greater proportion of girls in the program reported feeling confident about managing difficult problems (72.2% vs. 63.6%), remaining calm in tough situations (61.8% vs. 56.8%), and finding solutions when in trouble (59.8% vs. 51.8%). The self-efficacy index also shows an improvement among program participants (2.11 vs. 1.86). Most significantly, 87.5% of girls who participated in the program felt they could disagree with their parents regarding important life decisions, compared to 77.1% of non-participants.

***Table 3. Sense of self efficacy and ability to negotiate with parents among girls who participated and those who did not participate in the program*.**

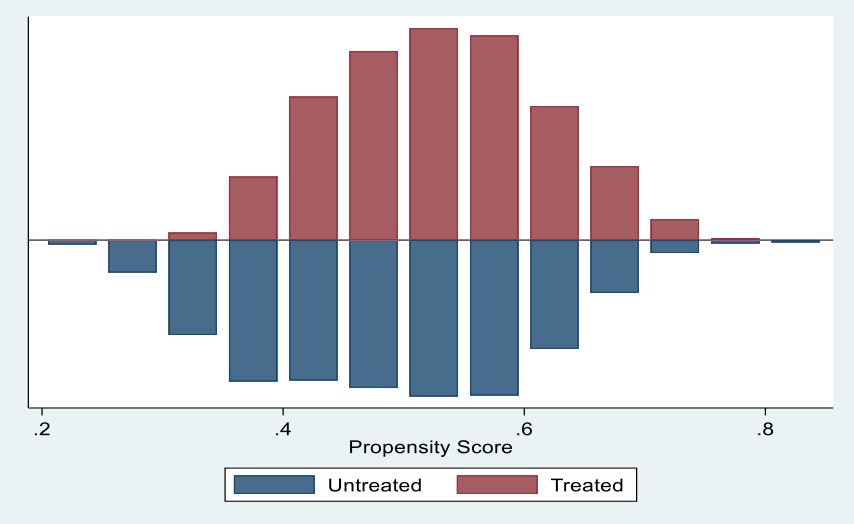
	Not Participated in Program (%)	**Participated in Program (%)**
Have confidence to manage difficult problems	63.6	72.2
Can remain calm when facing difficulties	56.86	61.8
have confidence to find a solution in when in trouble	51.8	59.8
Can focus on their aim to accomplish goals	14.3	17.4
index of self-efficacy (range: 0-4, Cronbach's alpha: 0.71)	***1.86***	***2.11***
% of girls reported that they can confront and disagree to their parent regarding the decision related to their lives	**77.1**	**87.5**

Results from propensity score matching:

Covariate Balance Diagnosis

A critical component of propensity score matching is the balancing of covariates between the treated and untreated groups. If the covariates between the two groups are not balanced, the average treatment effect on the treated (ATT) cannot be computed as the difference in the means (in the case of continuous outcome variable) or proportions (in case of dichotomous outcome variable) of the outcome variable. There are several statistical tools used in checking the balance of these pre-treatment variables between the two groups. They include the t-test, the standardized difference, and other graphical displays such as the box plots and cumulative frequency function. In the event where these tools prove that there is no equality between the covariates in the treated and untreated groups, the PS model has to be re-specified to include higher-order moments of covariates and/or interactions between covariates. The model of the study used the age, religion, caste, father's and mother's education and their occupation and standard of living index as the pre-treatment characteristics. After classifying the subjects into strata, the balancing diagnosis revealed that the covariates between the two groups were balanced.

Figure 1. Balancing graph for treated and untreated after matching



Gender Role Attitude (GRA)

The impact of program participation on gender role attitudes was assessed using propensity score matching (PSM) with a kernel estimator and a bandwidth of 0.08. As shown in Table X, the mean gender role attitude index (GRA) for the treated group was significantly higher than that of the control group in both the unmatched and matched samples. The unmatched difference between the treated (8.32) and control (7.66) groups was 0.66 (S.E. = 0.12, $p < 0.01$). After matching, the average treatment effect on the treated (ATT) increased slightly to 0.73 (S.E. = 0.13, $p < 0.01$), with a T-statistic of 5.72.

To further validate the robustness of these findings, a bootstrap procedure with 150 replications was employed. The bootstrap analysis confirmed the significance of the ATT, with an estimated effect of 0.73 (S.E. = 0.11, $p < 0.001$), and a 95% confidence interval ranging from 0.51 to 0.95. These results suggest a statistically significant positive impact of the program on gender role attitudes, indicating that participants reported more egalitarian gender role beliefs compared to non-participants.

Self-Efficacy Index (SEF)

The analysis also examined the program's effect on the self-efficacy index (SEF). Prior to matching, the difference between the treated (2.11) and control (1.87) groups was 0.24 (S.E. = 0.06, $p < 0.01$), with a T-statistic of 4.09. After adjusting for covariates through PSM, the ATT was estimated at 0.30 (S.E. = 0.06, $p < 0.01$), with a T-statistic of 4.76, indicating a positive and significant program effect on participants' self-efficacy.

