Summary Report

Outcome Evaluation of Adolescents 360 in Nigeria

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Submitted by Itad in association with London School of Hygiene and Tropical Medicine

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Disclaimer

The views within this document are entirely those of the outcome evaluation team. They do not represent any of the individuals and organizations referred to in the report.

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List of acronyms

A360	Adolescents 360
BMGF	Bill and Melinda Gates Foundation
BOL	Binomial Optimus Limited
C	Comparison sites
CIFF	Children's Investment Fund Foundation
DHS	Demographic and Health Survey
FP	Family Planning
HMIS	Health Management Information System
I	Intervention sites
LARC	Long-acting Reversible Contraceptive
LGA	Local Government Areas
LMIC	Low and Middle-Income Countries
LSHTM	London School of Hygiene and Tropical Medicine
mCPR	Modern Contraceptive Prevalence Rate
MMA	Matasa Matan Arewa
MSI	Marie Stopes International
NHREC	National Health Research Ethics Committee of Nigeria
PMA2020	Performance Monitoring for Action 2020
PPFN	Planned Parenthood Federation of Nigeria
PSI	Population Services International
RR	Risk Ratio
SFH	Society for Family Health
TCI	The Challenge Initiative
ToC	Theory of Change
UN	United Nations
WHO	World Health Organization
WRA	White Ribbon Alliance

Executive Summary

Introduction

Around half of adolescent pregnancies in low- and middle-income countries (LMIC) are unintended, contributing to 3.9 million unsafe abortions per year, among girls aged 15-19 years old (WHO, 2020). Ensuring access to sexual and reproductive health-care services, including for family planning, is a critical factor in reducing new-born, child and maternal mortality (Bearinger et al., 2007, UN, 2015). Using modern contraception increases girls' and women's empowerment in terms of mobility and decision-making power, and brings greater educational and employment opportunities (Alano and Hanson, 2018). However, adolescent girls face a variety of barriers in obtaining and using modern contraception (WHO, 2020, Chandra-Mouli et al., 2014). In Nigeria, only 2.3% of married adolescent girls and 22.2% of unmarried sexually active adolescent girls use modern contraceptive methods, which means that Nigeria has one of the lowest rates of modern contraceptive use in the world (Demographic and Health Survey (DHS), 2018).

Adolescents 360

The Adolescents 360 (A360) program aimed to increase use of voluntary modern contraception among sexually active girls aged 15-19 years old in Nigeria (Atchison et al., 2018). The program combined human-centered design (IOS, 2010, Kling and Star, 1998, Bjögvinsson et al., 2012, Norman, 2016) with adolescent developmental science, cultural anthropology and social marketing (IOS, 2010).

A360 developed two interventions in Nigeria: Matasa Matan Arewa (MMA), targeting married girls in the Northern part of the country, and 9ja Girls, targeting unmarried girls in the Southern part of the country. In Northern Nigeria, MMA included mentoring through 'Love, Life and Family' classes, one-on-one counseling with a provider and a vocational skills class. Male interpersonal communicators also reached out to husbands of adolescent girls and used the health of the baby and mother to encourage them to refer their wives to a female mentor or to a clinic. MMA was implemented in two states, Nasarawa and Kaduna (Malakoff et al., 2021). In Southern Nigeria, 9ja Girls included walk-in one-on-one counseling alongside 'Life, Love, Health' classes. The curriculum featured vocational skills, future-planning exercises and discussions about love, sex and dating. 9ja Girls was implemented in six states in Southern Nigeria: Ogun, Lagos, Osun, Oyo, Edo and Delta (Cole et al., 2020).

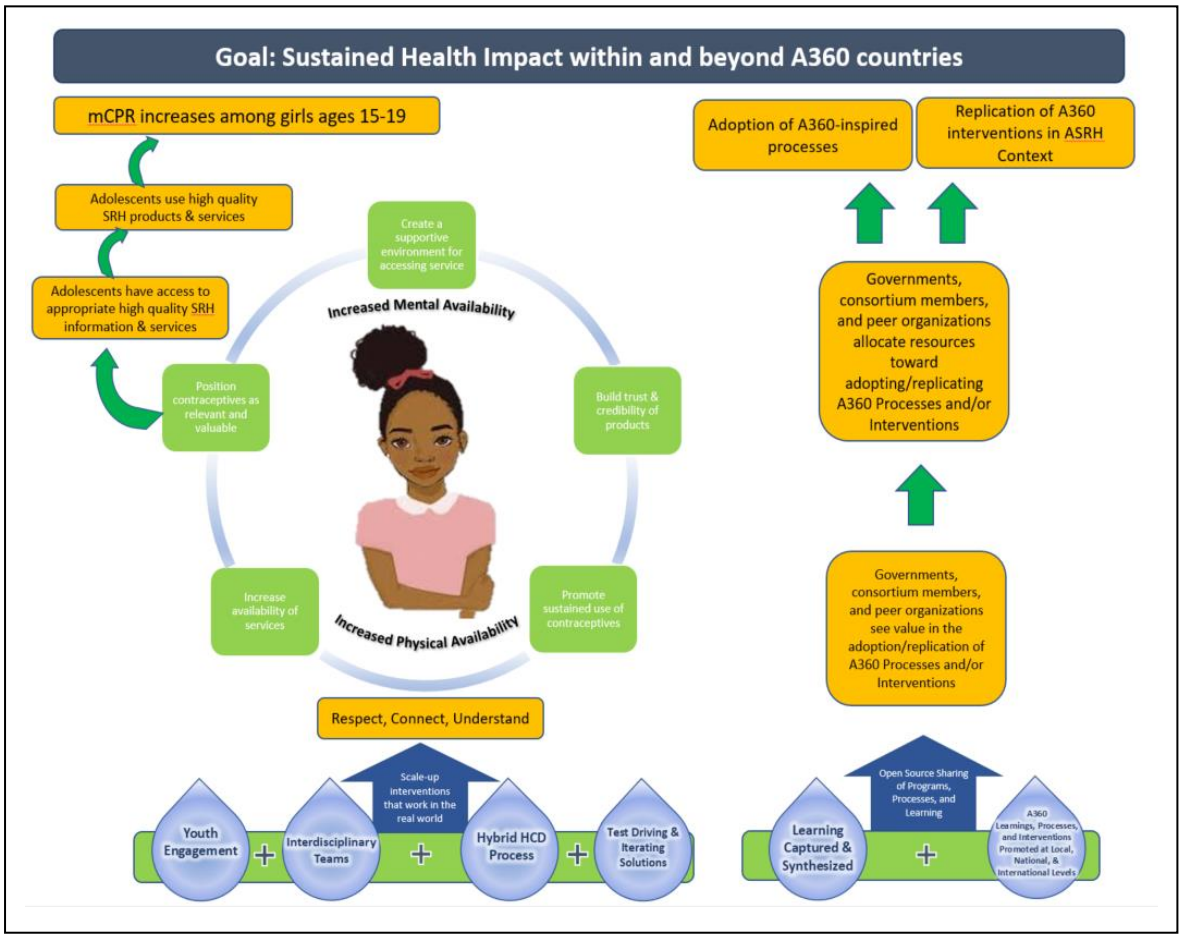
The external evaluation of the A360 intervention comprised a process evaluation, an outcome evaluation and a cost-effectiveness study. In this report, we focus on the outcome evaluation in Nigeria. Our primary aim was to evaluate the effectiveness of the A360 intervention in increasing the modern contraceptive prevalence rate (mCPR) among girls aged 15-19 years old in the study sites. Our secondary aim was to evaluate the effectiveness of A360 interventions in changing secondary outcomes aligned with the A360 Theory of Change **(Figure 1:).** Finally, we aimed to quantify the association between the respondents' self-reported exposure to A360 and the primary and secondary outcomes.

Methods

We used a quasi-experimental research design, using population-based before and after surveys with a comparison group. Baseline and endline surveys were conducted among married girls aged 15-19 years old residing in selected local government areas (LGA) in Nasarawa State (North Nigeria), and among unmarried girls aged 15-19 years old in selected LGAs in Ogun State (South Nigeria). Baseline surveys were conducted between 7 August 2017 and 23 September 2017, and endline surveys were conducted between 8 November 2020 and 13 December 2020. In Nasarawa State, eligible girls were sampled from four LGAs consisting of two

intervention sites (Doma and Karu) and two comparison sites (Nasarawa and Toto) LGAs. In Ogun State, eligible girls were sampled from an intervention LGA (Ado-Odo/Ota) and a comparison LGA (Shagamu).

Figure 1: Adolescents 360 Theory of Change [1]



Results

Implementation

The A360 interventions were implemented as follows:

- In Karu LGA (Nasarawa State): from April 2018, in 2% (n=5/261)[2] of all health facilities in the LGA. The intervention program was delivered over a period of 31 months.
- In Doma LGA (Nasarawa State): from June 2019, in 9% (n=5/54)[2] of all health facilities in the LGA for 18 months.
- In Ado-Odo/Ota (Ogun State): from December 2017,[3] in 9% (n=13/147)[2] of all health facilities in the LGA for 36 months.

1 Source: Slide deck "A360 Evaluation Key findings from the Process Evaluation, 2019", March 2020 (internal document)

2 Source of information: Document with answers to outcome evaluation team questions shared by Abednego Musau, PSI, on 03/03/2021.

3 Start dates were defined using PSI reports and monitoring data. PSI revised and confirmed these start dates with the outcome evaluation team on 9 February 2021.

Primary outcome

Our findings indicate that mCPR increased over time across all selected LGAs in Nasarawa State, but there were no differences between intervention (I) and comparison sites (C), and therefore no evidence of an effect of MMA on mCPR among married girls aged 15-19 years old.[4] There was also no evidence of an effect of 9ja Girls on mCPR among unmarried girls aged 15-19 years old in Ogun State.[5] Error! Reference source not found. shows the summary of the results obtained in Nigeria.

Secondary outcomes

In Nasarawa State, two secondary outcomes were positively affected by MMA: (1) attitudes towards the use of modern contraceptives, and (2) girls' views on the benefits of modern contraception.

In Ogun State, only one outcome was positively affected by 9ja Girls: the proportion of current modern contraceptive users who are using a long-acting reversible contraceptive (LARC).

The association between self-reported exposure to Adolescents 360 and primary and secondary outcomes

In Nasarawa State, the secondary analyses showed some evidence that the subset of married young women who reported exposure to the intervention had higher mCPR than those who reported no exposure,[6] perhaps suggesting that the intervention was effective at supporting girls reached to use modern methods of contraception, but did not reach enough girls to effect change at the population level. There was also some evidence suggesting that this was aligned with other effects along the A360 Theory of Change (ToC), supporting the idea that the MMA program worked as intended when it reached the target population.

On the other hand, in Ogun State, the secondary analyses showed no evidence of an association between self-reported exposure to the intervention and mCPR,[7] or between exposure to the intervention and any of the secondary outcomes.

Discussion and Conclusion

Nasarawa State and Ogun State had very different interventions and contexts, with the MMA program in Nasarawa targeting married adolescent girls, and the 9ja Girls program in Ogun program targeting unmarried adolescent girls. As such, the results presented in this report are essentially two separate outcome evaluations of two separate A360 programs.

In Nasarawa State, the MMA program appears to have been effective in addressing many components of the A360 ToC, but perhaps due to limited reach (i.e. only a small proportion of the target population receiving the intervention) or short exposure time, the program was not effective in changing mCPR at the population level. It is also plausible that barriers to modern contraceptive use, such as gender and social norms, made it difficult for the A360 interventions to change behaviors. Finally, the presence of considerable other sexual and reproductive health interventions in some of the comparison LGAs[8] made it challenging for the evaluation to detect the impact of MMA.

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4 RR, 95%CI: 0.96, 0.76-1.21.

5 RR, 95%CI: 1.08, 0.92-1.26.

6 RR, 95%CI: 1.41, 1.13-1.76.

7 RR, 95%CI: 0.82, 0.59-1.14.

[8] Nasarawa LGA had two other interventions in place – CHIPS, a community-based initiative aiming to expand access to primary healthcare services, especially maternal, new-born and child health; and PopCare Project, which employed door-to-door mobilization and compound meetings to generate demand for family planning and postpartum and post-abortion family planning among first time young mothers (aged 15–24 years old). Source of information: PSI. For more details, go to section 3.1.3 of this report.

In Ogun State, our evaluation showed no evidence that 9ja Girls had an effect on mCPR, and it only had an effect in the expected direction on one secondary outcome. Girls who reported exposure to 9ja Girls did not report changed behavior on either the primary or most secondary outcomes. Consequently, based on the data available, it seems possible that 9ja Girls may not have reached the target audience, and that those reached were unlikely to adopt modern contraception methods.

The triangulation with self-reported exposure analysis was an important component of this outcome evaluation, which strengthened the possible inferences from the study findings. Other components of the A360 program such as the monitoring and evaluation data collected by the A360 program implementers, and the accompanying process evaluation, complement and aid interpretation of the findings presented here. Notably the A360 process evaluation used a theory-based methodology to evaluate how the A360 approach and solutions were operationalized and experienced by participants. These findings provide a more nuanced representation of the A360 program in it's entirely. The full report from the process evaluation and a final summative report, which triangulates findings from across the evaluation, is available on the Itad Website.

Box 1. Summary of the effects of Adolescents 360 on each outcome evaluation component, and effect among girls exposed, by state

A360 Theory of Change	Outcome Evaluation Components	Nasarawa State		Ogun State	
		Effect of A360[4]	Effect among exposed[5]	Effect of A360[4]	Effect among exposed[5]
Adolescents use high quality sexual and reproductive health products and services					
	mCPR (primary outcome)		**		
	Long-acting Reversible Contraceptive (LARC) users			*	-
	Use of modern contraceptive in past 12 months		***		
	Age at first birth				
	Age-specific fertility rate		*	*	
	Unmet need for modern contraception		*		
Adolescent girls have access to appropriate high quality sexual and reproductive health information and services					
	Awareness of contraceptive products	**	***		
	Awareness of where to obtain health services		***		
Contraception positioned as relevant and valuable for adolescent girls					
	Future aspirations [1]	-	*	-	
	Benefit of contraception 1[2]	**	**	**	
	Benefit of contraception 2[1,3]	-		-	
	Intention to use a modern method		***		
Supportive environment for adolescent girls to access services created					
	Attitudes towards the use of modern contraceptives	*	***	**	
	Self-efficacy to use modern contraceptives				
	Descriptive norms [1]	-	**	-	
	Community acceptance				
Trust and credibility of family planning products					
	Misconceptions about modern contraceptives				
	Modern contraceptives disadvantages[1]	-		-	

***	Strong evidence of effect, p<0.001
**	Evidence of effect, p<0.01
*	Weak evidence of effect, p<0.05
*	Evidence of an effect contrary to the hypothesized
	No evidence of effect
-	Not applicable

[1] Measured at endline only. [2] Assessed through the sentence "Using modern contraception can allow an adolescent woman girl to complete her education, find a better job and have a better life" with which the respondent agreed or disagreed.[3] Assessed through the sentence "Using modern contraception can allow a girl to achieve her life goals" with which the respondent agreed or disagreed.[4] The effect of A360 is the model result for the interaction term A360*T, i.e. the result of the effect of time (change from baseline to endline) on the outcome by levels of A360 areas (intervention versus comparison areas).[5] The effect among those exposed is the result of the effect of self-reported exposure to A360 on the outcome.

Adolescents 360 Outcome Evaluation in Nigeria

SUMMARY REPORT

1 Introduction to the program and the evaluation

1.1 Background

Around half of adolescent pregnancies in low- and middle-income countries are unintended, contributing to 3.9 million unsafe abortions per year among girls aged 15-19 years old (WHO, 2020). Ensuring access to sexual and reproductive health-care services, including for family planning, is a critical factor in reducing new-born, child and maternal mortality (Bearinger et al., 2007, UN, 2015). Using modern contraception specifically, increases girls' and women's empowerment in terms of mobility and decision-making power, it brings greater educational and employment opportunities and it creates peace and stability in their lives (Alano and Hanson, 2018). However, adolescent girls face a variety of barriers in obtaining and using contraception. These may be divided into user-side (or demand-side) and provision-side (or supply-side) factors (WHO, 2011, McCleary-Sills et al., 2014, Chandra-Mouli et al., 2017). User-side barriers are related to adolescent girls' knowledge, attitudes, practices and behaviors. Provision-side barriers are those related to the service delivery system.

In Nigeria, only 2.3% of married adolescent girls and 22.2% of unmarried sexually active adolescent girls use modern contraceptive methods, which means that Nigeria has one of the lowest rates of modern contraceptive use in the world , but there are large regional variations (DHS, 2018). The age of consent for sexual activity is 18 years old (Nigeria, 2003), and even though there is no official restriction to access to contraception, many providers refuse to deliver family planning services to adolescent girls (Schwandt et al., 2017, Crawford et al., 2021). Social norms are therefore an important barrier to girls obtaining contraception (Prata and Weidert, 2020).

Successful interventions aimed at adolescents stress the importance of involving adolescents in the planning process (Gottschalk and Ortayli, 2014). Since sexual and reproductive health outcomes are determined by a variety of factors (Viner et al., 2012), interventions should be multicomponent and should respond to the differing needs of different groups of adolescents (e.g. married vs unmarried, sexually active vs not sexually active, in-school vs out-of-school). There is no "one-fits-all" answer when it comes to the effectiveness of an intervention (Haberland et al., 2018).

1.2 Adolescents 360

Adolescents 360 was an initiative that intended to increase the use of voluntary modern contraception among sexually active girls aged 15-19 years old in Nigeria, Ethiopia and Tanzania (Atchison et al., 2018). It used a multidisciplinary approach to design and scale up programs that brought together social marketing, human-centered design, developmental neuroscience, sociocultural anthropology and youth engagement. Funding for A360 came from the Bill and Melinda Gates Foundation (BMGF) and the Children's Investment Fund Foundation (CIFF). Population Services International (PSI) led the implementation of A360 through Society for Family Health (SFH) in Nigeria. Program implementation was accompanied by a monitoring and evaluation component to examine process level indicators, such as the number of girls reached.

A360 builds on existing evidence on best practices for reaching adolescents with sexual and reproductive health services. These include using educational programs (WHO, 2011, Oringanje et al., 2016, Andrade et al., 2009, Ross et al., 2007, Chandra-Mouli et al., 2015), particularly those that include empowerment and rights (Haberland and Rogow, 2015), as well as making services more youth-friendly (WHO, 2011, Meuwissen et al., 2006, Doyle et al., 2010) and the use of outreach activities (McCleary-Sills et al., 2014, Denno et al., 2012, Mwaikambo et al., 2011). The A360 program included user-side and provision-side elements. User-side elements included curriculum-based sexuality education, community engagement and the involvement of adults who were likely to influence adolescent girls' reproductive-health decisions. Provision-side elements included youth-friendly services, outreach activities, opt-out one-on-one counseling and free contraception.

The A360 interventions for Nigeria were site-specific. In Northern Nigeria, Matasa Matan Arewa (MMA) targeted married adolescent girls. Male interpersonal communicators reached out to the husbands of adolescent girls, and used the health of the baby and mother to encourage them to refer their wives to a female mentor or to a clinic for counseling. Female mentors also mobilized married adolescent girls directly. Girls were then mentored through four 'Love, Life and Family' classes. The curriculum focused on nutrition, life skills and vocational skills, and offered an 'opt-out' counseling session at the end of each class. MMA also worked with religious leaders and communities to emphasize the benefits of child spacing. MMA was implemented in two regions in Northern Nigeria: Nasarawa (Doma and Karu LGAs) and Kaduna (Chikun, Igabi, Sabon gari, and Zaria LGAs).

In Southern Nigeria, the aim of 9ja Girls was to help unmarried adolescent girls see contraception as a tool to reach their goals. Walk-in one-on-one counseling was provided alongside 'Life, Love, Health' classes. The curriculum featured vocational skills, future-planning exercises and discussions about love, sex and dating. The program was delivered through a youth-friendly provider network, leveraging partnerships with the Ministry of Health to train health service providers. 9ja Girls was implemented in selected LGAs in six regions in Southern Nigeria: Ogun (Abeokuta south and Ado-Odo/Ota LGAs), Lagos (Agege and Alimosho LGAs), Osun (Iwo and Osun LGAs), Oyo (Akinyele and Ibadan north-east LGAs), Edo (Ikpoba Okha and Oredo LGAs) and Delta (Warri south LGA). 9Ja Girls was also implemented in some areas of Kaduna, in Northern Nigeria.

Two novel components of A360 included the involvement of husbands (MMA) and opt-out counseling (MMA and 9ja Girls). It is important to involve men in interventions targeting adolescent girls to reduce barriers (WHO, 2011), and additional analysis of the MMA findings may help to understand the role of husbands in this program. Based on the literature on opt-out testing approaches to sexually transmitted infections, opt-out counseling with a provider may have good potential for effectiveness (Harder et al., 2011, Malek et al., 2011, Ritchie et al., 2014, Baisley et al., 2012), but further research is required on this element.

1.3 Conceptual framework

The A360 project was underpinned by a Theory of Change (**Figure 3:**), which elaborated on the theoretical causal pathways through which the project intended to effect change, and it was the central framework for analysis and interpretation of outcome evaluation data (Itad and London School of Hygiene and Tropical Medicine 2016).

Figure 2: Map of Nigeria, showing the States where Matasa Matan Arewa (MMA, blue dots) and 9ja Girls (orange dots) interventions were implemented.

