ECRONICON OPEN ACCESS

EC GYNAECOLOGY
Research Article

A Community Engagement Intervention to Influence Healthy Timing and Spacing of Pregnancies in Rural Uttar Pradesh, India: A Quasi-Experimental Study

Brinda Frey[1], Mohd Tauheed Alam[1]*, Preeti Anand[2], Shajy Isac[2], Ravi Prakash[2], John Anthony[2] and Shiva S Halli[2]

[1]*India Health Action Trust, India*

[2]*University of Manitoba, Canada*

***Corresponding Author:** Mohd Tauheed Alam, Team Leader, Family Planning, Uttar Pradesh Technical Support Unit (UPTSU), India Health Action Trust, Lucknow, India.

Received: February 27, 2024; **Published:** March 18, 2024

Abstract

Objective: To assess the efficacy of engaging community groups to change knowledge, attitude and practice regarding modern spacing contraceptives.

Method: The pilot study employed a quasi-experimental design in which 10 villages in each of two blocks were identified from Sitapur district in U.P. and assigned to intervention and control domains. A primary social network was created by linking change agents to eligible couples (ECs). The change agents were linked up with ECs and ASHAs to enhance their knowledge of the healthy timing and spacing of pregnancy (HTSP) as well as the process of conception and contraception to facilitate informed choice and service delivery through proper channels.

Findings: Increasing the level of correct knowledge about the different FP methods was associated with increased uptake of modern methods of contraceptives in the intervention area. ECs in the intervention area showed an increased demand for reversible methods beyond condoms among all women even after their first childbirth. This expanded the method mix of contraceptives adopted by women with both spacing and limiting needs. Traditional methods of contraception and levels of abortion continued to be more prevalent in the control area and the communities with a lower level of knowledge.

Conclusion: The study concluded that an enhanced level of knowledge on family planning methods coupled with the support of a social network resulted in increased use of reversible contraceptive methods in the community.

Keywords: *Community Engagement; HTSP; Uttar Pradesh; Change Agents; Correct Knowledge*

Background

Family planning is one of the most successful development interventions of the past 50 years. It is unique in its range of potential benefits, encompassing economic development, maternal and child health, educational advances, and women's empowerment [1]. However, in spite of its far reaching benefits, intent and actual uptake globally remain low for family planning services especially for modern contraceptives. In Uttar Pradesh also, even though both awareness of modern contraceptives and desire to space or limit childbearing is high, intent to use contraceptives is low, especially for modern methods [2].

Analysis of Demographic and Health Surveys in 52 countries between 2005 and 2014 revealed that the most common reasons for not using contraception despite wanting to limit (not wanting another child) or space (not wanting a child soon) child bearing were fear of side effects, infrequent sex, and opposition to contraception from self or others [3]. A scoping review on determinants of unmet need for family planning among women of reproductive age in low and middle income countries revealed repeatedly that women particularly younger women, lack basic knowledge on reproductive physiology and on modern as well as traditional FP methods. Qualitative evidence also indicates that female disapproval of modern family planning methods is influenced by their limited understanding of potential side effects [4].

Knowledge of contraception, as usually measured in national surveys, is unlikely to reflect a familiarity with and understanding of contraceptives which is adequate enough to lead to uptake [5]. This combination of inadequate knowledge and continued myths and misconceptions leads to risk perception around side effects of methods, particularly fear of infertility preventing use of modern methods to achieve the fertility intention. Thus, the challenge of offering effective family planning options to a population is not only about making modern contraceptives easily available, but also making them acceptable [6].

Community health worker (CHW) programs can increase use of contraception, particularly where unmet need is high, access is low, and geographic or social barriers to use of services exist [7]. An Accredited Social Health Activist (ASHA) is a community health worker employed by the Ministry of Health and Family Welfare (MoHFW) as a part of India's National Rural Health Mission (NRHM) [8]. ASHA workers, the first line of contact for people, have strong links within their community. They can play a significant role in addressing the barriers and concern regarding family planning uptake through outreach.

A number of studies have demonstrated the positive impact of community health worker (CHW) programs on the promotion of reproductive health services and family planning, appropriate care seeking, antenatal care during pregnancy, and skilled care for childbirth [9,10]. Even though outreach by ASHAs had a positive and significant effect on intention to use contraceptives, studies suggest that providers tend to focus their counselling on limiting methods rather than counsel about spacing methods. Lower monetary incentives for all FP outreach work, (except for female sterilization) as compared to antenatal, delivery, and post-natal healthcare work increases the ASHAs reluctance to engage in the FP work [11]. As a result, the ASHAs restrict FP conversation around sterilization rather than modern spacing methods despite the fact that FP outreach by health workers has increased between the NFHS 4 and 5 surveys [12,13].

Community support can shift individual behaviours, including contraceptive behaviours, either by changing norms or individual knowledge and attitudes [14]. Evidence for application of Community Group Engagement in maternal and child health programs demonstrates that this approach can lead to "cost-effective sustained transformation to improve critical health behaviours" [15].

Literature examining the effects of community engagement through social networks to address the prevailing social norms and practices, myths and misconceptions that prevent uptake of spacing methods are limited. Interventions designed to changing the strong social norms against family planning since large-scale implementation of community group engagement (CGE) in family planning programs is not yet common place. This paper examines the effects of engaging community groups in a social network to change attitude and practice regarding modern spacing contraceptives and effect of community group engagement in acceptance of modern spacing contraceptive and change in abortion rates.

Rationale for community engagement for behaviour change in contraceptive uptake

Social norms-the unwritten rules of acceptable behaviour shared by members in a group-can contribute strongly to group members' choices and actions. People comply with social norms specially when they are uncertain about what is the best behaviour to achieve something in a given situation, they want to express membership in a group; they anticipate a social reward, or because they are forced to by those who have power over them [16].

