

Understanding contraceptive uptake and usage in Sokoto state using a difference in difference approach: Endline evaluation

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With thanks to Dr Bello, Habibat Salau

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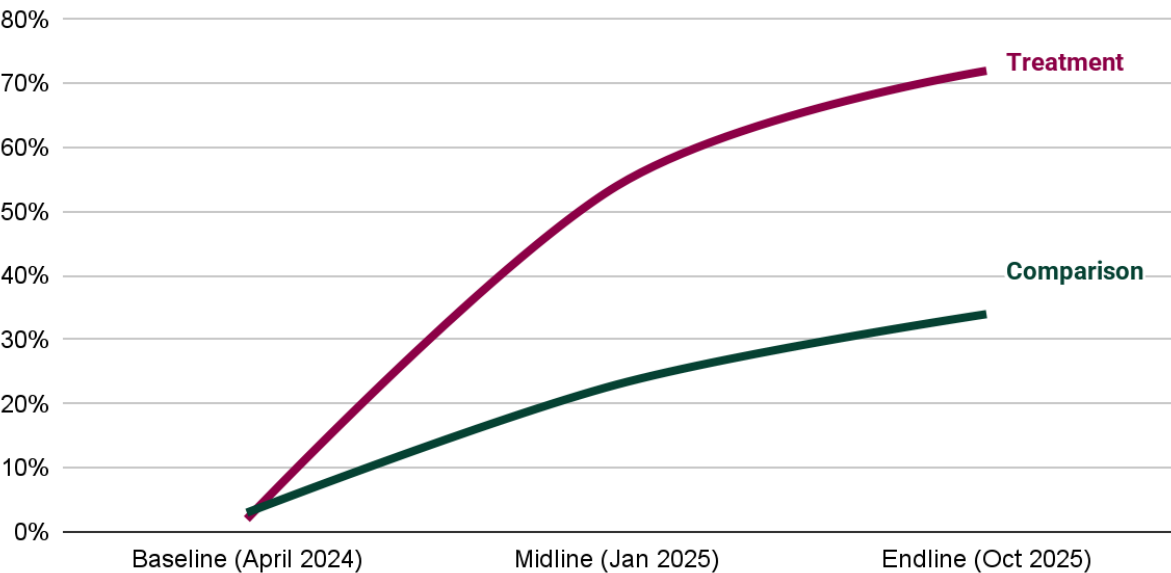
Executive Summary

This study is a follow-up study to a [previous difference in difference study](#). The previous midline study examined contraceptive uptake in Sokoto from April 2024 to January 2025 (midline). This endline study follows up these same women in October 2025 to estimate the counterfactual impact of the programme on contraceptive uptake in the treatment areas, assess continuation rates, and explore self-injection further. Data was collected from 418 women matched at baseline, midline and endline, with 19 women removed from the difference in difference model due to spillover.

In Lafiya programme areas, contraceptive uptake increased from 2% at baseline to 56% at midline to 72% by endline, while in the comparison area it rose from 3% to 24% to 34%, perhaps due to survey effects and government provision. In both areas the rate of uptake slowed by endline.

By endline the Lafiya programme resulted in a statistically significant 39 percentage point counterfactual increase in contraceptive uptake from baseline.

The number of women using family planning increased at expost, with greater gains in the treatment group



Other findings

Users and methods

- In treatment areas, 56% of contraceptive users were using DMPA-SC at endline, up from 36% at the midline.¹
- 61% of all users in treatment areas were continuing users from the midline (56% DMPA-SC) and 39% were additional users, including 30% first-time ever contraceptive users. In contrast at midline 96% of users in the treatment area were additional contraceptive users, whereas 4% of users at midline were continuing users.² By endline, most people in treatment areas were continuing users, suggesting a positive transition from new to continuing users.

Continuation and discontinuation

- The treatment group had much stronger contraceptive continuation rates, with 83% of women continuing from midline compared to only 57% in the comparison group. The majority of continuers (56%) were using DMPA-SC followed by implants.
- The DMPA-SC-specific continuation rate was 53% (using at both midline and endline). The continuation rate for a DMPA-SC user using any contraceptive at endline was 92% (based on 38 cases).
- For those who discontinued, the most common reason was being/wanting to be pregnant, and secondly, due to side effects. Positively, there were fewer reports of husband disapproval across both arms since the midline. All women on DMPA-SC who stopped did so because they wanted to become pregnant.

Method switching

- Across both arms, 78 women switched methods since midline, 76% of whom were in the treatment group. Switchers to DMPA-SC in treatment areas consist of 34% of continuing users and 22% of all contraceptive users at endline.
- The most common switch was from other injectables to DMPA-SC (17). The second most common was both from DMPA-SC to implants and implants to DMPA-SC (10 each). This shows DMPA-SC is a desirable and available contraceptive alternative. The majority of women switching away from DMPA-SC switched towards a longer-acting contraceptive.

¹ Note this slightly differs from the 32% reported in the previous DiD report due to differing samples due to attrition follow-up .

² Please note the sample size differs between midline and endline contribute to a slightly different figure here.

Pregnancy

- At the midline, the treatment group had 15 reported pregnancies (6%), compared to 81 reported pregnancies (31%) in the comparison group. At endline, this gap in pregnancy outcomes persisted, although it had narrowed, with pregnancy rates in the treatment group holding steady at 7% while rates reduced to 12% in the comparison group. This could be due to increased uptake of contraceptives in the comparison area or natural fluctuations.

Self-injection

- The number and proportion of women self-injecting at endline fell, with 31% reportedly self-injecting compared to 74% at the midline. We do not know why some women stopped self-injecting, as it was not due to attrition.
- Most women (61%) reported self-injecting once. No one reported self-injecting more than twice. The average number of DMPA-SC doses self-injectors reported receiving was 2. This is lower than anticipated, given women can receive four doses (one administered and three follow-up) in one visit as per a Nigerian Government directive passed in November 2024.
- Of those who self-injected 26% were continuing DMPA-SC users.

Reminders and disposal

- For those in the treatment group, the most popular reminder method was text messages from Lafiya, followed by calendar reminders and Lafiya Sisters' reminders. This provides evidence for the continuation and scale-up of the text message programme and the continuation of handing out calendars. Other methods were rarely used.
- Most self-injectors dispose of DMPA-SC in the latrine (12), followed by burning it with the rubbish (7) or burying it (7). Few women disposed of DMPA-SC in a sealed box, and no women returned it to the Lafiya Sister.

Recommendations

Program

- Consider how to prepare Lafiya Sisters for the changes in their role the longer they remain in post. The longer Lafiya sisters serve the more likely it is that their role will transition to support continuing users rather than finding new users. This may require different skills, tools, and supports.
- Review protocols and practices for how Lafiya Sisters teach self-injection to ensure there is no risk of bias. Understand how many doses they give upon self-injection and why and

aim to increase this towards the government-allowed maximum. Ensure Lafiya Sisters are providing follow-on support to sustain self-injection.

- Lafiya should continue to send text messages and provide free calendars, as these seem to be helpful reminder tools.
- Reinforce proper waste management for used units during trainings, counselling sessions and follow-up support.

Research

- Conduct qualitative research to understand why women switch to and switch away from DMPA-SC. This will be particularly interesting in contexts where many methods are accessible and freely available. Of particular interest is understanding if and how DMPA-SC provides a stepping stone towards longer-acting contraceptives like implants.
- Review government facility data from the treatment and comparison areas to triangulate these results.
- Conduct further research to understand why women stop self-injecting once they have started and what, if any, additional support they may require.
- Conduct further analysis to understand Lafiya Sister self-injection practices - who they teach to self-inject (and how they don't), and how they determine how many doses to send them home with.
- Conduct future analysis focused on pregnancy and fertility outcomes.