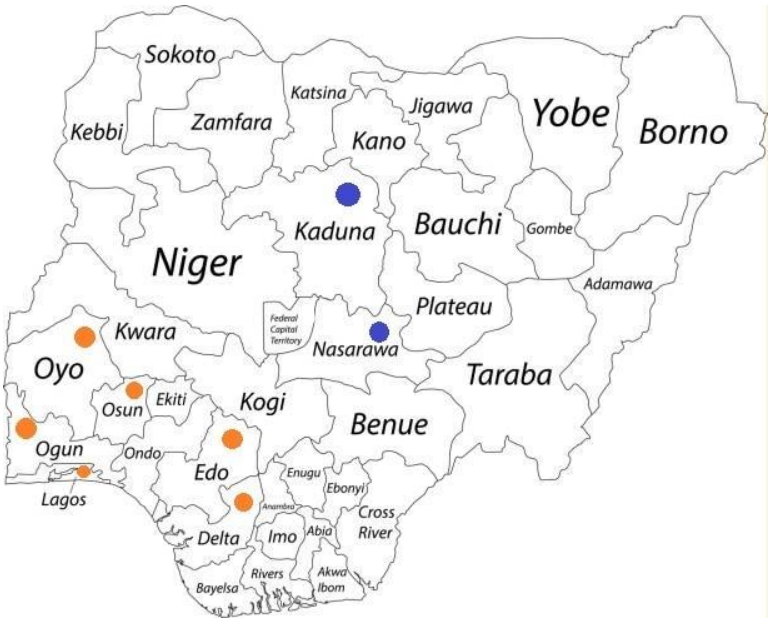
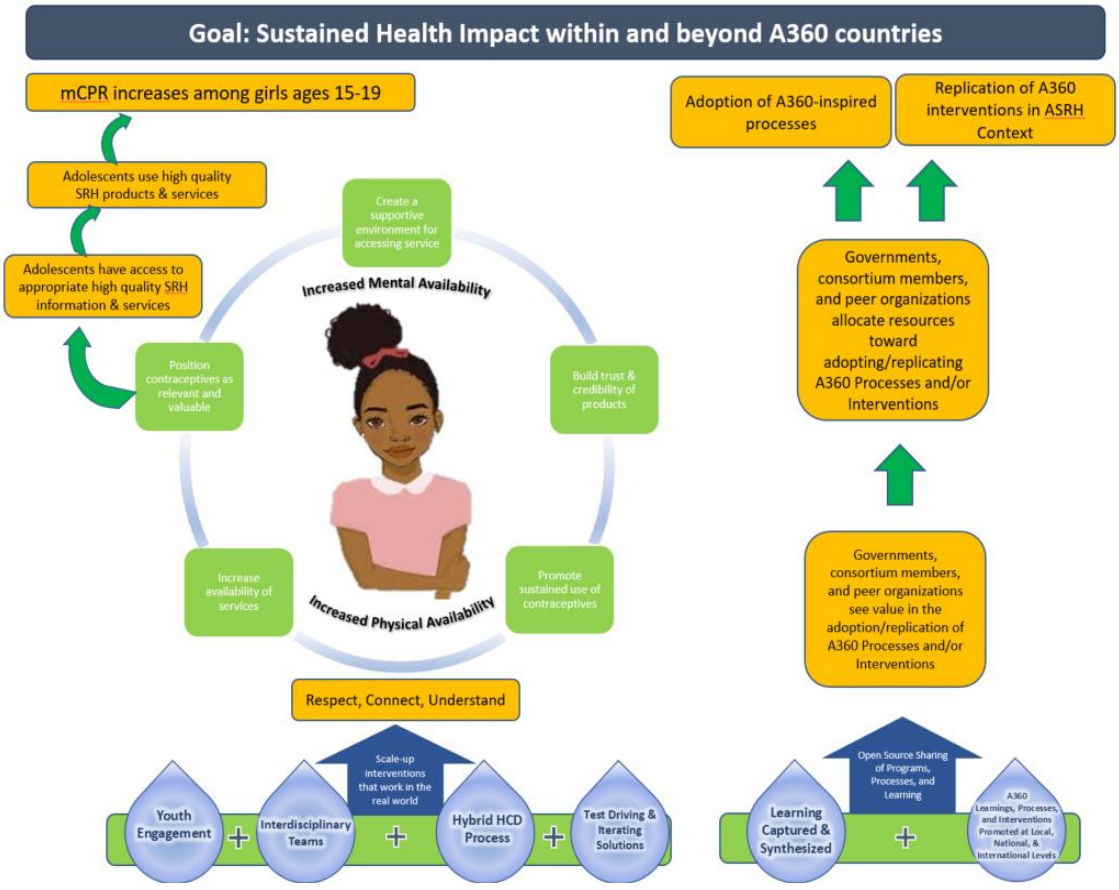


Figure 3: Adolescents 360 Theory of Change [9]



[9] Source: Slide deck "A360 Evaluation Key findings from the Process Evaluation, 2019", March 2020.

1.4 Hypothesis and aims

Our primary hypothesis was that sexually active girls aged 15-19 years old living in areas where the A360 interventions have been implemented, would have a greater increase in use of modern contraception compared with sexually active girls aged 15-19 years old living in areas where the A360 interventions have not been implemented, after adjustment for baseline differences and confounding factors. Accordingly, our primary aim was to evaluate the effectiveness of the A360 interventions in increasing the modern contraceptive prevalence rate (mCPR) among girls aged 15-19 years old. Our secondary aims align with the A360 Theory of Change and are presented in **Table 1:**.

Further, we hypothesized that respondents who reported being exposed to A360 were more likely to use modern contraceptives compared to respondents that reported no exposure. Therefore, another aim was to quantify the association between the respondents' self-reported exposure to A360 and primary and secondary outcomes.

1.5 Structure of the report

The external evaluation of the A360 interventions comprised a process evaluation led by Itad, an outcome evaluation led by the London School of Hygiene and Tropical Medicine (LSHTM), and a cost effectiveness study led by Avenir Health. The current report presents key findings and insights emerging from the outcome evaluation in Nigeria. The target audiences are BMGF, CIFF, and the PSI-led consortium that implements the A360 program. We start by presenting a summary of the methods used for the outcome evaluation that is supported by several appendices. The methods are followed by the core section of this report, Section 3, the results section, which is organized as: 3.1 evaluation setting; 3.2 adolescent girls' characteristics; 3.3 main outcome; 3.4 – 3.8 secondary outcomes subdivided into Theory of Change components, as shown in **Table 1:**; and 3.9 self-reported exposure to A360. The report ends with a short discussion and conclusion.

Table 1: **Adolescents 360 Theory of Change and the outcome evaluation components**

A360 Theory of Change	Outcome Evaluation Components
Adolescents use high quality sexual and reproductive health products and services	mCPR (primary outcome) Proportion of current modern contraceptive users who are using a LARC Use of modern contraceptive in past 12 months Age at first birth Age-specific fertility rate Unmet need for modern contraception
Adolescent girls have access to appropriate high quality sexual and reproductive health information and services	Awareness of contraceptive products Awareness of where to obtain health services
Contraception positioned as relevant and valuable for adolescent girls	Future aspirations Benefits of modern contraception Intention to use a modern method
Supportive environment for adolescent girls to access services created	Attitudes towards the use of modern contraceptives to prevent unintended pregnancies Self-efficacy to use modern contraceptives Perception of the behavior of girls in the community in relation to contraceptives (Descriptive norms) Community acceptance and social support for adolescent girls to adopt healthy sexual and reproductive health behaviors, including use of modern contraceptives
Trust and credibility of family planning products	Misconceptions about modern contraceptives Modern contraceptives disadvantages
Family planning services available for adolescent girls	Not measured[1]
Adolescent girls sustain use	Not measured[1]

1 We had to remove questions on the detailed use of contraceptives to reduce the length of the questionnaire due to COVID-19 pandemic at endline

2 Methods

2.1 Evaluation setting

The intervention was evaluated in Nasarawa State (Northern Nigeria) and Ogun State (Southern Nigeria). The States and LGAs for the study were selected by SFH:

- Out of 12 LGAs in Nasarawa State, four LGAs consisting of two similar pairs[10] were selected for the evaluation. Doma and Karu LGAs were selected as the LGA's which received the MMA intervention. Nasarawa and Toto did not receive the intervention and they were therefore used for comparison.
- Out of 20 LGAs in Ogun State, the evaluation was conducted in two LGAs, Ado-Odo/Ota, which received the 9Ja Girls intervention, and Shagamu which acted as a comparison site.

The A360 program tracked other sexual and reproductive health interventions in intervention and comparison areas, which we aim to summarize in this report. The methodology used in the outcome evaluation is described in detail in Atchison et al. (2018) and in **Appendix A**.

2.2 Design and instrumentation

We used before-and-after population-based surveys with comparison groups (non-randomized). We targeted adolescent girls aged 15-19 years old that were married or living as married at the time of the survey in Nasarawa State and that were unmarried in Ogun State. Eligible girls were identified using a cluster sampling design.

An external firm, Binomial Optimus Limited (BOL) collected baseline population-based survey data between 7 August 2017 and 23 September 2017 and endline survey data between 8 November 2020 and 13 December 2020. The MMA intervention program was delivered over a period of 18 months in Doma LGA, Nasarawa State, and 31 months in Karu LGA, Nasarawa State; the 9Ja Girls intervention was delivered over a period of 36 months in Ado-Odo/Ota LGA, Ogun State. Data collection followed strict protocols and was closely supervised by the outcome evaluation lead and in-country team members. Although the design meant that it was possible that in each site the same households and individuals could be included in baseline and endline surveys, no attempt was made to trace individuals or households from baseline to endline.

Questionnaires were adapted from the Demographic and Health Survey (DHS, 2013) and FP2020 survey instruments and were pre-tested for comprehension, flow, appropriateness and feasibility of implementation. At baseline, questionnaires were administered face-to-face, whereas at endline the first part was administered face-to-face and the second part by phone (see **Appendix A** for details) due to COVID-19 related restrictions on data collection. Individual informed consent and, where required, parental/guardian consent was obtained from all participants before conducting the interviews.

The study was approved by the National Health Research Ethics Committee of Nigeria (NHREC) on 23 June 2020 (reference number NHREC/01/01/2007-23/06/2020C), and by the LSHTM ethics committee (reference number 14145 - 03b) on 3 November 2020. The final study designs were discussed and agreed upon with BMGF and CIFF, with the sizes of surveys in each location constrained by the budget available.

[10] The pairs were similar in terms of population density, estimated mCPR among women aged 15–49 years old, number of health facilities and presence of World Bank support for Maternal and Child Health activities. See Appendix A for details.

2.3 Outcome measures

The primary study outcome was mCPR, defined as the proportion of fecund and sexually active[11] girls who reported using modern contraception at the time of the surveys. We also described the prevalence of modern contraceptives using the DHS definition, to allow direct comparison with studies that have used the DHS definition (**Appendix D**). The main difference between the DHS definition and the definition of mCPR used here is that the A360 OE definition excludes pregnant girls, infertile girls and girls who have not started menstruating. The DHS only includes unmarried girls who report having had sexual intercourse in the last month, while the A360 OE definition considers all unmarried girls reporting sexual intercourse in the last year.

To better understand the pathways through which the A360 program could affect mCPR, secondary outcomes described in **Table 1:** were also measured. Future aspirations, a benefit statement of modern contraception, descriptive norms and modern contraceptive disadvantages, were only measured at endline, their addition as outcomes representing a minor deviation from the published protocol (Atchison et al., 2018). A summary of the categorization of secondary outcomes is provided in **Table 2;** detailed information is provided in **Appendix A**.

Table 2: **Description of secondary outcomes, by Adolescents 360 Theory of Change components**

Theory of Change component 1: **Adolescents use high quality sexual and reproductive health products and services**
• **Outcome 1**: Proportion of current modern contraceptive users who were using long-acting reversible contraception among sexually active girls (in the last 12 months).
• **Outcome 2**: Use of modern contraceptive in 12 months before the survey among sexually active girls (in last 12 months).
• **Outcome 3**: Age at first birth among girls who gave birth.
• **Outcome 4**: Births in last 12 months: divided into two categories: those who gave birth in the 12 months before the survey, and those who did not.
• **Outcome 5**: Unmet need for modern contraception[1] among sexually active girls (in the last 12 months).
Theory of Change component 2: **Adolescent girls have access to appropriate high quality sexual and reproductive health information and services**
• **Outcome 6**: Awareness of contraceptive products: sexually active girls (in the last 12 months) were divided into two categories, those who answered 'Yes' to the question 'Have you ever heard of contraceptives?' and those who did not.
• **Outcome 7**: Awareness of where to obtain health services: sexually active girls (in the last 12 months) who were not currently using a contraceptive method (traditional or modern) but intended to use one in the future, were divided into two categories: those who answered 'Yes' to the question 'Do you know of a place where or person from whom you would feel comfortable getting family planning services and products to delay or avoid getting pregnant?' and those who did not.
Theory of Change component 3: **Contraception positioned as relevant and valuable for adolescent girls**
• **Outcome 8**: Future aspirations index (0-9): created using four statements among girls who heard of contraceptives. These statements were: 'I have goals for my life' (2 strongly agree, 1 agree, 0 disagree or strongly disagree), 'I believe I have some tools to help me achieve my goals for my life' (2 strongly agree, 1 agree, 0 disagree or strongly disagree), 'I have little control over the things that happen to me' (0 strongly agree or agree, 1 disagree, 2 strongly disagree) and 'I believe preventing unintended pregnancy is important to help

[11] Fecund girls: those who have started menstruating, are not pregnant and do not report that they are infertile.

Sexually active girls: those who report having sexual intercourse in the last 12 months.

me achieve my goals for life' (4 strongly agree, 3 agree, 0 disagree or strongly disagree. Higher scores were more desirable than lower scores.
• **Outcome 9**: Benefit one of modern contraception: girls who heard of contraceptives were divided into two categories, those who agreed with the sentence 'Using modern contraception can allow an adolescent girl to complete her education, find a better job and have a better life', and those who disagreed.
• **Outcome 10**: Benefit 2 of modern contraception: girls who heard of contraceptives were divided into two categories, those who agreed with the sentence 'Using modern contraception can allow a girl to achieve her life goals', and those who disagreed.
• **Outcome 11**: Intention to use a modern method: girls who had been sexually active in the last 12 months, who were not using a modern method at the time of the survey were divided into two categories: (1) those who intended to use a method, and (2) those who did not.
Theory of Change component 4: **Supportive environment for adolescent girls to access services created**
• **Outcome 12**: Attitudes index (0-2; towards the use of modern contraceptives). This was created using two questions posed to girls who heard of contraceptives: 'Do you approve or disapprove of married couples using a modern contraceptive method to avoid or delay pregnancy?' (1 approve, 0 disapprove) and 'Do you approve or disapprove of couples who are not married using a modern contraceptive method to avoid or delay pregnancy?' (1 approve, 0 disapprove). Higher scores were more desirable than lower scores
• **Outcome 13**: Self-efficacy index (0-4; to use modern contraceptives): created using four statements presented to girls who had heard of contraceptives. (1) whether she felt able to start a conversation with her partner about contraception (1 agree, 0 disagree), (2) whether she felt able to use a method of contraception even if her partner did not want her to (1 agree, 0 disagree), (3) whether she felt able to obtain information on contraception services and products if she needed to (1 agree, 0 disagree), and (4) whether she felt able to obtain a contraception method if she decided to use one (1 agree, 0 disagree). Higher scores were more desirable than lower scores.
• **Outcome 14**: Descriptive norms index (0-6): created using three questions posed to girls who had heard of contraceptives – 'How many unmarried/married girls aged 15–19 years old in your community do you believe discuss using a method of contraception with their boyfriend or partner/husband or partner?' (1 most of them or less than half of them, 0 none of them), 'How many unmarried/married girls aged 15–19 years old in your community do you believe use contraceptive methods?' (1 most of them or less than half of them, 0 none of them) and 'How many unmarried/married girls aged 15–19 years old in your community do you believe use contraceptive methods in secrecy from their boyfriend or family/husband or partner?' (1 most of them or less than half of them, 0 none of them). Higher scores were more desirable than lower scores.
• **Outcome 15**: Community acceptance index (0-2): was created using two questions posed to girls who had been sexually active in the last 12 months, who heard of contraceptives: 'Does your husband/mother[2] approve or disapprove of girls your age using a modern contraceptive method to avoid or delay pregnancy?' (1 approve, 0 disapprove); and 'Does your community as a whole approve or disapprove of girls your age using a modern contraceptive method to avoid or delay pregnancy?' (1 approve, 0 disapprove). Higher scores were more desirable than lower scores.
Theory of Change component 5: **Trust and credibility of family planning products**
• **Outcome 16**: Misconceptions index (0-3; about contraceptives): created using three variables, presented to girls who had been sexually active in last 12 months, and who heard of contraceptives : (1) 'Some modern contraception can stop an adolescent woman from ever being pregnant again even after she stops using it' (0 agree, 1 disagree), (2) 'If a modern contraception changes an adolescent woman's menstrual bleeding, it is bad for her health and can harm her womb' (0 agree, 1 disagree) and (3) 'Some modern contraceptives can make adolescent women permanently fat' (0 agree, 1 disagree). Higher scores were more desirable than lower scores.
• **Outcome 17**: Modern contraceptives disadvantages index (0-7): number of disadvantages/negative consequences of using modern contraceptive methods mentioned by girls who heard of contraceptives. Higher scores were less desirable than lower scores.

Theory of Change component 6: **Family planning services available to adolescent girls**
• n/a
Theory of Change component 7: **Adolescent girls sustain use**
• n/a

[1] The sum of unmet needs for spacing and unmet needs for limiting. Unmet needs for spacing includes pregnant women whose pregnancy was mistimed; fecund women who are non-pregnant, who are not using any modern methods of contraception, and say they want to wait two or more years for their first/next birth; and postpartum amenorrheic women, who are not using any modern methods of contraception, and say at the time they became pregnant they had wanted to delay pregnancy. Unmet needs for limiting refers to pregnant women whose pregnancy was unwanted; fecund women who are non-pregnant, who are not using any modern methods of contraception, and who don't want any more children; and postpartum amenorrheic women, who are not using any modern methods of contraception, and say at the time they became pregnant they had not wanted any more children.

[2] 'Husband' is considered an important influencer for married adolescent girls; 'Mother' for unmarried adolescent girls.

2.4 Statistical analysis

The impact of the A360 interventions on each outcome was assessed primarily by quantifying changes between baseline and endline surveys. To conduct the primary analysis, regression models were fitted to data from the baseline and endline surveys (Poisson regression was used for binary outcomes and linear regression for continuous outcomes). The models included time (0 baseline and 1 endline), A360 (0 comparison and 1 intervention area) and an interaction term between A360 and time (i.e. A360*Time) as explanatory variables. The coefficient associated with the interaction term (i.e. the effect of A360 beyond the time trend) was used to assess the impact of the two A360 interventions. For modern contraceptive use (and other binary outcomes), the analysis corresponds to dividing endline mCPR by baseline mCPR to obtain a ratio in each area (intervention and comparison), and then dividing the intervention mCPR ratio by the comparison mCPR ratio. The resulting risk ratio (RR) represents the effect of the intervention adjusted for background trends in mCPR; it is interpreted as a positive effect of A360 if it is above one, and a negative effect if it is below one.

For continuous outcomes, such as the future aspirations index score, the analysis corresponds to the difference in changes from the baseline between the intervention and comparison areas. This difference in differences is interpreted as a positive effect of A360 if it is above zero, and a negative effect of A360 if it is below zero. Again, it represents the effect of the intervention after accounting for background trend in mCPR. To improve the comparability between pairs, we adjusted for pre-defined confounding factors as trends in mCPR might be influenced by changing characteristics of the study populations. The factors adjusted for were age, education level, number of living children, religion[12] and wealth quintile.[13]

Comparison and intervention LGAs were selected in pairs, therefore the main (descriptive and regression) analyses were conducted separately for each matched pair. For Nasarawa State, the main result was the effect of time on mCPR in all intervention and comparison LGAs, i.e. the four LGAs were analyzed together in one model. The reason for this was that the study was powered to detect an overall impact on all four LGAs.

Detailed information about the regression models used and the statistical power of the study is provided in **Appendix A**. We used a p-value of 0.05 as the cut-off for statistical significance in the analysis of mCPR but

[12] Age ranges from 15-19 years old; education was categorised into '1' secondary or higher education and '0' qur'anic only, primary, and no education; living children was categorised into '1' respondents with at least one child, and '0' for no living children; religion was categorised into '1' Catholic or Protestant/Other Christian and '0' Muslim, Traditional, No religion, or others.

[13] Wealth Quintile ranges from poorest (1st and 2nd quintiles) to richest (4th and 5th quintiles); Wealth Quintile was derived from a series of questions using the 'Nigeria Equity Tool' TOOL, E. 2015. Nigeria Equity Tool [Online]. Available: https://www.equitytool.org/nigeria [Accessed November 2020]. In summary, if the population of interest is predominantly urban, the results are compared to other urban dwellers for interpretation, by generating urban wealth quintiles. If the population of interest lives in rural areas, or a mix of urban and rural areas, results are compared to the national results to understand how relatively wealthy or poor they are in comparison to the whole country, by calculating national wealth quintiles.

did not define a cut-off for the secondary outcomes. For the secondary outcomes 'multiple testing' is an issue (Dohoo et al., 2009), and we have therefore been more cautious in our interpretation of the analysis of these outcomes. We did all analyses in Stata 16 (StataCorp, 2019).

2.4.1 The common trend assumption

We used a quasi-experimental design in our impact evaluation, and the validity of the impact estimate depended on the mCPR time trend being the same in both intervention and comparison LGAs (Edmeades et al., 2016). To assess whether this assumption was true, we compared trends over time in study LGAs, using secondary datasets. This comparison was made visually, using graphs.[14]

The only dataset available to estimate trends in contraceptive use at the LGA level was Health Management Information System (**HMIS**) data from female clients aged 15–49 years old using modern contraceptives at health facilities between early 2016 and mid-2020. We obtained three datasets: the first referring to Nasarawa State (146 Wards included), the second referring to Ogun State (238 Wards included), and the third referring to the whole country (37 States). Data was aggregated by ward and by year for state-level data, and aggregated by state and year for national-level data.[15]

HMIS aims to provide data for continued monitoring of the health system's performance, which has been used in Nigeria since the 1960s (Meribole et al., 2018). HMIS collects data on over 100 indicators. In family planning, there are three indicators and around 15 data elements (Olugbade et al., 2019, Team, 2016). Data is collected at the primary level of health service delivery (i.e. primary health care units), and then it is forwarded to the district and zonal levels.