An effective tool to change social norms are "community discussions," where members of the same group identify local harmful practices and the norms that sustain them, eventually renegotiating both to achieve greater health, well-being, and empowerment for themselves and others in their group [17]. These discussions are best conducted as facilitator-led group conversations.

Our basic premise was that most barriers to behaviour change stem from lack of some information that is critical to the complete understanding of an issue. Identifying these gaps and presenting the relevant information to the community will help them understand why specific practices need to be changed.

For example, women, and families are often unaware that women's fecundity can return in the early months after birth and with timely initiation most contraceptive methods are safe for breastfeeding mothers. Women often wait to initiate contraception until after menstruation resumes, considering themselves at no risk of pregnancy during amenorrhea associated with lactation, although ovulation can occur prior to appearance of menses. Misconceptions about timing of return to fecundity and factors affecting postpartum pregnancy risk can lead to delays in timely initiation of contraceptives [18]. This information becomes critical in the discussion around breastfeeding and post- partum family planning (PPFP) and makes a compelling argument for re-examining the validity of the misconception that breastfeeding and/or no return of menses provides protection from unintended pregnancy.

Our approach in the intervention was to promote healthy timing and spacing (HTSP) which focuses on all pregnancy-related intervals facilitating the paradigm shift-from lowered fertility and smaller family size to healthy fertility through family planning. Since the ultimate aim of HTSP is to increase family planning use to delay, space or limit pregnancies, based on a woman's reproductive health choice and fertility intention, it repositions family planning as a health and social intervention that contributes to healthy mothers, babies, families and communities [19]. Findings from a study in Bangladesh aligns with other operations research studies which have indicated that when mothers and families learn about healthy pregnancy spacing and its benefits, motivation to use FP increases substantially, as does PPFP use [20].

Methodology

Study setting and population

The study used a quasi-experimental pre-post control group design. Purposively two blocks (Pisawan and Mishrikh) were identified from Sitapur district of Uttar Pradesh as intervention and control blocks respectively. Both blocks were comparable in terms of women literacy, household family size, working population, proportion of Scheduled Caste (SC) population at the time of intervention. Since Mahila Samkhya, an organization that works for women's rights, identity, legal rights, education and economic empowerment, had a strong presence in the chosen intervention area and they were the preferred partner for the community group engagement. In each of the identified blocks, 10 villages were identified on the basis of a strong presence of a women's groups of the Mahila Samakhya Network. The intervention was rolled out between January 2017 to January 2018.

After mapping and house listing of control and interventional villages in married women in the age group 15 - 49 years were line listed and permanent resident of the villages were selected. Line listing and village mapping of the intervention villages was done to map the distribution of eligible couples (EC), change agents and users. The baseline survey was conducted to know the knowledge and practice regarding family planning in both intervention and control areas. Base line survey was done in 2017 on 1171 eligible women, 582 from Pisawan and 589 from Mishrikh. were interviewed after being selected using systematic random sampling. The sample size for the study is determined using formula which is primarily used in health surveys:

$$n = D\frac{[Z_{1-\alpha}\sqrt{2P(1-P)} + Z_{1-\beta}\sqrt{P_1(1-P_1)+P_2(1-P_2)}]^2}{(P_2-P_1)^2}$$

The alpha level has been set at 0.05, corresponding to 95% confidence in the observed estimates. The beta level has been set at 0.20, corresponding to 80% power. During endline survey, 1201 eligible women (599 in intervention and 602 in control) were covered. Response rate was 93% and 95% in base line and end line survey respectively. T test were used to see the differences between the surveys were significant. All the analysis was done on STATA/SE version 15.1.

Intervention

The aim of the pilot was to improve communication to the communities regarding healthy timing and spacing of pregnancy (HTSP), thereby persuading and empowering women, particularly young and low parity couple (YLPCs), to have children by choice.

Community-led interventions can be very effective as community members know the socio- cultural setting where their actions will be implemented and can devise strategies that are both culturally appropriate and can leverage it as a source of solutions. Community led interventions help people achieve goals that matter to them, drawing on their individual and collective aspirations [21].

Evidence from global studies show the important role played by community organizations and peer outreach workers in meeting the needs of their members through tailored context-specific responses [22]. The theory of change of the intervention for promoting healthy timing and spacing of pregnancy (HTSP) by Engaging and Mobilizing Communities. As part of the preparatory phase of this intervention, focus group discussions (FGDs) were conducted in the interventional areas. These FGDs were to understand the views of different stakeholders-women group members, regarding childbearing after marriage, spacing between pregnancies, breastfeeding and postpartum contraception.