Introduction

This evaluation is a follow-up study to an [earlier difference in difference analysis](#) that took place in January 2025. More information on the genesis of the programme and evaluation can be found in this report.

This evaluation answers the following questions:

1. Is contraceptive uptake sustained compared to similar comparison regions?
2. For women who stopped using contraception since the midline, why did they do so?
3. How many women self-injected, and how many doses did they take home? How are women being reminded of the timing for self-injection?
4. How are women disposing of DMPA-SC?

This evaluation was designed and overseen by an independent consultant with input from the Lafiya Nigeria senior management team and senior leadership from a local research firm. A local Nigerian firm completed the data collection, validation, and quality checks.

Design

This study employed a quasi-experimental, difference-in-differences (DID) design. DiD uses pre- and post-longitudinal data to compare changes over time in treatment and comparison groups to obtain an appropriate counterfactual to estimate a causal effect. In this study, we used baseline measures from April 2024, midline measures from January 2025 and endline measures from October 2025 from the same participants matched across all three cohorts. For the difference in difference analysis, we compared baseline and endline uptake (baseline to midline uptake is discussed in a previous study). For continuation analysis, we considered the changes between midline and endline.

The difference-in-difference method relies on four key assumptions. You can read more about these assumptions in our original report.

Methodology

Please refer to the original report for treatment and comparison ward selection and original sampling methodology.

Sampling

In the original study, we had 526 individuals matched across baseline and midline. For the endline wave, we experienced some attrition with 418 women matched across all three waves (21% attrition). There were 19 cases of spillover where women in the comparison area had received DMPA-SC, similar to the midline. These were removed from the DiD model analysis to reduce bias, leaving 399 women. However, the full 418 sample was used when considering questions around types of contraception, self-injection and disposal to understand usage patterns across all users.

Table 1: Treatment and comparison sample sizes

Survey Respondent	Location	Planned	Baseline	Matched midline	Cleaned midline	Matched endline	Cleaned endline
Women with an unmet need for contraception	Wamakko (treatment)	350	316	266	266	196	196
	Shagari (comparison)	350	327	278	260	222	203
Total		700	643	544	526	418	399

We calculated the power for a linear probability model based on a sample size of 399, an effect size f^2 of 0.71 (based on the change between the groups), three predictors and an α error probability of 0.05. This was highly powered (Power =1) and our model remained highly powered with up to ten predictors. This high power, combined with our rigorous sample and matching processes, supports the validity of our counterfactual and the causal interpretation of our DiD estimates.

Survey design and deployment

For details on the original survey design and deployment, please review the original report.

At endline, the survey teams returned to the original households and interviewed the same women by matching their names and personal details to the existing master list of participants. If women were not there, the team followed up a day later to try and reach them and noted where women were no longer resident. The data was then cleaned to ensure only women who were present at baseline, midline and endline were included in the analysis. Women who were lost to follow-up had often moved away from the area,

sometimes due to divorce. These women were broadly similar to retained women on age, parity, education, advice, and baseline uptake, but had somewhat higher contraceptive use at baseline and midline and were more likely to be in the highest wealth category. This pattern, if anything, would likely bias estimates towards the null rather than inflating the results.

The survey at endline contained many similar items to previous surveys. However, we did ask two new questions about how women remind themselves to inject and how women dispose of DMPA-SC.

Analysis

Description of the data

The comparison and treatment groups were similar in key characteristics such as age, number of children, education levels, baseline contraceptive uptake and midline levels of contraceptive advice. However, women in the treatment group were in a better economic position and had a higher rate of ever using contraception compared to the comparison group.

When we account for attrition at midline, we find no substantial differences between participants who remained in the study and those who dropped out. Most attrition occurred in the treatment group (65%), but dropouts were broadly similar to retained participants across key demographic characteristics. Importantly, we were concerned that dropouts might disproportionately include non-users of contraceptives. However, the data show the opposite: women who dropped out had slightly higher contraceptive uptake at both baseline and midline. As a result, any resulting bias is likely to be conservative (i.e., to attenuate the estimated treatment effect), rather than to exaggerate it.

Table 2: Description of the data

	Treatment	Comparison	Dropouts
N	196	203	108
Age (average)	30	30	30
Number of children (average)	4	4	4
Education	0 - 58%	0 -66%	0 -60%

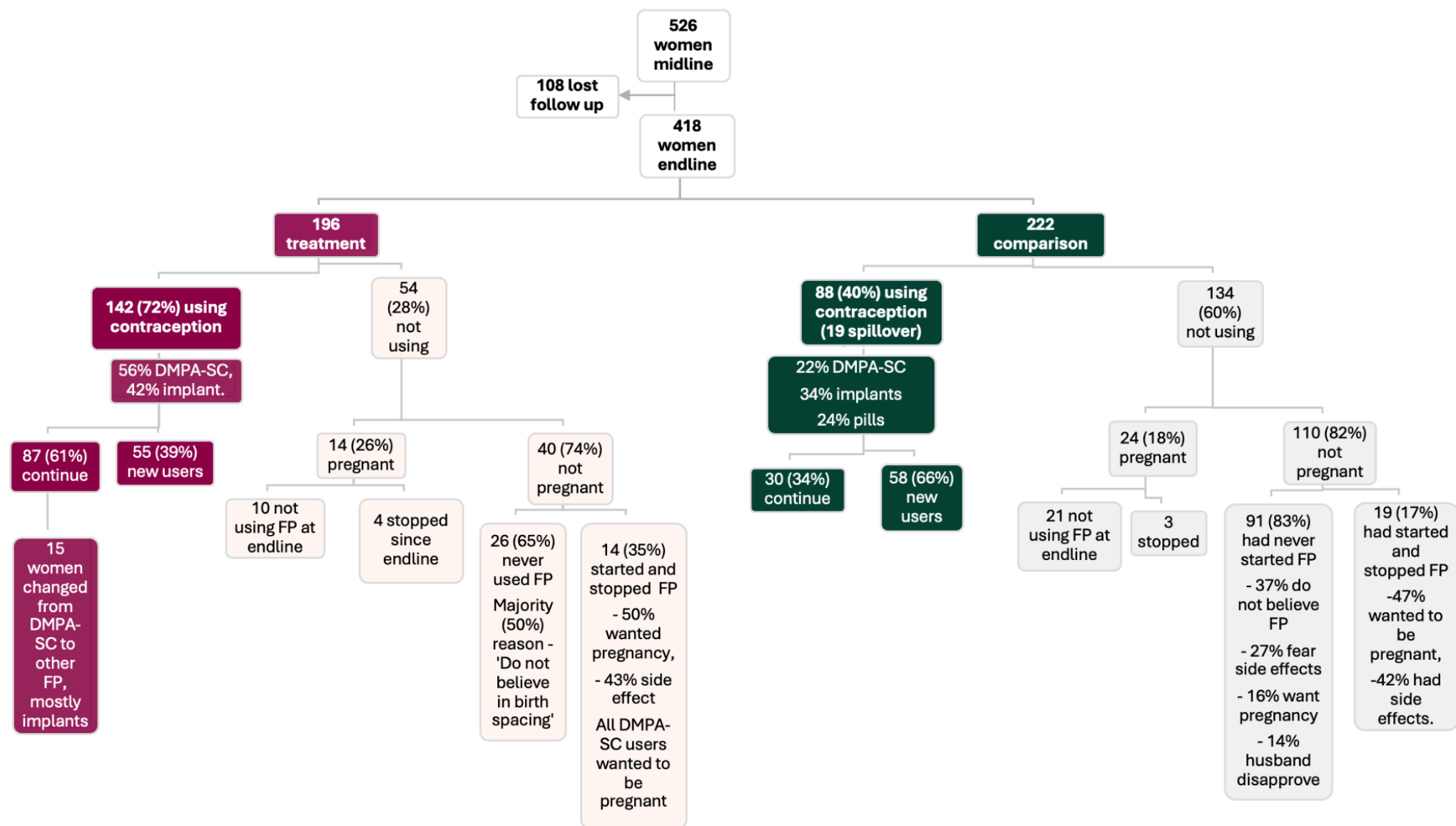
No formal schooling (0)	1 - 10%	1 - 8%	1 - 17 %
At least some primary schooling (1)	2 - 26%	2 - 23%	2 - 18%
At least some secondary schooling (2)	3 - 7%	3 - 3%	3 - 5%
At least some tertiary schooling (3)			
Economic situation score % per category (endline)	1 - 4%	1 - 10%	1 - 1%
	2 - 56%	2 - 74%	2 - 59%
	3 - 29%	3 - 14%	3 - 21%
No money for food or clothes (1)	4 - 11%	4 - 2%	4 - 18%
Money for food and clothes only (2)			
Money for some savings (3)			
Money for some expensive goods (4)			
% women who had ever used contraception (baseline)	38%	18%	33%
% women using FP at the midline	46% ³	23%	50%
% women ever received advice (midline)	92%	84%	92%
% uptake contraception (baseline)	2%	2%	3%