HMIS has the advantage of providing continuous estimates for various health indicators across all levels of a country. However, it has several flaws in terms of completeness, timeliness and accuracy (Ouedraogo et al., 2019, Asangansi et al., 2013, Makinde et al., 2012, Belay et al., 2013), which may explain the differences of its estimates of contraceptive use compared to the estimates made by DHS (Olugbade et al., 2019, Woldegiorgis et al., 2017). These differences may also be caused by differences in the indicator definition. Finally, HMIS data may be more representative of the population of married women of reproductive age than of the population of unmarried women, as married women are more likely to obtain their methods of modern contraception at a health facility compared to unmarried women. This means that the HMIS data is more likely to represent the true trend data for the population of interest in Nasarawa State, where married women were targeted, than for Ogun State, where unmarried women were targeted. Despite this limitation, we still believe these data can be used to help understand trends over time and contextualize the outcome evaluation findings.

2.4.2 The association between self-reported exposure to Adolescents 360 and primary and secondary outcomes

In a secondary analysis, the impact of A360 was assessed through self-reported exposure to the A360 program in endline surveys. Self-reported exposure to the A360 program was evaluated using data from intervention areas at endline.

We used a series of questions to rank individuals by their level of engagement with the A360 interventions that are available in the place where they live. Exposure questions used in endline surveys in Nigeria were defined by the LSHTM OE team members, Catarina Krug and Aoife Doyle, with Itad team members Melanie Punton, Ellie Brown and Mary Lagaay, as well as with PSI team members Claire Cole, Meghan Cutherell and Mathew Wilson, in February 2020. **Table 6** shows the final definition of exposed and non-exposed girls according to endline exposure questions.

[14] The purpose of this analysis was simply to describe trends in study LGAs (i.e. no adjustments were made to the main analysis based on the findings).

[15] HMIS data was kindly shared by Adejumoke Gloria Oluwayinka (Measurement and Evaluation Lead, Adolescents 360 Project, Society for Family Health) on 08/09/2020.

Figure 4: Adolescents 360 logo for 9ja Girls, the intervention name in Ogun State

Figure 5: Adolescents 360 logo for MMA, the intervention name in Nasarawa State

Table 3: **Defining exposure to A360 based on exposure questions**

Q	Ogun State Exposure Questions	Ogun: Exposed girl	Ogun: Not exposed girl	Nasarawa State Exposure Questions	Exposed girl in Nasarawa	Nasarawa: Girl not exposed
1	Have you heard about a program called 9ja Girls?	Answers "Yes" to Q1 and "Yes" to Q2 or Q4	Answers "Yes" to Q1 but not to Q4 or Q2 Answers "No", "Don't know" or does not respond to Q1	Have you heard about a program called MATASA MATAN AREWA (MMA)?	Answers "Yes" to Q1 and "Yes" to Q3 or Q4	Answers "Yes" to Q1 but not to Q4 or Q3 Answers "No", "Don't know" or does not respond to Q1
2	Do you recognize this logo? (**Fig 1**)	Answers "Yes" to Q2 and "Yes" to Q1		Do you recognize this logo? (**Fig 2**)	N/A [2]	
3	Have you participated in Life, Love & Health (LLH) classes?	N/A [1]		Have you participated in Life, Family, Health (LFH) sessions?	Answers "Yes" to Q3 and "Yes" to Q1	
4	Did you receive one-on-one counselling from a trained provider?	Answers "Yes" to Q4 and "Yes" to Q1		Did you have a one-on-one counselling with a trained provider?	Answers "Yes" to Q4 and "Yes" to Q1	

[1] Due to the similarity in reported exposure to this question among those who answered "Yes" to Q1 in comparison (17.5%) and intervention sites (19.6%), only Q1 and Q2 as well as Q1 and Q4 were used to determine exposure in Ogun State.

[2] Due to the similarity between MMA symbol and Arewa symbol, only Q1 and Q3 as well as Q1 and Q4 were used to determine exposure in Nasarawa State.

In addition to exposure status (0 not exposed and 1 exposed), the regression models included a set of pre-defined confounding factors, the same as has been described above. In Ogun State, exposure to the A360 intervention was defined as hearing about 9ja Girls and recognizing its logo, or hearing about 9ja Girls and having a one-on-one counseling with a trained provider. In Nasarawa State, exposure to the A360 intervention was defined as hearing about MMA and participating in 'Life, Family, Health' sessions or hearing about MMA and having one-on-one counseling with a trained provider. Detailed information about the categorization of exposure measures is provided in **Appendix B**.

3 Results

3.1 Evaluation setting

A360 was in place for 31 months in Karu LGA (Nasarawa State), 18 months in Doma LGA (Nasarawa State) and 36 months in Ado-Odo/Ota LGA (Ogun State).

3.1.1 Implementation

The interventions were implemented as follows:

- In Karu LGA (Nasarawa State): from April 2018 in 2% (n=5/261)[16] of all health facilities in the LGA, the intervention program was delivered over a period of 31 months in total.
- In Doma LGA (Nasarawa State): from June 2019 in 9% (n=5/54)[10] of all health facilities in the LGA, for 18 months.
- In Ado-Odo/Ota (Ogun State): from December 2017[17] in 9% (n=13/147)[10] of all health facilities in the LGA, for 36 months.

3.1.2 Similar interventions in intervention areas

In Doma LGA, Nasarawa State there were no further interventions in place besides MMA. In Karu LGA, (also in Nasarawa State), Marie Stopes International (MSI, 2020) and Planned Parenthood Federation of Nigeria (PPFN, 2020) were conducting outreach activities on family planning counseling and services for White Ribbon Alliance (WRA, 2021).[18]

Ado-Odo/Ota LGA in Ogun State, had The Challenge Initiative (TCI) intervention in place since 2018. The intervention focused on community demand for the generation of adolescent sexual and reproductive health services, in particular through 'Life Planning Ambassadors' targeting adolescent girls/youths aged 15-24 years old.

3.1.3 Similar interventions in comparison areas

There were other ongoing interventions in comparison areas which potentially affected mCPR use among adolescents, and these have implications for the interpretation of the findings:

- In Toto LGA, Nasarawa State, there were no further interventions in place.
- In Nasarawa LGA, Nasarawa State, there were two further interventions in place. One of the interventions, the community health worker program (Okwor, 2018), was a community-based initiative aiming to expand access to primary healthcare services, especially maternal, newborn and child health. It was in place across 58 facilities in Nasarawa State starting from 2018, and it was scaled-up nationally in late 2019. The other intervention was the PoPCare Project (Onwuasor et al., 2021). The PopCare Project was in place across 38 facilities in Nasarawa State, starting in 2018.[19]
- Shagamu LGA, in Ogun State, also had two further interventions in place. One of the interventions was TCI, described above. The other intervention was The Resilient & Accelerated Scale-up of depot medroxyprogesterone acetate self-injection in Nigeria (RASuDiN), which had also been in place since 2018. RASuDiN seeks to expand voluntary access to contraceptives and family planning services through

[16] Source of information: Document with answers to outcome evaluation team questions shared by Abednego Musau, PSI, on 03/03/2021.

[17] Start dates were defined using PSI reports and monitoring data. PSI revised and confirmed these start dates with the outcome evaluation team on 9 February 2021.

[18] Source of information: Document entitled "A360 OE site mapping" shared by Mathew Wilson, PSI, on 12/11/2020.

[19] Source of information: Document entitled "Programs Implementing Adolescent Sexual and Reproductive Health Services in Control Local Government Areas - Nigeria" shared by Mathew Wilson, PSI, on 19/03/2021.

introduction, rollout and scale up of depot medroxyprogesterone acetate self-injection, within a broader contraceptive method mix, for women and girls of reproductive age in Nigeria.[13]

3.2 Characteristics of adolescent girl respondents

Key findings:

- In Nasarawa State, most of the survey respondents were 19 years old and around half of them had secondary level education. Islam was the main religion. Most adolescent girls owned a non-smart mobile phone. The wealth index varied by LGA; it was the highest in Karu, and the lowest in Doma LGA.
- In Ogun State, around one third of respondents were aged 15 years old and most had secondary level education. Christianity was the main religion. Most adolescent girls owned a smartphone (~40%) and were in the highest wealth quintile.

In Nasarawa State, most survey respondents were 19 years old (33% at baseline and 48% at endline), did not have any children (44% at baseline and 43% at endline), and around half of them had secondary level education (41% at baseline and 43% at endline). The proportion of respondents aged 19 years old increased from baseline to endline across all sites. This rise in age was accompanied by a rise in the proportion of respondents with one child, a drop in the proportion of respondents without education, and a drop in the proportion of respondents without mobile phone access. Islam remained the main religion among respondents (46% at baseline and 55% at endline, see **Table 6:**). Most adolescent girls owned a non-smart mobile phone. Wealth index varied by LGA, but not by time; it was greatest in Karu (Intervention area, **I**), followed by Nasarawa (Comparison area, **C**) and Toto (C), and was lowest in Doma (I). There was also some evidence of higher rates of sexual activity and higher numbers of current and past pregnancies at endline than at baseline in Nasarawa, perhaps due to an older population of married girls. The exception to this was Toto LGA (C; see **Table 7:**).

In Ogun State, around one third of the respondents were 15 years old (27% at baseline and 30% at endline). Secondary education was the highest educational level attained by unmarried adolescent girls (90% at baseline and 91% at endline). Christianity was the main religion among unmarried adolescent girls (61% at baseline and 63% at endline), followed by Islam. Most adolescent girls owned a smartphone (40% at baseline and 41% at endline) and were in the highest wealth quintile (81% at baseline and 74% at endline). The characteristics of adolescent girl respondents remained fairly constant from baseline to endline. However, just like in Nasarawa State, there was a drop in the proportion of respondents without mobile phone access (**Table 8:**). In addition, the proportion of girls who had never had sex and the proportion of girls who had never been pregnant increased from baseline to endline (**0**).

3.3 Main outcome – Modern contraceptive use

Key finding: there was no evidence of an effect from either of the A360 interventions on modern contraceptives use in Nasarawa State (RR[20], 95%CI: 0.96, 0.76-1.21) or in Ogun State (RR, 95%CI: 1.08, 0.92-1.26).

3.3.1 Nasarawa State

In Nasarawa, mCPR increased from baseline to endline, across all LGAs, in both comparison and intervention sites (**Table 4:**).

In pair 1 (Toto versus Doma), current mCPR increased at the comparison site (from 13 to 20%) and nearly tripled at the intervention site (from 8 to 22%) from baseline to endline. This change in time was driven by a rise in implant and condom use. In pair 2 (Nasarawa versus Karu), mCPR doubled in comparison (from 13 to 31%) and intervention sites (I) (from 21 to 47%) from baseline to endline (**Table 4:**).

Whereas implant and injectable use increased in both comparison and intervention sites, pill use increased in intervention sites only (**Table 9:**). The reasons for not using any contraceptive method in Nasarawa State at endline did not change when compared to baseline. The main reasons remained wanting a child, or wanting another child (Doma 35%; Toto 35%; Karu 50%; Nasarawa 43%), breastfeeding (Doma 24%; Toto 18%; Karu 23%; Nasarawa 17%) and that it had not occurred to them to use contraception (Doma 18%; Toto 7%; Karu 9%; Nasarawa 13%).[21] Issues related to the COVID-19 pandemic[22] were not mentioned by respondents.

Overall, in Nasarawa State, the increase in mCPR was the same in comparison and intervention sites (RR, 95%CI, for the effect of A360 beyond time trend, A360*Time[23]: 0.96, 0.76-1.21; p-value: 0.74). At baseline, mCPR was the same in comparison and intervention sites (RR, 95%CI, for the A360 term: 1.12, 0.91-1.36). Among comparison areas, mCPR doubled from baseline to endline (RR, 95%CI, for the Time term: 2.11, 1.76-2.53; **Table 12:**).

3.3.2 Ogun State

In Ogun State, where unmarried girls were targeted, there was no evidence of an increase in mCPR in comparison or in intervention areas (95%CI for prevalence of mCPR at baseline and endline overlap; see **Table 4:**). At the comparison LGA, mCPR was 50% (95%CI: 47-53) at baseline and 51% (95%CI: 47-55) at endline. At the intervention LGA, mCPR was 45% (95%CI: 41-48) at baseline and 49% (95%CI: 44-53) at endline. The condom was the most commonly used method.

The main reasons for not using a method at endline remained the same as at baseline, including that it did not occur to them to use contraception (Ado-Odo/Ota 37%; Shagamu 47%), infrequent sex (Ado-Odo/Ota 16%; Shagamu 15%), opposition by their partner to using contraception (Ado-Odo/Ota 20%; Shagamu 13%)

[20] RR is a risk ratio; in this case it represents the effect of the intervention adjusted for background time trend in mCPR; it is interpreted as a positive effect of A360 if it is above one, and a negative effect if it is below one.

[21] Baseline proportions for wanting a/another child (Doma 42%; Toto 25%; Karu 38%; Nasarawa 32%), breastfeeding (Doma 30%; Toto 20%; Karu 18%; Nasarawa 19%) and it not occurring to them to use contraception (Doma 19%; Toto 14%; Karu 18%; Nasarawa 20%).

[22] The following COVID-19 related options for not using a method were added to endline surveys: “favourite method was not available”, “family planning services were closed”, “stopped meeting partner/boyfriend”, “stopped going outside my house” and “stopped going to the family planning services”. These options were not read aloud but were circled by the interviewer if mentioned by the respondent.

[23] The coefficient associated with the interaction term (i.e. the effect of A360 beyond the time trend or A360*Time) was used to assess the impact of A360. The risk ratio (RR) represents the effect of the intervention adjusted for background time trend (of mCPR in this case); it is interpreted as a positive effect of A360 if it is above one, and a negative effect if it is below one. See Appendix B, Methodology for details.

and fear of side effects (Ado-Odo/Ota 9%; Shagamu 9%).[24] Issues related to the COVID-19 pandemic were not mentioned by respondents.

There was no evidence of a change in mCPR over time in comparison or in intervention areas (RR, 95%CI, for the effect of A360 beyond time trend, A360*Time: 1.08, 0.92-1.26). At baseline, mCPR was the same in intervention and comparison sites (RR, 95%CI, for the A360 term: 0.92, 0.84-1.02). Among comparison areas, mCPR remained constant from baseline to endline (RR, 95%CI, for the Time term: 1.02, 0.92-1.13; **Table 12:**).

Table 4: **Descriptive results - the relationship between mCPR and time, by comparison and intervention sites**

	Comparison sites			Intervention sites			Risk ratio
	Baseline	**Endline**	**Ratio C**	**Baseline**	**Endline**	**Ratio I**	**Ratio I/ Ratio C**
Nasarawa							
Pair 1: Toto (C) vs Doma (I)	13 (10-17)	20 (17-24)	1.7	8 (6-10)	22 (19-26)	2.9	1.7
Pair 2: Nasarawa (C) vs Karu (I)	13 (11-16)	31 (28-35)	2.4	21 (19-25)	47 (43-51)	2.2	0.9
Ogun							
Shagamu (C) vs Ado-Odo/Ota (I)	50 (47-53)	51 (47-55)	1.0	45 (41-48)	49 (44-53)	1.1	1.1

Ratio was calculated by dividing endline mCPR by baseline mCPR.

C = Comparison site, I = Intervention site.

3.3.3 The common trend assumption

We used a quasi-experimental design in our impact evaluation, and the validity of the impact estimate depends on the mCPR time trend being the same in both intervention and comparison LGAs (Edmeades et al., 2016). To assess whether this assumption was true, we aimed to estimate the absolute increase in mCPR that we would expect in the study LGAs if trends from other sources were replicated. The only data available to estimate trends in contraceptive use at the LGA level was HMIS data from female clients aged 15–49 years old using modern contraceptives at health facilities, which is presented in **Figure 6:** for Nasarawa State and in **Figure 7:** for Ogun State, for each of the LGAs selected for the outcome evaluation. **Figure 8:** shows national trends as well as trends in Nasarawa State and Ogun State more generally.

There were secular increases in mCPR across Nigeria and the study regions, and within the study LGAs. Pair 1 LGAs had similar levels and trends in the numbers of contraceptive users aged 15–49 between 2016 and 2017. A gap in number of contraceptive users then emerged between the pair 1 LGAs, which seemed to widen around the start of A360 activities in Doma (I) in June 2019. On the other hand, in pair 2, Nasarawa (C) had a much lower level of contraceptive use when compared to Karu (I). Trends in terms of numbers of contraceptive users aged 15–49 years old between 2016 and 2017 appeared to go in opposite directions, with numbers increasing in Nasarawa (C) and decreasing in Karu (I). A360 activities started in Karu (I) in April 2018, but number of contraceptive users in Nasarawa (C) appeared to increase more than Karu (I; **Figure 6:**), following national trends (**Figure 8:**).

In Ogun State, LGAs had different trends in numbers of contraceptive users aged 15–49 between 2016 and 2017, with a sharp rise in users in Ado-Odo/Ota (I) and no change in users in Shagamu (C). The trend of increasing users continued in Ado-Odo/Ota (I) up until 2019, with only a small increase in users in Shagamu (C). A360 activities started in Ado-Odo/Ota in December 2017, however the increase in modern contraceptive users appeared to start earlier than that (**Figure 7:**), following national trends (**Figure 8:**).

[24] Baseline proportions for: it not occurring to them to use contraception (Ado-Odo/Ota 44%; Shagamu 41%), infrequent sex (Ado-Odo/Ota 8%; Shagamu 5%), opposition by their partner to using contraception (Ado-Odo/Ota 14%; Shagamu 7%) and fear of side effects (Ado-Odo/Ota 8%; Shagamu 8%).

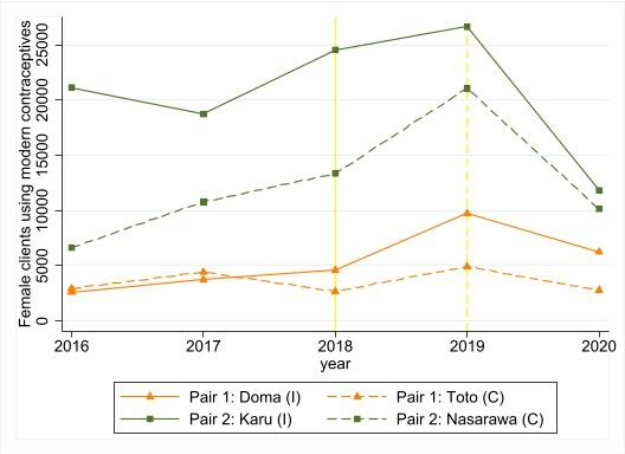


Figure 6: Secondary dataset, HMIS: Female clients aged 15–49 years old using modern contraceptives at health facilities at the A360 outcome evaluation areas, between early 2016 and mid-2020 in Nasarawa State (49 Wards)

A360 activities started in 2019 in Doma, pair 1 (dashed yellow line), and in 2018 in Karu, pair 2 (solid yellow line).

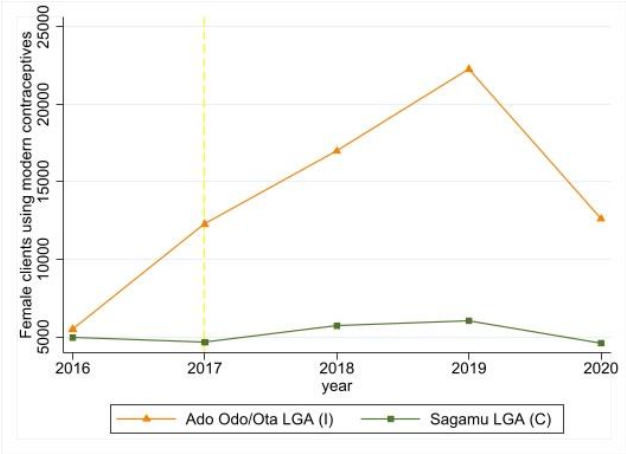


Figure 7: Secondary dataset, HMIS: Female clients aged 15–49 years old using modern contraceptives at health facilities at the LGA, between early 2016 and mid-2020 in Ogun State (31 Wards)

A360 activities started in 2017 in Ado-Odo/Ota (dashed yellow line).

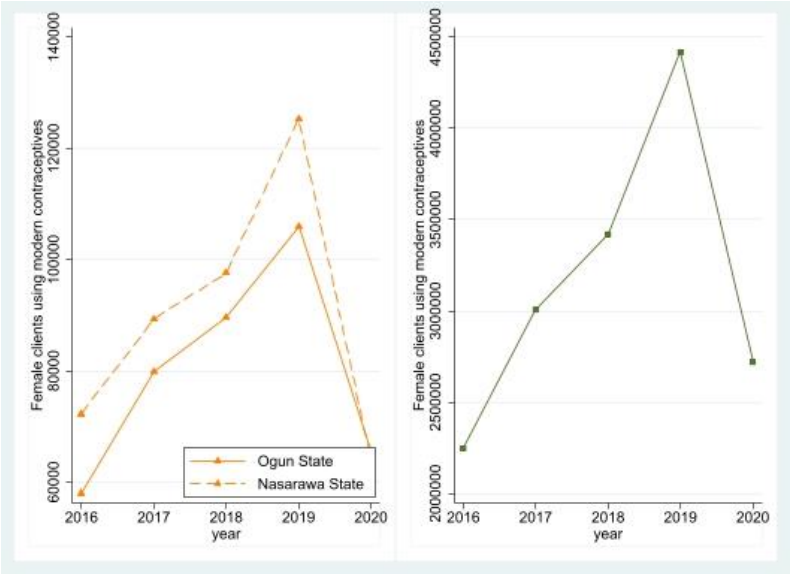


Figure 8: Secondary dataset, HMIS: Female clients aged 15–49 years old using modern contraceptives at health facilities, between early 2016 and mid-2020 in Ogun and Nasarawa States (left) and in all States in Nigeria (right)

3.4 Adolescents use high quality sexual and reproductive health products (and services)

As illustrated in the Theory of Change, A360's success relies upon the availability of high quality sexual and reproductive health products for adolescent users. To assess the use of high quality sexual and reproductive health products, we measured the main outcome, mCPR, and a variety of indicators, including the user's age when they first gave birth, and unmet needs for modern contraception (see **Table 1:** for the full list of outcomes).

