

Impact of Digital Innovation on Family Planning Outcomes: Evaluation of UNFPA's 'My Rights, My Choices Programme

1. Background

India has one of the world's largest youth populations, with nearly half of its citizens under the age of 25 (Wang et al., 2022). Yet, despite major investments in national health programmes, a substantial unmet need for family planning persist, especially among adolescents (15-19 years) and households with lower socio-economic status (Pachauri, 2014 & Devaraj et al., 2024). Historically, India's family planning landscape has long been skewed towards female sterilization (Wang et al., 2022), while the uptake of modern spacing methods for delaying or spacing births remains strikingly low (Pachauri, 2014). As a result, married adolescents account for single largest group facing unmet need for spacing methods (Pachauri, 2014) underscoring critical gaps in access, agency, and method choice for young people.

A key barrier to improving these outcomes is the limited access to accurate family life education. Many young people hold pervasive misconceptions about contraception and reproductive health, compounded by the deep stigma surrounding sexual and reproductive health (SRH). As a result, adolescents often feel too embarrassed or uncomfortable to seek information from frontline health workers or clinics (Wang et al., 2022). Instead, individuals increasingly rely on web-based platforms and social media to seek information, thereby exposing themselves to potentially inaccurate and misleading content.

However, the rapid expansion of mobile phone ownership and internet access across India presents a promising opportunity. AI-driven chatbots have emerged as powerful tools that can help overcome cultural taboos by offering young people a private, non-judgmental space to ask sensitive questions, clarify doubts, and access accurate and relatable sexual and reproductive health information (Wang et al., 2022).

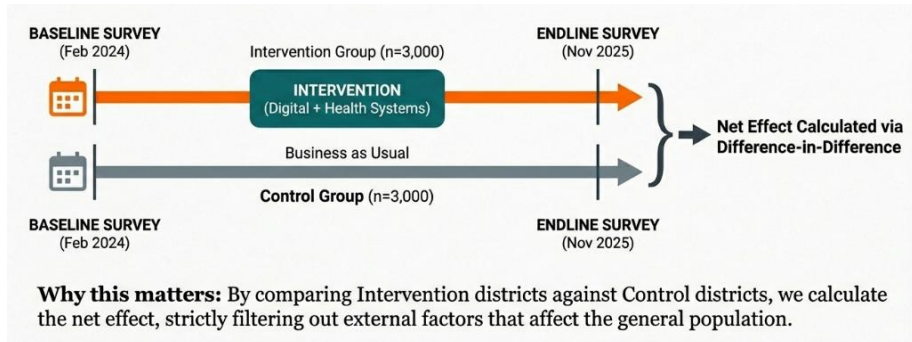
To address both the demand-side informational gaps and the supply-side service barriers, the "My Rights, My Choices" programme was launched in selected high-need districts of Rajasthan and Madhya Pradesh. The initiative adopts a blended intervention model that integrates an age-appropriate AI chatbot (called **JustAsk!**) with targeted health system strengthening supported by Bayer Pharmaceuticals. A key objective of this intervention was to design and rigorously measure the programme's impact on improving the uptake of modern contraceptives and spacing methods among adolescents, youth, and eligible couples. The programme was implemented over two years, with a baseline survey conducted in February 2024 and an end line evaluation survey carried out in November 2025.

2. Study Design, Data & Methodology

To assess the impact of the "My Rights, My Choices" programme, a logical framework with clearly defined measurable outcome indicators was developed. The framework focused on tracking two primary outcomes in the intervention districts – reducing unmet need for family planning and an increasing the uptake of modern contraceptives.

To ensure that observed changes could be attributed to the programme rather than broader contextual shifts, the evaluation employed a quasi-experimental pre-post-test quantitative survey design. Using a difference-in-difference (DID) approach, the analysis isolated programme effects by accounting for external influences that may have affected the wider population.

