Accelerating Contraceptive Uptake And Continuation Through A Post-Abortion-Care Model In India: A Randomized Control Experiment

Background

Globally, as per most recent estimates, roughly 121 million unintended pregnancies occurred each year between 2015 and 2019, of these, 61% ended in abortion which translates to 73 million abortions per year (Bearak et al., 2020). Of these 73 million abortions, India accounted for nearly 22% (approx. 15.6 million) Singh et al, 2018). Around 82% of these 15.6 million induced abortions are conducted through medical abortion (MA) drugs, specifically a combination of Mifepristone and Misoprostol, with a substantial 88% of these being self-managed (Singh et al., 2018). India has experienced significant growth in the availability of MA since 2005 (Melissa et al., 2014) and this expanded availability has empowered women to self-administer these drugs for medical abortion, representing a significant shift from the use of less safe methods to a safer method due to ease of use and the acknowledged safety and efficacy of combination drugs of Mifepristone and Misoprostol in inducing abortion (Ganatra et al., 2017; World Health Organization, 2019).

The unmet need for contraception remains a critical factor contributing to unintended pregnancies and induced abortions (; Zhu et al., 2009). Thus, following an abortion, whether self-managed or not, women require access to post-abortion contraception to prevent future unintended pregnancies. Studies emphasize the urgency of promptly intervening and offering contraceptive information and services in the post-abortion period, acknowledging potential challenges within healthcare facilities where providers may not fully consider the preferences and needs of women and girls (Bansal et al., 2023; Banerjee et al., 2015; Kalyanwala et al., 2012). In the case of self-managed MA (SMA), the situation is even more complicated because of the lack of health system touchpoints for such women, thus creating a gap in understanding the reasons for lower contraceptive adoption among this group.

The Gates Foundation has invested in an intervention program spanning India, Pakistan, and Kenya, aiming to expedite the adoption of post-medical abortion contraception (PMAC) and promote sustained contraceptive use after SMA, specifically targeting women who procure these drugs from private pharmacists. The primary hypothesis under examination is whether the intervention effectively increases PMAC uptake and ensures continued use of modern contraception among women who undergo SMA (please see program description below).

This paper presents the findings of the evaluation carried out in India to understand the effects of the above intervention on the adoption and continuation of modern contraceptive methods.

Post-abortion contraceptive use landscape in India

Recognized on a global scale, post-abortion interventions providing information and access to contraceptive methods play a crucial role in preventing unwanted pregnancies and promoting contraceptive adoption (Mbehero et al., 2022; HIP-USAID,

2019; Kumar et al., 2019; Bansal et al., 2023; World Health Organization, 2018). Studies conducted in India reveal that women who receive formal abortion services are more likely to adopt modern contraceptive methods compared to those who underwent SMA (Banerjee et al, 2015; Bansal et al., 2023). The landscape of post-abortion contraceptive choices for women in India is complex, lacking a specific program focused on post-abortion family planning (FP), counseling and support for those who have undergone induced abortion through SMA, unless they present themselves to a clinic. Given the prevalence of medical abortion without health system touchpoints in India, addressing the post-abortion contraceptive needs of women becomes critical, particularly when post-abortion contraceptive use for any woman is low (International Institute for Population Sciences (IIPS) and ICF, 2020; Zavier et al., 2012; Gaur et al., 2022). Global evidence showed that the provision of information and contraceptive services postabortion increases women's contraceptive acceptance and intention to use a modern method after discharge from a health facility (Tong et al, 2023; Kayi et al, 2021; McDougall et al. 2009). In India, as well, women receiving induced abortion services in clinics are four times more likely to receive a modern contraceptive method and five times more likely to receive a long-acting reversible contraceptive (LARC) method compared to their counterparts who receive treatment and care following SMA, however, this component of care is often neglected (Banerjee et al 2015). Moreover, nearly three-fourths of women who presented themselves with abortion-related complications received no postabortion contraceptive counseling, or choice of contraception across the public, private, and informal sector providers of abortion services (Banerjee et al, 2012).

Objectives of the evaluation and this paper

This evaluation, carried out in two districts of Uttar Pradesh, India, focuses on scrutinizing the adoption timeline and assessing the intervention's effectiveness in enhancing PMAC uptake within specific intervals—1, 6, and 12 months after SMA with drugs purchased from pharmacies. Furthermore, it evaluates the program's efficacy in sustaining the continued use of the chosen modern contraceptive method over an extended period compared to individuals without intervention. This paper presents the findings of the evaluation.

Study setting

Agra and Lucknow districts in the state of Uttar Pradesh (UP) were selected for intervention and its evaluation in India (Figure 1). In Uttar Pradesh, the prevalence of modern contraceptive methods remained historically low (the modern contraceptive prevalence rate([mCPR) was significantly lower, at 45%, than the national prevalence of 57% in 2019-21). The use of modern spacing (28%) methods in UP was higher than the national average (18%) —with IUCD at two per cent, use of pills at four per cent, and condoms at 19%. With a moderately high unmet need for family planning of 13%, UP has a total fertility rate (TFR) of 2.4. Of the estimated 15.6 million pregnancies terminated in India each year, nearly 21% (3.2 million) occur in UP (Singh et al. 2018).

Figure 1. Study area

The intervention

The intervention program aimed to develop scalable and effective solutions for increasing the uptake and continuation of contraception after SMA with drugs obtained directly from pharmacies. Based on insights from formative research hinged on the principles of User-Centric Design (UCD) integrating community, women and men, health service providers, pharmacists, community health workers, and experts in sexual and reproductive health (SRH) a pilot evidence-based solution emerged. It passed rigorous testing and feasibility assessments and showed the most promise for pilot testing. This included the pivotal involvement of pharmacists as primary touchpoints for MA kit buyers, and a toll-free helpline—*Saksham* - staffed with both counselors and medical doctors for clinical counseling, support, referrals, and follow-up. Community intermediaries were also used to play a crucial role in providing counseling at home, and both private and public health facilities were engaged for referrals, ensuring the adoption of modern contraceptive methods post SMA. The intervention employed a range of communication methods, including phone calls, messages, Interactive Voice Response System (IVRS), and the helpline remained engaged through regular check-in calls, reminders, and sharing resources through messaging platforms for up to four months after the first inbound call to the helpline. A more detailed program description is available in the Saksham program brief (IDF, 2023).