3.4.1 Proportion of long-acting reversible contraceptive users among all modern contraceptive users

In Nasarawa State, the proportion of long-acting reversible contraceptive (**LARC**) users[25] among all modern contraceptive users increased in all LGAs (**Table 9:**). There was some evidence for 1.52 (1/0.66=1.52) times greater proportion of LARC users among comparison sites versus intervention sites (RR, 95%CI, for the effect of A360 beyond time trend: 0.66, 0.41-1.06; p-value: 0.09; **Table 29:**).

In Ogun State, the proportion of LARC users among all modern contraceptive users increased from 0.3 to 2.2% at the intervention LGA and dropped from 1.4 to 1.0% at the comparison LGA (**Table 10:**). This led to a positive effect of A360 in Ogun State, with a proportion of LARC users 13 times greater at the intervention site versus the comparison site (RR, 95%CI, for the effect of A360 beyond time trend: 13.32, 1.44-123.09; p-value: 0.02; **Table 32:**).

3.4.2 Use of a modern contraceptive method within the past 12 months

There was no evidence of an effect of A360 on mCPR in the past 12 months in Nasarawa State (RR, 95%CI: 0.97, 0.78-1.22; **Table 29:**) or in Ogun State (RR, 95%CI: 1.06, 0.91-1.24; **Table 32:**).

3.4.3 Age at first birth, age specific fertility rate and unmet need for modern contraception

In Nasarawa State, the change over time of the risk of adolescent girls giving birth in the past 12 months was the same in the intervention area and comparison area (RR, 95%CI, for the effect of A360 beyond time trend: 1.00, 0.87-1.14; **Table 29:**). In Toto (C) within Nasarawa State, total unmet need declined from 28% (95%CI: 24-31) to 21% (95%CI: 19-23) and remained unchanged over time in all the other LGAs (**Table 13:**). Overall, the changes in unmet need over time were also the same across intervention or comparison sites in Nasarawa (0.99, 0.83-1.18; **Table 29:**).

In Ogun State, the change over time of the risk of adolescent girls giving birth in the last year was twice as high in the intervention area compared to the comparison area (RR, 95%CI: 2.12, 1.20-3.76; p-value: 0.01; **Table 32:**). Unmet need decreased in both comparison and intervention sites (**Tables 13 and 31**).

[25] Includes implants and intrauterine devices.

3.5 Adolescent girls have access to appropriate high quality sexual and reproductive health information and services

A360 was designed to provide greater access to appropriate high quality sexual and reproductive health information and services through outreach activities or through the provision of free contraception on the spot, for free, in all A360 settings. To assess this, we measured the girls' awareness of contraceptive products and of where to obtain health services.

Key findings:

- Knowledge of contraceptive methods increased by 31 percentage points across the intervention and comparison sites in Nasarawa State; the increase was slightly greater in comparison sites than in intervention sites. Knowledge of contraceptive methods stagnated in Ogun State.
- Hospitals/health centers/clinics became the main source of information about modern contraception over time for +21% of married girls Nasarawa State and for +5% of unmarried girls in Ogun State. Respondents' awareness of where to obtain health services increased over time in Nasarawa State and Ogun State.

3.5.1 Knowledge of contraceptive methods

In Nasarawa, at baseline, about half of married adolescent girls surveyed had heard of contraception in the past 12 months. At endline, the proportion of girls who had ever heard of modern contraception increased by 33% in comparison sites and by 30% in intervention sites (**Table 15:**). The increase was greater in comparison sites than in intervention sites (RR, 95%CI, for the effect of A360 beyond time trend: 0.88, 0.80-0.96; p-value: 0.006; **Table 30:**). Hospitals/health centers/clinics were the main source of information at all times and increased by 21% from baseline to endline. Community health workers, traditional birth attendants and community midwives became the main source of information about modern contraception for 5% more girls from baseline to endline. In Toto (C), neighbors also became an important source of information over time (+10%; **Table 15:**).

In Ogun State, at baseline, most unmarried adolescent girls that were surveyed had heard of contraception. At endline, the proportion of girls who had ever heard of modern contraception dropped by 6% (**Table 16:**), but the numbers did not differ between the intervention and comparison sites (**Table 33:**). This drop may have been because contraception was mentioned less on the radio (-8%; Shagamu, C), television (-7%; Ado-Odo/Ota, I), at school (-15%), by neighbors (-15%) and by parents (-5%). There was a 5% rise in hospitals/health centers/clinics as sources of information about modern contraception, and a 13% rise in partners as sources of information about modern contraception (**Table 16:**).

3.5.2 Awareness of where to obtain health services

In Nasarawa State, respondents' awareness of where to obtain health services increased over time. At endline, approximately 98% of girls who intended to use a method but were not currently using one, knew where to obtain health services, compared to around 62% at baseline (**Table 17:**). Nevertheless, the increase was the same in intervention and comparison sites (RR, 95%CI, for the effect of A360 beyond time trend: 1.13, 0.97-1.31; p-value: 0.12; **Table 30:**). Hospital/health center/clinic were the sources mentioned most often (**Table 17:**).

In Ogun State, increases were smaller compared to those in Nasarawa State. Respondents' awareness of where to obtain health services went from 40% to 58% at the intervention site and remained at around 50% at the comparison site (**Table 18:**), but the regression model did not show evidence of a difference between

intervention and comparison sites (RR, 95%CI, for the effect of A360 beyond time trend: 1.03, 0.74-1.44; p-value: 0.86; **Table 33:**). Hospital/health center/clinic and pharmacy/chemist were the sources mentioned more often by those who knew where to obtain services (**Table 18:**).

3.6 Contraception positioned as relevant and valuable for adolescent girls

A360 was designed to position contraception as relevant and valuable for adolescent girls, mainly through its vocational skills classes. To assess this, we measured the girls' future aspirations, their agreement with sentences about the benefits of modern contraception and their intention to use a modern method of contraception in the future.

Key findings:

- In Nasarawa State, Karu LGA (I) had the highest mean aspiration index score, and the greatest proportion of girls agreeing with the sentence "Using modern contraception can allow a girl to achieve her life goals." Intention to use modern contraception increased in both Karu (I) and Nasarawa (C) LGAs.
- In Ogun State, there were no changes in either measure over time.

3.6.1 Girls' future aspirations

Girls' future aspirations were assessed at endline only. In Nasarawa State, the aspiration index was the highest in Karu (I), at 6.2 (95%CI: 6.0-6.4), where more than 40% of the respondents strongly agreed with the sentences: "I have goals for my life," "I believe I have some tools to help me achieve my goals for my life" and "I believe preventing unintended pregnancy is important to help me achieve my goals for life" (**Table 19:**). In the other intervention area, Doma LGA (I), the aspiration index was only 4.7 (95%CI: 4.4-4.9; **Table 19:**). In Ogun State the aspiration index was high in both the comparison and intervention sites (**Table 20:**).

3.6.2 Benefits of contraceptive methods

The proportion of girls who agreed with the statement "Using modern contraception can allow an adolescent girl to complete her education, find a better job and have a better life" increased slightly in Doma (I) from baseline to endline, and remained constant in other LGAs (**Table 19:**). Accordingly, the final regression model showed that overall, in intervention sites from Nasarawa State, the increment in adolescent girls agreeing with the benefits statement was 5% greater in intervention sites than in comparison sites (RR, 95%CI, for the effect of A360 beyond time trend: 1.05, 1.01-1.09; p-value: 0.009; **Table 36:**). In Ogun State, A360 had a negative impact on the responses to the benefits statement (RR, 95%CI: 0.93, 0.88-0.97; p-value: 0.001; **Table 38:**).

At endline, the proportion of girls who agreed with the sentence "Using modern contraception can allow a girl to achieve her life goals" was greatest in Karu (I; 94%). This sentence was not included in the baseline surveys (**Table 19:**).

3.6.3 Intention to use modern contraception

In Nasarawa State, the intention to use modern contraception among non-users increased over time in Karu (I) and in Nasarawa (C), and it remained constant in the other LGAs (**Table 19:**). Overall, changes over time were the same across both intervention and comparison sites (RR, 95%CI, for the effect of A360 beyond time trend: 0.98, 0.90-1.07; **Table 30:**).

In Ogun State, the intention of non-users to use modern contraception decreased in Ado-Odo/Ota (I) and it remained constant in Shagamu (C; **Table 20:**). Overall, changes over time were the same across intervention and comparison sites (RR, 95%CI, for the effect of A360 beyond time trend: 0.98, 0.89-1.08; **Table 33:**).

3.7 Supportive environment for adolescent girls to access services

*A360 interventions were designed to provide a supportive environment for adolescent girls to access services by involving key influencers such as mothers and husbands, or by collaborating with local governments to ensure their support of A360, and to ensure the integration of A360 activities into existing health systems. To assess this, we measured a variety of indicators, including the girls' attitudes and self-efficacy towards the use of modern contraceptives to prevent unintended pregnancies, or the girls' own views of their communities' acceptance of modern contraception (see **Table 1:** for the full list of outcomes).*

Key findings:

- In Nasarawa State, respondents approval for married and unmarried couples to use modern contraceptives increased over time, and the increase was greater in intervention sites than comparison sites (Coefficient, 95%CI: 0.10, 0.01-0.18). Self-efficacy also increased over time, but the increase between intervention and comparison sites was similar (Coefficient, 95%CI: 0.10, -0.11 to 0.30).
- In Ogun State, there was no increase in adolescent girls' own approval of modern contraception overall. Even though self-efficacy stagnated, the proportion of respondents reporting respectful treatment by family planning providers increased greatly.

3.7.1 Attitudes towards using contraceptive methods

Respondents' approval or disapproval of couples using modern contraceptives was used to calculate an attitudes' index score. In Nasarawa State, those interviewed generally approved of married couples using modern contraceptives at baseline, and approval increased over time. Karu (I) remained the LGA with greatest approval (95%). Respondents' approval of unmarried couples using modern contraceptives was somewhat lower than that of married couples. Nevertheless, it increased in intervention sites, reaching 56% approval in Doma (I) and 60% in Karu (I), and it stayed at around 37% in comparison sites (**Table 21:**). The final regression model showed that the overall score of adolescent girls' attitudes towards the use of modern contraception increased more in intervention sites than in comparison sites (Coefficient, 95%CI, for the effect of A360 beyond time trend: 0.10, 0.01-0.18; p-value: 0.02; **Table 31:**).

In Ogun State, adolescent girls' approval of the use modern contraceptives by married couples dropped from 67.8% (66.1-69.5) to 56.8% (54.8-58.9) between baseline and endline in Ado-Odo/Ota, which was the intervention site. On the other hand, adolescent girls' approval of the use modern contraceptives by unmarried couples increased over time, reaching around 57% approval in both intervention and comparison sites (**Table 22:**). The final regression model showed evidence of a decline in attitudes at the intervention site versus the comparison site (Coefficient, 95%CI, for the effect of A360 beyond time trend: -0.09, -0.16 to -0.03; p-value: 0.003; **Table 34:**).

3.7.2 Self-efficacy to access and use contraceptive methods

Baseline and endline surveys assessed adolescent girls' self-efficacy in their ability to access and use family planning methods. Self-efficacy increased in Nasarawa State, particularly in Karu (I), and Nasarawa, (C; **Table 21:**), but overall the increases were no different between intervention and comparison sites (Coefficient, 95%CI, for the effect of A360 beyond time trend: 0.10, -0.11 to 0.30; p-value: 0.363; **Table 31:**).

In contrast, self-efficacy in Ogun State stagnated (**Table 22: and Table 34:**).

3.7.3 Treatment by family planning providers

From baseline to endline, health facilities remained the most important source of modern contraceptive methods in Nasarawa State, increasing from 41% to 73% in Nasarawa LGA (C), and remaining at 57% in the other LGAs (table not shown). Reporting of respectful treatment by providers was widespread. In Karu (I), Nasarawa (C) and particularly in Toto (C), this treatment increased over time, reaching over 90%. In Doma (I), the proportion of respondents reporting respectful treatment by providers remained at around 86% (**Table 23:**).

From baseline to endline, pharmacy stores and chemists were the main source of modern contraception in Ogun State, increasing from 55% to 67% (table not shown). Health facilities became the main source of modern contraception in +4% of respondents (table not shown). The proportion of unmarried girls in Ogun State reporting respectful treatment by family planning providers was lower than married girls in Nasarawa State. Nevertheless, the proportion increased greatly in both LGAs in Ogun State. In Shagamu (C), it increased from 41% to 80%, and in Ado-Odo/Ota (I), it increased from 52% to 75% (**Table 23:**).

3.7.4 Descriptive norms

At endline, we assessed descriptive norms regarding modern contraception by asking respondents about what they thought girls aged 15-19 years old were doing in their community. In Nasarawa State, Karu (I) had the highest descriptive norms index, as 44% of respondents believed that most girls aged 15-19 years old discussed using contraception with their partner; 52% of respondents believed that most girls were using contraceptive methods, and 29% believed that most girls were using contraceptive methods in secret, hiding their use from their husband/partner. Nasarawa (C), Toto (C) and Doma (I) LGAs had similar descriptive norms (**Table 24:**).

The descriptive norms score was slightly higher among unmarried girls in Ogun State (3.1, 95%CI: 3.0-3.2), than among married girls in Nasarawa State (2.9, 95%CI: 2.8-3.0). Around 40% of respondents believed that most girls aged 15–19 years old were using contraceptive methods, and 36% believed that most girls were using contraceptive methods in secret, hiding their use from their boyfriend or family (**Table 24:**).

3.7.5 Community acceptance and social support for adolescent girls to adopt healthy sexual and reproductive health behaviors, including use of modern contraceptives

Key findings:

- In Nasarawa State, there was a 29% rise in husband/partner's approval of contraceptive use, according to the girls' own views, which contributed to a greater community acceptance score over time across all LGAs.
- In Ogun State, the community acceptance score decreased over time.

In Nasarawa State, most adolescent girls answered that the decision on whether or not to use contraceptives was made together with their husband. There was a 29% rise in husbands'/partners' approval of contraceptive use, according to the girls' own views, which led to a higher community acceptance score over time across all LGAs (**Table 25:**). However, there was no difference between intervention and comparison sites (**Table 31:**). At endline, a greater number of girls mentioned that the health worker's opinion and their sister's opinion influenced their decision on whether or not to use contraceptives, compared to baseline (**Table 25:**).

In Ogun State, mothers remained a central influence on girls' decisions about whether or not to use a contraceptive method. Friends/peers and siblings became an important influence over time. Mother's approval and community's approval of contraceptive use stayed approximately constant, according to the girls' own views. However, the proportion of girls responding that they "did not know" about their mother's

or community's views decreased considerably, which affected these estimates (**Table 26:**). Community acceptance scores decreased over time (**Table 26:**), but the scores did not differ between intervention and comparison sites (**Table 34:**).

3.8 Trust and credibility of family planning products

A360 was designed to improve trust in and credibility of family planning products, through its aspirational programming classes or by providing youth-friendly services. To assess this, we measured girls' misconceptions about modern contraceptives and their own views on what they considered to be the disadvantages of using modern contraceptives.

Key finding:

- In both States misconceptions about modern contraceptives were widespread at baseline and endline. Complications or side effects were the main misconceptions reported about modern contraception, followed by modern contraceptives sometimes not working.

3.8.1 Misconceptions and modern contraceptive disadvantages

Misconceptions about modern contraceptives were widespread at baseline and endline (**Table 27:**). At endline, respondents were also asked to mention modern contraceptive disadvantages. In Nasarawa State, complications or side effects were the main concerns about modern contraception, mentioned by 79% of participants across all sites. The second most important concern was that modern contraceptives sometimes do not work, something that was mentioned by 25% of participants. Interestingly, in intervention sites (Doma and Karu LGAs), 13% of participants mentioned that modern contraceptives cause problems with husbands/partners, whereas in comparison sites, only 4% of participants mentioned it as a disadvantage of modern contraceptives (**Table 27:**).

In Ogun State, misconceptions remained high from baseline to endline (**Table 28:**). Complications or side effects were also a misconception about main modern contraception mentioned by respondents, followed by responses that modern contraceptives sometimes do not work. Interestingly, at the intervention site (Ado-Odo/Ota LGA), 12% of participants mentioned that modern contraceptives were embarrassing to buy, and 8% mentioned they were costly/expensive; in contrast, at the comparison site (Shagamu LGA), the proportions were lower, and only 7% mentioned that modern contraceptives were embarrassing to buy, and 1% of participants mentioned that they were costly/expensive (**Table 28:**).

Co-habiting adults' results are presented in **Appendix E**. As only a small proportion of girls who were co-habiting were able to be interviewed (**Table 39:**), this secondary population is potentially not representative of the whole population of co-habiting adults. Consequently, we have presented this information in an appendix.

3.9 The association between self-reported exposure to Adolescents 360 and primary and secondary outcomes

Key findings:

- In Nasarawa, only 6% of those in intervention sites self-reported exposure to A360. There was a positive association between reported A360 exposure and almost half of the outcomes of interest, including mCPR (RR, 95%CI: 1.41, 1.13-1.76) and unmet need (RR, 95%CI: 0.60, 0.39-0.94).
- In Ogun, there was no association between exposure and any of the outcomes of interest.

In Nasarawa State, self-reported exposure to A360 was 7% (95%CI: 5-10) in Doma (I), 5% (4-6) in Karu (I), 0.4% (0.1-0.9) in Nasarawa (C) and 0.8% (0.4-1.6) in Toto LGA (C). There was a positive association between self-reported exposure and mCPR (RR, 95%CI: 1.41, 1.13-1.76), and between self-reported exposure and modern contraceptive use in the previous 12 months (RR, 95%CI: 1.49, 1.22-1.83; **Appendix B)**. Girls exposed to A360 also had a 40% lower risk of unmet need compared to girls who were not exposed to A360 (RR, 95%CI: 0.60, 0.39-0.94), and they had greater awareness of where to obtain either health services (RR, 95%CI: 1.11, 1.07-1.16) or contraceptive products (RR, 95%CI: 1.18, 1.11-1.25; **Table 35:**). Furthermore, girls exposed to A360 had an attitudes index score 0.20 higher than girls not exposed to A360 (Coefficient for attitudes index, 95%CI: 0.20, 0.10-0.30). Girls exposed to A360 also had more positive future aspirations (Coefficient for aspirations index, 95%CI: 0.56, 0.13-0.99) and more desirable descriptive norms[26] (Coefficient for descriptive norms' index, 95%CI: 0.44, 0.14-0.73) compared to girls who had not been exposed to A360 (**Table 36:**). However, there was evidence that girls who had been exposed to A360 were more likely to have given birth within the past 12 months (compared to non-exposed girls; RR, 95%CI: 1.18, 1.01-1.40; **Table 35:**), and there was some evidence for a greater number of contraceptive disadvantages mentioned (Coefficient, 95%CI, p-value: 0.24, -0.02 to 0.49, 0.07; **Table 36:)** compared to girls not exposed to A360. We note that exposure was somewhat higher in Doma than in Karu, and that in the pair-specific analysis a larger increase in mCPR was found in Doma compared with Karu. Taken together, this suggests that the larger effect was seen in the area with greater exposure to the program, however, as exposure numbers were small in both areas this difference should be interpreted with caution.

In Ogun State, self-reported exposure to 9Ja Girls was: 7.5% (95%CI: 5.8-9.8) in Ado-Odo/Ota (I) and 2.1% (95%CI: 1.4-3.1) in Shagamu LGA (C). There was no relationship between self-reported exposure to A360 and the outcomes of interest, except for weak evidence of a positive relationship between being exposed to the program and being aware of contraceptive products (RR, 95%CI: 1.07, 1.00-1.15; p-value: 0.06; **Table 37**:). Self-reported exposure to A360 and its association with sociodemographic factors and mCPR is presented in detail in **Appendix B** (Outcome evaluation exploratory results).

[26] A descriptive norm is based on the respondents' perception of the behavior of the people around her/him. In our surveys, we assessed respondents' descriptive norms by asking them what behaviors related to contraceptive use they thought other 15–19-year-old girls were practicing.

4 Discussion

4.1 Major findings

Our findings indicate that mCPR increased over time across all selected LGAs, but there were no differences between intervention and comparison sites, and therefore no evidence of the two A360 interventions having a population-level effect on mCPR among girls aged 15 to 19 years old in either Nasarawa or Ogun States.

In Nasarawa State there was evidence of an effect of A360 on two secondary outcomes, aligned with the A360 Theory of Change, and self-reported exposure to A360 was positively associated with these outcomes, strengthening the evidence that these changes were due to A360. In Ogun State there was little impact on secondary outcomes and none of the outcomes were associated with self-reported exposure.

It is important to note that these results should be considered alongside findings from the accompanying process evaluation, which used a theory-based methodology to evaluate how the A360 approach and solutions were operationalized and experienced by participants. These findings provide a more nuanced representation of the A360 program in it's entirely. The full report from the process evaluation and a final summative report, which triangulates findings from across the evaluation, is available on the Itad Website.

Our primary hypothesis was that sexually active girls aged 15-19 years living in areas where the A360 programme has been implemented would have a greater increase in use of modern contraception compared with sexually active girls aged 15-19 years living in areas where the A360 program has not been implemented, after adjustment for baseline differences and confounding factors. Accordingly, our primary aim was to evaluate the effectiveness of the A360 intervention in increasing mCPR among girls aged 15-19 years old. Our findings indicate that mCPR increased over time across all selected LGAs in Nasarawa State, but there were no differences between intervention and comparison sites, and therefore no evidence of an effect of A360 on mCPR among married girls aged 15-19 years old in Nasarawa State. There was also no evidence of an effect of A360 on mCPR among unmarried girls aged 15-19 years old in Ogun State.

