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Original Research Article

Evaluation of a family planning campaign for young and low parity couples in two districts of India: a quasi-experimental study design

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ABSTRACT

Background: India, the most populous country in 2023, reduced its fertility rate to 2.0 through sustained family planning efforts. Despite this, unmet contraceptive needs among young couples remain high. The present study assessed a campaign's impact on enhancing family planning knowledge and self-efficacy among couples in Uttar Pradesh's Banda and Kaushambi districts.
Methods: A quasi-experimental, non-randomized, controlled study was conducted with pre-and post-test assessments in Banda and Kaushambi districts, covering young low-parity couples. Sampling involved the systematic random selection of couples from village lists and statistical analysis using the difference-in-difference approach with regression models. The intervention included role plays, SMS campaigns, leaflets, and pre-recorded audio to promote family planning and address contraceptive myths.
Results: There were 3067 adults in the intervention group and 3136 in the control group. The knowledge about early marriage and pregnancy increased more in the intervention group compared to the control, along with awareness of intrauterine devices and oral pills. Self-efficacy and attitudes toward family planning also significantly improved post-intervention in the intervention sites. All measures of overall knowledge, perceptions, and contraceptive use increased because of the targeted campaign.
Conclusions: The study concluded that comprehensive family planning interventions among couples have a substantial effect on increasing their knowledge and self-efficacy regarding contraceptives. The culture-specific modalities could debunk the myths and help contraceptive users lead to healthier reproductive health. More implementation and development of these inclusive strategies are needed to improve family planning practices, and that can lead to positive health outcomes for the community.

Keywords: Behavior change communication, Contraception, Family planning, Modern contraceptives

INTRODUCTION

India became the most populated country in the world in 2023, with a population of 1.42 billion, surpassing China.[1] India shares 17.7% of the world's population, with a current fertility rate of 2.0.[1] The decline in the fertility rate from 5.9 in 1950 to 2.0 in 2022 resulted from the country's continuous efforts, investment, and resource mobilization for family planning programs.[2] India was the first country in the world to launch any family planning program and has been pushing the agenda since then. Furthermore, India is committed to Family Planning 2030 goals to ensure access and availability of a range of contraceptives with the addition of new choices. Besides, there is a commitment to improving healthy timing and spacing of pregnancies through post-partum family planning, intensifying social behavior change communication (SBCC) for all age groups esp. young people, and engaging civil society organizations for awareness

generation and mobilizing the community for family planning.[3]

The use of contraceptives among young couples before the age of 25 is low despite high demand (high unmet need for contraceptives.[4] Nearly 13% of married women between 15-49 years of age have unmet needs, and of this 13%, 6% have an unmet need for spacing methods and 7% for limiting methods; however, this figure may be as high as 20% in states like Jharkhand, Bihar, and Uttar Pradesh. The research found that the unmet need for spacing is generally highest among women with one living child.[5]

Family planning interventions are undoubtedly cost-effective and a sustainable approach to development.[6] These programs may vary depending on the emphasis on strengthening the demand-side or supply-side actions. As no single formula works for all, a mix of both approaches has been advocated by most of the interventionists. The program should be culturally appropriate and sensitive to the needs of the clients.[3,6]

Studies emphasize the need to increase the age at first birth to more than 20 years for women and maintain a gap of 3 years between two pregnancies.[7] Women are under high pressure from parents or communities to bear children at the earliest soon after marriage. There are misbeliefs or myths regarding the use of contraceptives, as it might cause infertility.[8]

We have evidence of various community-level interventions that aim to promote family planning. These programs have positively influenced couples' family planning knowledge, attitudes, and intentions; however, the influence on the use of contraceptives was still low. Interventions like street theatre performances, wall paintings across health facilities or in the communities, local area-based cultural programs, such as puppet shows, folk dances, and distribution of counselling guide booklet using visual/audio aids; using comic books, home-to-home visits for counselling of women, one-to-one discussions and meetings with different stakeholders like husbands, mothers-in-law, and community gatekeepers, distribution of leaflets or pamphlets and posters, and use of mass-media, use of magazines, newspaper advertisements, radio, or television (advertisements), and conditional cash transfer programs have been used to nudge behaviour change.[4,9-11]

Considering the need, we did a campaign to enhance the knowledge and change perceptions and self-efficacy of young and low-parity couples (YLPC) about family planning and its methods in the two districts, namely Banda and Kaushambi, in the state of Uttar Pradesh. The objective of the present study was to assess the effectiveness of the intervention package in improving the knowledge, changing perceptions and self-efficacy of young couples in family planning.