Data and Methods

Evaluation design and sample recruitment

The evaluation employed a two-armed, single-blinded, randomized controlled trial to assess the impact of the intervention provided to women/girls who contacted the designated *Saksham* helpline for information on abortion-related issues and contraception. Inbound callers were randomly assigned to 'intervention' or 'control' groups after obtaining their consent to participate in the study. All callers received a set of standard information and support when they called the helpline. In contrast, callers

randomized to the intervention group received the modeled intervention, including follow-up calls by the helpline. Married women aged 15-49 years and unmarried girls aged 18 or above who had undergone SMA and consented to participate in the study were included. The study was conducted between October 2021 and May 2023. The intervention centred around telephone calls made by women or their partners to the *Saksham* helpline specifically designated for the intervention, the helpline numbers were available in a pamphlet they received at the time of purchasing the drugs from a pharmacist's shop.

To assess intervention effects, follow-up surveys were conducted with recruited women participants who had called the helpline within the first month after purchasing the drugs, initially within one month after the abortion medication was consumed, and subsequently at six- and 12-months following abortion.

The research protocol received approval from the Population Council's Institutional Review Board (IRB) specifically for data collection activities related to the evaluation of the PMAC intervention program.

Study instruments

The study adopted structured questionnaires to conduct interviews with women at each follow-up round. These questionnaires were informed by a substantial body of research conducted by the Population Council and partner Ipas Development Foundation on topics such as abortion, post-abortion care (PAC), postpartum contraception, family planning practices, social norms, agency, and other relevant areas. It is important to note that many of these questions and instruments were previously tested in the Indian context.

Sample size and follow-up rate

Figure 2 describes the recruitment of women in the quantitative follow-up study, response and follow-up rates over time. Of 4,891 women who had called the helpline during the recruitment period, about half (53%) - 2,608 - were randomly approached to participate in the evaluation—1,330 were randomly assigned to the control arm while 1,278 were assigned to the intervention arm. Of 1,141 women who consented for the interview, 896 were successfully interviewed within the first month after the recruitment. The follow-up at six months was completed with 778 women (follow-up rate—87%), and at 12 months with 755 women (follow-up rate—84%). Five respondents were dropped from the final analysis due to a mismatch of the identification codes resulting in an analytical sample of 7490 (397 in the control arm and 352 in the intervention arm).

Analytical methods

Our analytical approach utilizes the longitudinal RCT design and uses multiple analytical methods - bivariate analysis, including means, standard deviations and t-tests, multivariate generalized linear models, and lifetables. The study collected weekly

contraceptive calendar data for each respondent to elicit information on pregnancy/abortion/birth outcomes and contraceptive use spanning over 12-month periods between the first and third interviews. The calendar data were utilized for understanding contraceptive continuation/discontinuation and for multivariate generalized linear regression models. Recognizing the fact that program intensity may be different for different participants and might affect women's adoption and continuation of post-abortion contraceptive methods, we also conducted a dose-response analysis based on each respondent's number of contacts with the intervention suite (calls – both inbound and outbound and contacts with doctors or community health workers).