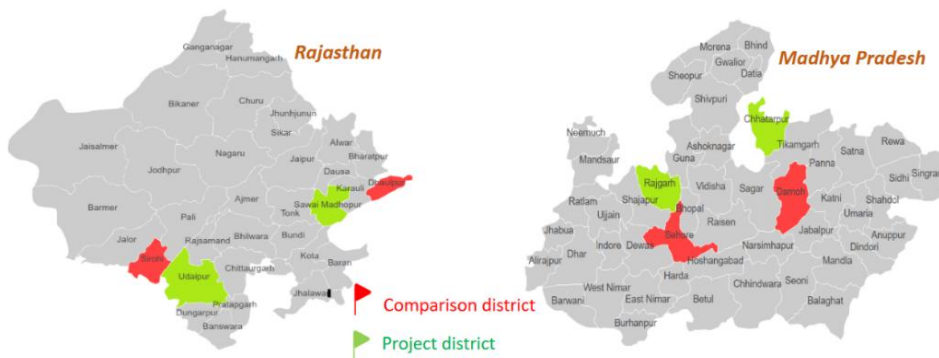
Figure 1: Quasi-Experimental Design Flowchart



As illustrated in Figure 1, the net programme effect was estimated through cross-sectional surveys conducted at two time points among both the intervention group, which received the digital and health systems strengthening interventions and a control

group that continue with "business as usual". By comparing the changes over time between the two groups, the evaluation isolates the attributable impact of the blended intervention model. Baseline and end line surveys were conducted in rural areas across eight districts, four intervention and four control, in Rajasthan and Madhya Pradesh.

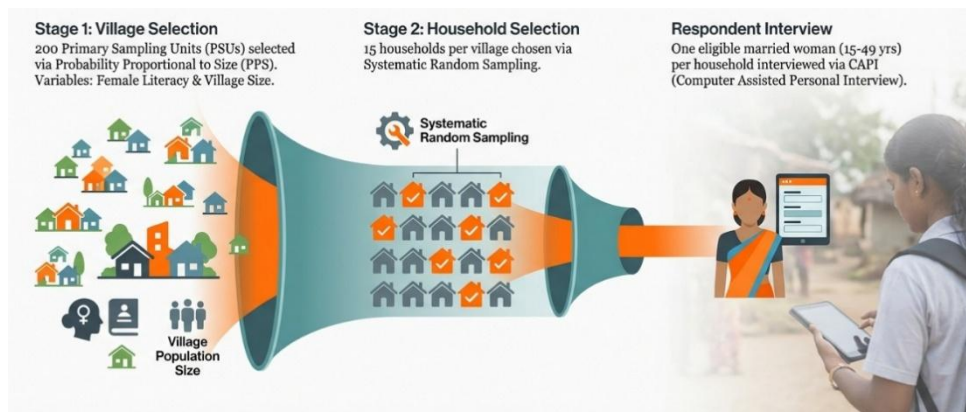
Figure 2: States of Intervention and Control



The target population for the survey comprised currently married women aged 15-49 years. To ensure adequate statistical power, the minimum sample size was calculated using a 95% confidence level, 80% power, a 7%

non-response rate, and a design effect of 1.5. These parameters yielded a required sample of 3,000 respondents at baseline and 3,000 at end-line, resulting in a total sample of 6,000 women. The sample was evenly divided between intervention and comparison areas, with 1,500 respondents drawn from each group in both survey rounds.

Figure 3: Illustration of the Stratified Sampling Design



The sampling design adopted a two-stage stratified sampling procedure to ensure that the estimates are representative of the rural population of the intervention and control districts.

Stage 1: Selection of Villages

Using the 2011 Census data as the sampling frame, 200 Primary Sampling Units (PSUs), each representing a village, were selected in each survey round. Villages were chosen using Probability Proportional to Size (PPS) sampling technique, with female literacy used as an explicit stratification variable and village population size as an implicit stratification variable.

Stage 2: Selection of Households and Respondents

Within each selected village, 15 households were chosen using systematic random sampling. In large villages, segmentation of approximately 150-200 households was first delineated, from which 15 households were then selected. In each of selected household, one eligible married woman was interviewed by trained investigators using a Computer Assisted Personal Interviewing (CAPI).

3. Programme Effects on Modern and Spacing Contraceptive Uptake

The baseline and end-line findings reveal a clear divergence in the Modern Contraceptive Prevalence Rate (mCPR) between intervention and control areas. While control districts experienced a modest decline of 1.5 percentage points, the intervention districts recorded a substantial increase of 5.7 percentage points from baseline. As illustrated in Figure 4, this contrasting trajectory produced a statistically significant net impact of +7.2 percentage points ($p < 0.006$). These results indicate that the blended digital and health system strengthening interventions directly contributed to increased adoption of modern contraceptive methods.