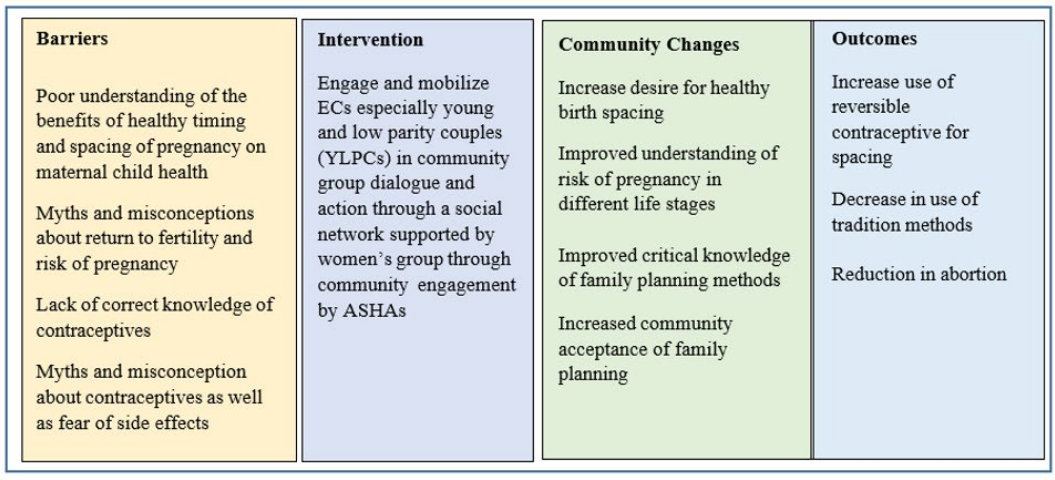

Figure A

These findings informed the customization of training content and methodology including teaching aids, games etc. After Mahila Samkhya (MS), was brought on board as a partner in October 2016, the collaboration with the MS federation was initiated. The need to change the attitudes of the women leaders of MS in the intervention villages was the first priority.

Therefore, a 5-day residential training of trainers was conducted. The training gave insight about gaps in knowledge and how to communicate the information to the women. It was very important since the leader women were being prepared to replicate the same experience for the change agents who would be leading the discussions in the community.

Moving forward, a three pronged strategy was adopted which comprised of: Engagement of eligible couples by creation of a social network; Capacity building of eligible couples and their influencers through change agents; and facilitating access to quality service delivery close to the community.

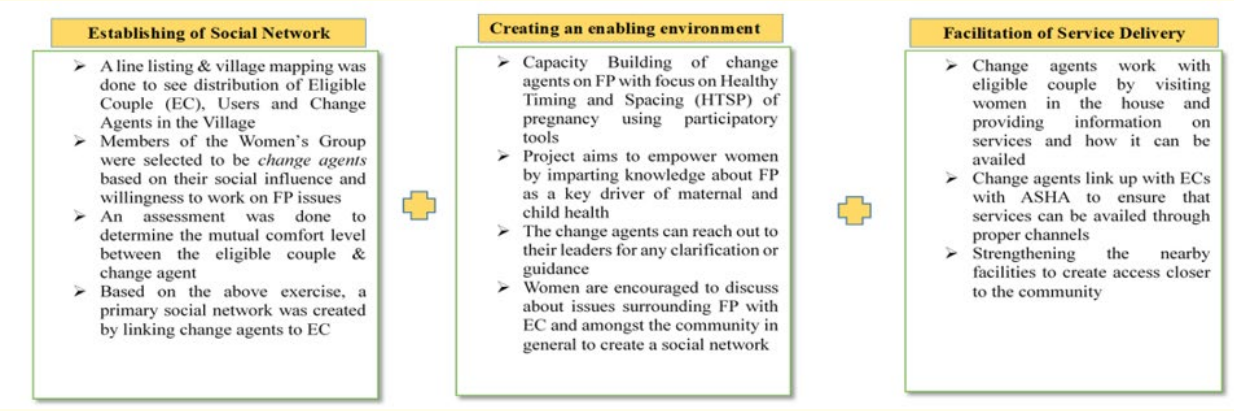

Figure B

Engagement of eligible couples by creation of a social network

Line listing and village mapping of the intervention villages was used to map the distribution of eligible couples (ECs), change agents and users.1659 eligible couples from 10 interventional villages were line listed and entered in monitoring format -Hamara register. Hamara Register, a pictorial diary was developed for the change agents to track the change in contraceptive uptake of the women in the village.

A Training of Trainers (ToT) was conducted to engage leaders in the community as master trainers who would undertake the subsequent coaching of new trainers with less experience in a particular topic or skill [23]. After the TOT, the first task that the leader women had to complete was the selection of change agents from their community. The members of the Mahila Samakhya women's group in each of the intervention villages were selected as Change Agents. Selection was based on criteria that included aspects that reflected traits necessary for the counselling and advocacy role of the change agent. Age, previous training, use of modern family planning methods, number of social contacts, number of women she had counselled and the proportion that accepted her suggestion were some of the criteria used for the initial screening of Mahila Samakhya (MS) members. Ninety-two change agents were selected across 10 villages.

Through a process of contact mapping ECs were surveyed to assess and score the mutual acquaintance and comfort levels between the ECs and change agents. Based on the above exercise, a primary social network was created by linking change agents to ECs as shown in figure 1.

The second step was allocation of eligible couples (ECs) into clusters with a change agent as facilitator. The initial plan was to allocate the EC into clusters according to the proximity of change agent's residence. However, when this idea was field tested it was decided that the social network mapping approach should focus on ECs choice of the change agent who they are most comfortable to ensure the ease of communication and better engagement on this sensitive issue of family planning.

Each change agent was assigned a cluster of approximately 20 ECs. These change agents visited the homes of the ECs as well as conducted group discussions involving other women in the neighbourhood of ECs. They were also linked up with ASHAs to facilitate service delivery through proper channels. The nearby public health facility was also strengthened to make FP services' access closer to the community.