Findings

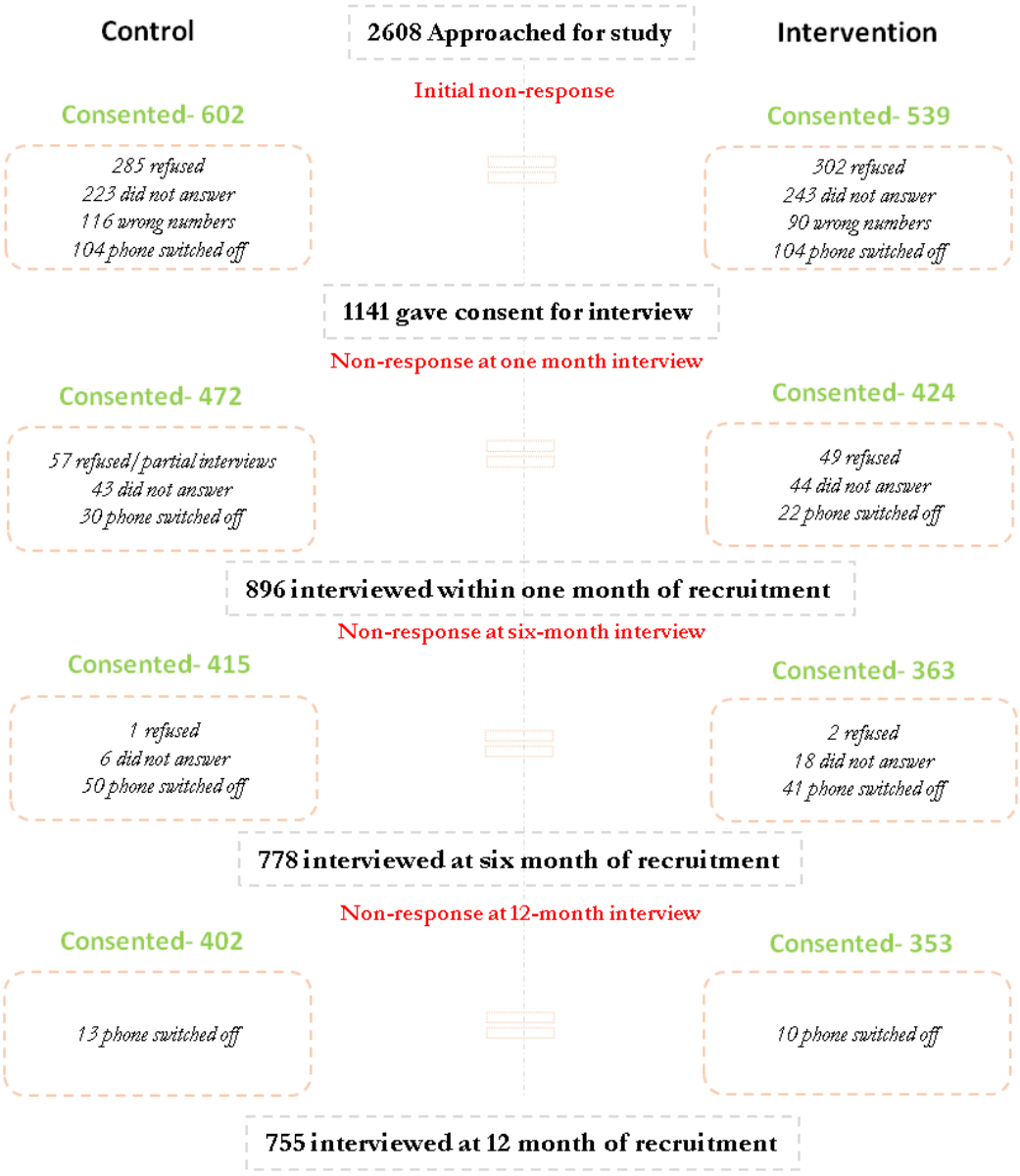
Respondents' profile

We first present the profile of the respondents including their contraceptive use profile before undergoing medical abortion.

Table 1 outlines the socio-demographic profile of women at baseline. The mean age of respondents was 28 years, with husbands' age averaging 31 years. Most respondents had passed middle school education, and their husbands completed secondary education. A significant proportion of respondents belonged to the "Other Backward Classes" (OBC) social group (42%), followed by the non-Scheduled Tribe(ST)/Scheduled Castes(SC)/OBC social group (31%). About 90 per cent of the respondents identified themselves with the Hindu religion. The majority of respondents (82 per cent) had a bank account in their name, and they also reported that they operated those accounts on their own. Most of the respondents were not working in the 12 months preceding the first interview (83%). The mean age at marriage was 19 years, and in their average of 9 years of married life, respondents had experienced, on average, 4 pregnancies and had two living children. Overall, women's characteristics were similar across study arms reflecting that the RCT design is well-balanced.

About two-thirds (63%) of respondents had experienced abortion once in their lifetime, a quarter experienced two abortions, and about 12% reported that they had experienced three or more lifetime abortions (Table 2). Within six months prior to the abortion, forty-three percent of respondents used a modern contraceptive method, of which most reported using male condoms (37%), followed by, weekly pills or daily pills (4 %), and IUCD/PPIUCD/ Copper-T (1%). As high as 31% respondents reported that they were using traditional contraceptive methods such as rhythm (23%) and withdrawal methods (8%) during the six-month period before the abortion and about one-quarter (26%) had not used any method during this time. Nearly all women (95%) confirmed their pregnancy using pregnancy test kits. The average gestation at the time of confirmation of pregnancy was 5.2 weeks, and that at the time of termination was 5.5 weeks, implying that termination happened almost immediately after identification. Almost all women terminated their pregnancy within 9 weeks (99%) (Table 2).

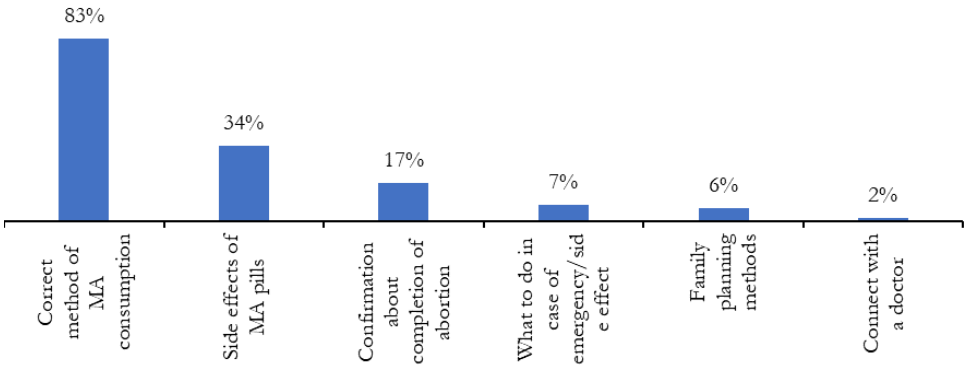
Figure 2. Flowchart of participants in PMAC intervention



Exposure to Intervention

In their initial contact with the Saksham helpline (first inbound call/registration call), women primarily sought guidance on the correct consumption of MA pills (83%). Discussions also included queries about the side effects of MA pills (34%) and confirmation of the completion of abortion (17%). Only a small percentage of women (6%) reported discussing family planning during the first call (Figure 3).

Figure 3. The percentage of all women who participated in the study reported the contents of the 1st inbound call (registration call) made by them to *Saksham* helpline.



Follow-up interaction within the first month of abortion

Respondents reported an average of four interactions with the Saksham helpline that took place within the first month after taking abortion pills. The findings highlighted in Figure 4 suggested key topics on which women's interactions with the Saksham helpline centred in three inbound or outbound calls after the first registration call, emphasizing a clear shift from focusing on MA-related concerns in inbound calls to a predominant focus on family planning during follow-up interactions in outbound calls, within the first-month post-abortion. During the inbound (made by women) calls after the first registration call, the majority focused on the correct consumption of MA pills (80%), followed by discussions on side effects (39%) of MA, completion of the abortion (25%), and a lesser percentage on family planning (15%). While during the outbound calls (made by the *Saksham* helpline counselor), the primary focus shifted to family planning discussions (90%), while a relatively smaller percentage addressed MA-related topics (17%-29%).