Bootstrap analysis with 150 replications corroborated these findings, yielding a treatment effect of 0.30 (S.E. = 0.06, $p < 0.001$), with a 95% confidence interval between 0.18 and 0.42. These findings suggest that the program significantly enhanced self-efficacy among participants compared to non-participants.

Life Decisions Index (GRA_lifedec)

Finally, the program's influence on participants' autonomy in life decisions was evaluated using the life decisions index (GRA_lifedec). The unmatched difference between the treated (0.87) and control (0.77) groups was 0.10 (S.E. = 0.02, $p < 0.01$), with a T-statistic of 6.14. After PSM, the ATT increased to 0.11 (S.E. = 0.02, $p < 0.01$), with a T-statistic of 6.25.

Bootstrap analysis also supported the significance of the effect, with an estimated coefficient of 0.11 (S.E. = 0.02, $p < 0.001$), and a 95% confidence interval ranging from 0.09 to 0.14. This indicates a significant program impact on increasing participants' decision-making autonomy.

Propensity Score Matching and Common Support

The matching procedure was performed on a sample of 1,989 observations, including 1,013 treated individuals and 976 untreated individuals, all within the region of common support. The balancing properties of the matching process were verified, and the results are based on a common support region, ensuring that comparisons are made between comparable treated and control units.

Table 4. Table: Propensity Score Matching (PSM) Results for Gender Role Attitude (GRA), Self-Efficacy Index (SEF), and Life Decisions Index (GRA_lifedec).

Variable	Treated	Controls	Difference	S.E.	T-Stat
Gender Role Attitude (GRA)					
Unmatched	8.3248	7.6629	0.6619	0.122	5.42
ATT	8.3248	7.5958	0.7289	0.1274	5.72
Self-Efficacy Index (SEF)					
Unmatched	2.1115	1.8668	0.2447	0.0599	4.09
ATT	2.1115	1.8122	0.2994	0.0628	4.76
Life Decisions Index (GRA_lifedec)					
Unmatched	0.8746	0.7705	0.1041	0.0169	6.14
ATT	0.8746	0.7622	0.1124	0.018	6.25

Note: S.E. does not take into account that the propensity score is estimated.

Conclusion and discussion:

The study presents robust evidence indicating that the Girls First Fund (GFF) community-based interventions have a significant positive impact on adolescent girls' gender role attitudes, self-efficacy, and autonomy in life decisions. Specifically, the program successfully fostered more egalitarian gender beliefs, enhanced girls' confidence in handling difficult situations, and strengthened their ability to make independent life decisions, particularly related to marriage and education. These findings underscore the transformative potential of gender empowerment programs in challenging deep-rooted social norms and increasing girls' agency, thereby contributing to the delay of child marriage and improved educational outcomes.

The successful implementation of the intervention in Hazaribagh, Jharkhand, highlights the value of community engagement in empowering girls and shifting societal attitudes. However, despite positive outcomes, the changes in some aspects, such as educational aspirations and beliefs regarding gender roles in education, remained modest. This points to the persistent challenges posed by entrenched social norms and the need for continuous, multifaceted interventions.

Key recommendations

Importance of Community-Led Initiatives: The intervention's success highlights the critical role that community-driven initiatives play in addressing complex societal issues like child marriage. By directly engaging with not just the girls but also their families, local leaders, and

the broader community, these programs foster collective buy-in, which is essential for driving long-term attitudinal and behavioral change.

Empowerment and Agency as Core Outcomes: The study shows that gender-transformative life skills programs can significantly enhance girls' self-efficacy and their ability to negotiate key life decisions, especially related to marriage and education. This empowerment translates into tangible benefits, such as the ability to delay marriage, which has far-reaching consequences for their health, education, and socioeconomic status.

Incremental but Significant Shifts in Gender Norms: While there were improvements in attitudes toward gender equality, the shifts were often incremental, suggesting that changing deeply ingrained norms is a slow process. For example, while girls reported more egalitarian views in some areas, there were still some gaps in areas such as beliefs about gender roles in education. This underscores the need for sustained efforts and longer-term engagement.

Limitations of Single-Component Programs: The findings emphasize the importance of multicomponent interventions that go beyond life skills training. While empowerment and education are vital, other components like economic opportunities and continuous engagement with families are equally important in achieving deeper and more sustained changes in gender norms.

Sustainability and Scalability: The study raises important questions about how such community-based interventions can be scaled and sustained over time, particularly in regions with varying social and economic contexts. The engagement of local NGOs and community organizations is vital for the success of such programs, but it may also be a challenge to ensure consistent funding and long-term support.

Methodological Considerations: The use of Propensity Score Matching (PSM) in the study effectively accounts for confounding variables, providing a more rigorous estimate of the program's impact. However, the quasi-experimental nature of the design, with baseline data collected after some intervention exposure, may limit the study's ability to fully capture pre-treatment differences. Future research should consider randomized control trials or more comprehensive longitudinal designs to strengthen causal inferences.