METHODS

Study design

We conducted a quasi-experimental, non-randomized, controlled study with pre-and post-test assessments. The pre-test was done before the beginning of any activity in the intervention areas, and the post-test was done after all the activities were over.

Study area

The study was conducted in the year 2020 across the two districts of Uttar Pradesh, Kaushambi and Banda. In Kaushambi, Manjhanpur and Chail were the intervention blocks, while Sirathu and Kada served as the control blocks. Similarly, in Banda district, Tindwari and Badhokar Khurd were the intervention blocks, with Narayani and Bisanda serving as the control blocks.

Sampling

The campaign and study were conducted in two districts, namely, Banda and Kaushambi. Two blocks in each district were selected. Geography was also considered while selecting villages to cover the major boundaries of the block and not take the entire sample from concentrated zones. The total sample size was distributed across villages proportional to the couples' population. In each village, YLPC was selected from the list available with the field staff/frontline workers. From the list, the first couple was selected randomly, followed by the subsequent use of systematic random sampling. The 'kth' was obtained by dividing the total number of YLPC in each village by the required sample to study. Hence, after selecting the first YLPC, the subsequent 'kth' YLPC was selected until the required sample size was obtained. In case the identified household was found locked or the couple refused to grant approval, a subsequent number in the list was interviewed. A roughly equal number of YLPCs were selected per village.

Blocks adjacent to the intervention areas were selected as the control areas. YLPC in the control areas were selected based on the list provided by frontline workers. So, similar sampling was done for the control areas.

Inclusion criteria

YLPC between 15-24 years of age with one or no child, living in the area for the past 12 months, and women currently not pregnant or lactating were included.

Exclusion criteria

Those who did not provide consent for the survey, had more than 1 child, or migrated from the area were excluded.

Ethical clearance for the study was obtained from the MAMTA Ethical Review Board. The same questionnaire was administered to husband and wife separately.

Sample size

We used the following formula to calculate the sample size.

n= ([Zcrit $\sqrt{2p3}(1-p3)$ + Zpwr $\sqrt{p1(1-p1)}$ + p2(1-p2)]^2)/D^2

Where, n = required sample size, P1= pre-study estimate of the knowledge of contraceptive methods (calculated from the previous study)[12], P2= post-study estimate of the knowledge of contraceptive methods (assumption)

P3= (P1+P2)/2

D= P1-P2

t = confidence level at 95% (standard value of 1.96)

Zcrit = 1.96; standard normal deviate corresponding to 95% significant criteria

Zpwr = 0.842; standard normal deviate corresponding to 80% statistical power

P1=44% (*Banda*) and 49% (*Kaushambi*) and P2 =54% (*Banda*) and 59% (*Kaushambi)*

Therefore, the minimum sample size for Banda was 395 and Kaushambi was 397.

Study instrument

The study questionnaire consists of questions related to a) Socio-demographic indicators: age, gender, caste, education, age at marriage, monthly family income and history of abortions, b) Awareness of family planning methods, age at marriage, and pregnancy age, c) Attitude and self-efficacy to use contraceptives (pre-tested), d) Practices of family planning methods.

We had seven questions to assess the comprehensive knowledge about age at marriage and pregnancy age. These included the legal age of marriage of boys and girls in India, any advantage in marrying boys and girls late, the gap between marriage and first pregnancy, the gap between the first and second pregnancies, and any advantage in delaying the birth of the first child after marriage. The correct responses were scored as 1 and incorrect as 0. The scores of all seven questions were added, such that the maximum score could be 7 and the minimum score could be 0. The reliability alpha coefficient of all the seven questions, together put as a scale, was 0.54.

We employed a 17-item-based Likert scale for assessing attitude and self-efficacy to use contraceptives. The scale was adapted from a previous study and contextualized based on our study conditions.[13] The responses of the items varied from 1 (not at all confident) to 5 (fully confident). The responses to all 17 items were summed to calculate the total score, such that the maximum score was 85 and the minimum score was 17. The reliability alpha coefficient of all 17 items was 0.96.