Effects of intervention on post-abortion contraceptive uptake

a. Post-abortion adoption of modern methods

A comparison between the proportion of respondents from the intervention and control groups adopting a modern method post-abortion at 1st, 6th and 12th months is presented in Figure 5. To show the similarity between the proportion of respondents who used a modern method within the six months prior to abortion, we also present relevant data in Figure 5. Post-abortion modern contraceptive adoption was higher among the intervention group compared to the control group at each follow-up round. Moreover, the differences were statistically significant at the 6th and 12th month. At each point of follow-up, condom was the most adopted method among both intervention (34%, 60%, and 61% at 1st, 6th, and 12th month, respectively) and control groups (32%, 52% and 56% at 1st, 6th and 12th month, respectively), followed by oral pills (Table 3).

Figure 4. The percentage of women who participated in the intervention reported interaction with *Saksham* helpline and the contents of the interactions in subsequent (after first call) three inbound and outbound calls.

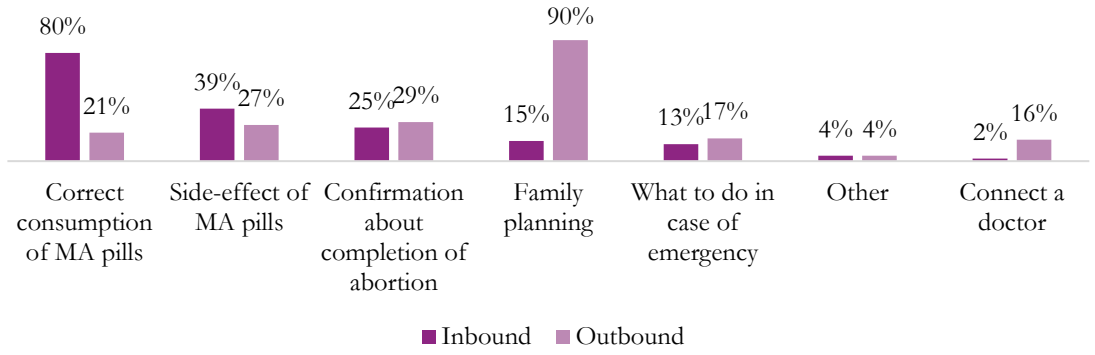
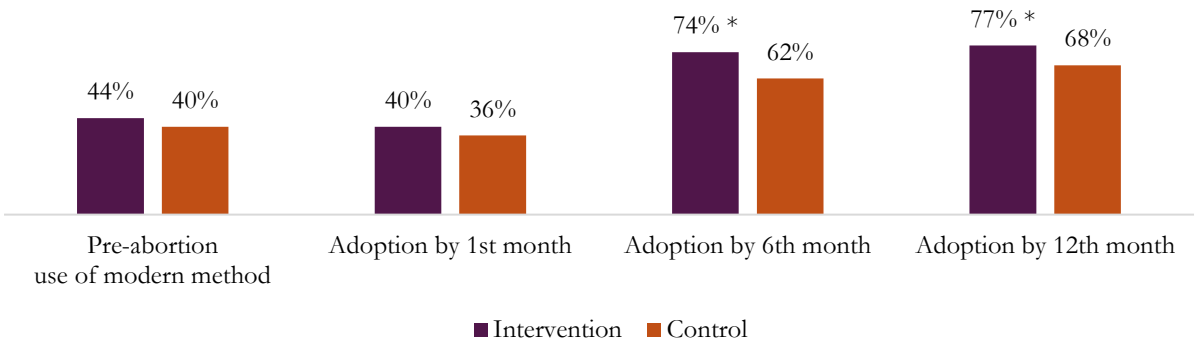


Figure 5 Percentage of women reported adopting a modern method by intervention and control groups at different times during the observation period.



Note: * p<0.05

The contraceptive method mix within the first month after abortion was similar for both intervention and control groups. In the first month, almost 51-56% of women did not adopt any method while 40% of women from the intervention and 36% from the control group adopted a modern method, primarily condoms (34% and 32% for intervention and control groups, respectively).

To handle potential correlations between repeated responses to the same questions by the same individuals in follow-up interviews, we employed generalized estimating equation (GEE) models which are designed to handle such correlated data. GEE models were applied to examine the effect of intervention accounting for time and other socio-demographic covariates, and the results remained consistent with bi-variate analysis, particularly for the 6-month period (Table 4). For instance, compared to the control group, the odds of adopting a modern method by women in the intervention group at the 6th month following abortion were significantly higher (AOR: 1.5; CI: 1.1-2.1; p<0.05). The odds were also higher for the intervention group in the 12th month (AOR:1.3; CI:0.9-1.8) but were not statistically significant. Data further indicated that among the intervention group, adoption of modern methods happened significantly earlier after

abortion, compared to the control group (7.2 weeks versus 9.2 weeks, respectively; data not shown in tabular/graphic formats).

b. Current use of modern methods

Recognising the fact that those who adopt may not continue their methods for one reason or the other, we present in Table 5 the comparison between the study arms on their use if contraception at the time of the interview (ie., the current use). The current use of the modern method was higher among women from the intervention than the control group. For instance, in the 1st month after abortion, the current use of the modern method was 39% among women in intervention groups and 35% among the control group, at the 6th month, the current use of the modern method was 61% among women in the intervention group and 50% among women in the control groups. The results presented in the table further showed that the current use of the modern method increased after the abortion month, both among the intervention and control groups, however, the increase was higher in the intervention than the control group.

c. Contraceptive method mix among current users at 1st, 6th, and 12th month of abortion