Figure 4: Trends in Modern Contraceptive Prevalence Rate (mCPR)

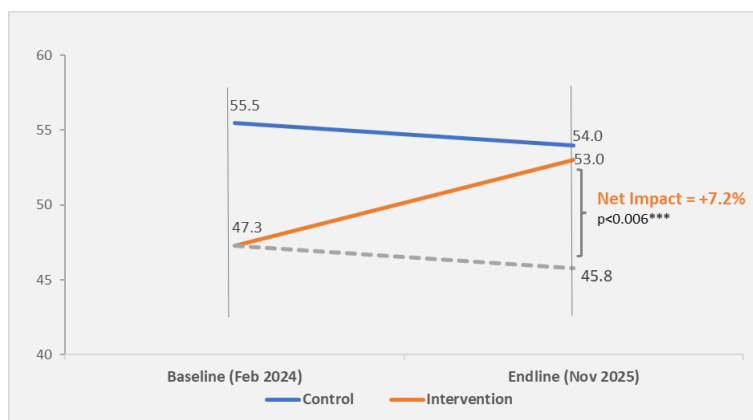
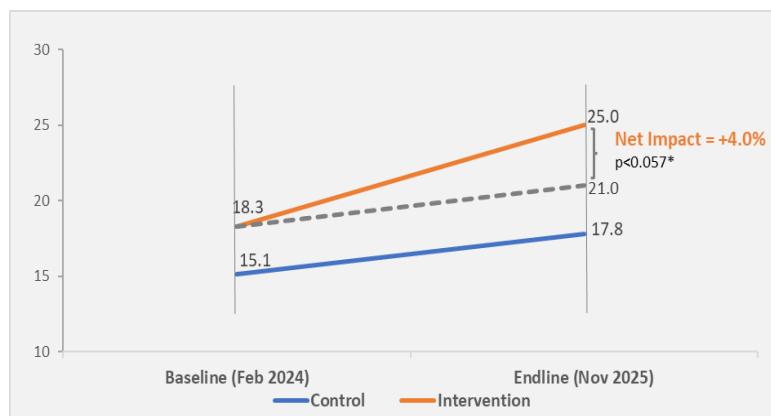


Figure 5: Trends in Use of Spacing Methods

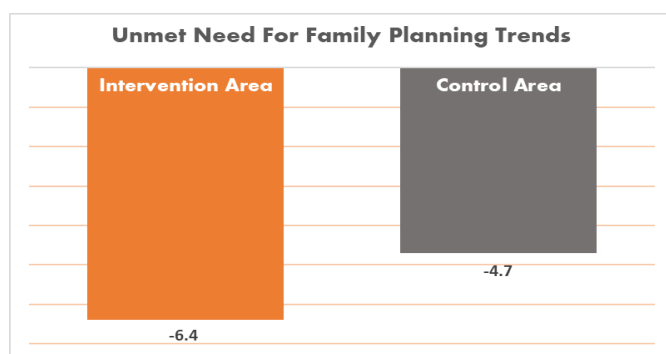


A similarly notable increase was observed in the uptake of spacing methods, an especially important outcome given the programme’s focus on adolescent and youth. Use of spacing methods increased by 6.7 percentage points in intervention districts, compared with just 2.7 percentage points in the control districts. As shown in Figure 5, this divergence reflects a net programme-attributable impact of +4.0 percentage points ($p < 0.057$) after adjusting for broader secular trends.

4. Unmet Need for Family Planning Trends

Beyond increasing contraceptive uptake, the programme also contributed to a measurable reduction in the unmet need for family planning, signalling improved service reach and accessibility. As shown in Figure 6, total unmet need declined by 6.4 percentage points in intervention districts, compared with a 4.7 percentage points decline in control districts, resulting in a net difference-in-differences estimate of -1.7 percentage points.

Figure 6: Trends in Unmet Need



A detailed comparison of baseline and end line estimates is presented in Table 1. While total unmet need declined more sharply in intervention districts, the reduction in unmet need for spacing methods was modest, just 0.3 percentage points in intervention districts, compared with a slightly larger decline of 0.9 percentage points in control districts. This indicates that the programme’s effect on spacing-specific unmet need was more limited

than its effect on overall unmet need.