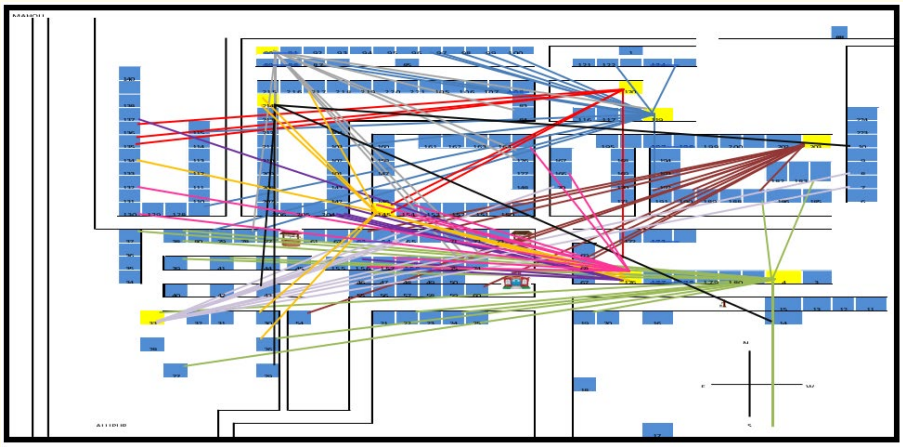

Figure 1: *Social network of change agents and eligible couples.*

Regular mentoring and hand holding of the change agents was done by leader women through monthly meetings and these change agents in turn engaged the eligible couples by having small group meetings and home visits. Although project team organised block level meetings with the leader women to support them on a regular basis, all the activities in the field were facilitated by the women leaders and the change agents. The planned activities stirred the interest among the male population of the communities which led to evening meetings for the men generating an enabling environment in the communities regarding HTSP. These meetings were led by the leader women and generated valuable insights.

Creating an enabling environment

The main focus of the trainings was to establish the need for planning childbirth to avoid risks to mothers and children, achieving healthy outcomes by positioning contraception as the solution. The key barriers to following HTSP and adoption of different methods of contraception were discussed in detail. Capacity building of Change Agents was done in a phased manner by equipping to use the various tools like story boards, snakes and ladders as well as chetna aprons (A cloth apron is an educational tool to impart scientific information about the male and female reproductive system) which would facilitate the conversation with the village women.

Evidence from literature suggests that narrative approaches such as story-telling and leaflet, along with other community mobilization and health promotion activities, enhance support for optimal pregnancy spacing and timely contraceptive uptake [24]. Since the community is able to identify with narrative approaches, there was extensive use of films and story boards to initiate discussions. Community discussions were initiated by providing the group with information on the unfavourable consequences of a given practice, for example unintended pregnancy due to traditional method use in a postpartum amenorrhea breastfeeding woman with a seven-month old infant. The instance given above generated discussion and critical reflection on the reasons for the practice of traditional method and subsequently motivated participants to deliberate on a new positive norm within their group, thereby influencing others in their settings to join their movement for a change process known as "organised diffusion".

In the follow up meetings which were subsequently held with the selected village leaders and the ASHAs of their respective villages, it was found that while the leader women displayed good recall of technical knowledge, they needed further training to equip them with the appropriate skills to share knowledge within their communities. The knowledge of the ASHA workers was much lower. A two-day refresher training was thus designed to address both these challenges- orient the women leaders and to impart knowledge to health workers in their respective villages so that the message of family planning could be imparted in a comprehensive and standardized manner.

From 15th March 2018, a novel method which combined dissemination of key messages with a simultaneous tracking of the message being conveyed by the change agents to the eligible couple was developed. This mechanism helped to keep the interaction between change agents and eligible couples focused on the HTSP and FP while creating a record of the home visit as well as the issue discussed serving as a tool to track activity of the change agent.

A calendar with a key message about family planning for each month was distributed to each of the 1659 eligible couples in the intervention area. Each of the 105 change agents was provided with a booklet containing the 12 key topics on family planning and its impacts on maternal/child health. Change agents would visit their EC at least once in a week and discuss some topic of the booklet after which the relevant sticker (color coded for topic) would be pasted on the date of visit in the calendar.

The calendar sheets would be torn out every month and collected. The data would be analyzed giving us an opportunity to assess the frequency of visits of change agents as well as the frequency of each message used. Once an EC decided on a particular method the change agents referred them to the ASHA of their village for service provision.

Facilitation of service delivery

In November'16 the Medical officer in-charge (MOIC)/service providers of the Pisawan Community Health Centre closest to the intervention villages were oriented on the standards of service delivery of all the different methods outlined in the Government of India (GoI) guidelines particularly the medical eligibility criteria applicable for each method to ensure proper screening of clients and prevent unnecessary complications.

To assess the intervention impact, baseline and endline surveys were conducted in January, 2017 and April, 2019 respectively. Ethics approval for the surveys was obtained from IRB committee of Sigma Research and Consulting Institutional Review Board, New Delhi, India. Only individuals who consented to participate were included in the study. All pilot tools were tested before the survey. Figure 2 gives the time line of pilot study.

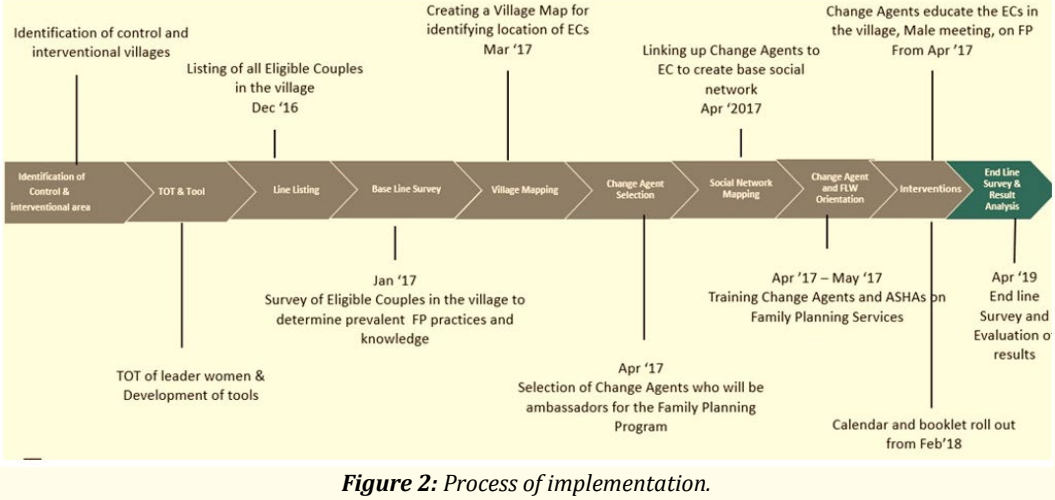

Figure 2: *Process of implementation.*

Results

1171 eligible women were covered (582 in intervention and 589 in control) in the baseline and during endline survey, 1201 eligible women (599 in intervention and 602 in control) were covered. The mean age of the study participants was 32 years ranging from 15 to 49 years. Study participants background characteristics are presented in table 1. Apart from other background characteristics there was a difference in the wealth quintile between baseline and endline. The proportion of poor increased from 11.2% to 33.1% from baseline to endline in control group.