Secondarily, we aimed to evaluate the effectiveness of A360 interventions in changing secondary outcomes aligned with the A360 Theory of Change. In Nasarawa state, MMA was effective in improving attitudes towards the use of modern contraceptives, and improving girls' views on the benefits of contraception. Moreover, self-reported exposure to A360 was positively associated with these two outcomes and several others. The fact that the data shows positive associations between living in an area where MMA was implemented, self-reported exposure to MMA and outcomes related to the A360 Theory of Change, strengthens the evidence that the changes observed in intervention sites are due to MMA. In contrast, in Ogun State only one outcome was affected, and it was not associated with self-reported exposure. Error! Reference source not found. shows the summary of the results obtained in Nigeria.

4.2 Strengths and limitations

Our study was designed to rigorously examine the population effects of A360 in the selected LGAs in Nigeria:

- Our study had a quasi-experimental design. We collected comparable data before and after intervention implementation in two settings in Nigeria, and collected data from participants who had been exposed to the intervention, and those who had not been exposed to the intervention.
- Participants were representative of girls in the selected LGAs (married in Nasarawa State and unmarried in Ogun State), which increased the internal and external validity of the study.

- Finally, we collected data on self-reported exposure to A360 at endline, to look at the association between individual-level engagement with the A360 interventions and modern contraception use, which further strengthens the validity of our findings.

Our study has several limitations which are important to note:

- Due to resource constraints, we decided to focus on a limited number of geographical areas; so while our findings may apply to the selected LGAs, they may not be applicable to other areas of Nigeria where A360 was implemented.
- We relied on respondent self-reporting to measure modern contraceptive use, sexual activity and exposure to the program; these outcomes are therefore subject to reporting bias. Since both the use of contraceptives and sexual activity (particularly among unmarried women) are sensitive topics, girls may report that they are not contraceptive users or that they are not sexually active, even if they are. To minimize misclassification from self-reporting impacting the evaluation findings, we used identical question sequences for very personal questions asked at baseline and endline surveys and provided extensive interviewer training. Furthermore, all interviews were conducted in privacy, and away from husbands/partners and other adults, as much as possible.
- The COVID-19 pandemic led to some changes to the survey administration at endline, namely the use of personal protective equipment such as face masks, and having the second section of the questionnaire collected by phone. These changes could have led to a) selection bias due to lower response rates, although this is unlikely to have affected our results (see **Table 5**:); and b) increased or decreased rapport between the interviewer and interviewee. To address the latter issue, during the phone survey section interviewers were usually able to see the interviewee from afar. In addition, the order of was questions changed slightly, which may have affected the girls' responses. However, we believe that this is unlikely to have affected the outcome measurement because the order in which very personal questions were asked did not change. Nevertheless, having a comparison and an intervention site reduces threats to validity such as information bias, because there is no reason to believe that bias would be lower or greater in comparison vs intervention sites in Nigeria.
- The length of time (18–36 months), between the start of A360 implementation and the endline surveys, inhibited the study from exploring the longer-term effects of A360 exposure on gender norms and community acceptance of family planning, which are both difficult to change in the short term.
- Secondary outcomes which were measured using multiple items, such as self-efficacy, were not validated prior to use, and psychometric properties such as inter-item correlation were not assessed. The quality of measurement of these items is thus sub-optimal, and power to detect differences reduced due to measurement error.
- Finally, a key limitation of our study was the lack of clarity over implementation plans when planning the outcome evaluation, which was due to the fact that the package of A360 interventions was still under development. This is well described in Atchison et al. (2018) and in Doyle et al. (2019). In summary, detailed information about the A360 interventions during the study design phase could have improved the questions included in baseline surveys, and consequently, it could have led to a set of outcomes that were more appropriate to measure the A360 impact on the population of adolescent girls.

Box 2. Summary of the effects of Adolescents 360 on each Outcome Evaluation component, and effect among girls exposed, by State

A360 Theory of Change	Outcome Evaluation Components	Nasarawa State		Ogun State	
		Effect of A360[4]	Effect among exposed[5]	Effect of A360[4]	Effect among exposed[5]
Adolescents use high quality sexual and reproductive health products and services					
	mCPR (primary outcome)		**		
	Long-acting Reversible Contraceptive (LARC) users			*	-
	Use of modern contraceptive in past 12 months		***		
	Age at first birth				
	Age-specific fertility rate		*	*	
	Unmet need for modern contraception		*		
Adolescent girls have access to appropriate high quality sexual and reproductive health information and services					
	Awareness of contraceptive products	**	***		
	Awareness of where to obtain health services		***		
Contraception positioned as relevant and valuable for adolescent girls					
	Future aspirations [1]	-	*	-	
	Benefit of contraception 1[2]	**	**	**	
	Benefit of contraception 2[1,3]	-		-	
	Intention to use a modern method		***		
Supportive environment for adolescent girls to access services created					
	Attitudes towards the use of modern contraceptives	*	***	**	
	Self-efficacy to use modern contraceptives				
	Descriptive norms [1]	-	**	-	
	Community acceptance				
Trust and credibility of family planning products					
	Misconceptions about modern contraceptives				
	Modern contraceptives disadvantages[1]	-		-	

***	Strong evidence of effect, p<0.001
**	Evidence of effect, p<0.01
*	Weak evidence of effect, p<0.05
*	Evidence of an effect contrary to the hypothesized
	No evidence of effect
-	Not applicable

[1] Measured at endline only. [2] Assessed through the sentence "Using modern contraception can allow an adolescent woman girl to complete her education, find a better job and have a better life" with which the respondent agreed or disagreed.[3] Assessed through the sentence "Using modern contraception can allow a girl to achieve her life goals" with which the respondent agreed or disagreed.[4] The effect of A360 is the model result for the interaction term A360*T, i.e. the result of the effect of time (change from baseline to endline) on the outcome by levels of A360 areas (intervention versus comparison areas).[5] The effect among those exposed is the result of the effect of self-reported exposure to A360 on the outcome.

4.3 Potential explanations for the results obtained

Nasarawa and Ogun States had very different interventions and contexts, with MMA in Nasarawa State targeting married adolescent girls, and 9ja Girls in Ogun State targeting unmarried adolescent girls. In effect we conducted two separate outcome evaluations of two separate A360 programs. In both cases, however, we believe there are two general explanations for the lack of measured impact reported above: (1) the A360 interventions were not able to help participants overcome important barriers to modern contraceptive use; (2) the proportion of the target population reached was too low to effectively identify changes at the population level.

The COVID-19 pandemic does not appear to have affected the outcome evaluation findings. Other components of the A360 program such as the monitoring and evaluation data collected by the A360 program implementers, and the process evaluation, that provided context and mechanism of the intervention, will complement and aid interpretation of the findings presented here.

In Nasarawa State, an additional potential explanation is that the effect of MMA on mCPR in intervention areas may have been matched by the effects of other family planning programs implemented in the comparison areas, leading to no measured overall impact.

In Ogun State, baseline mCPR was generally greater (44.7% in Ado-Odo/Ota and 49.8% in Shagamu) than it was in Nasarawa State (minimum mCPR of 7.6% in Doma and maximum of 21.3% in Karu). This may have made it more difficult to detect a change over time in intervention sites versus comparison areas in Ogun State.

The sample sizes we obtained exceeded those estimated from initial sample size calculations (see **Appendix A** for details), providing us with enough power to detect moderate effects of A360 in each State. A360 may have had effects that were too small to be detected using our study design. Nevertheless, such small effects are unlikely to have implications at the population level.

4.3.1 Nasarawa State

There are some potential explanations for the lack of overall effect of MMA on mCPR in Nasarawa State.

First, in Nasarawa State there was evidence that MMA was effective in increasing outcomes related to two components of the Theory of Change (**Figure 3**:): (1) contraception was positioned as relevant and valuable for adolescent girls; and (2) creating a supportive environment for adolescent girls to access services created. **The fact that MMA was effective in addressing some components of the Theory of Change in Nasarawa State, but not enough to lead to a subsequent change in mCPR may have been due to**:

- A lack of impact on other important barriers to contraceptive use, such as trust in and credibility of the products (measured through misconceptions about modern contraceptives), or gender and social norms. One of the main reasons reported by married girls as to why they were not using contraception was the desire to bear (more) children. Gender and social norms are important barriers that affect access and use of contraceptives among this population (McCleary-Sills et al., 2014). Even if they wanted to use contraception, some married girls may feel pressured to prove their fertility to their husband, to other relatives, or to their community, by conceiving and bearing children soon after they get married. Therefore, in several settings, contraception may only be considered for the purpose of child spacing (Rivera et al., 2001, Bankole and Malarcher, 2010). In our study, a considerable number of married girls interviewed did not yet have any children (from a minimum of 33.7% in Toto LGA to a maximum of 50.8% in Karu LGA, at endline; **Table 6:**). This would affect their uptake of modern contraception, as gender and social norms dictate that a married woman should give birth within the first few years of marriage (McCleary-Sills et al., 2014).
- A short implementation period would likely make it difficult to affect deep-seated barriers to the uptake of modern contraception, including the gender and social norms mentioned above.

Secondary outcomes, such as the awareness of the benefits of contraceptive use may have been easier to change over a shorter period of time

- The Theory of Change was perhaps incorrect, and the mechanisms assumed to link elements of the Theory of Change with changing behavior around contraception use may not have acted as expected. The process evaluation provides further insights into how A360 was delivered, how implementation unfolded over time and how A360 solutions were adapted over time. It also explores how A360 activities and participants' interactions with them triggered change, and how external factors influenced the delivery of A360 User Journeys (user journeys were used to demonstrate how girls were intended to experience A360 and were used as the framework to guide the process evaluation).[27]

Second, MMA may have targeted either a small proportion of the population, or a subset of girls with particular characteristics that were not efficiently detected using population-based surveys. Even though initially MMA was due to be implemented in approximately 60% of the LGAs in each selected State (Atchison et al., 2018), by mid-2020, only two out of 12 LGAs (17%) in Nasarawa State received the intervention.[28] The measure of exposure used by the outcome evaluation was defined by asking respondents about particular aspects of the MMA package of interventions, and it is detailed in the methods section and in **Appendix B**. The measure of exposure used by PSI was calculated by dividing the number of girls aged 15–19 years old reached by MMA by the total number of girls aged 15–19 years old in MMA areas (obtained from national survey data; PSI (2019)). Finally, we also observed an association between having given birth in the past 12 months and reporting exposure to MMA, so the program was perhaps more efficient in influencing the lives of girls with greater parity compared to girls in the community more generally.

Third, the effect of A360 on mCPR in intervention areas may have been matched by the effects of other family planning programs implemented in the comparison areas, leading to no measured overall impact. In Nasarawa State, the two LGA pairs were different in terms of the number of alternative interventions in the comparison arm. In pair 1 (Toto vs Doma LGA), we knew of no family planning programs in the comparison LGA (Toto), and there was a measured positive impact of MMA within this pair (**Table 12:**, p=0.10). In contrast, in pair 2 (Nasarawa vs Karu LGA), the comparison LGA (Nasarawa) had two programs in place, and there was a measured negative impact of A360 within this pair (**Table 12:**, p=0.10).

Furthermore, pair 1 did not have similar programs in place in the intervention LGA (Doma), but in pair 2, the intervention LGA (Karu) had outreach activities on family planning counseling and services from other programs.[29]In pair 2, the combined effect of MMA with these other interventions did not lead to a greater impact in this intervention LGA compared to its comparison LGA. It is important to consider, however, that our study was not powered to detect the effects of the intervention in individual LGA pairs.

4.3.2 Ogun State

There are a few potential explanations for why we did not observe an effect of 9ja Girls on mCPR at the population level in Ogun State.

First, the intervention may not have been as accessible to the target population as expected. Even girls who reported exposure to A360 did not report changed behavior on either the primary or secondary outcomes. These findings indicate that A360 may not have been successful at reaching the target audience in this region. Indeed, the process evaluation described some difficulties at the beginning of the program in Ogun State, which included a low uptake (around 40%) of modern methods among girls exposed to A360

[27] The A360 ToC is a high-level model and was not actively used by A360 to guide strategy or implementation. It also does not provide a detailed description of the country-level solutions. In 2019, the process evaluation team worked in collaboration with PSI and SFH to design global and solution-level 'User Journey' models, depicting how girls were intended to experience A360. The User Journeys became the primary framework to structure process evaluation data collection and analysis in 2019. They were used to structure the country level insights in Section 3.2 of the process evaluation report.

[28] PSI monitoring data.

[29] Source of information: Document entitled "A360 OE site mapping" shared by Mathew Wilson, PSI, on 12/11/2020.

and a preference for short-acting contraception methods. This led to several changes to the program in 2018 that were aimed at reducing running costs and increasing the promotion of long-acting methods of contraception. Changes were also made to reach girls who lived further away from health facilities, which included outreach activities and modifications to how mobilizers were recruited and paid (Punton and Wallach, 2020). Furthermore, the main sociocultural barrier faced by unmarried young girls in accessing contraception is the stigma associated with premarital sex that is present in several societies (Williamson et al., 2009, IPPF, 2014, Sidze et al.). Therefore, if they want to use contraception, unmarried girls need youth-friendly service delivery options, with ensured confidentiality and discretion from the provider.[30] In A360, youth-friendly service delivery of contraception was provided by SFH Young Providers, but there was little to no improvement in the service provided by health facility service providers (Punton and Wallach, 2020) which may have made it difficult to improve the uptake of modern contraceptives among adolescent girls. Our results showed good levels of satisfaction with the treatment received from providers for girls using modern contraception, but unmarried girls were obtaining their contraceptive methods at the pharmacy store or chemist rather than at the health facility.

Second, A360 may have targeted a subset of the target population (either a small proportion, or a subset of girls with particular characteristics), that was not efficiently detected using population-based surveys. In a PSI A360 report from September 2020 (PSI, 2020), A360 was said to have reached 15% of unmarried girls in 9ja Girls areas. This estimate is greater than self-reported exposure in our study, however, once again, measures of exposure used by the outcome evaluation team and PSI were not identical, so may not be directly comparable. Furthermore, we hypothesized that 9ja Girls was targeting girls slightly older than the general population of unmarried adolescent girls. The process evaluation (Punton and Wallach, 2020) described that the proportion of girls exposed to A360 in all 9ja Girls areas between October 2017 and September 2020 who were aged 18-19, was 86.7% (n=103,862/119,825). While in our study, the proportion of sexually active[31] respondents aged 18-19 was 73.8% (n=2,553/3,460; 95%CI: 72.1-75.4). Finally, 9ja Girls may have reached girls living in places nearer to health facilities and who had access to phones, since (as mentioned in the process evaluation report), mobilizers struggled to reach girls living further away from the health centers (Punton and Wallach, 2020), and service providers would generally follow up with phone calls (Punton and Wallach, 2020).

4.4 The association between self-reported exposure to Adolescents 360 and primary and secondary outcomes

By triangulating the main study findings with self-reported exposure data, we were able to strengthen the possible inferences. We hypothesized that respondents who reported being exposed to A360 (i.e. had heard about the A360 program, and/or recognized the logo, and/or participated in A360 classes; see **Appendix B** for details) were more likely to use modern contraceptives compared to respondents that reported no exposure. To test this hypothesis, we conducted a secondary analysis on the association between the respondents' self-reported exposure to A360 and primary and secondary outcomes. Unfortunately, due to the low level of self-reported exposure, we were not able to quantify the effect of higher or lower participation in program activities, as initially planned. This would have provided greater evidence of an effect of A360 exposure on the outcomes of interest.

In Nasarawa State, the secondary analyses showed some evidence that the subset of married young women who were exposed to the intervention did use modern contraceptive methods more when compared to those who were not (RR, 95%CI: 1.41, 1.13-1.76); some evidence suggests that this was aligned with other effects along the Theory of Change, supporting the idea that the intervention worked as intended when it reached the target population. Evidence of the effect of the association between self-reported exposure to A360 and mCPR, unmet need, aspirations and attitudes was expected, as these align directly with the

[30] This is the main reason why unmarried girls prefer to obtain methods in pharmacies rather than health centres and other providers, which was observed in our results (section 'Supportive environment for adolescent girls to access services', subsection 'Treatment by family planning providers').

[31] Reported sexual activity in the last 12 months.

program's primary aims, which include an important aspirational component. However, the program was less likely to affect health decision-making norms such as self-efficacy and community acceptance.

There are some potential explanations for why we did not see an impact of A360 overall but did see an association between reported exposure to MMA and study outcomes in Nasarawa:

- It may be that there was a real effect of exposure to MMA among those receiving the intervention, but a low proportion of girls received the intervention, either because the reach of the intervention was low or because it only appealed to a small subsection of girls in the population. This meant that A360 was unable to achieve measurable impact at the population level.
- Girls exposed to MMA were perhaps more likely to answer positively to questions around use of family planning because they knew this was the goal of MMA and was the most socially desirable answer. It is not possible to know whether this occurred or not.
- Another possibility is that girls exposed to MMA were self-selected; i.e. girls who chose to participate in MMA activities were already those more likely to use modern contraception.

In Ogun State, self-reported exposure to 9Ja Girls did not affect any outcome. The lack of effect corresponds with the results of the main analysis.

4.5 Potential impact of COVID-19 pandemic

The endline surveys of our outcome evaluation were conducted in late 2020, approximately one year after the start of COVID-19 pandemic. **The COVID-19 pandemic does not appear to have affected the outcome evaluation findings.**

First, we believe that family planning services and product availability for females aged 15-49 years old are unlikely to have been impaired due to COVID-19. Performance Monitoring for Action 2020 (**PMA2020**) surveys show that in Kano State (Northern Nigeria), women aged 15–24 years old who changed their contraceptive use status were more likely to adopt (4%) than to discontinue a method (<1%; PMA2020 (2020a)). In Lagos (Southern Nigeria), however, women aged 15–24 years who changed their contraceptive use status were more likely to discontinue (11%) than to adopt a method (5%; (PMA2020, 2020b), but only 2% of women aged 15–49 years old stopped or interrupted their contraceptive method use due to COVID-19 restrictions (PMA2020, 2021). This data may be slightly biased, as only respondents who owned or had access to a phone (82.6% of respondents) completed the PMA2020 survey related to COVID-19. Nevertheless, data from HMIS Nigeria published by Krubiner et al. (2021) also shows largely unchanged trends of family planning clients counselled in Nigeria during 2020 pandemic compared to previous years (**Figure 9:**). Therefore, we believe that family planning services and product availability for females aged 15–49 years are unlikely to have been impaired due to COVID-19, but it is difficult to know if this was also true among adolescent girls aged 15–19 years old in our study geographies.

Second, the COVID-19 pandemic affected the intervention implementation, but these are unlikely to have negatively affected the outcome evaluation. Changes made to implementation due to COVID-19 are detailed in the process evaluation report (Punton and Wallach, 2020). In summary, the government designated sexual and reproductive health an essential service, and so several efforts were made by implementers to continue delivering A360 services despite the pandemic. For instance, protective measures were reinforced (e.g. physical distancing protocols during counseling and installing sanitization stations), mobilization of girls happened one-on-one (rather than in groups), classes happened by smartphone for girls with access to one and continued happening one-on-one for those without a smartphone. PSI monitoring data published in A360 Monthly Snapshot (PSI, 2020) shows that in regions where the MMA program was implemented (including Nasarawa State), the number of girls reached was around 2,500; it dropped by half at the start of the pandemic for two months (April and May 2020), and recovered again in the following months to around 2,800 girls reached per month. In areas where 9ja Girls was implemented (including Ogun State), the number of girls reached was around 6,000, it dropped by half at the start of the pandemic for two months (April and May 2020) and recovered again in the following months to around 7,000 girls reached per month. Therefore,

since the number of girls reached by A360 was only affected during a small proportion of the implementation time, we believe that the changes made to implementation due to COVID-19 are unlikely to have negatively affected the outcome evaluation's ability to detect if A360 had any effect.

Third, we made some changes to our questionnaire and list of secondary outcomes to be able to capture any undesired effects of COVID-19 on the data. The main questionnaire changes included (1) adding COVID-19 related options as a response to a question on the reasons why the respondent was not using a contraceptive method; (2) adding COVID-19 related options as a response to a question on the reasons why the respondent stopped using a contraceptive method; (3) adding "use in the past 12 months" to the list of secondary outcomes. None of the respondents chose the COVID-19 related options in the survey data, which is similar to the PMA2020 findings from Kano and Lagos above. Adding "use in the past 12 months" to the list of secondary outcomes would allow us to capture any girls who started using a modern method within 12 months from the survey, but then stopped during the COVID-19 pandemic. As we show in the results section, this outcome was not affected by A360.

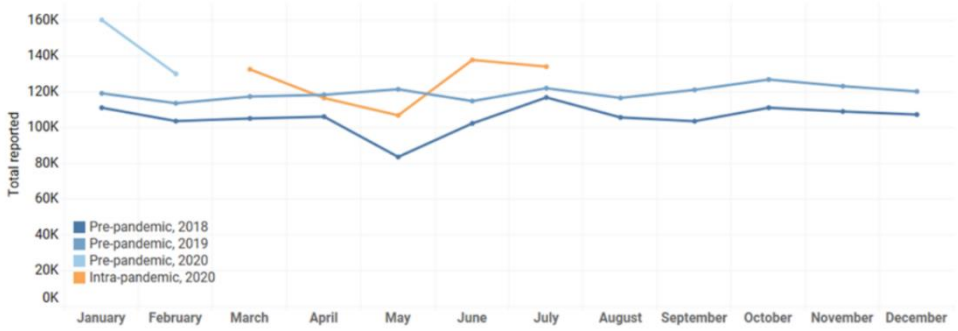


Figure 9: Descriptive trends in family planning clients aged 15–49 years old counselled in Nigeria, Jan 2018 to July 2020 (2,078 health facilities with complete data)

© Reproduced from Krubiner et al. (2021); Original source: HMIS/DHIS2, Nigeria Federal Ministry of Health and The Global Financing Facility for Women, Children and Adolescents (**GFF**)

5 Conclusion

In summary, our findings indicate that mCPR increased over time across all selected LGAs in Nasarawa State but there were no differences between intervention and comparison sites and therefore no evidence of an effect of MMA on mCPR among married girls aged 15–19 years old in Nasarawa State. However, there was evidence that in Nasarawa State MMA improved attitudes towards the use of modern contraceptives, and girls' views on the benefits of contraception. Moreover, self-reported exposure to MMA was positively associated with these two outcomes, strengthening the evidence that the changes observed in the intervention sites but not in the comparison sites, are due to MMA. We further observed an association between self-reported exposure to MMA and a variety of other outcomes including mCPR, unmet need, and girls' aspirations, which were important components of the program. Therefore the MMA program appears to have been effective in addressing some components of the Theory of Change in Nasarawa State but, perhaps due to low reach (i.e. only a small proportion of the target population receiving the intervention) or limited exposure time, A360 was not effective in changing mCPR. It is also plausible that barriers to modern contraceptive use, such as gender and social norms, made it difficult for the A360 interventions to change behaviors. Finally, the presence of considerable other sexual and reproductive health interventions in some of the comparison LGAs, may have made it challenging to detect the specific impact of MMA.