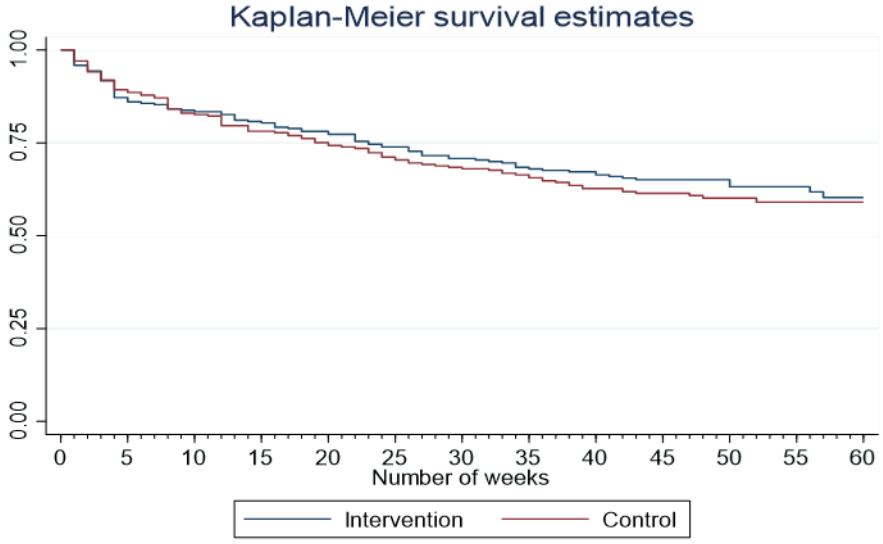
The pattern of contraceptive method-mix among current users remained similar at the 1st, 6th, and 12th/ months of abortion (Table 6). Most women were using condoms, both in the intervention and control groups, and the prevalence of condom use increased over time, but the share declined with more women adopting other modern methods such as oral pills and sterilization. For instance, condom use was 34% in the intervention and 30% in the control group in 1st month, 47% in the intervention and 39% in the control group in 6th month, and 46% in the intervention and 39% in the control at 12th month after abortion. The use of oral pills, female sterilization as well as injectables increased over successive months of abortion, both in the intervention and in control areas. About 10% of women, both in the intervention and control groups were using the traditional methods (withdrawal or rhythm method) at 1st month of abortion and this proportion increased to 22-31% at the 6th and 12th months.

d. Continuation rate for modern method first adopted after abortion

Using a retrospective contraceptive calendar, the continuation rate (probability of continued usage of the method which women adopted at a certain period) for method use was calculated among the adopters of the modern method which was around 10% higher among women of the intervention group (77%) than women of the control group (68%) (Table 7). Method continuation rates shown in table 7 suggest that among women who adopted a modern method any time after the medical abortion, 74% of them continued using a modern till the 6th month, 68% till the 9th month, and 65% till the 12th month in the intervention group, after first adoption. These rates were similar to those observed in the control group – 71%, 65% and 60% at the 6th, 9th and 12th month, respectively.

Analysis of the weekly calendar data was further extended to examine and compare method continuation rate among modern contraceptive adopters between the intervention and control groups by using Kaplan-Meier survival estimates (Figure 6). The results showed a slightly higher continuation rate among women from the intervention arm than the control arm, and this pattern slightly enlarged during later periods, although such differences were not statistically significant.

Figure 6 Continuation rate of use of modern contraceptives by study groups



e. New Adopters, switchers and sustained users of modern methods

The objective of the intervention was also to sustain pre-abortion modern method users and add new users of modern methods from among pre-abortion non-users. Table 8 presents three panels categorizing respondents based on their contraceptive method use before abortion: those who were not using any method, those who were using a traditional method, and those who were using a modern method. The trajectory of adopting a modern method was examined at one month, six months, and twelve months post-abortion.

<u>Adding new adopters:</u>
At one month post-abortion, the difference in new adopters between the intervention and control groups was small (1.4%), which by the sixth month increased to a significant 15 percentage points (70% of non-user women adopted a modern method in the intervention group compared to 55% in the control group) and by 12th month, it was settled at about 11 percentage points (73% of non-user women adopted a modern method in the intervention group compared to 62% in the control group).

<u>Shift from traditional to modern methods:</u>
Among the women who reported using any traditional method before abortion (29% in the intervention and 33% in the control group, see Table 2), by six months post-abortion, a significantly higher proportion of women in the intervention (56%) compared 40% in

the control group shifted to a modern method, which is a considerable 16 percentage point difference. This difference remained at about 13 percentage points by 12th month.

Continued users of modern method:
Among the pre-abortion users of modern contraceptive methods, most, by the 6th and 12th month post-abortion, re-adopted a modern contraceptive method. Although differences existed between the two study groups in all three time periods, they were not statistically significant.

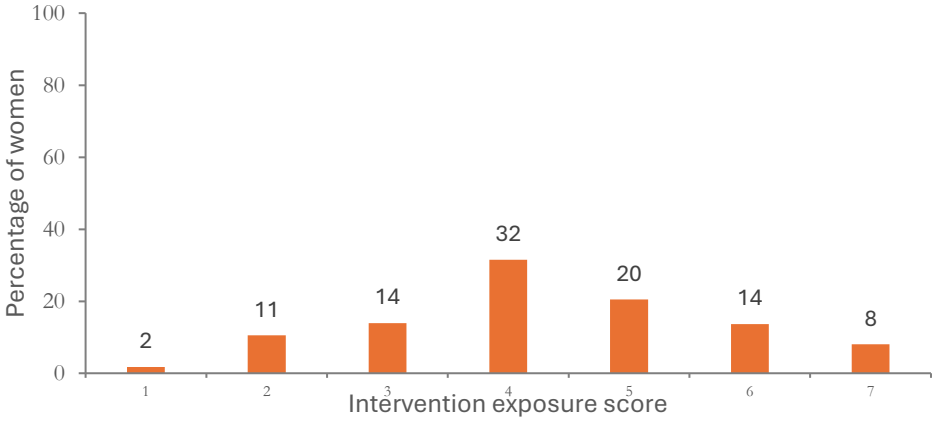
Dose-response analysis: Intensity of intervention and post-abortion contraceptive adoption

At the core of the modeled intervention package were phone calls with the *Saksham* helpline (either inbound or outbound) and consultations with healthcare providers or community health workers—Accredited Socia Health Activist (ASHA). The women who had undergone SMA, registered themselves in the helpline and were assigned to receive modeled intervention, received calls from the helpline or made a call to the helpline regarding various information related to MA, counseling on post-abortion contraceptive use, and sources of the methods. However, not all the intervention participants received similar exposure to the intervention for various reasons leading to possibly variable effects on their contraceptive behaviour. We extended our analysis to examine how the intensity of intervention participants' interaction with these program components affected their subsequent modern contraceptive adoption.