Table 1: Unmet Need for Family Planning in Baseline and End-line Surveys in Intervention and Control Districts (%) and Estimation of Difference-in-difference

Unmet Need for Family Planning				
Period / State	Total Unmet for FP		Unmet need for Spacing	
	Control	Intervention	Control	Intervention
Both States				
Baseline	18.8	24.9	4.4	5.0
End line	14.1	18.5	3.5	4.7
Difference	-4.7	-6.4	-0.9	-0.3
Diff-in-diff		-1.7		0.6
p value		0.242		0.701
<i>Inference: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$</i>				

5. Evidence and Insights from the JustAsk! Intervention

The end line evaluation shows that the intervention strategy was successfully reached and informed the target population, driven primarily by proactive on-ground activation efforts rather than passive digital engagement.

Figure 7: Comparative Visibility across Study Groups

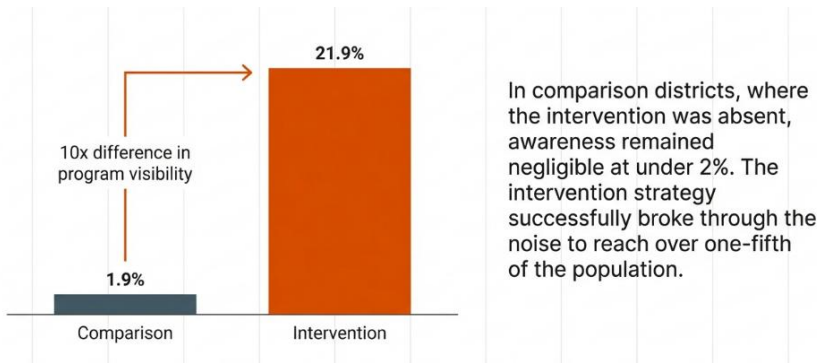


Figure 7 shows a tenfold difference in programme visibility between the two study groups. In comparison districts, awareness of the chatbot was minimal at just 1.9%. In contrast, intervention districts reported a visibility rate of 21.9%, indicating that the programme successfully reached more than one-fifth of the target population.

Figure 8: User Engagement for Information Seeking on the Chatbot

Figure 8 shows that the chatbot functioned effectively as a comprehensive source of sexual and reproductive health (SRH) information. A large majority of users (80.6%) primarily sought information on family planning and contraceptive methods, underscoring the platform’s strong relevance in addressing core SRH information needs.

Have you ever used the Just Ask chatbot to seek information on family planning or contraception methods?

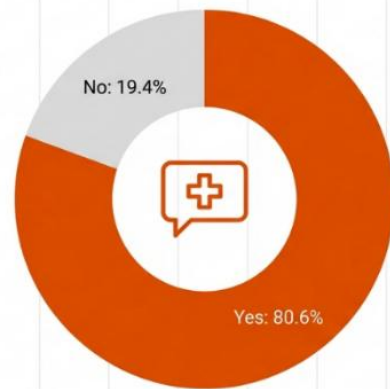
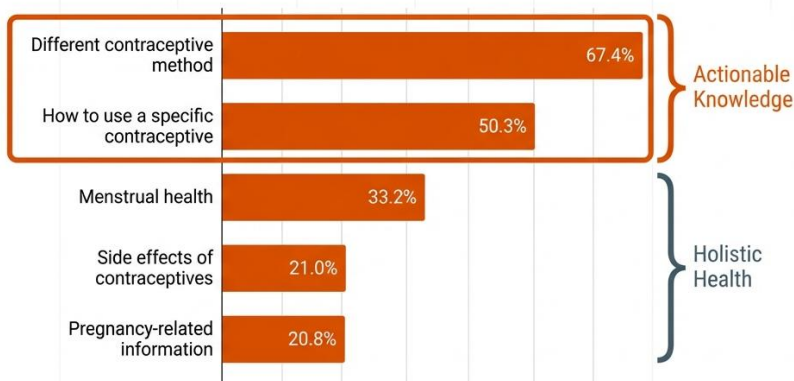


Figure 9 provides insights into user intent, revealing strong demand for practical and instructional content. Users primarily sought ‘actionable knowledge’, with 67.4% looked for information on different contraceptive methods and 50.3% sought guidance on how to use specific methods. In contrast, engagement was lower for broader or more holistic health topics, such as menstrual health (33.2%) and side effects of contraception (21.0%).