Statistical analysis

We merged the data of both the intervention areas and control areas. Numerical data were expressed by mean and standard deviation, and the difference between the means was tested by two-way ANOVA, while categorical data were expressed by the percentages, and the difference between the proportions was tested by the chi-square test. We employed difference-in-difference (DID) analysis to estimate the causal effect of the intervention. For the categorical outcomes, we performed logit (logistic regression), and the outcome was expressed as Odds Ratio (95% confidence interval; CI), for the continuous outcome, we performed linear regression, and the results were expressed as Beta coefficient (95% CI). The significance at $p<0.05$ was used in the tests of significance and regression models. All the analyses were done using STATA version 16.0.

Intervention

The intervention package included nukkad-nataks (role plays). The script of the plays captured information about the contraceptives young couples can use. The script tried to address some of the myths and misconceptions prevalent in the community related to adopting family planning methods. At the end of the roleplays, 5 questions were asked from the audience, and the winners were awarded a resource kit (locally caked shagun kit). We sent SMS to the young couples. These were eight different short messages (75 words) highlighting the need to use contraceptives and a small family. It included 4 key messages that focused on the promotion of the adoption of family planning methods, along with delayed marriage of girls. The intervention was carried out in the villages where MAMTA has been working on family planning.

Besides, pamphlets/leaflets were distributed to participants who attended nukkad nataks. The leaflets had information about the need to delay early marriage and promote girls' education and family planning methods. A pre-recorded audio of 11 minutes discussing family planning methods, the gap between two successive pregnancies, the legal age of marriage, and the delay in the first child by celebrities was played across the intervention areas.

RESULTS

There were 3067 adults in the intervention group and 3136 in the control group (Table 1). The mean (standard

deviation; SD) age of the adults in both intervention and control groups and at pre or post-tests was 23 (2.6) years. The median (Interquartile Range; IQR) no of children a woman had was 1 (1-1). Only 19 women had undergone medical abortion. There was a higher increase in the intervention areas about the awareness of early marriage, contraceptive methods, and the use of contraceptives compared to the control areas (Table 2).

Table 1: Distribution of socio-demographic characteristics between the intervention and control groups.

Variables	Intervention group (n=3067)		Control group (n=3136)	
	Pre-test (n=1550) N (%)	Post-test (n=1517) N (%)	Pre-test (n=1584) N (%)	Post-test (n=1552) N (%)
Mean age (±SD) years	23.5 (±2.6)	23.6 (±2.6)	23.4 (±2.7)	23.4 (±2.6)
Missing	1	0	0	0
Gender				
Males	776 (50.1)	759 (50.1)	792 (50.0)	776 (50.0)
Females	774 (49.9)	758 (49.9)	792 (50.0)	776 (50.0)
Education status (years of schooling)				
Illiterate	155 (10.0)	137 (9.0)	114 (7.2)	107 (6.9)
Primary	172 (11.1)	181 (12.0)	190 (12.0)	191 (12.3)
Upper primary	327 (21.1)	326 (21.5)	378 (23.9)	366 (23.6)
Secondary	307 (19.8)	299 (19.7)	339 (21.4)	325 (21.0)
Higher secondary	242 (15.6)	235 (15.5)	245 (15.5)	249 (16.0)
Graduation and above	347 (22.4)	339 (22.6)	317 (20.1)	310 (20.0)
Missing	0	0	1	4
Caste				
SC	447 (28.9)	553 (36.4)	474 (29.9)	462 (29.7)
ST	121 (7.8)	17 (1.1)	13 (0.8)	11 (0.7)
OBC	726 (46.8)	692 (45.6)	869 (54.9)	850 (54.7)
General	241 (15.5)	241 (15.9)	217 (13.7)	219 (14.1)
Don't know	2 (0.1)	14 (0.9)	10 (0.6)	10 (0.6)
Missing	13	0	1	
Years of cohabitation	2 (2-3)	2 (2-3)	3 (1-4)	3 (1-4)
Missing	16	4	60	38
Monthly family income (Rs.)	5000 (2000-7000)	4000 (2000-6000)	5000 (4000-6000)	4000 (3000-6000)
Missing	10	0	0	0
Had spontaneous abortions				
Yes	125 (8.0)	77 (5.08)	47 (2.97)	44 (2.8)
No	1423 (91.8)	1440 (94.92)	1536 (96.9)	1508 (97.16)
Can't tell	1 (0.06)	0	1 (0.06)	0
Missing	1	0	0	0

Abbreviations: OBC: Other Backward Class; SC: Scheduled Caste; ST: Scheduled Tribe; SD: Standard Deviation

Table 2: Pre-post comparison of the intervention indicators between the intervention and control groups.