There was also no evidence of an effect of 9ja Girls on mCPR among unmarried girls aged 15–19 years old in Ogun State, and there was little evidence of an effect of 9ja Girls on study outcomes in Ogun State. The lack of an effect may have been caused by low reach amongst the population. However, even among those reporting exposure to 9ja Girls, there was limited or no impact on the study outcomes. This suggests that the intervention did not sufficiently address barriers such as the social stigma associated with premarital sex

(Williamson et al., 2009, IPPF, 2014, Sidze et al.), and/or that it did not target the main service providers for unmarried adolescent girls.

Our study was only one component of the overall A360 evaluation. The triangulation with exposure analysis was an important component of this outcome evaluation, which strengthened the inference possible from the study findings. There are other components of the A360 program such as the monitoring and evaluation data collected by the A360 program implementers, and an accompanying process evaluation, that provided the context and process of the intervention. It is important to note that these results should be considered alongside findings from the process evaluation, which provide a more nuanced representation of the A360 program in it's entirely. The full report from the process evaluation and a final summative report, which triangulates findings from across the evaluation, is available on the Itad Website.

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Appendix A: Methodology details

[See document attached]

Appendix B: A360 Outcome evaluation exploratory results

[See document attached]

Appendix C: Report tables

Response rates

Table 5: **Reasons for non-response and response rates among adolescent girls by State at baseline (2017) and endline (2020)**

	Nasarawa State				Ogun State			
	Comparison sites		Intervention sites		Comparison sites		Intervention sites	
	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
Girls aged 15–19 years old identified [1]	2,527	2,643	2,509	2,562	6,955	6,906	6,139	6,923
Interviewed for face-to-face	2,474	2,637	2,342	2,562	6,010	6,852	6,043	6,898
Reasons for non-response for face-to-face surveys								
Girl was not available for interview	36	0	119	0	783	37	72	8
Respondent refused	4	5	15	0	47	8	8	14
Parents refused	8	0	8	0	72	4	13	3
Other reasons	5	1	25	0	43	5	3	0
Face-to-face response rate [2]	97.9%	99.8%	93.3%	100.0%	86.4%	99.2%	98.4%	99.6%
Interviewed for face-to-face component but not phone component of endline survey [3]	NA	607	NA	435	NA	106	NA	172
Reasons for non-response for phone surveys	NA	0	NA	0	NA	0	NA	0
No network available	NA	543	NA	341	NA	80	NA	102
Respondent refused	NA	64	NA	94	NA	26	NA	70
Phone response rate [4]	NA	77.0%	NA	83.0%	NA	98.5%	NA	97.5%

[1] Married girls in Nasarawa State, unmarried girls in Ogun State

[2] Generally higher response rates at endline may have been caused by incentives provided for participation in the questionnaire (detergent in Nasarawa State, sanitary pads in Ogun State, both worth approximately 100 naira or $0.30), and the fact that the interview was shorter at endline than at baseline.

[3] At endline, the first part of the survey was face-to-face and the second by phone. Girls had the option to only respond to the first part of the survey.

[4] Although reason for refusing the phone interview was not recorded, field personnel reported that the primary reason for refusal was that participants did not understand the reason for switching the mode of interview and desired to continue the interview face-to-face.

NA, not applicable.

Characteristics of adolescent girls

Table 6: **Descriptive results - Percentage distribution of adolescent girls by LGA in Nasarawa State, according to selected characteristics, baseline (2017) and endline (2020)**

	Comparison sites				Intervention sites			
	Nasarawa (C)		Toto (C)		Doma (I)		Karu (I)	
	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
	n=1,522	n=1,628	n=952	n=1,009	n=908	n=1,016	n=1,434	n=1,546
Age (years)								
15	9.1	1.8	7.5	3.4	20.6	7.8	4.6	1.3
16	12.6	7.0	14.0	5.4	19.2	13.8	10.8	5.2
17	19.8	14.9	18.2	10.8	20.0	19.0	16.2	14.4
18	23.7	28.4	25.3	23.9	19.9	25.9	28.5	26.6
19	34.8	47.9	35.1	56.6	20.3	33.6	40.0	52.6
Number of living children								
No children	45.6	45.7	34.2	33.7	44.5	40.9	53.2	50.8
1 child	34.1	39.4	41.2	46.9	33.5	44.7	32.4	40.6
2 children	15.2	13.7	18.2	18.6	17.8	12.7	12.1	8.2
3 or more children	5.1	1.2	6.4	0.8	4.2	1.7	2.3	0.4
Education level								
No education	28.6	15.2	25.6	12.6	45.7	34.4	15.8	7.4
Qur'anic only	3.4	6.1	1.3	5.5	1.5	3.8	3.3	3.1
Primary	22.6	35.6	29.5	27.1	28.0	39.6	20.5	24.2
Secondary	42.4	40.9	41.8	50.0	24.6	21.9	56.9	59.6
Higher	3.0	2.3	1.8	5.0	0.2	0.3	3.4	5.7
Religion								
Roman Catholic	6.6	5.6	3.7	1.2	21.2	16.3	14.9	12.7
Protestant/other Christian	28.9	32.7	52.4	29.6	43.8	38.9	42.1	40.9
Muslim	64.3	60.9	43.4	68.6	34.8	43.5	42.0	45.9
Traditional	0.1	0.7	0.3	0.6	0.1	0.8	0.9	0.1
No religion	0	0	0.2	0	0.1	0.4	0.1	0.3
Wealth quintile								
1st Quintile	5.1	9.1	15.8	10.3	30.0	32.4	2.4	1.4
2nd Quintile	16	22.8	27.3	30.0	43.6	33.7	5.9	5.0
3rd Quintile	20.7	24.8	36.9	34.1	20.8	29.2	13.7	9.7
4th Quintile	31.4	26.1	16.8	22.3	5.2	4.1	31.1	28.7
5th Quintile	26.9	17.1	3.2	3.3	0.5	0.7	46.9	55.1
Mobile phone access								
Owns smartphone	15.1	15.7	6.7	12.2	4.4	3.2	26.4	49.4
Owns non-smart mobile phone	40.9	56.4	42.4	64.7	25.0	54.3	43.2	40.0
Accesses mobile phone at least once a week	2.0	11.1	2.7	7.1	1.9	13.1	2.5	3.7
Accesses mobile phone less than once a week	3.0	2.3	4.9	0.9	4.5	8.6	2.5	0.5
No mobile phone access	38.7	14.6	43.2	15.1	64.0	20.9	25.4	6.4

C, Comparison site, I, Intervention site

Table 7: **Descriptive results - Sexuality and fertility of adolescent girl respondents (Estimate, 95% Confidence Interval) by LGA in Nasarawa State at baseline (2017) and endline (2020)**

	Comparison sites				Intervention sites			
	Nasarawa (C)		Toto (C)		Doma (I)		Karu (I)	
	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
	n=1,522	n=1,628	n=952	n=1,009	n=908	n=1,016	n=1,434	n=1,546
Timing of last intercourse (%)	n=1,522	n=1,628	n=952	n=1,009	n=908	n=1,016	n=1,434	n=1,546
Within last month	49.2 (46.2-52.2)	51.5 (49.1-54.0)	48.5 (44.7-52.4)	54.8 (51.5-58.1)	51.9 (48.3-55.4)	48.4 (45.5-51.4)	50.8 (47.8-53.9)	54.5 (52.0-57.0)
Within last 12 months	40.2 (37.6-42.9)	45.8 (43.4-48.1)	40.7 (37.2-44.2)	39.9 (36.7-43.3)	42.1 (39.1-45.1)	45.6 (42.8-48.3)	40.1 (37.3-43.0)	43.4 (41.0-45.9)
More than 12 months	7.4 (5.7-9.7)	2.5 (1.7-3.6)	9.8 (7.6-12.4)	3.6 (2.5-5.1)	4.5 (3.2-6.4)	4.2 (3.0-6.0)	7.1 (5.4-9.3)	1.8 (1.2-2.6)
Never had sex	0.2 (0.1-0.6)	0 (0-0)	0.4 (0.2-1.1)	0 (0-0)	0.9 (0.2-3.3)	0 (0-0)	0 (0-0)	0 (0-0)
Don't know	0.3 (0.1-0.9)	0 (0-0)	0.6 (0.3-1.6)	0 (0-0)	0.3 (0.1-1.0)	0 (0-0)	0.1 (0.0-0.6)	0 (0-0)
No response	2.6 (1.6-4.1)	0.2 (0.1-0.6)	0 (0-0)	1.7 (1.0-2.9)	0.3 (0.1-1.0)	1.8 (1.1-2.8)	1.8 (1.2-2.8)	0.3 (0.1-0.9)
	n=1475	n=1578	n=942	n=914	n=894	n=899	n=1406	n=1407
Median (interquartile range) age at first sexual intercourse	15 (14-16)	16 (15–17)	15 (14-16)	15 (15–17)	14 (13-15)	15 (15–16)	16 (15–17)	16 (15–17)
Currently pregnant (%)	n=1,522	n=1,628	n=952	n=1,009	n=908	n=1,016	n=1,434	n=1,546
Yes	31.1 (28.8-33.5)	37.0 (34.6-39.4)	30.4 (27.4-33.5)	24.5 (21.7-27.5)	31.9 (28.9-35.2)	38.5 (35.7-41.4)	31.5 (28.9-34.3)	39 (36.7-41.4)
No	65.6 (63.1-67.9)	61.5 (59.0-63.9)	66.9 (63.6-70.0)	73.7 (70.7-76.6)	66.4 (63.1-69.6)	59.9 (57.2-62.7)	65.8 (63.0-68.4)	60 (57.6-62.2)
Ever been pregnant (%)	n=1,522	n=1,628	n=952	n=1,009	n=908	n=1,016	n=1,434	n=1,546
Yes	79.4 (76.4-82.2)	87.5 (85.8-89.1)	89.6 (87.3-91.5)	85.0 (82.9-86.9)	82.6 (79.4-85.4)	89.5 (87.3-91.3)	76.8 (73.5-79.8)	85.0 (82.8-86.9)
No	20.4 (17.7-23.3)	12.1 (10.6-13.8)	10.3 (8.4-12.6)	14.0 (12.1-16.1)	17.3 (14.5-20.5)	10.1 (8.3-12.3)	22.9 (19.9-26.2)	14.9 (13.0-17.1)
Ever given birth (%)	n=1,522	n=1,628	n=952	n=1,009	n=908	n=1,016	n=1,434	n=1,546
Yes	55.0 (51.7-58.2)	56.3 (53.9-58.8)	66.2 (62.8-69.4)	68.5 (65.5-71.3)	55.7 (52.0-59.4)	61.1 (58.0-64.2)	47.2 (43.7-50.7)	51.2 (48.8-53.7)
No	45.0 (41.8-48.3)	43.7 (41.2-46.1)	33.8 (30.6-37.2)	31.5 (28.7-34.5)	44.3 (40.6-48.0)	38.9 (35.8-42.0)	55.8 (49.3-56.3)	48.8 (46.3-51.2)
	n=837	n=900	n=630	n=673	n=506	n=609	n=677	n=788
Median (interquartile range) age at first birth	16 (15–17)	17 (16-18)	16 (15–17)	17 (16-18)	16 (15–17)	17 (16-17)	17 (16-18)	17 (17-18)
Age-specific fertility rate (per 1000)	n=1,522	n=1,628	n=952	n=1,009	n=908	n=1,016	n=1,434	n=1,546
15–19 years old	221.4 (197.6-247.3)	274.0 (253.7-295.2)	255.3 (226.0-286.8)	297.3 (267.1-329.5)	250.0 (219.6-283.1)	251.0 (224.8-279.1)	212.0 (187.2-239.1)	240.0 (219.7-261.5)

C, Comparison site, I, Intervention site

Table 8: **Descriptive results - Percentage distribution of adolescent girls by LGA in Ogun State, according to selected characteristics, baseline (2017) and endline (2020)**

	Shagamu (C)		Ado-Odo/Ota (I)	
	Baseline	Endline	Baseline	Endline
	n=6,010	n=6,852	n=6,043	n=6,898
Age (years)				
15	27.7	29.8	26.8	29.8
16	16.2	21.7	16.6	22.5
17	15.1	17.8	16.9	17.3
18	21.2	17.1	21.3	17.0
19	19.8	13.6	18.5	13.4
Number of living children				
No children	97.4	99.1	98.0	98.7
1 child	2.4	0.8	1.9	1.2
2 children	0	0	0	0
3 or more children	0	0	0	0
Education level				
No education	1.1	0.7	1.3	1.0
Qur'anic only	0	0	0	0
Primary	3.5	4.1	4.4	4.6
Secondary	90.6	91.8	89.8	90.7
Higher	4.7	3.4	4.5	3.8
Religion				
Roman Catholic	2.6	1.5	2.1	1.6
Protestant/other Christian	63.0	65.2	59.7	60.9
Muslim	34.1	33.1	37.8	37.1
Traditional	0.3	0.2	0.4	0.3
No religion	0	0	0	0
Other	0	0	0	0
Wealth quintile3				
1st Quintile	0.3	0.1	0	0
2nd Quintile	0.6	0.2	0.3	0.4
3rd Quintile	2.2	2.8	2.5	3.3
4th Quintile	17.0	20.6	16.1	25.1
5th Quintile	79.9	76.4	81.1	71.3
Mobile phone access				
Owns smartphone	39.1	42.9	40.2	38.3
Owns non-smart mobile phone	15.1	25.9	19.0	28.2
Accesses mobile phone at least once a week	12.2	15.4	5.6	17.7
Accesses mobile phone less than once a week	9.2	3.5	8.7	3.1
No mobile phone access	24.3	12.3	26.6	12.7

C, Comparison site, I, Intervention site

Descriptive results - Sexuality and fertility of adolescent girl respondents (Estimate, 95% Confidence Interval) by LGA in Ogun State at baseline (2017) and endline (2020)

	Shagamu(C)		Ado-Odo/Ota(I)	
	Baseline	**Endline**	**Baseline**	**Endline**
Timing of last intercourse (%)	n=6,010	n=6,852	n=6,043	n=6,898
Within last month	8.2 (7.4-9.1)	6.2 (5.6-6.9)	6.5 (5.8-7.2)	5.9 (5.2-6.7)
Within last 12 months	8.8 (8.0-9.6)	6.1 (5.4-6.8)	7.1 (6.4-7.9)	5.3 (4.8-5.9)
More than 12 months	10.5 (9.6-11.5)	3.6 (3.1-4.1)	9.4 (8.6-10.3)	5.4 (4.8-6)
Never had sex	72.1 (70.6-73.6)	84.1 (82.8-85.2)	76.9 (75.5-78.2)	83.4 (82.2-84.6)
Don't know	0.1 (0.0-0.2)	0 (0-0)	0.0 (0.0-0.1)	0 (0-0)
No response	0.3 (0.2-0.5)	0.1 (0.0-0.2)	0.1 (0.1-0.3)	0 (0-0)
	n=1,654	n=1,053	n=1,389	n=1,070
Median (interquartile range) age at first sexual intercourse	16 (15–17)	17 (16-18)	16 (15–17)	16 (15–17)
Currently pregnant (%)	n=6,010	n=6,852	n=6,043	n=6,898
Yes	0.9 (0.7-1.1)	0.4 (0.3-0.6)	0.8 (0.6-1.0)	0.4 (0.3-0.6)
No	98.8 (98.5-99.1)	99.5 (99.3-99.7)	99.2 (98.9-99.4)	99.5 (99.3-99.6)
Ever been pregnant (%)	n=6,010	n=6,852	n=6,043	n=6,898
Yes	6.1 (5.4-6.8)	2.1 (1.7-2.5)	4.7 (4.2-5.4)	2.8 (2.3-3.3)
No	93.9 (93.2-94.5)	97.9 (97.5-98.3)	95.2 (94.5-95.8)	97.3 (96.7-97.7)
Ever given birth (%)	n=6,010	n=6,852	n=6,043	n=6,898
Yes	2.6 (2.2-3.2)	1.0 (0.8-1.3)	2.0 (1.6-2.4)	1.4 (1.1-1.7)
No	97.4 (96.8-97.8)	99.0 (98.7-99.2)	98.0 (97.6-98.4)	98.6 (98.2-98.9)
	n=159	n=69	n=119	n=96
Median (interquartile range) age at first birth	17 (16-18)	17 (16-18)	18 (16-18)	17 (17-18)
Age-specific fertility rate (per 1000)	n=6,010	n=6,852	n=6,043	n=6,898
15–19 years old	9.0 (6.7-12.0)	6.9 (4.9-9.5)	6.0 (4.3-8.3)	11.0 (8.6-14.1)

C, Comparison site, I, Intervention site

Main outcome – modern contraceptive use

Table 9: **Descriptive results - Contraceptive use (Estimate, 95% Confidence Interval) by LGA in Nasarawa State at baseline (2017) and endline (2020)**

	Comparison sites				Intervention sites			
	Nasarawa (C)		Toto (C)		Doma (I)		Karu (I)	
	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
No. of girls [1]	n=879	n=921	n=514	n=653	n=503	n=541	n=806	n=885
Any method	15.8 (13.1-18.9)	34.1 (30.7-37.7)	14.8 (11.3-19.1)	26.2 (22.5-30.3)	10.5 (8.1-13.6)	22.9 (19.7-26.6)	25.2 (22.1-28.5)	50.6 (46.6-54.7)
Any modern method [2]	13.0 (10.6-15.8)	31.4 (28.1-34.9)	12.8 (9.5-17.2)	20.4 (17.0-24.2)	7.6 (5.5-10.3)	22.0 (18.8-25.6)	21.3 (18.5-24.5)	47.2 (43.2-51.3)
Modern method								
Implant	2.6 (1.6-4.3)	10.9 (8.7-13.4)	0.8 (0.2-2.5)	4.3 (2.9-6.4)	1.2 (0.6-2.6)	5.7 (4.1-7.9)	5.8 (4.4-7.7)	15.0 (12.5-18)
Intrauterine device	0 (0-0)	0.3 (0.1-1.0)	0.6 (0.1-2.5)	0.3 (0.1-1.2)	0 (0-0)	0 (0-0)	0.3 (0.1-1.0)	0.1 (0.0-0.8)
Injectables	3.8 (2.5-5.6)	9.3 (7.6-11.4)	5.1 (3.2-7.9)	5.5 (3.9-7.7)	3.6 (2.2-5.7)	2.4 (1.4-4.0)	4.1 (2.9-5.7)	7.2 (5.7-9.2)
Daily pills	3.3 (2.3-4.7)	2.0 (1.2-3.1)	1.4 (0.6-3.0)	2.9 (1.7-4.9)	0.2 (0.0-1.4)	2.0 (1.1-3.7)	1.9 (1.1-3.1)	5.8 (4.4-7.5)
Emergency pills	0.7 (0.3-1.5)	0.9 (0.4-1.9)	0.2 (0.0-1.3)	0.6 (0.2-1.6)	0 (0-0)	1.5 (0.8-2.9)	1.6 (0.9-2.8)	5.0 (3.7-6.7)
Male condom	1.7 (1.0-2.8)	6.2 (4.7-8.1)	2.9 (1.7-5.1)	4.7 (3.2-7.0)	2.4 (1.4-4.0)	10.2 (8.1-12.8)	6.6 (5.0-8.7)	12.1 (10.1-14.5)
Other modern method	0.9 (0.5-1.8)	1.9 (1.1-3.2)	1.9 (1.0-3.7)	2.0 (1.2-3.3)	0.2 (0.0-1.4)	0.2 (0.0-1.3)	1.1 (0.6-2.1)	2.0 (1.2-3.3)
LARC	20.2 (13.0-29.9)	35.6 (29.7-42.0)	10.6 (4.8-22.0)	22.6 (15.6-31.5)	15.8 (7.3-30.7)	26.1 (19.3-34.1)	28.5 (21.8-36.3)	32.1 (27.4-37.1)
Any traditional method	2.8 (1.7-4.7)	2.7 (1.8-4.0)	1.9 (1.0-3.6)	5.8 (4.2-8.0)	3.0 (1.8-4.9)	0.9 (0.4-2.2)	3.8 (2.6-5.7)	3.4 (2.3-5.0)
Not currently using	79.8 (76.3-82.8)	65.0 (61.4-68.5)	81.7 (77.0-85.6)	72.9 (68.7-76.7)	87.1 (83.8-89.8)	74.5 (70.7-78.0)	72.7 (69.3-75.9)	48.5 (44.5-52.5)
Don't know	0.1 (0.0-0.8)	0 (0-0)	0.2 (0.0-1.4)	0 (0-0)	0.4 (0.1-1.6)	0 (0-0)	0 (0-0)	0 (0-0)
No response	4.3 (2.7-6.9)	0.9 (0.4-1.9)	3.3 (1.8-6.0)	0.9 (0.4-2.3)	2.0 (1.0-3.8)	2.6 (1.5-4.4)	2.1 (1.2-3.6)	0.9 (0.5-1.8)
Use within past 12 months	14.1 (11.6-17.1)	32.8 (29.4-36.4)	14 (10.6-18.2)	21.8 (18.4-25.5)	8.4 (6.2-11.2)	22.4 (19.1-26)	22.2 (19.3-25.4)	48.4 (44.3-52.5)

[1]Excludes girls who are infecund and currently pregnant.