We measure the intensity of the program exposure by creating a composite score of – the number of outbound and inbound calls from/to the helpline (except the first call i.e. the registration call), and the number of consultation(s) with a doctor or ASHA (the services of doctor/ASHA were offered to all, some had chosen to take the offer, many did not). An additive score was computed for each intervention participant including the number of calls (both inbound and outbound), and the number of consultations with a doctor or ASHA, resulting in a composite score ranging between 1-11. The numeric score was then categorized into three terciles, namely – low, medium, and high intensity. Using these three categories the entire sample (intervention and control) was categorized into four groups – control group (0 score), low intervention exposure, medium intervention exposure, and high intervention exposure; and the adoption of the modern method was compared across these four groups of women. The average intervention exposure score was 4.4. The distribution of exposure is shown in Figure 7.

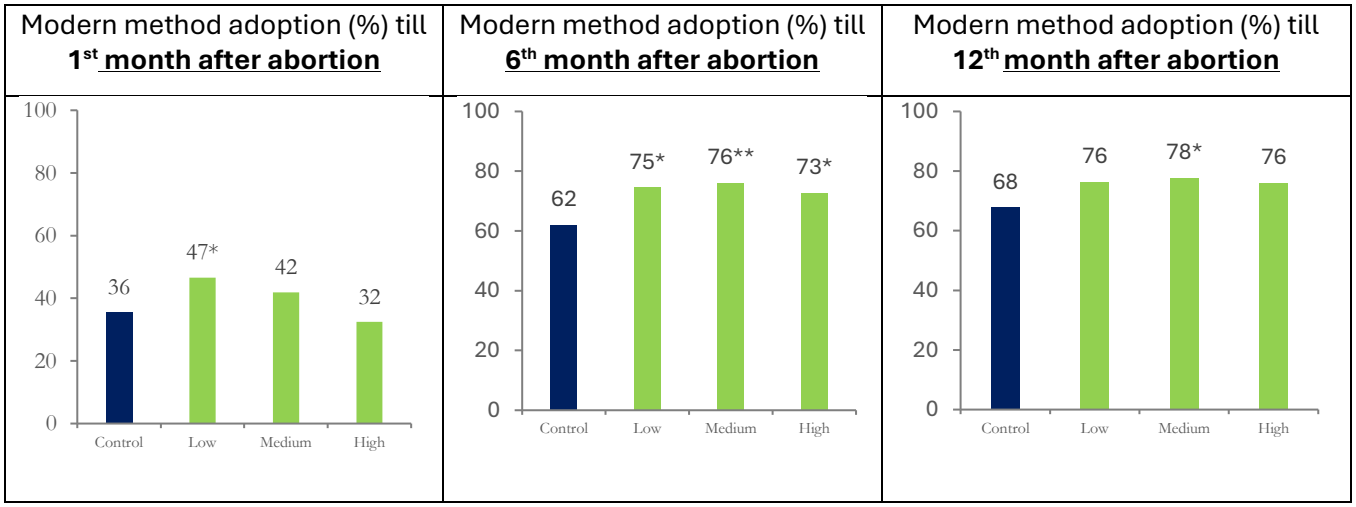
Figure 8 presents the pattern of adoption by the 1st, 6th and 12th month post-abortion by intensity of intervention exposure. Findings show that by the 6th month, any level of exposure led to higher adoption of modern contraceptives compared to the control group, while there were no discerning differences among the exposure groups. A somewhat similar picture emerged for the 12th month of adoption. The findings remained consistent in adjusted regression analysis demonstrated in Table 10. The findings imply that the intensity of exposure did not matter in deciding the adoption of modern contraceptives after SMA.

Figure 7 Percentage distribution of women from the intervention arm by intensity of program exposure



Note: In intervention exposure score, the last category includes percentages for scores 7-11

Figure 8 Modern method adoption among women at 1st month, 6th month and 12th month by duration of exposure to the helpline



*Note: ***p<0.001, **p<0.01, *p<0.01 significant compared to control group*

Discussion/conclusion

In the context of the highly prevalent practice of SMA in India, it is of great challenge to ensure appropriate guidance to these abortion seekers on the process of medical abortion and post-abortion care including the adoption of modern methods of contraception. An intervention was carried out in two districts of Uttar Pradesh, India to support contraceptive uptake post SMA and continuation of the adopted method. This paper provides valuable insights into the effectiveness of the intervention that pivoted on the pharmacists from whom medical abortion drugs were bought and a telephone helpline staffed with counsellors and medical doctors. The study, conducted in the Agra and Lucknow districts of Uttar Pradesh, revealed several new and important findings that contribute to our limited knowledge of post-abortion contraceptive practices among SMA clients and also provide information on the potentiality of a simple and

manageable intervention that may change the way SMA clients seek support before, during and after the abortion.

Post-abortion modern contraceptive adoption: The intervention significantly increased the adoption of modern contraceptives, particularly at the 6th month post-abortion. The findings highlight the positive impact of the program in promoting the adoption of modern contraceptive methods among women who underwent SMA. The intervention was not only successful in promoting the adoption of modern methods, it also promoted early adoption among the beneficiaries of the intervention.
Condoms consistently remained the most adopted method during the period of observation followed by oral pills (daily and weekly) and injectables.

New adopters and sustained users: The intervention successfully added new adopters of modern contraceptive methods while also contributing to sustaining existing users (those who used a modern method pre-abortion). The study also noted a shift from traditional contraceptive methods to modern methods, indicating the effectiveness of the intervention in influencing contraceptive choices among women. The trajectory analysis revealed positive trends in the adoption of modern methods among women who were not using any method or were reliant on traditional methods before abortion.

Helpline interaction focus: The study indicates the shift in helpline interactions from initial concerns about the medical abortion process during the first two weeks after taking the drugs to a predominant focus on family planning during the follow-up calls that might have influenced women's contraceptive choices by addressing the specific needs and preferences of women in the post-abortion period.