Variables	Intervention group (n=3067)		Control group (n=3136)		p-value*	p-value#
	Pre-test (n=1550) N (%)	Post-test (n=1517) N (%)	Pre-test (n=1584) N (%)	Post-test (n=1552) N (%)		
Knowledge score about early marriage and pregnancy; mean (SD)	5.6 (1.3)	6.4 (0.8)	6.0 (1.0)	6.3 (0.8)	<0.001	0.001
Heard about the contraceptives						
Yes	1511 (97.5)	1516 (99.9)	1523 (96.1)	1541 (99.3)		
No	37 (2.4)	1 (0.1)	61 (3.9)	10 (0.6)	<0.001	0.002
Missing	2 (0.1)	0	0	1 (0.1)		
Types of modern contraceptives heard						
IUCD (yes)	582 (37.5)	1023 (67.4)	299 (18.9)	491 (31.6)	<0.001	<0.001
Oral pill (yes)	1084 (69.9)	1357 (89.5)	860 (54.3)	1376 (88.6)	<0.001	<0.001

Continued.

Variables	Intervention group (n=3067)		Control group (n=3136)		p-value*	p-value#
	Pre-test (n=1550) N (%)	Post-test (n=1517) N (%)	Pre-test (n=1584) N (%)	Post-test (n=1552) N (%)		
Injectables (yes)	840 (54.2)	1250 (82.4)	518 (32.7)	971 (62.5)	<0.001	<0.001
Emergency pills (yes)	8 (0.5)	157 (10.3)	13 (0.8)	18 (1.1)	<0.001	<0.001
Used any contraceptive ever						
Yes	990 (64.0)	1135 (74.8)	776 (48.9)	1003 (64.6)	<0.001	<0.001
No	555 (36.0)	382 (25.2)	808 (51.1)	548 (35.3)		
Missing	5	0	0	0		
Type of contraceptive used						
IUCD (yes)	30 (1.93)	30 (1.97)	75 (4.7)	86 (5.5)	0.3	<0.001
Oral pill (yes)	117 (7.5)	314 (20.7)	117 (7.4)	147 (9.5)	<0.001	<0.001
Injectables (yes)	41 (2.6)	84 (5.5)	21 (1.3)	90 (5.8)	<0.001	0.27
Use of contraceptives in the future						
Yes, will start	205 (13.2)	192 (12.6)	56 (3.5)	67 (4.3)	<0.001	0.98
Yes, will continue	806 (51.8)	867 (57.1)	666 (42.0)	883 (56.9)		
No, will not use	112 (7.2)	5 (0.3)	67 (4.2)	6 (0.4)		
Don't know	422 (27.2)	453 (29.9)	795 (50.2)	596 (38.4)		
Responsibility for family planning						
Husband	34 (2.2)	30 (1.98)	47 (2.96)	47 (3.02)	0.35	<0.001
Wife	64 (4.1)	62 (4.1)	114 (7.2)	110 (7.1)		
Both	1436 (92.6)	1418 (93.5)	1414 (89.3)	1389 (89.5)		
Third person	8 (0.5)	7 (0.5)	9 (0.6)	6 (0.4)		
Don't know	4 (0.3)	0	0	0		
Attitude and self-efficacy score mean (SD)	52.0 (16.8)	72.9 (7.4)	53.2 (17.0)	61.4(14.6)	<0.001	<0.001

Abbreviations: IUCD: Intrauterine Copper T Device; SD: Standard Deviation
A p-value <0.05 was considered statistically significant and highlighted in bold.
*p-value belongs to the difference between pre-and post-test
#p-value belongs to the difference between intervention and control areas

Table 3: Difference-in-difference analysis to estimate the causal effect of the intervention on the outcomes.