Before considering our particular evaluation questions, we present a summarised event tree showing the outcome pathways for participants in both the treatment and comparison groups at endline. This shows some interesting findings that the report will discuss further:

- Substantial differences between the treatment and comparison groups in contraceptive uptake.
- Substantial differences between the groups in terms of rates of continuation and new users.
- Higher usage of pills and implants in the comparison group and lower rates of DMPA-SC.

³ This is based on the smaller sample at endline whereas the earlier figure (56%) is taken from the previous study with a larger sample.

Graphic 1: Event tree for respondents at endline (sample 418)



1. Is contraceptive uptake sustained 12 months on compared to similar comparison regions?

At baseline in April 2024, only a small proportion of women in both the treatment and comparison areas were using contraception. By midline in January 2025, contraceptive use had increased in both groups, with a notably greater rise in the treatment areas, as shown in Table 4. At the endline stage in October 2025, usage continued to climb in both groups, with the treatment group maintaining a higher increase than the comparison group, although the pace of growth slowed for both.

Table 3: Percent of women currently using contraception

Area	Baseline	Midline ⁴	Endline
Treatment	2.%	56%	72%
Comparison	2.5%	23%	34%
Treatment (modelled counterfactual)	2.%		34%

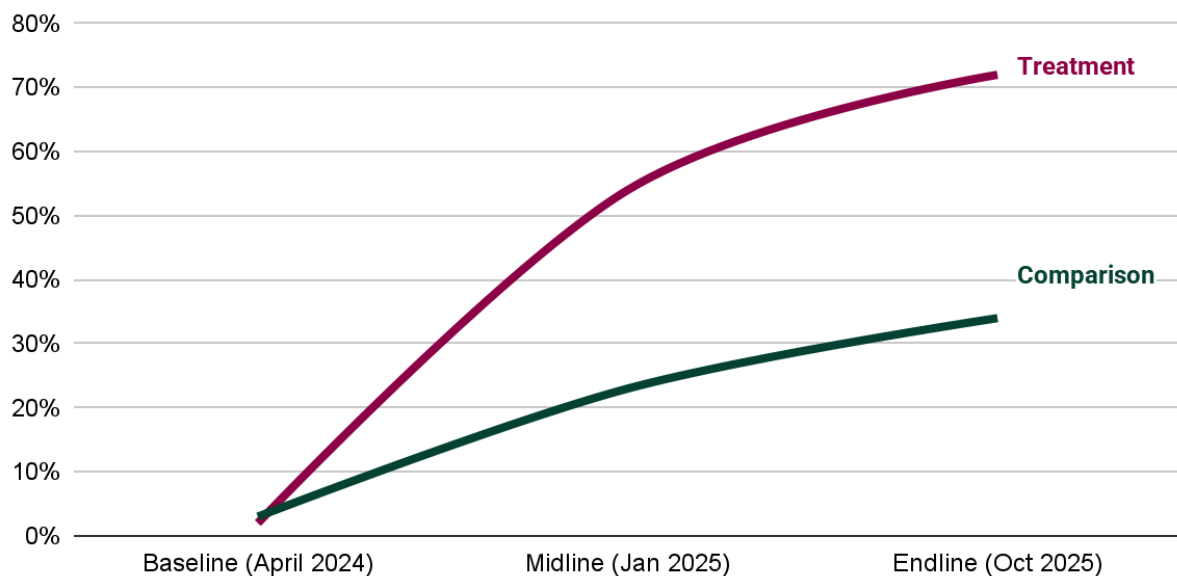
This suggests that the Lafiya programme, on average, led to a 39 percentage point increase⁵ in the uptake of contraception for women in the treatment group from baseline to endline. This is slightly higher than the result from Lafiya's first (midline) DiD analysis, showing a 34 percentage point change from baseline to midline. This demonstrates that Lafiya's effect was sustained and even improved from midline to endline. Both groups experienced growth in uptake of contraception from midline to endline, although at a slower rate compared to the period from baseline to midline. The percentage of women using contraception in the treatment group at endline grew by 16 percentage points since midline while the comparison group grew by 11 percentage points.

The graph below illustrates the relationship between the treatment and comparison groups. The treatment counterfactual is not shown for clarity, as the starting point for the treatment and comparison groups was so similar that the modelled counterfactual was almost identical to the comparison trajectory.

⁴ Taken from the previous study

⁵ Rounded

The number of women using family planning increased at expost, with greater gains in the treatment group



We then used a Linear Probability Model (LPM) to calculate a more precise DiD estimator (e.g. the average treatment effect above), alongside the statistical significance and the confidence intervals of this estimate, and to control for additional variables that might contribute to contraceptive uptake.

We ran two difference-in-differences models. Model 1 presents the unadjusted treatment effect. Model 2 adjusts for baseline contraceptive use, receipt of family planning advice, socioeconomic status, and age—factors that were significant predictors in our previous analysis. Other demographic variables (education, number of children, working status) were not significant and were excluded to maintain model parsimony.

The results of both models are shown in the table below. This shows the regression coefficient, 90% cluster-robust confidence intervals in brackets (clustered at the ward level) and significance levels (***) $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, † $p < 0.1$) as well as the model parameters.

Table 4: Difference-in-difference estimates from models 1 and 2.

Variable	Model 1	Model 2
Time period	0.32 *** [0.248 - 0.382]	0.33*** [0.25 - 0.39]
Treatment group	-0.004 [-0.046 - 0.037]	-0.013* [-0.02 - -0.005]
Time period x treatment group (Intervention effect)	0.39 *** [0.228 -0.5]	0.37*** [0.26 - 0.48]
Income sufficiency (food and clothes)	-	0.12* [0.05-0.19]
Income sufficiency (food and clothes and savings)		0.21***[0.08 - 0.33]
Income sufficiency (comfortable)		0.13* [0.03 - 0.23]
Income sufficiency not given		-0.2 [-0.31 - -0.1]
Age	-	0.0005 [-0.002 - 0.003]
Ever Used FP at Baseline	-	0.69*** [0.64 - 0.73]
Received FP Advice Baseline	-	0.028 [-0.09 - 0.15]
N	798	798 ⁶
R2	0.414	0.478
Adjusted R2	0.411	0.471
F	186.6 ***	72.04***

Both models were statistically significant ($R^2 = 0.414, 0.478$, $F=(3,794 \text{ and } 10,787) = \text{value}$ [186.6, 72.04 $p = <0.001$). This means the models explain approximately 41-47% of the variation. Both models were stronger and more robust based on their R2 values compared to the DiD models generated and baseline and midline, despite the smaller sample size. This could be due to attrition in the sample.