Characteristics	Intervention		Control	
Age Group	**Baseline (N = 582)**	**Endline (N = 589)**	**Baseline (N = 599)**	**Endline (N = 602)**
15-24	24.6	19.9	22.4	19.4
25-29	21.0	24.2	19.5	21.6
30-34	16.8	15.5	17.3	16.8
35-39	12.9	17.4	18.3	18.9
40-49	24.7	23.0	22.4	23.3
Parity				
0	8.3	8.9	8.2	8.1
1	11.7	11.7	11.9	10.3
2	16.8	18.0	17.8	15.5
3+	63.2	61.4	62.1	66.1
Woman education				
Illiterate	58.8	59.9	61.1	64.3
1-5th standard	13.8	11.0	13.2	10.8
6-9th standard	19.6	19.4	16.1	15.6
10th standard or higher	7.9	9.7	9.5	9.3
Caste				
OBC	45.2	36.4	41.4	40.7
SC/ST	42.6	50.9	47.2	49.8
Other	12.2	12.7	11.4	9.5
Religion				
Hindu	96.9	97.5	92.4	95.7
Non Hindu	3.1	2.5	7.6	4.3
Wealth quintile				
Poorest	20.6	22.3	11.2	33.1
Poor	12.4	24.6	12.7	30.7
Middle	19.1	18.8	18.9	18.0
Rich	30.2	26.6	37.7	12.2
Richest	17.7	7.8	19.5	6.0

Table 1: *Percent distribution of currently married women by background characteristics.*

At baseline, the CPR, mCPR and contraceptive method mix were similar in both intervention and control areas with a large proportion of traditional method users and method mix skewed to female sterilization and condoms (Table 2).

Indicators	Intervention		Control	
	Base Line	End line	Base Line	End line
CPR	59.3	56.1	59.3	62.8**
mCPR	32.1	36.6	28.3	35.4
Female sterilization	15.1	14	13.8	18.6*
IUCD/PPIUCD	1.2	1.3	1	1.5
Injectable contraceptives	0.2	4.5***	0.5	0.3
Oral contraceptive pills	0.5	1.8**	1	1
Condom	15.2	14.9	12.1	13.8
Lactational amenorrhoea method	0	0	0	0.2
Traditional methods	26.7	19.5***	30.9	27.4
Total	582	599	589	602

Table 2: *Current use of family planning methods at the time of survey in intervention and control areas.*

The end line data showed significant increase in uptake of spacing methods especially injectable and pills, as well as of permanent methods in the intervention area. At endline, the mCPR was higher in the intervention area with significantly higher contribution (65%) of modern contraceptive accompanied with a decline of traditional method users. to the CPR as opposed to the much lower 56% share of modern contraceptives in the CPR of the control area. Conversely, in the control area, the share of modern contraceptive methods to CPR was much lower (56%) due to marginal change in permanent method.

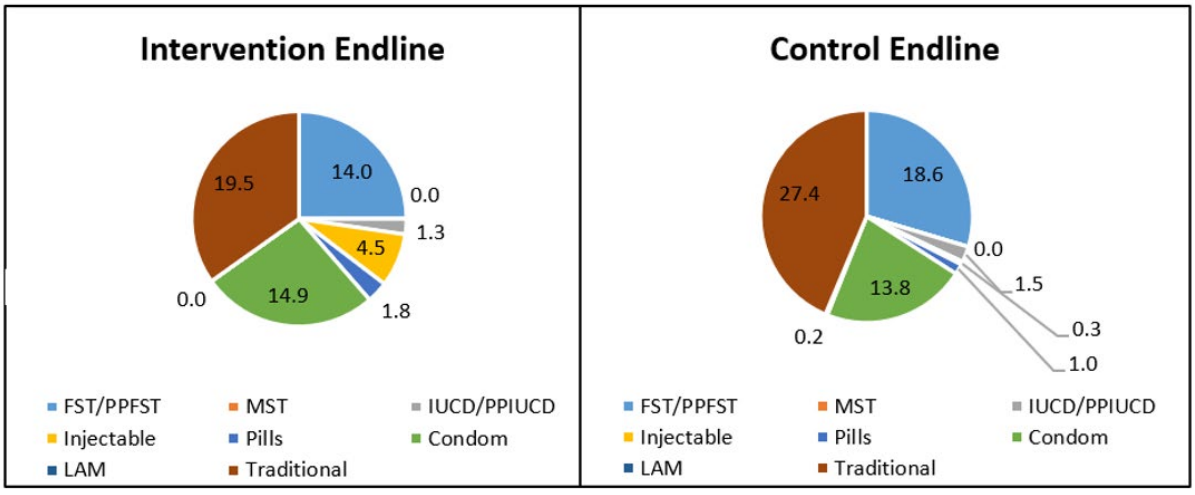

Figure 3: *Use of FP methods at the end of the pilot.*

The endline survey showed noteworthy increase in contraceptive uptake of parity 1 women besides other parities as well (Table 3). In the control area however, since the demand satisfied by modern methods was mainly by sterilization, it was restricted to women of higher parity only.