Despite its success, a few pointers for improvement may be noted. First, the finding that the differences in contraceptive adoption between intervention and control groups narrowed after six months and that the intervention did not make any differences in the continuation of methods adopted at any point in time during the 12-month observation indicate that the program may not have been as intense in the later part of the observation period as in the beginning. The call records from the monitoring data confirmed this (data not presented here), as most calls were made during the first month after abortion, many fewer calls between the first and sixth months and completely stopped after six months. The formative research before intervention noted that women felt most vulnerable (and needing help) when they found themselves pregnant and the feeling continued till the time the abortion was completed and waned rapidly with time after abortion. It must be thus easier for a program to influence the contraceptive choice of women or couples when they are most vulnerable shortly after the abortion and harder after that. The current program's focus on increasing adoption early was based on this finding of the formative research. However, the other objective of the intervention – to help women continue to use for a long time – needed regular contact with the clients after adoption as long as possible. The call records clearly show that this part was overlooked leading to no impact of the intervention on contraceptive continuation rates.

In conclusion, the findings underscore the positive impact of the post-abortion care intervention in accelerating contraceptive uptake among women who underwent SMA. The program's success in increasing post-abortion contraceptive adoption, promoting sustained use, and influencing the contraceptive landscape highlights its potential scalability and importance in addressing the unmet needs of women in the post-abortion period, particularly for women who did not come in contact with the health system before, during or after SMA. Further research and efforts to integrate similar interventions into broader healthcare strategies can contribute significantly to reducing unintended pregnancies and improving reproductive health outcomes in India.

Based on the study's findings and building on the success of the intervention, ensuring that the positive impact on contraceptive adoption observed in the study can be optimized, sustained, and extended to a larger population, a few recommendations are noted:

Enhance helpline support with stronger follow-up: Strengthening follow-ups with women who have contacted the helpline for longer period beyond the initial one month of the medical abortion process via an established comprehensive sexual and reproductive health helpline that may provide information beyond medical abortion to meet the diverse needs of users will be needed. Also, the key remained with follow-up interactions in providing additional information and support, aiming to inform effectively about contraceptive choices. Implementing periodic follow-up calls, beyond the initial six months will sustain the positive effects observed. Thus, it is essential to recognize the need for continued support to encourage the ongoing use of modern contraceptive methods and prevent discontinuation over time.

Targeted strategies for specific groups: Tailoring the interventions to specific groups, such as new adopters and traditional method users, to address their unique needs and concerns effectively and designing targeted communication and support strategies may maximize the transition of non-users and traditional method users to modern contraceptive method use.

Policy advocacy: Advocating for prioritizing and supporting post-abortion family planning services by government and other development stakeholders may work towards creating a comprehensive and standardized program that addresses the unique needs of women who undergo SMA.

Scale-up successful models: Scale up successful interventions, such as this helpline-based model evaluated in this study, to reach a larger population. One needs to collaborate with stakeholders, including government agencies, non-governmental organizations, and healthcare providers, to implement and expand such proven strategies.

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Table 1. Socio-demographic profile of study respondents by intervention and control group.

Characteristics	Intervention	Control	All women
Age of:			
Respondent – mean (sd)	27.8(4.7)	27.9(4.4)	27.9 (4.5)
Husband/ partner – mean (sd)	31.1(5.3)	31.3(5.2)	31.2(5.2)
Mean years of schooling of:			
Respondent – mean (sd)	9.1(5.1)	8.4(5.3) *	8.7(5.2)
Husband/partner – mean (sd)	10.4(4.6)	10.0(4.7)	10.2(4.7)
Respondent's current marital status (%)			
Married	98.9	99.5	99.2
Widowed	0.3	0.0	0.1
Unmarried	0.9	0.5	0.7
Caste (%)			
Schedule caste/tribe (SC/ST)	29.5	25.0	27.1
Other backward classes (OBC)	39.5	43.5	41.6
Other	31.0	31.7	31.3
Religion (%)			
Hindu	91.2	89.0	90.0
Muslim	8.5	11.3	10.0
Other	0.3	0.0	0.1
Respondent has a bank account (%)			
On her name	80.1	82.4	81.3
Jointly with someone else/both	5.4	5.0	5.2
Respondent can operate bank accounts on their own	79.7	78.8	77.8
Respondent has worked in the last 12 months	15.6	16.0	16.5
Age at marriage – mean (sd)**	19.2(3.0)	19.0(3.0)	19.1 (3)
Number of pregnancies – mean (sd)	4.3(2.2)	4.4(1.8)	4.4(2.0)
Number of living children – mean (sd)	2.2(1.0)	2.3(1.0)	2.2(1.0)
Number of women	**352**	**398**	**750**

*Note: *Significantly different at p<0.05; **Among those who were ever married at the time of the interview*

Table 2. Percentage of study respondents reporting the number of abortions they experienced, pre-abortion contraceptive use according to intervention and control group, method and timing of identifying pregnancy, and timing of abortion

	Intervention	Control	All women
Number of abortions experienced including index abortion (%)			
1	65.5	61.1	63.2
2	22.7	26.0	24.5
3 or more	11.8	12.9	12.4
Pre-abortion contraceptive use (%)			
Modern method users	**45.2**	**40.8**	**42.9**
Female Sterilization	0.3	0.0	0.1
IUCD/PPIUCD/ Copper-T	0.6	0.8	0.7
Injectables	0.3	0.8	0.5
Weekly pills/Chhaya	2.3	1.5	1.9
Daily pills	2.8	1.0	1.9

	Intervention	Control	All women
Male condom/Nirodh	37.8	36.2	36.9
Other modern methods	0.6	0.3	0.4
Traditional method users	**29.0**	**32.3**	**30.7**
Standard days method	0.3	0.3	0.3
Lactational amenorrhea	0.3	0.0	0.1
Rhythm method	20.5	24.9	22.8
Withdrawal	8.0	7.5	7.7
Other traditional methods	0.6	0.0	0.3
Non-users	**25.9**	**26.9**	**26.4**
Number of currently married respondents	**348**	**396**	**744**
Experience of self-managed MA			
Method of confirmation of pregnancy (%)			
Used pregnancy test kit	94.6	96.0	95.3
Doctor confirmed	2.0	0.3	1.1
Women assumed/guessed	3.4	3.8	3.6
Mean gestation at the time of identification of pregnancy	**5.3**	**5.2**	**5.2**
Mean gestation at the time of termination	**5.6**	**5.5**	**5.5**
Pregnancy duration at the time of termination (%)			
Up to 9 weeks (%)	98.9	99.5	99.2
>9 weeks (%)	1.1	0.5	0.8
Number of women	**352**	**398**	**750**

Note: In 6 cases, for unmarried/widowed women, information on pre-abortion contraceptive use was not collected, hence they were excluded from analysis.