⁶ Stacked person period observations.

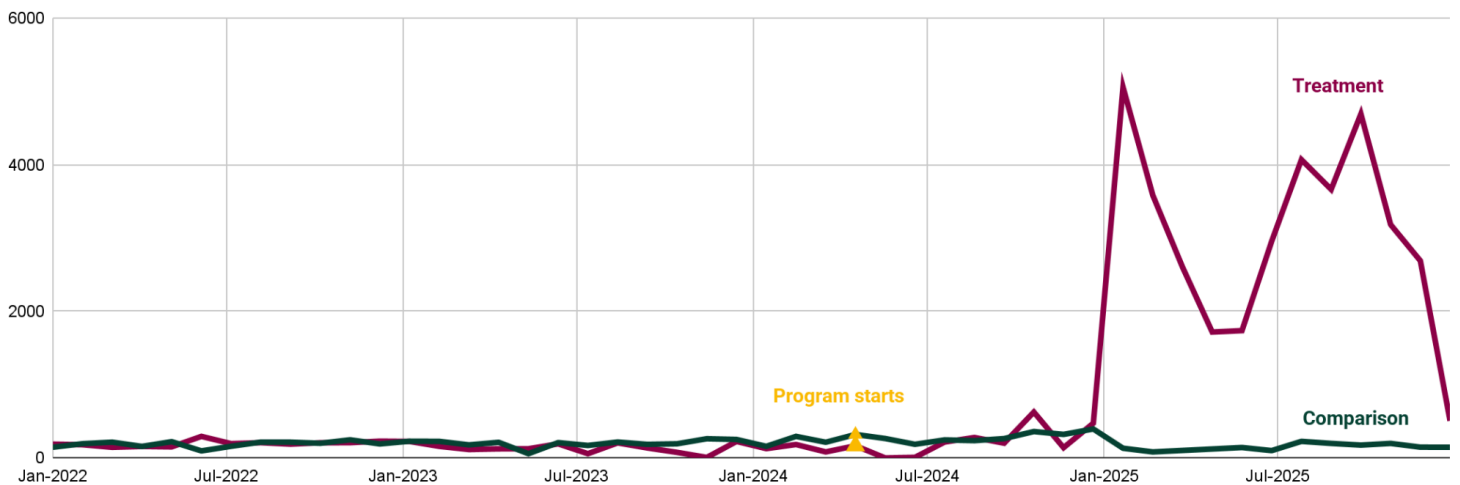
In model 1, both time (the transition from baseline to endline) and the interaction between time and the treatment group significantly predicted contraceptive uptake. Participants at endline had, on average, a 32 percentage point increase in the chance of using contraception compared to baseline (95% CI: 25% - 38%, $p < 0.001$). The interaction term between time and treatment group specifically captured the added benefit for the treatment group of the Lafiya programme. The interaction between time and the treatment group was greater at 0.39, indicating that the Lafiya Programme, on average, **led to a 39 percentage point increase in contraceptive uptake for individuals in the treatment group at endline** (95% CI: 29% - 48%, $p < 0.001$). This suggests, similar to the calculations above, that the Lafiya programme had a substantial impact on the treatment group's likelihood of adopting contraception.

In model 2, we found that

1. Being in a Lafiya treatment area at the midline was a strong predictor of contraceptive uptake at endline. This increased the likelihood of taking up contraception by 37 percentage points on top of temporal and group effects. This aligns closely with model 1, showing the robustness of this estimate.
2. Temporal effects were another important predictor. This indicates that time passing increased the likelihood that participants would use contraception on average by 33 percentage points in both groups. This may indicate an increase in contraceptive provision over the year in the comparison area by the government and other actors, or potential unintended and unaccounted spillover effects from the Lafiya programme.
3. Being in an income bracket where the household had sufficient income to pay for food, clothes and save increased the probability of using contraception at endline by 21 percentage points.
4. Having ever used contraception at baseline increased the likelihood of taking up contraception at endline by 69 percentage points.

The endline models show improved fit ($R^2=41-47\%$ vs $28-33\%$), likely because treatment effects have had more time to manifest and differentiate the groups and because we were more targeted with the covariates we included, learning from the previous models. While attrition reduced our sample size, our analysis suggests dropouts were not systematically different on key characteristics, indicating attrition is unlikely to bias our estimates.

Number of contraceptives given in treatment and comparison areas 2022-2025



When we compare these findings to health facility data from our treatment and comparison areas, the treatment facility data appears to confirm our results, showing substantial increases in contraceptive delivery from late 2024 through 2025 (December 2025 figures may still be incomplete). Health facility data reveal that between 86% to 96% of contraceptives delivered in treatment areas were DMPA-SC, administered either through self-injection or by providers. It is important to note that these figures represent the number of contraceptives distributed rather than unique women served. Because DMPA-SC requires delivery at least four times per year, these numbers may be inflated relative to longer-acting methods such as implants that are delivered less frequently.

In comparison areas, by contrast, the number of contraceptives delivered remained flat, despite our survey findings indicating that contraceptive coverage also increased in these areas, though to a lesser extent than in treatment areas. This discrepancy may be due to missing data from two facilities in comparison areas due to insurgency-related security risks and stolen contraceptive supplies. Alternatively, it could suggest that the survey itself prompted women in comparison areas to seek contraception more actively than they otherwise would have, raising questions about whether the observed uptake represents a broader trend or a survey-induced effect.

Users

In the following sections, we conduct exploratory analysis based on the data generated. Please note that these sections use the full sample, including spillover cases to gain a complete understanding of contraceptive behaviours. Given the smaller sample sizes, the findings in these sections are indicative only.

Looking beyond contraceptive uptake, we now consider the profiles of the women who were using contraception at endline in both the treatment and comparison groups.

Table 5: New, first-time time and continuing users of contraception at endline

	Total contraceptive users	Total DMPA-SC users	New users (since midline)	New first-time users ⁷	Continuing users since midline
Treatment	142	80 (56%)	55 (39%)	42 (30%)	87 (61%)
Comparison	88	19 (22%)* spillover cases	58 (66%)	47 (53%)	30 (34%)

The treatment group had more contraceptive users overall. Most of these users were continuing users since the midline (61%). Thirty percent were first-time ever contraceptive users (as in we had no record of them using contraception since baseline and they had reported never using contraception), down from a recorded 52% at midline. Of those first-time users, 55% were using DMPA-SC. The comparison group was the reverse, with only 34% of women continuing contraception (43% implant users) and 53% first-time users (36% implants, 34% pills).

When we consider DMPA-SC users specifically, we find that in the treatment areas at endline we had 80 users of DMPA-SC. Of these, 30 were new users and 50 were continuing users. Self-injectors made up 29% of all DMPA-SC users.