The endline data showed significant improvement in indicators measuring correct knowledge of family planning such as: correct knowledge about contraceptive methods especially with regard to IUCD (20% to 53% in intervention area and 33% to 39% in control area), injectable contraceptives (5% to 38% in intervention area and 5% to 13% in control area) and oral pills (17% to 30% in intervention area and almost 20% both in baseline and endline in control area). This increase in understanding translated to a significant increase in uptake of the spacing methods in the intervention area - injectable and pills. Although the endline survey showed a similar increase in knowledge of unsafe days of the menstrual cycle in both the areas (17% to 49%), the change in contraceptive behaviour was significantly higher in the intervention area.

Method	Correct knowledge	Intervention		Control	
		Baseline	End Line	Baseline	End Line
Unsafe days	Known safe days 8th to 20th during menstrual cycle	16.5	49.1***	18.2	50***
Mala-N/D	Start taking pill 1st to 5th days after menstruation	17.2	30.4***	19.5	19.8
	Next day take 2 pills if forgets pills one day	16.6	33.1***	17.6	15.8
	Continue pills from next day after taking 28 days pills	22.2	26.2***	23.6	22.1
Emergency contraceptive pills	Emergency contraceptive pill should take within 72 hours	3.2	9.5***	3.4	2.5
IUCD	Pregnancy can be avoided from the Copper-T 5/10 years	19.6	52.9***	32.8	39***
Injectable contraceptives	Injectable method at every three months	4.9	38.2***	5.1	13.3***
	Injectable method has delayed return to fertility after discontinuation	14.3	14.4	3.7	6.6**
Condom	Use of condom every sexual act known	66.3	88.5***	67.4	88.2***
	One condom can be used one time only known	74.9	91***	72	83.1***
LAM	Aware about LAM method	6.87	32.72***	10.5	22.3***
	Total (N)	582	599	589	602

Table 4: *Correct knowledge of family planning methods.*

The improved understanding of the safe unsafe period from 17% to 49% in intervention area augmented with significant decline in traditional method users with an increased uptake of the modern methods in the intervention area resulted in substantial reduction in the percentage of women terminating their pregnancies from 13% to 7% whereas the control area showed an overall increase in abortions from 4.9% to 5.7% (Figure 4).

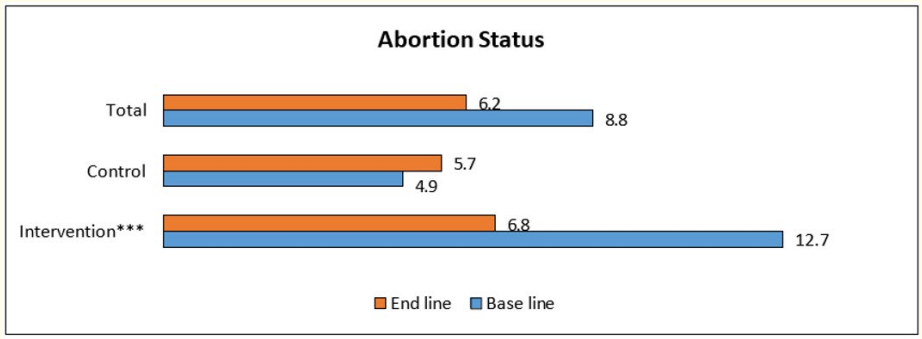

Figure 4: *Status of abortion in intervention and control area during baseline and endline.*

The impact of increase in correct knowledge on the contraceptive uptake was even more evident when the cohort of women who attended the community group meetings were compared with those who had not participated in the group meetings.

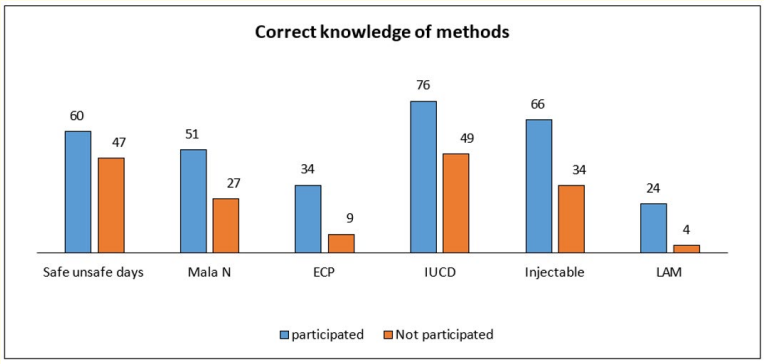

Figure 5: *Correct knowledge of modern contraceptive methods.*

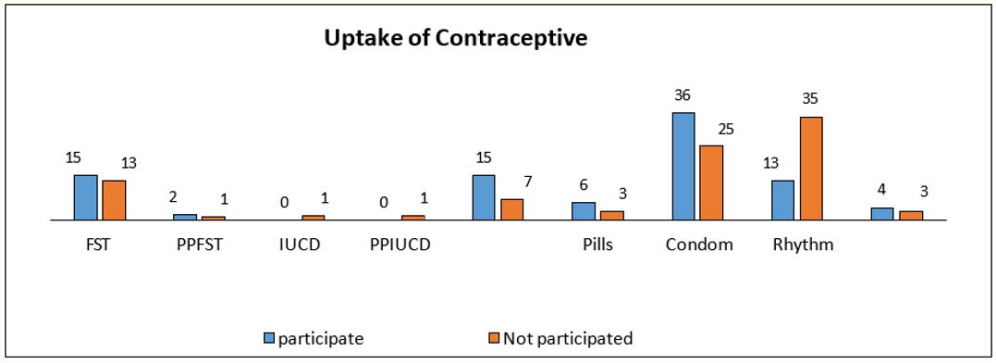

Figure 6: *Uptake of contraceptives.*

The significant difference in use of contraceptive between the two groups was associated with a substantially higher mCPR at 51% among the participants as compared to 34% in the group that had not participated in community group discussions in the intervention area during endline survey.