Figure 9: Thematic Distribution of User Information-Seeking Behaviour



Users prioritized actionable knowledge (“How to use”, “Different methods”) over general theoretical information.

The chatbot successfully served as a comprehensive SRH counselor.

Figure 10: Key Channels Driving Programme Reach

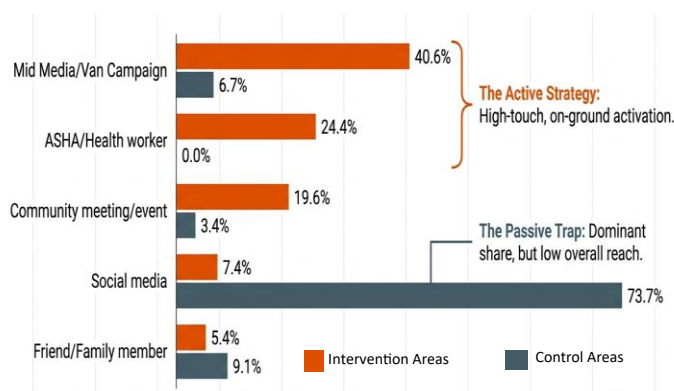


Figure 10 shows that the scale-up of this digital intervention was driven primarily by high-touch, on-ground activation rather than organic digital discovery. Among outreach channels, the ‘Van campaign’ (mid-media) and ASHA/health workers emerged as the strongest drivers of engagement in intervention districts, accounting for 40.6% and 24.4% of total user reach, respectively.

This ‘Active Strategy’ approach proved far more effective than passive digital channels. While social media accounted for a large share of engagement in control districts (73.7%), it did not translate into meaningful reach. By contrast, in intervention districts, where overall engagement was substantially higher, derived only 7.4% of activations from social media. These findings underscore the superior effectiveness of proactive, community-based outreach over passive digital dissemination for achieving programme scale and visibility.

6. Overall Impact and Scalability Assessment

Estimation of Additional Users of Modern Contraceptives

Using end line survey data combined with difference-in-differences (DID) estimates, the evaluation calculated the number of eligible couples who adopted spacing methods as a direct result of the intervention. Across the four core intervention districts, the estimated number of eligible couples (15 – 49 years) was 1,916,007 in 2025.

The observed 6.7 percentage point increase in spacing method use translates into an estimated 128,372 additional users. A further 0.3 percentage point reduction in the unmet need for spacing methods contributed an estimated 5,748 users. Together, these effects produce a total direct impact of 134,120 additional users across the four intervention districts. The conversions of prevalence rates into absolute user numbers are detailed in Table 4.

Table 2: Estimation of Additional Users of Spacing Methods in Four Intervention Districts of the Programme (in Numbers)

Estimation of Users of Spacing Contraceptives in 4 Intervention Districts in 2025		
Particulars	Numbers	Source and Computation
Estimated number of eligible couples in 4 intervention districts, 2025		
Rajasthan	1,115,061	UNFPA District Level Population Projections
Madhya Pradesh	800,946	- do -
Total EC in intervention districts	1,916,007	
Currently using spacing methods in 4 intervention districts, 2025		
Rajasthan	289,916	As per end-line survey, 26% of EC using spacing methods
Madhya Pradesh	189,023	As per end-line survey, 23.6% of EC using spacing methods
Total	478,939	
Additional users of spacing method in 4 intervention districts, 2025	128,372	6.7% increase of spacing methods in 4 intervention districts in the end-line survey compared to baseline
Spacing methods users due to reduction in unmet need in 4 intervention districts	5,748	-0.3% reduction in unmet need in 4 intervention districts

Spill over Effects on Increased Use of Spacing Methods

By combining accessible digital tools such as the JustAsk! AI Chatbot, with broader health system strengthening efforts, the intervention enabled its educational benefits to extend beyond the geographic boundaries of the four intervention districts.