⁷ Subset of column to the left (new users since midline)

Table 6: New, first-time time and continuing DMPA-SC users at endline

	Total DMPA-SC users	New users (since midline)	New first-time users⁸	Continuing contraception users since midline	Self-injectors
Treatment	80	30 (37.5%)	27 (34%)	50 (62.5%)	23 (29%)
Comparison	19* spillover cases				

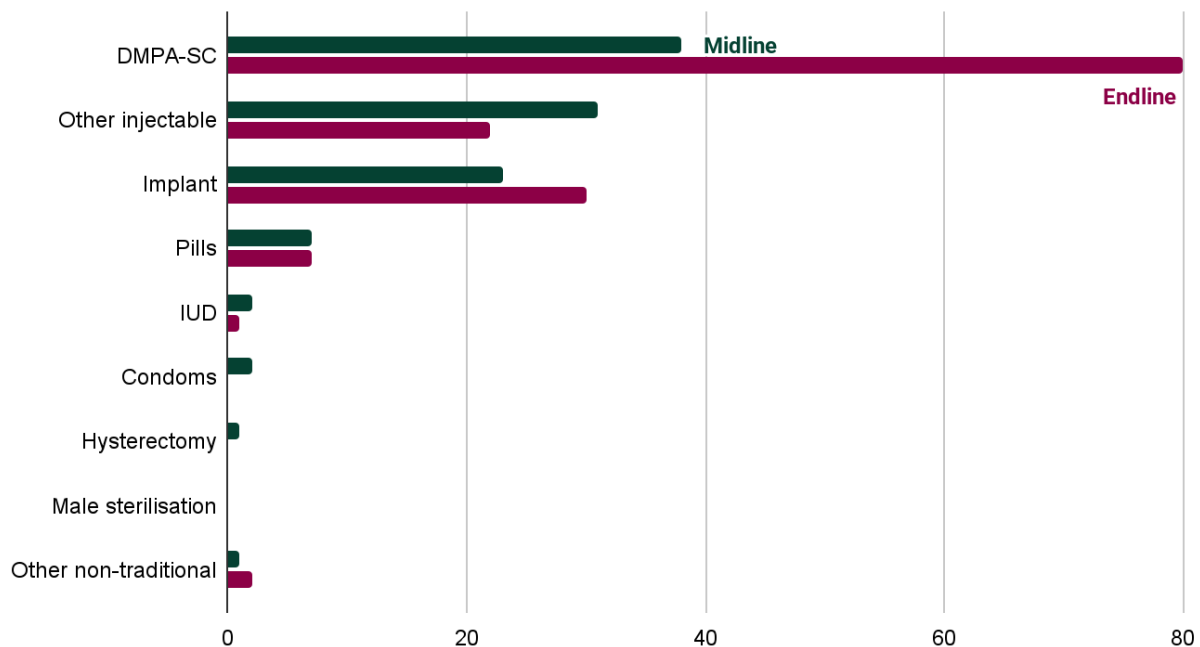
This suggests that as the Lafiya intervention in an area matures with growing numbers of users, the number of potential new users may decrease while the number of continuing users increases. This has implications for the role of the Lafiya Sister, which may pivot from attracting new users to sustaining existing users.

Lafiya may wish to investigate if this pattern of changing user profiles exists in other programme implementation areas and, if so, consider how they can best communicate and support this gradual shift in the Lafiya Sister role over time, from an initial focus on attracting new users to focusing on supporting continuing users.

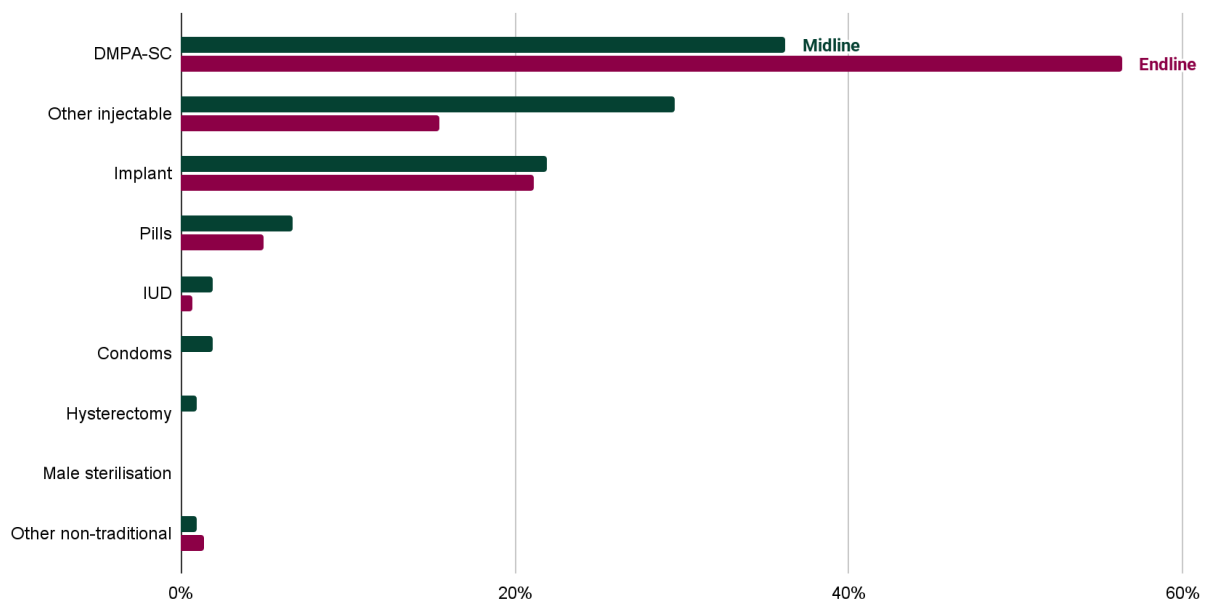
When we consider the types of contraception women were using at endline compared to what they were using at midline we find that in the treatment areas there was an absolute and proportional increase in the number of women using DMPA-SC (from 36% to 56%). While there was an increase in the absolute number of women using implants too, proportionally this actually marginally decreased from 22% to 21%.

⁸ Subset of column to the left (new users since midline)

The number of users of DMPA-SC and implants increased in the

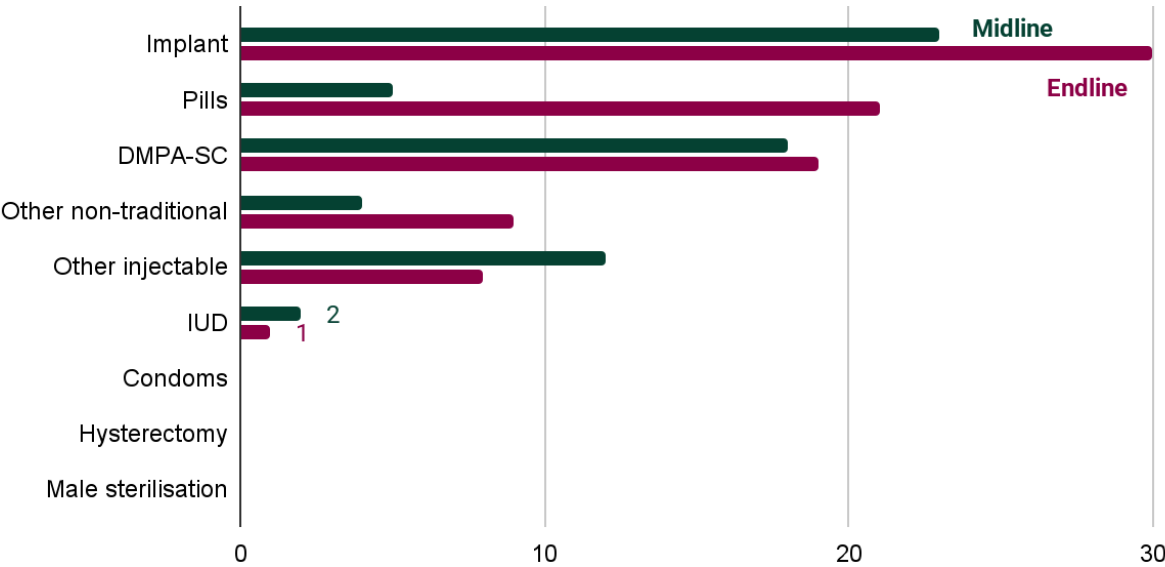


The proportion of contraceptive users using DMPA-SC increased while the proportions using other methods decreased