[2]Modern methods include female sterilisation, male sterilisation, contraceptive pill (oral contraceptives), intrauterine device, injectables (Depo-Provera), implants (Norplant), female condom, male condom, diaphragm, contraceptive foam and contraceptive jelly, lactational amenorrhea method, standard days method, cycle beads.

C, Comparison site, I, Intervention site, LARC, Proportion of long-acting reversible contraceptive users among all modern contraceptive users (includes implant and intrauterine device)

Table 10: **Descriptive results - Contraceptive use (Estimate, 95% Confidence Interval) by LGA in Ogun State at baseline (2017) and endline (2020)**

	Shagamu(C)		Ado-Odo/Ota(I)	
	Baseline	Endline	Baseline	Endline
No. of girls [1]	n=974	n=810	n=774	n=738
Any method	64.2 (60.6-67.6)	68.0 (63.9-71.9)	69.1 (65.6-72.4)	63.1 (58.6-67.5)
Any modern method [2]	49.8 (46.5-53.1)	51.0 (47.1-54.9)	44.7 (41.1-48.3)	48.8 (44.3-53.3)
Modern method				
Implant	0.6 (0.3-1.3)	0.5 (0.2-1.3)	0.1 (0.0-0.9)	0.9 (0.5-1.9)
Intrauterine device	0.1 (0.0-0.7)	0 (0-0)	0 (0-0)	0.1 (0.0-1.0)
Injectables	0.3 (0.1-1.0)	0.5 (0.2-1.3)	0.3 (0.0-1.0)	1.1 (0.6-2.1)
Daily pills	1.2 (0.7-2.3)	1.2 (0.7-2.3)	1.8 (1.0-3.1)	1.1 (0.6-2.1)
Emergency pills	11.6 (9.6-13.9)	12.7 (10.3-15.5)	10.5 (8.5-12.8)	14.8 (12.0-18.1)
Male condom	35.0 (32.1-38.1)	35.2 (31.9-38.6)	31.3 (28.1-34.6)	29.8 (26.4-33.5)
Other modern method	0.9 (0.5-1.8)	0.9 (0.3-2.2)	0.8 (0.4-1.7)	0.9 (0.5-2.0)
LARC	1.4 (0.7-2.9)	1.0 (0.4-2.5)	0.3 (0.0-2.0)	2.2 (1.1-4.3)
Any traditional method	14.4 (12.1-17.0)	17.0 (14.5-20.0)	24.4 (21.1-28.1)	14.4 (11.6-17.7)
Not currently using	34.3 (30.9-37.9)	32.0 (28.1-36.1)	29.5 (26.2-33.0)	36.9 (32.5-41.5)
Don't know	0.4 (0.1-1.4)	0 (0-0)	0.4 (0.1-1.2)	0 (0)
No response	1.1 (0.6-2.0)	0 (0-0)	1.0 (0.5-2.0)	0 (0)
Use within past 12 months	51.8 (48.4-55.1)	54.4 (50.5-58.3)	45.9 (42.3-49.5)	50.7 (46.2-55.2)

[1]Excludes girls who are infecund and currently pregnant.

[2]Modern methods include female sterilisation, male sterilisation, contraceptive pill (oral contraceptives), intrauterine device, injectables (Depo-Provera), implants (Norplant), female condom, male condom, diaphragm, contraceptive foam and contraceptive jelly, lactational amenorrhea method, standard days method, cycle beads.

C, Comparison site, I, Intervention site, LARC, Proportion of long-acting reversible contraceptive users among all modern contraceptive users (includes implant and intrauterine device)

Table 11: **Analytical results - the relationship between mCPR and time, by levels of A360 and by State, unadjusted for confounders**

	A360 (Ref: Comparison Sites)	p-value	Time (Ref: Baseline)	p-value	A360*Time	p-value
Ogun: Shagamu (C) vs Ado-Odo/Ota (I)	**0.90 (0.81, 0.99)**	**0.040**	**1.01 (0.91, 1.12)**	**0.875**	**1.07 (0.91, 1.25)**	**0.428**
Nasarawa	**1.23 (0.99, 1.52)**	**0.060**	**2.05 (1.70, 2.49)**	**<0.001**	**1.13 (0.89, 1.44)**	**0.324**
Pair 1: Toto (C) vs Doma (I)	0.58 (0.38, 0.89)	0.013	1.54 (1.08, 2.21)	0.017	1.89 (1.15, 3.10)	0.012
Pair 2: Nasarawa (C) vs Karu (I)	1.61 (1.26, 2.05)	<0.001	2.33 (1.87, 2.91)	<0.001	0.94 (0.71, 1.24)	0.646

C, Comparison site, I, Intervention site

Table 12: **Analytical results - the relationship between mCPR and time, by levels of A360 and by State, adjusted for confounders[1]**

	A360 (Ref: Comparison Sites)	p-value	Time (Ref: Baseline)	p-value	A360*Time	p-value
Ogun: Shagamu (C) vs Ado-Odo/Ota (I) [2]	**0.92 (0.84, 1.02)**	**0.115**	**1.02 (0.92, 1.13)**	**0.702**	**1.08 (0.92, 1.26)**	**0.340**
Nasarawa [3]	**1.12 (0.91, 1.36)**	**0.282**	**2.11 (1.76, 2.53)**	**<0.001**	**0.96 (0.76, 1.21)**	**0.738**
Pair 1: Toto (C) vs Doma (I) [4]	0.77 (0.50, 1.19)	0.243	1.67 (1.16, 2.41)	0.006	1.52 (0.92, 2.51)	0.098
Pair 2: Nasarawa (C) vs Karu (I) [5]	1.28 (1.02, 1.61)	0.030	2.39 (1.94, 2.93)	<0.001	0.81 (0.62, 1.04)	0.100

[1]Age, religion, education, living children and wealth quintile

[2]n=3,230, [3]n=5,414, [4]n=2,069, [5]n=3,345

C, Comparison site, I, Intervention site

Secondary outcomes – Descriptive results

Adolescents use high quality sexual and reproductive health products and services

Table 13: **Descriptive results - Fertility preferences and unmet need of adolescent girl respondents (Estimate, 95% Confidence Interval) by LGA in Nasarawa State at baseline (2017) and endline (2020)**

	Comparison sites				Intervention sites			
	Nasarawa (C)		Toto (C)		Doma (I)		Karu (I)	
	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
Planning status of most recent birth (%)	n=837	n=736	n=630	n=494	n=506	n=475	n=677	n=646
Wanted then	91.0 (88.6-93.0)	78.9 (75.5-82.0)	80.2 (76.2-83.6)	78.3 (73.0-82.9)	87.9 (85.0-90.4)	83.6 (79.7-86.9)	81.5 (77.7-84.8)	74.6 (70.6-78.3)
Wanted later	8.6 (6.7-10.9)	18.5 (15.6-21.7)	17.9 (14.7-21.7)	19.4 (15.2-24.5)	11.1 (8.7-14.1)	12.4 (9.4-16.2)	15.8 (12.9-19.2)	22.9 (19.4-26.8)
Wanted no more	0 (0-0)	0.1 (0.0-1.0)	1.3 (0.6-2.5)	0.6 (0.2-1.9)	0.8 (0.3-2.1)	0 (0-0)	1.3 (0.7-2.7)	0.2 (0.0-1.1)
Don't know	0.1 (0.0-0.9)	0 (0-0)	0.3 (0.1-1.3)	0 (0-0)	0 (0-0)	0 (0-0)	0.4 (0.1-1.4)	0 (0-0)
No response	0.2 (0.0-1.7)	0 (0-0)	0.3 (0.1-1.3)	0.4 (0.1-1.6)	0.2 (0.0-1.4)	0.2 (0.0-1.5)	0.9 (0.4-1.9)	0 (0-0)
Unmet need for modern contraception (%)[1]	n=1,351	n=1,185	n=800	n=702	n=792	n=752	n=1,237	n=1,175
No unmet need	80.0 (77.2-82.6)	77.9 (75.7-79.9)	72.5 (68.9-75.8)	78.4 (75.4-81.1)	80.9 (77.7-83.8)	80.9 (78.1-83.4)	77.8 (74.9-80.4)	79.0 (76.8-81)
Unmet need for spacing [2]	19.7 (17.1-22.5)	21.6 (19.6-23.8)	26.5 (23.3-30.0)	19.5 (17-22.4)	18.2 (15.4-21.3)	18.7 (16.2-21.5)	21.7 (19.0-24.5)	20.9 (18.9-23.1)
Unmet need for limiting [3]	0.3 (0.1-0.8)	0.5 (0.3-1.0)	1.0 (0.5-1.9)	2.1 (1.2-3.8)	0.9 (0.4-1.8)	0.4 (0.2-1.1)	0.6 (0.3-1.3)	0.1 (0.0-0.5)
Total unmet need	20.0 (17.4-22.8)	21.7 (17-22.4)	27.5 (24.2-31.1)	21 (18.9-23.1)	19.1 (16.2-22.3)	19.1 (16.2-21.5)	22.2 (19.6-25.1)	22.1 (19.6-23.8)

[1] Total number of adolescent girls aged 15–19 years old who are fecund and sexually active (sex in the past year), or postpartum amenorrheic or pregnant.

[2] Unmet need for spacing includes pregnant women whose pregnancy was mistimed; fecund women who are non-pregnant, who are not using any modern method of contraception, and say they want to wait two or more years for their first/next birth; and postpartum amenorrheic women, who are not using any modern method of contraception, and say at the time they became pregnant they had wanted to delay pregnancy.

[3] Unmet need for limiting refers to pregnant women whose pregnancy was unwanted; fecund women who are non-pregnant, who are not using any modern method of contraception, and want no more children; and postpartum amenorrheic women, who are not using any modern method of contraception, and say at the time they became pregnant they had not wanted any more children.

C, Comparison site, I, Intervention site

Table 14: **Descriptive results - Fertility preferences and unmet need of adolescent girl respondents (Estimate, 95% Confidence Interval) by LGA in Ogun State at baseline (2017) and endline (2020)**

	Comparison sites		Intervention sites	
	Shagamu(C)		Ado-Odo/Ota(I)	
	Baseline	Endline	Baseline	Endline
Planning status of most recent birth (%)	n=159	n=50	n=119	n=77
Wanted then	11.3 (7.0-17.8)	8.0 (2.5-22.9)	9.2 (4.8-17.1)	15.6 (8.8-26.1)
Wanted later	81.8 (74.3-87.5)	86.0 (71.9-93.7)	87.4 (79.4-92.6)	80.5 (69.8-88.1)
Wanted no more	6.3 (3.4-11.2)	6.0 (1.9-17.2)	1.7 (0.4-6.5)	3.9 (1.2-11.5)
Don't know	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)
No response	0.6 (0.1-4.4)	0 (0-0)	1.7 (0.4-6.5)	0 (0-0)
Unmet need for modern contraception (%)[1]	n=1,025	n=843	n=821	n=775
No unmet need	68.3 (65.1-71.3)	74.3 (70.8-77.4)	66.5 (63.0-69.9)	75 (71.5-78.1)
Unmet need for spacing [2]	31.4 (28.4-34.6)	25.6 (22.4-29.1)	33.3 (29.9-36.8)	24.8 (21.6-28.2)
Unmet need for limiting [3]	0.3 (0.1-0.9)	0 (0-0)	0.2 (0.1-1.0)	0.1 (0.0-0.9)
Total unmet need	31.7 (28.7-34.9)	25.6 (22.4-29.1)	33.5 (30.1-37.1)	24.9 (21.8-28.4)

[1] Total number of adolescent girls aged 15–19 years old who are fecund and sexually active (sex in the past year), or postpartum amenorrheic or pregnant.

[2] Unmet need for spacing includes pregnant women whose pregnancy was mistimed; fecund women who are non-pregnant, who are not using any modern method of contraception, and say they want to wait two or more years for their first/next birth; and postpartum amenorrheic women, who are not using any modern method of contraception, and say at the time they became pregnant they had wanted to delay pregnancy.

[3] Unmet need for limiting refers to pregnant women whose pregnancy was unwanted; fecund women who are non-pregnant, who are not using any modern method of contraception, and want no more children; and postpartum amenorrheic women, who are not using any modern method of contraception, and say at the time they became pregnant they had not wanted any more children. .

C, Comparison site, I, Intervention site

Adolescent girls have access to appropriate high quality sexual and reproductive health information and services

Table 15: **Descriptive results - Adolescent girl's knowledge of contraceptive methods (Estimate, 95% Confidence Interval) by LGA in Nasarawa State at baseline (2017) and endline (2020)**

	Comparison sites				Intervention sites			
	Nasarawa (C)		Toto (C)		Doma (I)		Karu (I)	
	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
Ever heard of contraception	n=1,522	n=1,628	n=952	n=1,009	n=908	n=1,016	n=1,434	n=1,546
Yes	41.9 (37.6-46.3)	80.2 (76.9-83.2)	47.3 (42.5-52.1)	74.9 (70.5-78.9)	40.1 (36.2-44.1)	67.9 (63.8-71.8)	57.3 (53.2-61.2)	89.5 (87.1-91.5)
No	57.2 (52.9-61.5)	19.7 (16.8-23.0)	52.5 (47.7-57.3)	24.5 (20.7-28.8)	59.8 (55.8-63.7)	32.1 (28.2-36.3)	42.6 (38.7-46.6)	10.5 (8.5-12.9)
Contraception information source in past 12 months (%) [1]	n=411	n=1,088	n=280	n=596	n=196	n=482	n=577	n=1,312
Radio	27.7 (22.8-33.3)	19.7 (16.3-23.6)	13.9 (10.2-18.8)	14.4 (10.8-19)	9.2 (5.2-15.7)	14.9 (11.1-19.8)	31.0 (26.2-36.3)	22.9 (19.8-26.4)
Television	10.0 (6.9-14.1)	6.7 (4.9-9.1)	5.7 (3.6-9.0)	5.7 (3.9-8.3)	3.1 (1.2-7.4)	2.5 (1.4-4.3)	19.1 (15.3-23.4)	18.7 (15.9-21.8)
Hospital/health centre/clinic	37.5 (31.7-43.6)	69.0 (65.9-72.0)	50.0 (43.9-56.2)	64.8 (59.8-69.4)	51.5 (43.6-59.4)	64.7 (58.2-70.8)	46.3 (41.9-50.7)	70.9 (67.7-73.9)
CHW/TBA/community midwife	0.7 (0.2-2.2)	7.1 (5.5-9.1)	1.1 (0.4-3.1)	5.2 (3.6-7.6)	3.1 (1.4-6.5)	9.3 (6.7-12.9)	2.6 (1.6-4.2)	7.2 (5.4-9.4)
Pharmacy/chemist	7.5 (5.1-11.1)	6.3 (4.6-8.4)	3.9 (1.7-8.9)	2.5 (1.4-4.6)	9.2 (5.8-14.4)	6.8 (4.6-10.1)	9.5 (6.8-13.2)	14.4 (11.7-17.7)
Kiosk/shop/market	2.4 (1.2-4.7)	0 (0-0)	1.4 (0.54-3.7)	0.3 (0.1-1.3)	1.0 (0.3-4.1)	0 (0-0)	1.2 (0.6-2.5)	0.5 (0.2-1.1)
Teachers	0.2 (0.0-1.7)	0.2 (0.0-0.7)	0.7 (0.2-2.8)	0.8 (0.4-2.0)	0 (0-0)	0 (0-0)	0.4 (0.1-1.4)	0.2 (0.0-0.6)
Friends/peers	24.6 (20.2-29.6)	31.9 (28.4-35.6)	34.3 (29.0-40.1)	34.6 (29.6-39.8)	29.1 (22.8-36.3)	40.3 (35.3-45.4)	26.7 (22.8-31.0)	30.0 (26.7-33.5)
Neighbours	22.6 (18.2-27.8)	23.3 (20.2-26.6)	15.7 (11.8-20.7)	25.2 (21.3-29.5)	21.9 (15.4-30.3)	27.2 (22.8-32.1)	21.1 (16.8-26.2)	20.8 (18.0-24.0)
Spouse/partner	2.7 (1.5-4.7)	6.1 (4.4-8.2)	7.1 (4.6-11.0)	2.2 (1.2-4.0)	3.1 (1.4-6.6)	5.6 (3.6-8.5)	6.2 (4.4-8.8)	9.4 (7.5-11.6)
Parent/guardian	2.4 (1.2-5.1)	3.3 (2.3-4.8)	3.9 (2.3-6.7)	1.7 (0.9-3.0)	2.6 (1.0-6.1)	1.5 (0.5-3.8)	2.9 (1.8-4.9)	3.0 (2.1-4.5)

[1]Among girls who heard of contraception, and, at endline, among girls who answered the phone survey, i.e. were sexually active in the last 12 months

C, Comparison site, I, Intervention site, CHW, Community health worker, TBA, traditional birth attendant

Table 16: **Descriptive results - Adolescent girl's knowledge of contraceptive methods (Estimate, 95% Confidence Interval) by LGA in Ogun State at baseline (2017) and endline (2020)**

	Shagamu (C)		Ado-Odo/Ota (I)	
	Baseline	Endline	Baseline	Endline
Ever heard of contraception	n=6,010	n=6,852	n=6,043	n=6,898
Yes	82.0 (80.3-83.6)	75.2 (72.8-77.5)	76.4 (73.9-78.8)	70.5 (68.2-72.7)
No	17.5 (15.9-19.2)	24.7 (22.4-27.2)	23.1 (20.7-25.7)	29.5 (27.3-31.7)
Contraception information source in past 12 months (%) [1]	n=3,642	n=898	n=3,446	n=830
Radio	22.5 (20.7-24.4)	14.1 (11.9-16.8)	22.8 (20.9-24.9)	19.6 (16.2-23.6)
Television	17.3 (15.5-19.2)	12.7 (10.2-15.7)	21.8 (19.7-24.1)	14.8 (11.6-18.8)
Hospital/health centre/clinic	9.2 (8.2-10.3)	12.5 (10.2-15.1)	7.1 (6.3-8.1)	12.8 (10.5-15.4)
CHW/TBA/community midwife	1.6 (1.2-2.0)	1.9 (1.2-3.0)	0.9 (0.6-1.3)	1.0 (0.5-1.9)
Pharmacy/chemist	14.1 (12.5-16.0)	17.4 (14.8-20.3)	11.1 (9.6-12.8)	13.6 (11.2-16.4)
Kiosk/shop/market	3.6 (2.9-4.4)	3.0 (2.0-4.5)	3.7 (2.9-4.6)	1.0 (0.5-1.9)
Teachers	16.4 (14.9-18.0)	10.4 (8.3-12.9)	19.5 (17.9-21.2)	4.1 (2.9-5.7)
Friends/peers	27.8 (25.7-29.9)	34.9 (31.4-38.5)	36.1 (33.5-38.9)	41.2 (37.8-44.7)
Neighbours	27.1 (25.0-29.4)	13.3 (10.9-16.1)	32.3 (30.2-34.4)	15.3 (12.9-18.1)
Spouse/partner	2.7 (2.1-3.5)	17.3 (14.7-20.1)	1.7 (1.3-2.2)	12.9 (10.5-15.7)
Parent/guardian	8.0 (7.0-9.1)	4.2 (3.0-5.9)	8.7 (7.7-9.8)	3.7 (2.6-5.3)

[1]Among girls who heard of contraception, and, at endline, among girls who answered the phone survey, i.e. were sexually active in the last 12 months

C, Comparison site, I, Intervention site, CHW, Community health worker, TBA, traditional birth attendant

Table 17: **Descriptive results - Awareness of where to obtain health services in girls who have the intention to use contraception (Estimate, 95% Confidence Interval) by LGA in Nasarawa State at baseline (2017) and endline (2020)**

	Comparison sites				Intervention sites			
	Nasarawa (C)		Toto (C)		Doma (I)		Karu (I)	
	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
Aware of where to obtain health services in girls who have the intention to use [1]	n=165	n=288	n=100	n=189	n=103	n=131	n=158	n=271
Yes	77.6 (69.0-84.3)	98.3 (95.9-99.3)	56.0 (45.3-66.1)	96.3 (91.9-98.4)	49.5 (38.4-60.6)	98.5 (94.1-99.6)	62.7 (54.8-69.9)	97.1 (94.2-98.5)
No	21.2 (14.6-29.8)	1.7 (0.7-4.1)	44.0 (33.9-54.7)	3.7 (1.6-8.1)	47.6 (36.8-58.5)	1.5 (0.4-5.9)	36.7 (29.5-44.6)	3.0 (1.5-5.8)
Don't know	0.6 (0.1-4.0)	0 (0-0)	0 (0-0)	0 (0-0)	2.9 (0.9-8.8)	0 (0-0)	0.6 (0.1-4.4)	0 (0-0)
No response	0.6 (0.1-4.3)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)
Source of method mentioned [2]	n=128	n=283	n=56	n=182	n=51	n=129	n=99	n=263
Hospital/health centre/clinic	81.3 (73.4-87.2)	97.5 (95-98.8)	80.4 (67.1-89.1)	99.5 (96.2-99.9)	76.5 (61.8-86.7)	94.6 (88.2-97.6)	78.8 (68.8-86.2)	97.3 (94.6-98.7)
Pharmacy/chemist	6.3 (3.1-12.1)	0.7 (0.2-2.8)	8.9 (3.8-19.5)	0 (0-0)	7.8 (2.6-21.4)	3.1 (1.0-9.6)	11.1 (6.0-19.7)	0.4 (0.1-2.7)
Kiosk/shop/market	3.9 (1.4-10.3)	0 (0-0)	(0-0)	0.5 (0.1-3.8)	5.9 (1.8-17.3)	0 (0-0)	0 (0-0)	0.4 (0.1-2.6)
Spouse/partner	0 (0-0)	0.7 (0.2-2.8)	1.8 (0.3-11.4)	0 (0-0)	0 (0-0)	0 (0-0)	3.0 (1-9.1)	0.4 (0.1-2.7)
Other	8.6 (4.5-15.7)	0 (0-0)	5.4 (1.7-15.3)	0 (0-0)	9.8 (4.2-21.4)	0.8 (0.1-5.3)	7.1 (3.2-15.1)	1.1 (0.4-3.4)
CHW/TBA/community midwife	0 (0-0)	1.1 (0.3-3.2)	1.8 (0.3-11.5)	0 (0-0)	0 (0-0)	1.6 (0.4-6.0)	0 (0-0)	0.4 (0.1-2.7)

[1]Among girls who were not using a method but had the intention to use one at the time of the survey, and, at endline, among girls who answered the phone survey. [2]Among girls who were aware of where to obtain health services.