Outcomes	Pre-test[¥] (OR (95%CI); p-value	Intervention area[#] (OR (95%CI); p-value	Interaction between pre-test and intervention area (OR (95%CI); p-value
Knowledge score about early marriage and pregnancy[ǂ]	-0.28 (-0.36, -0.21); <0.001	0.09 (0.01, 0.16); 0.01	-0.46 (-0.57, -0.35); <0.001
Heard about IUCD			
Yes	-0.68 (-0.85, -0.52); <0.001	1.49 (1.34, 1.65); <0.001	-0.55 (-0.77, -0.32); <0.001
No	Reference	Reference	Reference
Heard about oral pills			
Yes	-1.88 (-2.07, -1.69) ;<0.001	0.08 (-0.14, 0.30); 0.48	0.59 (0.32, 0.86); <0.001
No	Reference	Reference	Reference
Heard about injectables			
Yes	-1.23 (-1.38, -1.08); <0.001	1.03 (0.86, 1.19); <0.001	-0.14 (-0.36, 0.08); 0.21
No	Reference	Reference	Reference
Heard about emergency pills			
Yes	-0.35 (-1.06, 0.36); 0.34	2.28 (1.79, 2.78); <0.001	-2.75 (-3.76, -1.74); <0.001
No	Reference	Reference	Reference
Used any family planning method			
Yes	-0.64 (-0.78, -0.50); <0.001	0.48 (0.33, 0.64); <0.001	0.13 (0.34, -0.07); 0.21
No	Reference	Reference	Reference
Used IUCD			
Yes	-0.16 (-0.48, 0.15); 0.30	-1.06 (-1.49, -0.64); <0.001	0.14 (-0.45, 0. 74); 0.64

Continued.

Outcomes	Pre-test[¥] (OR (95%CI); p-value	Intervention area[#] (OR (95%CI); p-value	Interaction between pre-test and intervention area (OR (95%CI); p-value
No	Reference	Reference	Reference
Used oral pills			
Yes	-0.27 (-0.52, -0.02); 0.03	0.91 (0.70, 1.12); <0.001	-0.89 (-1.23, -0.55); <0.001
No	Reference	Reference	Reference
Used injectable			
Yes	-1.52 (-2.0, -1.04); <0.001	-0.04 (-0.35, 0.25); 0.75	0.75 (0.14, 1.36); 0.01
No	Reference	Reference	Reference
Attitude and self-efficacy score[ǂ]	-8.2 (-9.2, -7.1); <0.001	11.5 (10.5, 12.5); <0.001	-12.7 (-14.1, -11.2); <0.001

Abbreviations: CI: Confidence Interval; IUCD: Intrauterine Copper T Device; OR: Odds Ratio
¥: Post-test is the reference category; #: Control area is the reference category; ǂ: The result is expressed as beta coefficient with 95% CI
p-values <0.05 were highlighted in bold

Adults had lower odds of awareness about contraceptives like intrauterine contraceptive device (IUCD), oral pills, and injectables (Table 3) at the pre-test compared to the post-test. Similarly, adults had higher odds of not using a family planning method at the pre-test compared to the post-test. Adults in the intervention areas had higher odds of awareness about contraceptives and using family planning methods. There was a significant increase in the attitude and self-efficacy among adults in the intervention areas compared to the control areas. In the DID analysis, we found that awareness about contraceptives and attitude and self-efficacy was significantly higher in the post-test in the intervention area compared to the pre-test and in the control areas.

DISCUSSION

Most family-planning interventions, which included mass media and community-based approaches, have likely been successful in increasing awareness and knowledge of family planning among populations. These top-down efforts increased the local acceptance of modern methods of contraception through mass media behaviour-change campaigns that countered myths about contraception. Mass media campaigns supported by local dignitaries were among the most successful strategies and contributed to a rapid change in social norms and the uptake of modern contraceptive methods.[11]

The objective of this study was to examine the effectiveness of a focused family planning campaign on knowledge, perceptions, and self-efficacy among young (15-24 years) low parity (one or no child) couples in two districts of Uttar Pradesh, India. The intervention used role-plays (nukkad nataks), SMS campaigns, pamphlets, and audio recordings as tools to deliver key messages on reproductive health issues. Our results showed significant improvements in various domains among the intervention group. Our study revealed that the absolute level increase from pre-test to post-test in the knowledge of early marriage and pregnancy for the intervention group was higher than the control group. The rates of self-efficacy in family planning among couples were significantly higher in the post-intervention period across intervention areas compared to pre-intervention across control areas (72.9%) in the present study. An improvement in knowledge regarding contraceptive methods, especially IUCDs and oral contraceptive pills, was also observed in our study.