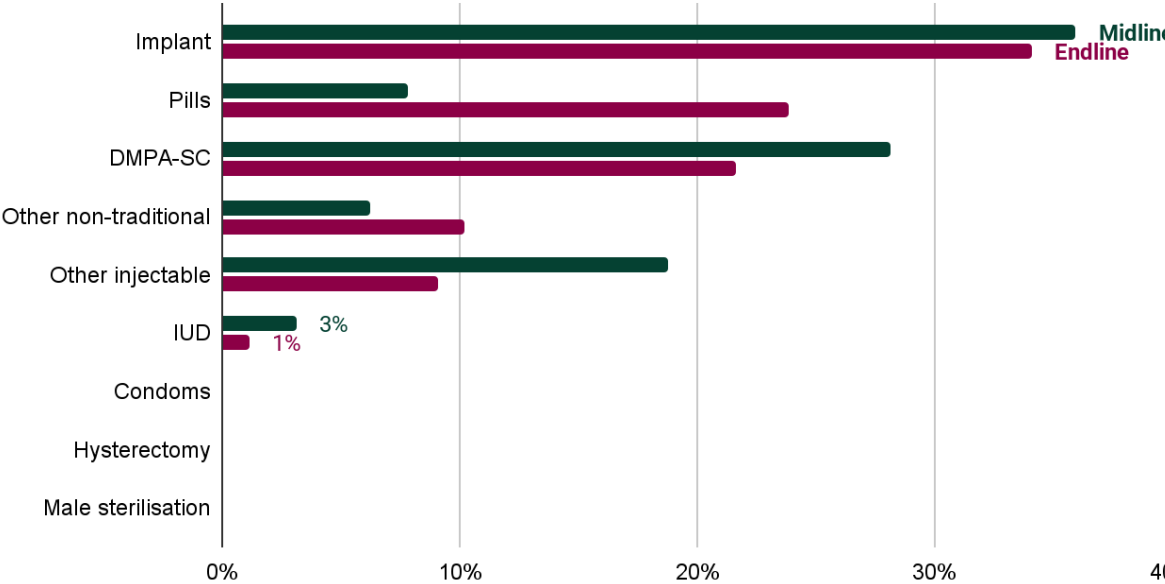


In the comparison areas, the number of women using pills increased substantially, followed by implants. However, when we consider these increases as a proportion of the total number of women using contraception, we find that only pills increased substantially.

In comparison areas the number of women using implants and pills increased



The proportion of women in comparison areas using pills since midline increased substantially



Continuation and discontinuation

Overall, 117 women continued using contraception in both treatment and comparison groups from midline to endline. More women continued to use contraception in the treatment group compared to the comparison group, with a continuation rate of 83% versus 57%. This 26 percentage point difference suggests that the Lafiya programme did not just increase initial uptake but created conditions for sustained use—whether through better counselling, follow-up support, method satisfaction, or addressing other continuation barriers.

Table 7: Continuation and discontinuation rates for contraceptive users

Arm	# using contraception midline	# continued endline	# discontinued endline	Continuation rate	Discontinuation rate
Treatment	105	87	18	83%	17%
Comparison	53	30	23	57%	43%

At midline, 38 users were using DMPA-SC.⁹ By endline, 20 of these women were still using DMPA-SC, 15 had switched to another method and three had stopped, resulting in a 53% DMPA-SC specific continuation rate. For those using DMPA-SC at midline, 92% continued to use a modern contraceptive method at endline.

Table 8: Continuing users of DMPA-SC in treatment areas

	DMPA-SC at midline	DMPA-SC at endline	Other contraceptive endline	Stopped
Treatment	38	20	15	3

Across both groups, the most common reason for stopping contraception was because women wanted to become pregnant, followed by side effects. This was broadly similar to our previous DiD findings. For the four women¹⁰ using DMPA-SC in the treatment area who stopped, all those who stopped wanted to become pregnant. Those four who were already

⁹ Note in the previous DiD study this was 47 however this study is using a smaller sample due to attrition explaining this discrepancy.

¹⁰ See note below on the discrepancy between 3 and 4 users.

pregnant and stated they had previously used DMPA-SC stopped because they wanted to be pregnant.

We asked women who were not using contraception if they had used contraception over the past year, and if they had, asked them why they stopped. There is a slight discrepancy with the number of women we recorded as discontinued based on their matched data between midline and endline (above) and what they reported to us. This may be because they started contraception after the midline but stopped before the endline measurement so we didn't record a change in their contraceptive status or because they misunderstood the question, or an enumerator misinterpreted their answer.

The main reasons these women gave for starting and then stopping contraception were primarily because they wanted to become pregnant, followed by side effects.

Table 9: Reasons for discontinuing contraception

	Number of women stopping	Method	Reasons
Treatment	20 (10%)	DMPA-SC	- 4 wanted pregnancy - 4 pregnant (wanted pregnancy)
		Other injectables	- 3 side effects - 2 wanted pregnancy - 1 pregnant (wanted)
		Implant	- 2 side effects
		Pills	- 2 side effects
		Other non-modern methods	- 1 wanted pregnancy - 1 didn't believe in birth spacing
Comparison	26 (11%)	DMPA-SC	- 1 pregnant (wanted)
		Other injectable	- 3 pregnant (wanted) - 4 side effects - 4 wanted pregnancy
		Implant	- 4 side effects

	Number of women stopping	Method	Reasons
			- 1 Failure
		Pills	- 1 other - 1 pregnant (wanted) - 3 wanted pregnancy
		Other non modern method	- 1 pregnant (wanted) - 2 want pregnancy - 1 husband disapproves

Method switching

Seventy-eight women, or 19% of those who were using contraception at endline, had switched contraceptive methods. Of those women switching, 76% were in the treatment area. In the treatment area, 51% (30) of switches were to DMPA-SC. This means 35% of continuing DMPA-SC users are switchers (21% of the total contraceptive users at endline). The most common switch was from other injectables to DMPA-SC. The second most common switch was from DMPA-SC to implants and implants to DMPA-SC. This is positive, showing that DMPA-SC is a desirable contraceptive alternative that women wish to switch to. It is also positive that the majority of women switching away from DMPA-SC are switching towards a longer-acting contraceptive.

Table 10: Switches between contraceptive methods

Contraceptive midline	Contraceptive endline	Number of switchers
Other injectable	DMPA-SC	17
DMPA-SC	Implant	10
Implant	DMPA-SC	10
Other injectable	Implant	8
Pills	DMPA-SC	6
Implant	Other injectable	5
Implant	Pills	4

We do not have any data on women's qualitative reasons for switching methods. This is a topic Lafiya can investigate in the future.

Pregnancy outcomes

Studying pregnancy outcomes was not a core aim of this study; however, it is noteworthy that differences emerged between the treatment and comparison groups, which may be connected to increases in contraceptive uptake in the treatment area. No pregnancies were reported at baseline, as pregnant women were excluded from the study given that they did not have an unmet need for contraception. At the midline, the treatment group had 15 reported pregnancies (6% of the sample population), compared to 81 reported pregnancies (31%) in the comparison group. By endline, this gap in pregnancy outcomes persisted, but narrowed, with pregnancy rates in the treatment group holding steady at 7% while rates reduced to 12% in the comparison group. This could be due to increased uptake of contraceptives in the comparison area or the result of normal fluctuations in pregnancy rates.