Table 3. Postabortion contraceptive method mix of first-time adopters by intervention and control groups

	By 1st month		by 6th month		by 12th month	
Contraceptive method	Intervention (%)	Control (%)	Intervention (%)	Control (%)	Intervention (%)	Control (%)
No method	51.4	55.7	6.8	9.1	5.1	4.5
Female sterilization	1.1	1.5	2.3	3.5	2.6	4.3
Male sterilization	0.0	0.3	0.0	0.3	0.0	0.3
Injectables	0.9	0.3	3.1	1.3	3.1	1.5
Weekly pills	1.1	1.0	2.3	2.0	2.6	2.0
IUD/PPIUD	0.0	0.0	1.1	1.3	1.1	1.8
Daily pills	2.8	1.0	6.0	2.0	6.0	2.3
Condom	34.4	31.5	59.7	51.6	61.4	55.7
Traditional methods	8.2	8.8	18.8	29.0	18.2	27.7
Total number	**352**	**397**	**352**	**397**	**352**	**397**

Note: IUD/PPIUCD: Intrauterine contraceptive device/postpartum intrauterine contraceptive device

Table 4. Adjusted odds ratio from the generalized estimating equation model.

	Adjusted odds ratio [confidence interval]	p value
Study group (Ref: Control)		
Intervention	1.2 *[0.8-1.6]*	0.337
Time period (Ref: within 1 month)		
By 6th month	3.6 *[2.9-4.4]*	0.000
By 12th month	4.8 *[3.8-6.0]*	0.000
Interaction: study group # time period		
Intervention Arm# 6 month	**1.5 *[1.1-2.1]***	**0.019**
Intervention Arm# 12 month	1.3 *[0.9-1.8]*	0.174

Note: GEE model adjusted for age of women, their education, religion and caste group, and their pre-abortion contraceptive use.

Table 5. Current use of modern method at 1st, 6th, and 12th months after abortion by intervention and control groups

	Intervention (%)	Control (%)
At 1 month after abortion	39.0	35.0
At 6 months after the abortion	61.0	50.0*
At 12 months after adoption	60.0	52.0*
Total number	352	398

*Note: *p<0.05*

Table 6. Contraceptive method-mix among current users at 1st, 6th, and 12th months of abortion by intervention and control groups

	At 1st month		At 6th months		At 12th months	
Contraceptive method	Intervention (%)	Control (%)	Intervention (%)	Control (%)	Intervention (%)	Control (%)
No method	52.3	56.3	15.9	19.9	18.4	18.5
Female sterilization	1.1	1.5	2.8	4.0	4.9	5.9
Male sterilization	0.0	0.1	0.0	0.1	0.0	0.1
Injectables	0.9	0.3	3.4	1.8	1.7	1.8
Weekly Pills	1.1	1.0	0.9	1.5	1.2	1.0
IUD/PPIUD	0.0	0.0	1.7	1.5	2.0	1.8
Daily pills	2.8	1.0	5.7	1.8	4.0	2.1
Condom	33.5	30.4	46.6	38.9	46.3	39.2
Traditional method	8.2	9.6	23.0	30.7	21.6	29.7
Number	**352**	**397**	**352**	**397**	**348#**	**390#**

Note: IUD/PPIUCD: Intrauterine contraceptive device/postpartum intrauterine contraceptive device, #N=738, response for 11 women were missing in 12 month follow up

Table 7. Continuation rate of first adoption of modern method by intervention and control groups

Contraceptive uptake status	Intervention (N-346)	Control (N-396)
% adopted modern methods any time after the abortion	76.7	68.4
Continuation rate among those who adopted a method after the abortion (%):		
Rate of continuation at 6 months	73.9	71.2
Rate of continuation at 9 months	67.6	64.8
Rate of continuation at 12 months	65.1	60.1

Table 8. Proportion of women who were not using any method prior to the abortion and adopted a modern method (new adopter), women who were using a traditional method (switchers) prior to the abortion and adopted a modern method and women who were using a modern method prior to the abortion and continued using a modern method post-abortion (continued users) by month of interview and study groups.

	Intervention	Control	Difference
No method to modern method (New adopters)			
1st month	28.6	27.1	1.4
6th month	70.3	55.1	15.2*
12th month	72.5	61.7	10.8
Traditional to modern method (switchers)			
1st month	25.0	18.6	6.4
6th month	55.7	39.5	16.2*
12th month	59.6	46.5	13.1*
Modern to modern method (continued users)			
1st month	57.3	54.7	2.7
6th month	89.2	84.4	4.8
12th month	90.5	88.8	1.7

Note: significant difference between intervention and control *p<0.05

Table 9. Adjusted odds ratio (AOR) obtained after binary logistic regression analysis showing the effect of intensity of intervention on post-abortion modern method adoption and current use

AOR for the adoption of modern methods till	1st month	6th month	12th month
Control group (Ref.)			
Low	1.56***	1.76**	1.45
Medium	1.29	1.98***	1.68*
High	0.87	1.64*	1.52

*Note: Odds are adjusted to age and education of women and their use of any method prior to abortion. Significant difference between control and intervention categories ***p<0.001, **p<0.01, *p<0.05*