Figure 11: State-Level Spill over Effects and Extended Programme Reach

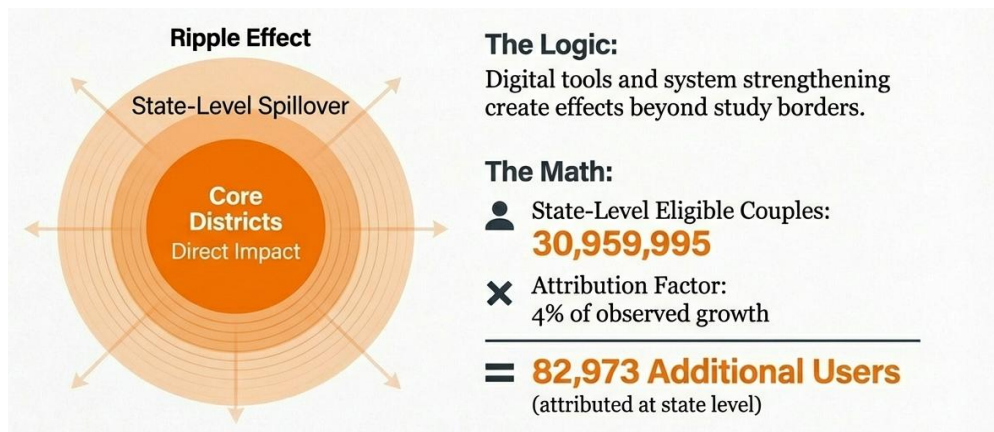


Figure 11 presents the conceptual framework and quantitative approach used to estimate state-level spillover effects through a ripple-effect model. Across the rest of Rajasthan and Madhya Pradesh, excluding the study districts, the estimated population of eligible couples is 30,959,995. Applying a 4% attribution factor, derived from difference-in-differences (DID) estimates of additional users, the intervention is estimated to have generated 82,973 additional users through spillover effects beyond the primary implementation areas.

Target Achievement and Scalability

The project’s overall achievement can be assessed against its initial targets set by combining increases in contraceptive use, reductions in unmet need, and the estimated state-level spill over effects.

Figure 12: Target Achievement Progress Bar

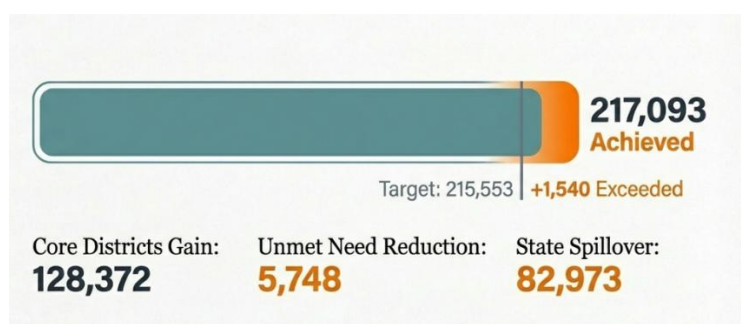


Figure 12 provides a visual summary of the evaluation findings through a target-achievement progress bar. Against a target of 215,553 additional users of modern family planning methods, the programme reached 217,093 users, exceeding the target by 1,540 individuals.

7. Conclusion

The evaluation, grounded in a rigorous quasi-experimental control-group design, demonstrates that the observed increases in modern contraceptive uptake are attributable to the project rather than broader secular trends. The intervention’s integrated approach, combining digital innovation through the JustAsk! AI Chatbot with on-ground health system strengthening, effectively addressed both demand- and supply-side barriers. Overall, the project exceeded its target, achieving an estimated 217,093 additional users, reflecting strong programme performance and a clear return on investments.

References

Devaraj, K., Gausman, J., Mishra, R., Kumar, A., Kim, R., & Subramanian, S. V. (2024). Trends in prevalence of unmet need for family planning in India: Patterns of change across 36 states and union territories, 1993–2021. *Reproductive Health*, 21(1), Article 48. <https://doi.org/10.1186/s12978-024-01781-6>

Pachauri, S. (2014). Priority strategies for India's family planning programme. *Indian Journal of Medical Research*, 140(Suppl 1), 137–146.

Wang, H., Gupta, S., Singhal, A., Muttreja, P., Singh, S., Sharma, P., & Piterova, A. (2022). An artificial intelligence chatbot for young people's sexual and reproductive health in India (SnehAI): Instrumental case study. *Journal of Medical Internet Research*, 24(1), Article e29969. <https://doi.org/10.2196/29969>