Community meetings	Limiting modern methods	Spacing modern methods	Any modern method	Traditional method	N
Participated	16.3	31.8	51.2	10.5	86
Not participated	13.7	20.5	34.2	21.1	513

Table 5: *Use of modern family planning method by women who have participated in the community.*

The community group meetings were initially attended by older women who initiated the use of the new contraceptives particularly injectable contraceptive to address their need for limiting their families. These women had resisted the female sterilization and they perceived this long acting contraceptive favorable because it provided protection while keeping their fertility intact. Many of the change agents adopted the new spacing methods and advocated the same in the smaller neighborhood or household meetings throughout the social network. Since these conversations usually led to a point which required action it generated much spousal debate before decisions could be made.

This spurt of activity piqued the curiosity of the husbands who raised a request for meetings to understand these new methods. These meetings were convened in the evenings to allow maximum male participation and were conducted by the leader women themselves. Using the story cards healthy timing and spacing of pregnancy was the main focus of these meetings. Discussion was encouraged to dispel the myths and misconceptions around the use of different contraceptives.

Group meetings created newer reference groups of women who were adopting the newer contraceptives and reassuring each other through the initial phase of bodily changes to become continuing users. This group of satisfied users were then able to influence women in their social network through the common change agent to women who were not participating in group discussions was 41% higher than among those who did not participate with a significant difference in the proportion of the traditional users in the group that had been exposed to the intervention.

Discussion

ASHA workers have strong links with their communities and can play a significant role in addressing the barriers to family planning uptake through outreach. They find counselling about spacing methods time-consuming and to focus their counselling on limiting methods rather than counsel about spacing methods. Lower monetary incentives for all FP outreach work, (except female sterilization) as compared to antenatal, delivery, and post-natal healthcare work increases the ASHAs reluctance to engage in the FP work [25]. As a result, even though FP outreach by health workers has increased since the NFHS-4, the ASHAs restrict FP conversation around sterilization rather than other modern spacing methods. The main purpose of this paper was to assess the efficacy of community group engagement (CGE) approach with eligible couples for dissemination of critical information through a social network and its impact on uptake of modern contraceptives.

Although CPR increased in both control and intervention areas, the percentage share of the traditional method use in the intervention areas decreased substantially with a greater contribution of the spacing methods in mCPR. The guided group discussions in which the information was shared to reflect upon the practices at the individual and community levels, helped in building newer reference groups that supported the uptake of the newer contraceptives. The new knowledge, understanding and discussion around the unreliability of

the traditional methods was responsible for the significant change in the method mix and uptake of the modern methods. There was little change in the number of women using traditional methods in the control villages. Though both control and intervention areas had the ASHAs motivating women who have completed their families to adopt female sterilization, the intervention areas had a significant increase in the uptake in reversible contraceptives across women of different parities particularly the first time mothers. This resulted in the overall increase in mCPR and decrease in unwanted pregnancies. This impact points to the efficacy of the approach in providing social support to traditional users and non-users to switch to modern contraceptives. The women in the community were linked with change agents with whom they had a mutual level of comfort that enhanced receptivity of the eligible couples and facilitated communication. These change agents served as role models since they had social influence.

This CGE intervention supported individual community members and the community as a whole, by building capacity to lead group processes that promoted informed decision-making and collective action. With increased capacity to identify and address problems that affect them and their community, these groups can tackle other issues as they arise [26].

Despite the fact that the knowledge of the unsafe period of the menstrual cycle increased equally in both intervention and control areas, the rate of abortions declined to 50% of the baseline levels in the intervention area while there was an increase in the endline data in the control villages. The higher proportion of traditional method users in the control area contribute to the continued use of abortion as a means of limiting their family size in case of unintended pregnancies.

This can be attributed to the enhanced understanding and application of the knowledge to avoid intercourse or use protection before or after unprotected intercourse during unsafe days. Adoption of modern spacing methods among women in the interventional villages was also a change in practices paving the way to normative norms that influenced the decrease in abortions in the intervention area.

The findings indicate that the group dialogue, reflection on stories, films, case scenarios and tailored participatory activities can be used effectively to enhance critical knowledge regarding certain norms, myths and misconceptions which are barriers to behaviour change. The participatory approach helped many of the timid victims of gender bias to draw strength from the groups led by the change agents to make contraceptive choices that empowered them.

Layering the intervention on the existing platform of women empowerment earlier by Mahila Samakhya group gave it more visibility and power. This group had a significant level of engagement with the marginalised scheduled caste population of the community. The members of the women's group were known to most of the community, which facilitated the creation of the social network which was an important factor that might have contributed to the success of the intervention.

The purposive constitution of the women's group members and target population into a social network based on mutual comfort and ease of communication rather than geographical proximity seems to be a very significant determinant to the success of this social experiment. It allowed the change agents to communicate openly on sensitive issues of fertility and sexuality and work with and through ECs and their families to influence normative contraceptive behaviours, dispel the myths and misconceptions around social norms rather than shifting behaviour by directing efforts toward individuals alone.

Some of the ASHAs of the intervention villages were pleased with the support provided in mobilization of clients for FP services and collaborated efficiently with the MS leader women and the change agents. Hence, for a more sustained model it is important that the engagement with service delivery agents incorporated in the initial stages.