Table 11: % women who report they are pregnant

Area	Baseline	Midline	Endline
Treatment	0	6% (15/266)	7% (14/196)
Comparison	0	31% (81/260)	12% (24/203)

In future research, we plan to examine pregnancy outcomes over a longer period using robust baseline and administrative data on pregnancy rates.

3. How many women self-injected and how many doses did they take home? How are women being reminded of the timing for self-injection?

We asked 99 DMPA-SC users if they self-injected. Thirty-one users reported they had self-injected at endline, reducing proportionally from 74% of DMPA-SC users injecting at midline to 31% of users by endline (reduction of 17 women). This was not caused by attrition. We did not ask why women stopped self-injecting; however, this could be something for Lafiya to investigate in the future.

Table 12: Self-injection rates

	Midline	Endline
Self-injection	74% (48/65)	31% (31/99)

Of those who self-injected, 17 were continuing contraceptive users, of which 8 were continuing DMPA-SC users, and 14 were new users. While it is positive that a high proportion of self-injectors are new users, showing acceptance of a new method, it is also concerning that we do not see higher numbers of continuing users among self-injectors. More investigation is required to understand why women don't continue to self-inject long-term.

When we asked self-injectors how many times they had self-injected 61% said they had injected themselves once, and 39% reported twice. Nobody reported more than twice. This may be due to the high proportion of new users of DMPA-SC whose limited time since initiation may have reduced the number of possible injections. It may also be that women need time to get used to the DMPA-SC method with a provider before transitioning to self-injecting. Lafiya Sisters should be trained to support women's choices, but also positively encourage a move towards self-injection.

When we reviewed data from the health facilities in Lafiya treatment areas we found that, on average across 2025, 38% of DMPA-SC provided was self-administered. However, we do not know from this how many women were continuing users compared to new users, and continuation of self-injection is key for longer-term, sustainable contraceptive coverage.

Teaching women to self-inject means they can take DMPA-SC doses home to administer themselves, which should improve consistency, reduce costs, and contribute to longer-term contraceptive protection. In the survey, we asked women how many doses of DMPA-SC they had received, including those given by a health worker, those that were a supervised self-injection, and doses they took home. The average number of doses self-injectors received was 2. Again, we would have hoped this would be higher, given women can receive three doses to take home (so could receive four doses total - one in the arm and three to take home) as per Nigerian Government regulations passed in November 2024.

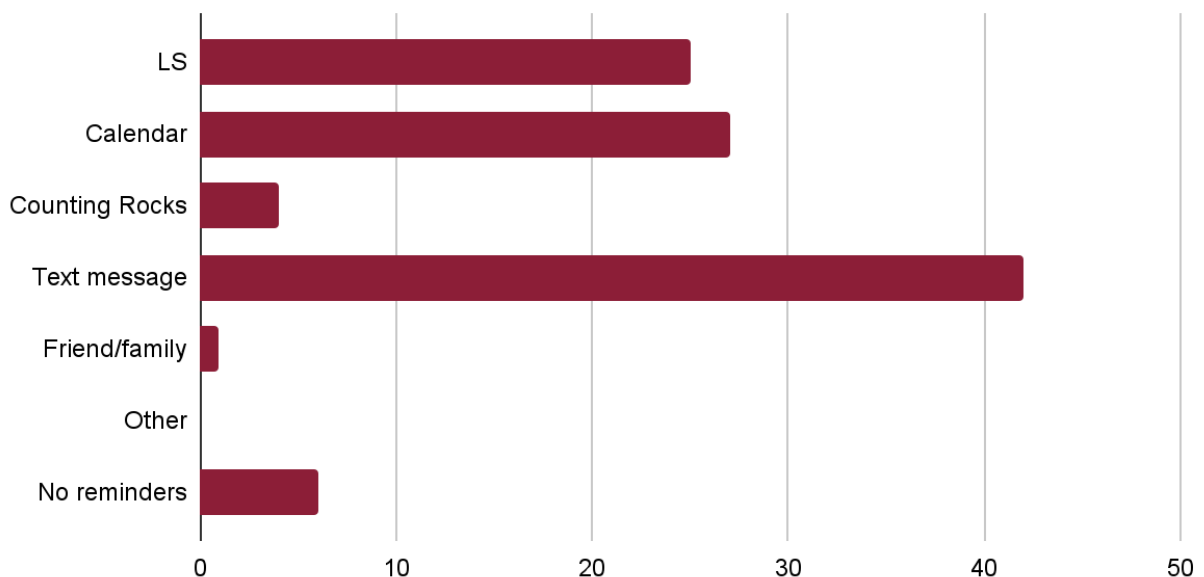
It is recommended that Lafiya conduct more research to understand why the number and proportion of women reporting they are self-injecting is decreasing. Lafiya should ascertain the standard and actual operating procedures for Lafiya Sisters: who do they teach to

self-inject, and are there any biases? How many DMPA-SC doses do self-injectors get, and why does this vary by the profile of the self-injector? Why do women who self-inject not always receive or accept three take-home doses? Why do women start self-injecting and then stop? This is important for improved contraceptive consistency and the long-term sustainability of the Lafiya programme.

Reminders

We asked 99 women how they reminded themselves to take their next dose of DMPA-SC. The most common response was via the text message program (42%), followed by calendars (27%) and Lafiya Sisters (25%).

The majority of women use text messages to remind themselves about injections



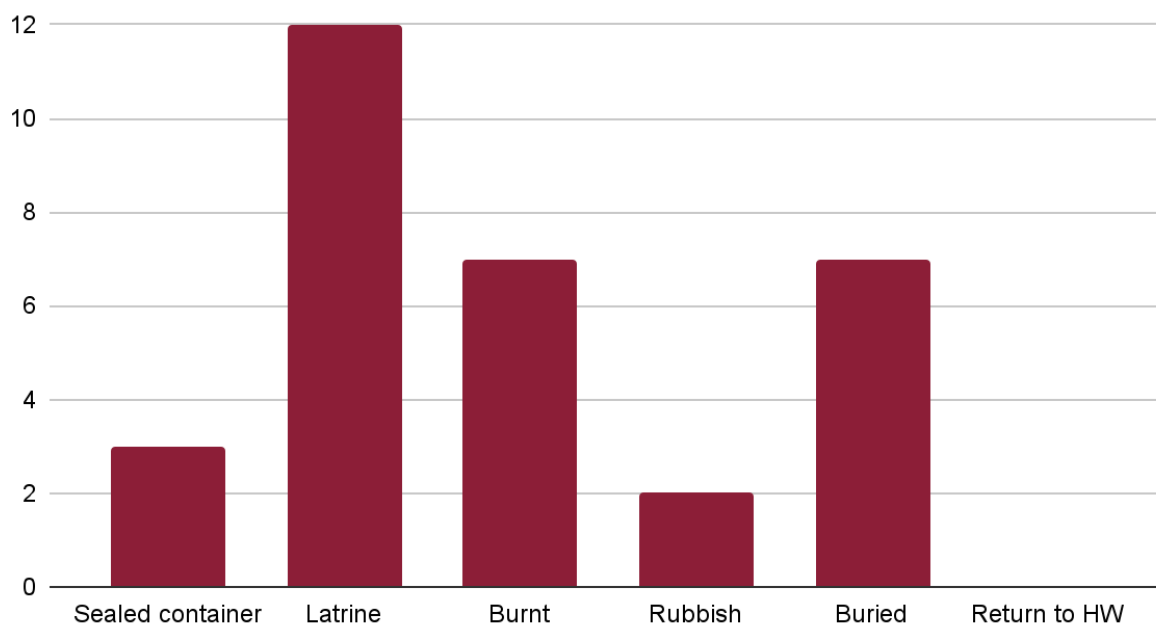
This is a positive indicative signal of the utility of Lafiya's text message programme despite some previous concerns around mobile phone ownership and coverage rates for women in these areas. This is especially so given the majority of these women have no schooling and were in lower income brackets. There have also previously been concerns about using calendars for illiterate women, but again, this was one of the more popular options. Other options, like counting rocks to mark the days, which had been suggested as a means for illiterate women to remember their injection date, were rarely used. This lends some evidence to Lafiya continuing and scaling up their text message programme, as well as

providing calendars marked with the date of the next DMPA-SC dose. Maintaining contact with Lafiya Sisters via WhatsApp or the health centre is also an important way to ensure women receive DMPA-SC doses on time.