A study on early marriage in parts of India (UNICEF, 2019) highlighted the high prevalence rates, especially in Uttar Pradesh, and stressed the urgent need for community awareness strategies to address this growing issue.[14] The findings of our study are promising, showing a significant improvement in knowledge about early marriage. Our study also identified key factors that contributed to the increase in knowledge, like exposure to interpersonal counselling sessions, radio communications, street plays (nukkad natak), and the number of education materials distributed. These findings align with those of another study conducted on adolescent girls aged 10-19 years in Nanchiyampalayam, Dharapuram.[15] This study used information, education, and counselling (IEC) strategies like poster and interpersonal communication, which led to significant improvements in awareness, particularly among the treated group. Both studies demonstrated substantial changes in participant's knowledge following the interventions, reinforcing that targeted educational approaches can effectively address early marriage.[14,15]

A similar study from Vijayapur District, Karnataka assessed the effect of psychodrama-based learning on knowledge regarding early marriage among adolescent girls and their parents.[16] There was a noticeable improvement in the knowledge of those who received treatment from “not good” to “good,” whereas changes were far more modest among controls, hence indicating the effectiveness of targeted education programs in increasing awareness around early marriage.

Another research study, entitled “Promoting Healthy Timing and Spacing of Births in India through a Community-based Approach,” which was done in a village in Meerut, Uttar Pradesh.[10] This research aimed at generating awareness about contraceptives by educating pregnant women, their husbands, and mothers-in-law. They used wall paintings, informational materials, and

leaflets and trained local health workers such as ASHAs, AWWs, and ANMs. The findings indicated a rise in knowledge, particularly on intrauterine devices (IUCDs), following the intervention. Women around the place became more informed on how to insert IUCDs and take oral contraceptive pills.[10] These findings are congruent with our results, thus illustrating the success of behaviour change communication approaches toward improving comprehension knowledge among adults about contraceptive methods.

Furthermore, a study was carried out in the districts of Nalanda, Nawada, and Patna in Bihar under the PRACHAR project.[4] The main goal of this program was to help young couples improve their family planning practices through various ways, such as street dramas among others. It focused on critical reproductive health concerns with male and female change agents reaching out to young married couples and their families. These interventions encouraged delayed first births, healthy birth spacing as well as the use of contraceptives, including IUCDs, pills, and condoms. As a result, 40% of the demand for contraception by young married women rose significantly compared to the baseline, which is also consistent with our study that showed improved knowledge about family planning issues and utilization of family planning methods.[4]

To enhance knowledge about contraceptives, a comprehensive family planning study was done in Nigeria using a behavioural change communication strategy. The mean scores rose from 3.1 to 3.6 ($p<0.001$).[17] However, the Nigerian survey focused only on women of reproductive age, and we included young married couples (both males and females).[17] Actively engaging men and women in family planning programs has been suggested as a critical strategy in previous studies. Though our intervention found a decrease in the use of IUCD; however, the same can be explained by the shift to other options like oral pills as the total use of the contraceptives has increased in the intervention area post intervention.

The present study results should be considered in lieu of the following limitations. Firstly, it was done in the selected blocks of the two districts of Uttar Pradesh, thereby limiting the generalizability of the results. We did not perform the contribution analysis of each set of intervention due to lack of resources and time, which could have provided additional information. However, quasi-experimental study design, large sample size, and DID analysis are the strengths of our study. Our study is one of the limited studies that have evaluated the effectiveness of the awareness campaigns by assessing improvement in self-efficacy using a DID approach.

CONCLUSION

The present study signifies the importance of comprehensive behaviour change intervention in improving the knowledge and self-efficacy related to family planning methods among young couples. The campaign involved nukkad natak (role plays), SMSs, pamphlets, and audio messages that helped in debunking myths and misconceptions about contraceptives as well as promoting delayed marriages and smaller family sizes. This systematic approach successfully convinced the young couples in the intervention zones adopt the family planning methods.

Consistently implementing and refining these programs over time will be crucial for advancing family planning efforts, ultimately leading to improved health outcomes across communities. Engaging men and other key stakeholders are indeed crucial in a behavior change strategy of family planning.

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