Conclusion

The success of the intervention could probably be augmented by a more robust engagement with the ASHAs or supervisors of ASHAs to integrate them as mentors into the training and rollout of the social network. The engagement of these FLWs will also enable the scale up and sustainability of the intervention as well the expansion of scope to a more integrated basket of services. Since the use of sterilization requires one-time motivation whereas the motivation for the spacing methods requires sustained effort [27].

Our study is based on a small group and more such independent research work is needed to explore how these interventions can be generalised at the population level, beyond those directly engaged with the intervention. Women led self help groups are a potential community based platform that can be leveraged to be the agents of behaviour change among women unable to access health facilities or outreach services by building strong linkages between the frontline health workers and the communities.

Ethics Approval and Consent to Participate

Data for both baseline and endline surveys conducted by the Uttar Pradesh Technical Support Unit, ethical approval was obtained from the Institutional Review Board of Sigma, India.

Availability of Data and Material

Survey data is available on request.

Competing Interests

There are no competing interests.

Authors' Contributions

BF conceptualized the study and wrote the text of the paper. MTA led the analysis. PA, VN, SI, RP, and SSH read and provided the comments. All authors read and approved the final version of the manuscript.

Bibliography

1. Bongaarts John., *et al*. "Family planning programs for the 21st century: Rationale and design". New York: Population Council (2012).
2. Halli SS., *et al*. "Fertility and family planning in Uttar Pradesh, India: major progress and persistent gaps". *Reproductive Health* 16.1 (2019): 129.
3. Jain M., *et al*. "Understanding drivers of family planning in rural northern India: An integrated mixed-methods approach". *PLoS ONE* 16.1 (2021): e0243854.
4. Wulifan JK., *et al*. "A scoping review on determinants of unmet need for family planning among women of reproductive age in low and middle income countries". *BMC Women's Health* 16 (2016): 2.
5. Kokane Arun., *et al*. "Assessment of knowledge and practices related to contraception among antenatal cases attending ANC Clinic". *Indian Journal of Maternal and Child Health* 13.4 (2012).
6. Ewerling F., *et al*. "Demand for family planning satisfied with modern methods among sexually active women in low- and middle-income countries: who is lagging behind?" *Reproductive Health* 15.1 (2018): 42.
7. High-Impact Practices in Family Planning (HIPs). "Community health workers: bringing family planning services to where people live and work". Washington (DC): USAID (2015).

8. ASHA, Ministry of Health and Family Welfare (MoHFW) (2005).

9. Kumar V., *et al*. "Effect of community-based behaviour change management on neonatal mortality in Shivgarh, Uttar Pradesh, India: a cluster-randomised controlled trial". *Lancet (London, England)* 372.9644 (2008): 1151-1162.

10. Bang A., *et al*. "Comprehensive review of the evidence regarding the effectiveness of community-based primary health care in improving maternal, neonatal and child health: 8. summary and recommendations of the expert panel". *Journal of Global Health* 7.1 (2017): 010908.

11. Kumar A., *et al*. "Health workers' outreach and intention to use contraceptives among married women in India". *BMC Public Health* 20.1 (2020): 1041.

12. International Institute for Population Sciences (IIPS) and ICF. National Family Health Survey (NFHS-4), 2015-16: India. Mumbai: IIPS (2017).

13. International Institute for Population Sciences (IIPS) and ICF. National Family Health Survey (NFHS-5), India, 2019-21: Mizoram. Mumbai: IIPS (2021).

14. Storey D., *et al*. "Social and behavior change interventions landscaping study: a global review". Baltimore (MD): Johns Hopkins Bloomberg School of Public Health, Center for Communication Programs (2011).

15. High-Impact Practices in Family Planning (HIPs). "Community engagement: changing norms to improve sexual and reproductive health". Washington, DC: USAID (2016).

16. Cislaghi B., *et al*. "Changing social norms: the Importance of "organized diffusion" for scaling up community health promotion and women empowerment interventions". *Prevention Science* 20.6 (2019): 936-946.

17. Cislaghi B., *et al*. "Changing social norms: the Importance of "organized diffusion" for scaling up community health promotion and women empowerment interventions". *Prevention Science* 20.6 (2019): 936-946.

18. Makins A and Cameron S. "Post pregnancy contraception". *Best Practice and Research Clinical Obstetrics and Gynaecology* 66 (2020): 41-54.

19. Mainstreaming Healthy Timing and Spacing of Pregnancy: A Framework for Action.

20. Cooper CM., *et al*. "Findings from the use of a narrative story and leaflet to influence shifts along the behavior change continuum toward postpartum contraceptive uptake in Sylhet District, Bangladesh". *Patient Education and Counseling* 97.3 (2014): 376-382.

21. The potential of a community-led approach to change harmful gender norms in low- and middle-income countries Beniamino Cislaghi (2023).

22. Lazarus L., *et al*. "Understanding socio-sexual networks: critical consideration for HIVST intervention planning among men who have sex with men in Kenya". *BMC Public Health* 22.1 (2022): 559.

23. Division of Population Health, National Center for Chronic Disease Prevention and Health Promotion (2023).

24. Cooper CM., *et al*. "Findings from the use of a narrative story and leaflet to influence shifts along the behavior change continuum toward postpartum contraceptive uptake in Sylhet District, Bangladesh". *Patient Education and Counseling* 97.3 (2014): 376-382.

25. Kumar A., *et al*. "Health workers' outreach and intention to use contraceptives among married women in India". *BMC Public Health* 20.1 (2020): 1041.

26. High-Impact Practices in Family Planning (HIPs). "Community engagement: changing norms to improve sexual and reproductive health". Washington, DC: USAID (2016).

27. Prusty RK. "Use of contraceptives and unmet need for family planning among tribal women in India and selected hilly states". *Journal of Health, Population and Nutrition* 32.2 (2014): 342-355.

Volume 13 Issue 4 April 2024