4. How are women disposing of DMPC-SC?

Given the opportunity to follow up with DMPA-SC self-injectors, we took the opportunity to ask about their DMPA-SC disposal practices, which we had not collected data on before. We asked 31 eligible women how they disposed of their DMPA-SC doses at home. The most common answer was to throw it in the pit latrine (12), followed by burning it with the rubbish (7) or burying it (7). Few women disposed of DMPA-SC in a sealed box and no one returned the spent DMPA-SC to a health worker or Lafiya Sister.

Ways women reported disposing of DMPA-SC



According to JSI, disposal options for DMPA-SC should be practical, convenient, and support adherence.¹¹ They must comply with national healthcare waste regulations and household guidance, minimise risks of needlestick injuries and infection, consider costs for clients and health systems, be scalable, reflect current evidence, and be clearly explained in client materials and provider discussions.

¹¹ https://publications.jsi.com/JSIInternet/Inc/Common/download_pub.cfm?id=23155&lid=3

While pit latrines can be an accessible and private option for women, these can have downsides, including contamination of plastic chemicals and needles in faecal sludge, misalignment with government waste guidance and lack of options in more urban areas with flushable toilets.

According to current Government guidelines, used injections should be disposed of in a puncture-proof (sealed) container and returned to the Lafiya Sister or health facility during the next visit.

Based on this initial data, it is recommended that Lafiya ensure Lafiya Sisters provide accurate disposal information to clients and make disposal as convenient as possible.

Recommendations

Program

- Consider how to prepare Lafiya Sisters for the changes in their role the longer they remain in post. The longer Lafiya sisters serve the more likely it is that their role will transition to support continuing users rather than finding new users. This may require different skills, tools, and supports.
- Review protocols and practices for how Lafiya Sisters teach self-injection to ensure there is no risk of bias. Understand how many doses they give upon self-injection and why and aim to increase this towards the government-allowed maximum. Ensure Lafiya Sisters are providing follow-on support to sustain self-injection.
- Lafiya should continue to send text messages and provide free calendars, as these seem to be helpful reminder tools.
- Reinforce proper waste management for used units during Lafiya Sister trainings, counselling sessions and follow-up support.

Research

- Conduct qualitative research to understand why women switch to and switch away from DMPA-SC. This will be particularly interesting in contexts where many methods are accessible and freely available. Of particular interest is understanding if and how DMPA-SC provides a stepping stone towards longer-acting contraceptives like implants.
- Review government facility data from the treatment and comparison areas to triangulate these results.

- Conduct further research to understand why women stop self-injecting once they have started and what, if any, additional support they may require.
- Conduct future analysis focused on pregnancy and fertility outcomes.

Bibliography

https://publications.jsi.com/JSIInternet/Inc/Common/download_pub.cfm?id=23155&lid=3

https://media.path.org/documents/PATH_DMPA-SC_self-injection_continuation_research_brief_English.pdf

Appendices

Endline Survey

start	starttime	
end	endtime	
deviceid	deviceid	
phonenumber	devicephonenumber	
username	username	
calculate	device_info	
calculate	duration	
caseid	caseid	
enumerator	enumerator	Please select the unique name for enumerator field. (Edit this label to meet your needs...)
calculate	enumerator_id	
date	Date_survey	Date of survey
select_one LGA	LGA	What LGA are you completing this survey in?
select_one Wamako	Ward_wam	What Ward are you completing this survey in?
select_one Shagari	Ward_shag	What Ward are you completing this survey in?
note	Note_enumerator	NOTE TO ENUMERATOR: Please

		ensure before commencing the interview that the woman in the household you are speaking to is on the list of households from the baseline.
note	Consent_exp	Hello. My name is_____ from _____. I would like to invite you to take part in this follow up survey about birth spacing in Nigeria sponsored by a local Nigerian family health organisation. If you take part this will help us better understand how we can improve access to family planning. The survey will take 10 minutes. Some of the questions in this survey are personal and may make you feel uncomfortable. You are free to skip a question and continue. The information you provided will be protected in a secure place and will not show your name. Any answers included in the final report will not have your name on it. If you choose not to take part in this survey, this will in not affect your access to birth spacing services. You are free to change your mind at any time and stop taking part in the survey. Please let me know if you have any questions and I can answer these

		now.
select_one yesno	Consent	Do you agree to do the survey? 'YES' means that you agree to do the survey 'NO' means that you will NOT do the survey.
begin_group	consent	If there is consent
text	Name_ppt	What is your full name?
integer	Age_ppt	What is your age?
text	Village	What village do you live in?
integer	children_ppt	How many children do you have?
select_one yesno	FP_now	Are you currently doing something or using any method to delay or avoid getting pregnant?
select_one YNDK	Preg_now	Are you currently pregnant?
select_one yesno	FP_ever	Over the past year, before becoming pregnant, did you use any method to space births?
select_multiple FP	FP_ever_method	What method(s) did you use?
select_one stop_FP	Why_no_FP_preg	Why did you stop using this method?
begin_group	not_pregnant	Not pregnant
begin_group	modern_FP	Modern FP
select_one FP	Fpnowmethod	What birth spacing method are you using right now?
select_one where	Where_FP	Who or where did you get this method from?
select_one yesno	FP_break	Have you been able to use this method without pauses or breaks?
begin_group	Sayana	Sayana
select_one Sayana_press	sayana_press	How many doses of Sayana Press have you received? This includes doses injected and taken home.
select_one yesno	selfinject	Did you self-inject Sayana Press?
integer	self-inject_howmany	How many times did you self-inject?

select_multiple reminder	reminders	What, if anything, helped you remember to take your Sayana Press? Select all that apply.
select_one disposal	sayana_disposal	How did you dispose of your used Sayana Press?
end group	Sayana	
end group	modern_FP	
select_one yesno	child_future	Do you plan to have children in the future?
select_one childfuture	childnext_when	How long would you like to wait from now before the birth of (a/another) child?
select_one yesno	ever_this_year	Have you used any birth spacing methods this past year? This includes if you started a method and then stopped.
select_multiple FP	Fpnowmethod_copy	What birth spacing methods did you use?
select_one stop_FP	Why_stop_FP	Why did you stop using this method?
select_one WhynotFP	why_no_fp	Why did you choose to not use birth spacing methods?
end group	not_pregnant	
select_one yesno	work	I will now ask you a couple of questions about you and your family. Some women work for a pay in cash or in kind like for food. Others sell things, have small businesses, or work family land or in family businesses. Are you currently doing any of these jobs?
select_one income_sufficiency	Income_sufficiency	Which of the following best describes your family's money situation?
geopoint	GPS	Geo
end group	consent	
note	Thanks_goodbye	Thank you for your participation.

note	Thank_refer	Thank you for your participation. If you are interested in receiving birth spacing methods from Lafiya Nigeria please follow up with the Lafiya sisters listed on this card.
note	End_no_consent	Thank you for your time. These are all the questions we had for you today.