C, Comparison site, I, Intervention site, CHW, Community health worker, TBA, traditional birth attendant

Table 18: **Descriptive results - Awareness of where to obtain health services in girls who intend to use contraception (Estimate, 95% Confidence Interval) by LGA in Ogun State at baseline (2017) and endline (2020)**

	Shagamu (C)		Ado-Odo/Ota (I)	
	Baseline	Endline	Baseline	Endline
Aware of where to obtain health services in girls who have the intention to use [1]	n=236	n=181	n=241	n=145
Yes	44.9 (38.5-51.5)	58.0 (50.6-65.1)	39.8 (33.5-46.5)	57.9 (48.8-66.5)
No	53.0 (46.4-59.5)	42.0 (34.9-49.4)	58.5 (51.8-64.9)	42.1 (33.5-51.1)
Don't know	2.1 (0.9-5.0)	0 (0-0)	1.2 (0.4-3.8)	0 (0-0)
No response	0 (0-0)	0 (0-0)	0.4 (0.1-2.9)	0 (0-0)
Source of method mentioned [2]	n=106	n=105	n=96	n=84
Hospital/health centre/clinic	63.2 (53.2-72.2)	58.1 (48.0-67.5)	53.1 (43.0-63.0)	60.7 (47.8-72.3)
Pharmacy/chemist	27.4 (19.4-37.0)	36.2 (27.1-46.4)	32.3 (23.4-42.8)	31.0 (20.4-43.9)
Kiosk/shop/market	0 (0-0)	1.0 (0.1-6.5)	2.1 (0.5-8.1)	0 (0-0)
Spouse/partner	0 (0-0)	4.8 (2.0-11.1)	2.1 (0.5-7.9)	3.6 (1.1-10.8)
Other	5.7 (2.5-12.2)	0 (0-0)	8.3 (4.2-15.7)	1.2 (0.2-8.2)
CHW/TBA/community midwife	1.9 (0.5-7.2)	0 (0-0)	1 (0.1-7.2)	3.6 (1.1-10.8)

[1]Among girls who were not using a method but intended to use one at the time of the survey, and, at endline, among girls who answered the phone survey. [2]Among girls who were aware of where to obtain health services.

C, Comparison site, I, Intervention site, CHW, Community health worker, TBA, traditional birth attendant

Contraception positioned as relevant and valuable for adolescent girls

Table 19: **Descriptive results - Benefits of contraception and adolescent girl's future aspirations and intention to use a modern contraceptive method (Estimate, 95% Confidence Interval) by LGA in Nasarawa State at baseline (2017) and endline (2020)**

	Comparison sites				Intervention sites			
	Nasarawa (C)		Toto (C)		Doma (I)		Karu (I)	
	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
Benefits of contraception [1]	n=637	n=1,306	n=450	n=756	n=364	n=690	n=821	n=1,384
Using modern contraception can allow a girl to complete her education, find a better job, and have a better life	92.5 (89.7-94.5)	89.7 (87.0-91.9)	90.2 (86.5-93.0)	90.1 (87.2-92.4)	86.5 (82.1-90.0)	92.0 (89.4-94.0)	92.0 (89.0-94.2)	94.9 (93.1-96.3)
Using modern contraception can support a girl to achieve her life goals	NA	88.9 (86.0-91.3)	NA	88.1 (84.7-90.8)	NA	90.3 (87.5-92.5)	NA	94.2 (92.3-95.7)
		n=1,300	NA	n=730	NA	n=670		n=1,452
Future aspirations, index (0-9) [2]	NA	5.7 (5.5-5.9)	NA	5.8 (5.6-6.0)	NA	4.7 (4.4-4.9)	NA	6.2 (6.0-6.4)
Future aspirations, components								
I have goals for my life [3]	NA	43.8 (39.2-48.5)	NA	56.4 (51.6-61.2)	NA	16.9 (13.4-21)	NA	49.2 (44.7-53.6)
I believe I have some tools to help me achieve my goals for my life [3]	NA	34.0 (29.7-38.6)	NA	45.8 (40.8-50.8)	NA	10.5 (8.0-13.6)	NA	40.8 (36.5-45.2)
I have little control over the things that happen to me [4]	NA	0.8 (0.5-1.6)	NA	1.0 (0.4-2.3)	NA	0.9 (0.4-2.2)	NA	2.1 (1.4-3.1)
I believe preventing unintended pregnancy is important to help me achieve my goals for life [3]	NA	36.0 (31.7-40.6)	NA	39.6 (35.6-43.7)	NA	14.0 (10.9-17.9)	NA	44.6 (40.4-49.0)
Future intention to use modern contraception [5]	n=286	n=387	n=185	n=297	n=177	n=187	n=313	n=370
Yes	57.7 (50.2-64.8)	74.4 (69.0-79.2)	54.1 (46.6-61.3)	63.6 (57.3-69.6)	58.2 (50.1-65.8)	70.1 (62.6-76.6)	50.5 (44.3-56.6)	73.2 (67.9-78.0)
No	29.4 (23.3-36.3)	24.0 (19.4-29.4)	32.4 (26.0-39.7)	34.3 (28.4-40.8)	23.2 (17.2-30.5)	29.4 (22.9-36.9)	26.2 (21.7-31.2)	26.8 (22.0-32.1)
Don't know	12.9 (9.5-17.4)	0 (0-0)	13.5 (9.2-19.4)	0 (0-0)	17.5 (13.1-23.1)	0 (0-0)	22.4 (17.8-27.7)	0 (0-0)
No response	0 (0-0)	1.6 (0.7-3.4)	0 (0-0)	2.0 (0.9-4.4)	1.1 (0.3-4.5)	0.5 (0.1-3.7)	1.0 (0.3-2.9)	0 (0-0)

1Girls who heard about modern contraceptives were read a number of statements representing the benefits of contraception. They were asked whether or not they agreed with the statements. 2 Girls who responded to the phone survey were read a number of statements on their aspirations. They were asked whether or not they agreed with the statements. 3Strongly agrees. 4Strongly disagrees. 5Among girls who were not using a modern method at the time of the survey and girls who, at endline, responded to the phone survey. C, Comparison site, I, Intervention site, NA, Not applicable.

Table 20: **Descriptive results - Benefits of contraception and adolescent girl's future aspirations and intention to use a modern contraceptive method (Estimate, 95% Confidence Interval) by LGA in Ogun State at baseline (2017) and endline (2020)**

	Comparison sites Shagamu (C)		Intervention sites Ado-Odo/Ota (I)	
	Baseline	Endline	Baseline	Endline
Benefits of contraception [1]	n=4,929	n=5,155	n=4,618	n=4,863
Using modern contraception can allow a girl to complete her education, find a better job, and have a better life	74.8 (73.3-76.2)	75.4 (73.5-77.2)	74.7 (73.0-76.3)	69.8 (67.8-71.8)
Using modern contraception can support a girl to achieve her life goals	NA	73 (71.1-74.9)	NA	66.7 (64.6-68.7)
		n=1,452		n=670
Future aspirations, index (0-9) [2]	NA	7.2 (7.1-7.3)	NA	7 (6.8-7.1)
Future aspirations, components				
I have goals for my life [3]	NA	83.6 (80.7-86.2)	NA	76.9 (73.3-80.2)
I believe I have some tools to help me achieve my goals for my life [3]	NA	75.1 (71.6-78.3)	NA	66.1 (62.1-69.9)
I have little control over the things that happen to me [4]	NA	1.8 (1.1-2.9)	NA	1.4 (0.8-2.5)
I believe preventing unintended pregnancy is important to help me achieve my goals for life [3]	NA	73.1 (69.3-76.6)	NA	68.3 (64.4-71.9)
Future intention to use modern contraception [5]	n=428	n=323	n=375	n=276
Yes	55.1 (50.2-60.0)	56.0 (49.7-62.2)	64.3 (59.0-69.2)	52.5 (46.1-58.9)
No	32.9 (28.6-37.6)	44.0 (37.8-50.3)	25.3 (20.8-30.5)	47.5 (41.1-53.9)
Don't know	11.7 (9.0-15.1)	0 (0-0)	10.4 (7.7-13.9)	0 (0-0)
No response	0.2 (0.0-1.7)	0 (0-0)	0 (0-0)	0 (0-0)

[1]Girls who heard about modern contraceptives were read a number of statements representing benefits of contraception. They were asked whether or not they agreed with the statements. [2] Girls who responded to the phone survey were read a number of statements on their aspirations. They were asked whether or not they agreed with the statement. [3]Strongly agreess. [4]Strongly disagrees. [5]Among girls who were not using a modern method at the time of the survey and girls who, at endline, responded to the phone survey. C, Comparison site, I, Intervention site, NA, not applicable.

Supportive environment for adolescent girls to access services

Table 21: **Descriptive results - Attitudes and self-efficacy of adolescent girls towards contraceptive use (Estimate, 95% Confidence Interval) by LGA in Nasarawa State at baseline (2017) and endline (2020)**

	Comparison sites				Intervention sites			
	Nasarawa (C)		Toto (C)		Doma (I)		Karu (I)	
	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
	n=637	n=1,306	n=450	n=756	n=364	n=690	n=821	n=1,384
Attitudes, index (0-2) [1]	1.2 (1.1-1.2)	1.2 (1.2-1.3)	1.0 (1.0-1.1)	1.2 (1.1-1.3)	1.1 (1.1-1.2)	1.4 (1.4-1.5)	1.3 (1.3-1.4)	1.5 (1.5-1.6)
Attitudes, components [2]								
Married couples using a modern contraceptive method to avoid or delay pregnancy	80.1 (76.5-83.2)	88.1 (85.8-90.0)	66.2 (61.2-70.9)	82.4 (78.5-85.7)	79.4 (74.2-83.8)	88.0 (84.9-90.5)	83.0 (79.8-85.7)	94.6 (93.2-95.7)
Couples who are not married using a modern contraceptive method to avoid or delay pregnancy	35.2 (30.1-40.5)	34.5 (31.2-37.9)	37.8 (32.8-43.1)	39.6 (34.9-44.4)	34.6 (29.5-40.1)	55.9 (51.7-60.1)	50.3 (45.2-55.4)	60.0 (56.4-63.5)
	n=879	n=921	n=514	n=653	n=503	n=541	n=806	n=885
Self-efficacy, index (0-4) [3, 4]	1.3 (1.2-1.5)	2.0 (1.9-2.2)	1.3 (1.1-1.4)	1.6 (1.4-1.7)	1.0 (0.8-1.1)	1.3 (1.1-1.5)	1.7 (1.5-1.8)	2.6 (2.5-2.8)
Self-efficacy, components [5]								
I feel able to start a conversation with my husband/partner about contraception	38.5 (33.8-43.3)	61.6 (56.7-66.2)	37.9 (33.1-43.0)	47.9 (42.6-53.3)	29.0 (24.9-33.6)	41.8 (36.4-47.4)	49.5 (45.1-53.9)	78.2 (74.6-81.4)
I feel able to obtain information on contraception services and products if I need to	38.9 (34.3-43.8)	61.1 (56.2-65.9)	39.5 (34.5-44.7)	48.6 (42.4-54.7)	30.8 (26.5-35.5)	42.5 (37.2-48)	49.9 (45.7-54.0)	80.7 (77.1-83.8)
I feel able to obtain a contraception method if I decided to use one	38.5 (33.8-43.3)	56.2 (51.5-60.9)	38.9 (34.2-43.8)	45.0 (39.3-50.9)	27.4 (23.1-32.3)	38.5 (33.3-43.9)	46.3 (42.2-50.4)	74.1 (70.4-77.5)
I feel able to use a method of contraception even if my husband/partner doesn't want me to	16.5 (13.5-20.0)	22.2 (19.0-25.7)	12.7 (9.8-16.1)	14.1 (11.6-17.1)	8.5 (6.3-11.5)	9.1 (6.9-11.9)	22.0 (18.7-25.6)	31.5 (27.8-35.5)

[1]Among girls who had heard about modern contraceptives. [2]Proportion of respondents who approved. [3]Among girls who had heard about modern contraceptives. At endline, respondents were those who responded to the phone survey, who had also been sexually active in the last 12 months. At baseline, we restricted the results to girls who had been sexually active in the last 12 months, for comparability with the endline population. [4]Respondents were read a number of statements related to self-efficacy. They were asked whether or not they agreed with the statements. [5]Proportions who agreed with statements.

C, Comparison site, I, Intervention site

Table 22: **Descriptive results - Attitudes and self-efficacy of adolescent girls towards contraceptive use (Estimate, 95% Confidence Interval) by LGA in Ogun State at baseline (2017) and endline (2020)**

	Shagamu (C)		Ado-Odo/Ota (I)	
	Baseline	**Endline**	**Baseline**	**Endline**
	n=4,929	n=5,155	n=4,618	n=4,863
Attitudes, index (0-2) [1]	1.1 (1.1-1.2)	1.2 (1.1-1.2)	1.2 (1.2-1.2)	1.1 (1.1-1.2)
Attitudes, components [2]				
Married couples using a modern contraceptive method to avoid or delay pregnancy	63.1 (61.3-64.8)	59.6 (57.4-61.8)	67.8 (66.1-69.5)	56.8 (54.8-58.9)
Couples who are not married using a modern contraceptive method to avoid or delay pregnancy	49.7 (47.8-51.6)	57.8 (55.7-60.0)	50.2 (48.3-52.1)	55.6 (53.5-57.7)
	n=974	n=810	n=774	n=738
Self-efficacy, index (0-4) [3, 4]	2.7 (2.6-2.8)	2.6 (2.4-2.7)	2.7 (2.6-2.8)	2.4 (2.2-2.5)
Self-efficacy, components [5]				
I feel able to start a conversation with my boyfriend about contraception [6]	74.2 (71.1-77.1)	64.4 (60.5-68.1)	76.6 (73.0-79.9)	59.4 (54.7-63.8)
I feel able to obtain information on contraception services and products if I need to	72.1 (68.9-75.1)	70.5 (66.4-74.3)	70.0 (66.6-73.3)	63.8 (59.1-68.3)
I feel able to obtain a contraception method if I decided to use one	69.6 (66.3-72.7)	68.9 (65.1-72.5)	67.2 (63.5-70.7)	64.5 (60.1-68.7)
I feel able to use a method of contraception even if my boyfriend doesn't want me to	57.2 (53.5-60.8)	53.2 (49.4-57.0)	55.4 (51.4-59.4)	49.2 (44.1-54.3)

[1]Among girls who had heard about modern contraceptives. [2]Proportion of respondents who approved. [3]Among girls who had heard about modern contraceptives. At endline, respondents were those who responded to the phone survey, who had also been sexually active in the last 12 months. At baseline, we restricted the respondents to girls who had been sexually active in last 12 months, for comparability with the endline population. [4]Respondents were read a number of statements related to self-efficacy. They were asked whether or not they agreed with the statements. [5]Proportions who agreed with statement. [5]The differences between proportions who agreed with the statements at baseline and endline were caused by a change in proportions who answered "Don't know," which was 6.5% at baseline and 20% at endline.

C, Comparison site, I, Intervention site

Table 23: **Descriptive results - Treatment by provider on adolescent girl's last visit (Estimate, 95% Confidence Interval) by State and by LGA at baseline (2017) and endline (2020)**

State	LGA	Survey		Treated respectfully by provider on last visit [1]			
				Yes	No	Don't know/ Can't remember	No response
Nasarawa	**Nasarawa (C)**	**Baseline**	n=114	84.2 (76.1-89.9)	1.8 (0.4-6.8)	1.8 (0.4-6.9)	12.3 (7.3-20.1)
		Endline	n=289	95.2 (91.7-97.2)	0.3 (0.0-2.4)	4.5 (2.5-7.9)	0 (0-0)
	Toto (C)	**Baseline**	n=66	71.2 (54.5-83.6)	3.0 (0.8-11.4)	10.6 (4.7-22.3)	15.2 (7.4-28.6)
		Endline	n=133	92.5 (86.0-96.1)	4.5 (1.8-10.7)	3.0 (1.1-7.7)	0 (0-0)
	Doma (I)	**Baseline**	n=38	89.5 (74.7-96.1)	0 (0-0)	7.9 (2.5-22.1)	2.6 (0.35-17.2)
		Endline	n=119	83.2 (75.0-89.1)	5.9 (2.8-11.9)	9.2 (5.2-15.8)	1.7 (0.4-6.5)
	Karu (I)	**Baseline**	n=172	82.6 (75.8-87.7)	0 (0-0)	7.0 (4.0-11.8)	10.5 (6.4-16.7)
		Endline	n=418	94.5 (91.5-96.5)	2.2 (1.1-4.1)	2.6 (1.3-5.2)	0.7 (0.2-3)
Ogun	**Shagamu (C)**	**Baseline**	n=485	40.6 (36.1-45.4)	4.3 (2.8-6.7)	45.6 (40.7-50.5)	9.5 (6.9-12.9)
		Endline	n=418	80.2 (75.5-84.1)	5.3 (3.5-7.9)	13.8 (10.6-17.8)	0.7 (0.2-2.2)
	Ado-Odo/Ota (I)	**Baseline**	n=346	51.7 (46.1-57.3)	5.8 (3.7-8.9)	38.2 (32.7-43.9)	4.3 (2.7-7.0)
		Endline	n=119	74.7 (69.1-79.7)	9.2 (6.5-12.8)	16.1 (12.1-21.1)	0 (0-0)

[1] Current users of modern contraceptives were asked whether they felt like they were treated respectfully the last time they obtained a modern contraceptiveC, Comparison site, I, Intervention site

Table 24: **Descriptive results - Descriptive norms on modern contraception according to adolescent girls (Estimate, 95% Confidence Interval) by State and by LGA at endline (2020)**

State	LGA		Descriptive norms, index (0-6) [1,2]	Descriptive norms, components		
				How many (un)married girls aged 15–19 years old in your community do you believe discuss using a method of contraception with their partner	How many (un)married girls aged 15–19 years old in your community do you believe use contraceptive methods	How many (un)married girls aged 15–19 years old in your community do you believe use contraceptive methods in secrecy from their partner or family
Nasarawa	**Nasarawa (C)**	n=1,088	2.4 (2.2-2.6)	28.4 (24.3-32.0)	27.6 (23.6-31.0)	15.6 (12.9-18.0)
	Toto (C)	n=596	2.6 (2.4-2.8)	28.2 (23.8-33.0)	24.7 (20.4-29.0)	18.0 (14.7-21.0)
	Doma(I)	n=482	2.6 (2.4-2.9)	22.2 (17.6-27.0)	19.7 (15.5-24.0)	18.9 (14.8-23.0)
	Karu (I)	n=1,312	3.6 (3.5-3.8)	43.8 (39.9-47.0)	51.9 (48.2-55.0)	28.9 (25.7-32.0)
Ogun	**Shagamu (C)**	n=898	3.2 (3.0-3.3)	29.7 (26.4-33.3)	41.5 (37.9-45.2)	36.1 (32.6-39.7)
	Ado-Odo/Ota (I)	n=830	3.1 (2.9-3.2)	27.7 (24.5-31.2)	38.8 (35.1-42.6)	36.5 (33.2-40.0)

[1]Among girls who heard about modern contraceptives and girls who responded to the phone survey. [2]Respondents were asked about their views regarding married (Nasarawa) and unmarried (Ogun) girls aged 15–19 years old. They were asked whether they thought the statement applied to most girls, less than half or none. [3]Proportions who answered that the statement applied to most girls.

C, Comparison site, I, Intervention site.

Note: Girls were not asked about descriptive norms at baseline (2017).

Table 25: **Descriptive results - Respondents' influencers and influencers' approval of adolescent girls using a modern contraceptive method to avoid or delay pregnancy, according to the respondent (Estimate, 95% Confidence Interval) by LGA in Nasarawa State at baseline (2017) and endline (2020)**

	Comparison sites				Intervention sites			
	Nasarawa (C)		Toto (C)		Doma (I)		Karu (I)	
	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
Decision making – partner [1]	n=637	n=1,088	n=450	n=596	n=364	n=482	n=821	n=1,312
We will decide together	84.3 (80.1-87.8)	83.2 (80.2-85.8)	76.4 (70.6-81.4)	77.2 (73.6-80.4)	81.9 (77.2-85.8)	73.9 (69.1-78.1)	85.0 (81.7-87.8)	80.7 (77.8-83.3)
Mainly my husband/partner's decision	7.5 (5.5-10.3)	7.3 (5.6-9.4)	10.7 (7.5-15.0)	12.3 (9.5-15.7)	8.8 (6.2-12.3)	14.7 (11.5-18.7)	7.1 (5.4-9.3)	10 (8.1-12.2)
Mainly my decision	7.2 (5.1-10.2)	8.6 (6.9-10.8)	10.2 (7.2-14.3)	9.1 (7.0-11.7)	6.6 (3.9-11.0)	10.4 (7.5-14.3)	5.2 (3.8-7.1)	9.3 (7.6-11.3)
Don't know	0.3 (0.1-1.3)	0.6 (0.3-1.3)	0.7 (0.2-2.0)	0.5 (0.2-1.5)	0.5 (0.1-2.2)	0.6 (0.2-1.9)	1.2 (0.6-2.4)	0 (0-0)
No response	0.6 (0.1-2.9)	0.3 (0.1-0.9)	2.0 (1.1-3.8)	1.0 (0.4-2.5)	2.2 (1.2-4.1)	0.4 (0.1-1.6)	1.5 (0.8-2.5)	0 (0-0)
Approval - husband	n=944	n=1,088	n=619	n=596	n=560	n=482	n=1,038	n=1,312
Yes	38.2 (33.9-42.8)	66.0 (62.1-69.7)	26.7 (22.8-30.9)	55.0 (49.3-60.7)	25.9 (22.3-29.9)	54.8 (49.4-60.0)	46.2 (42.1-50.3)	78.6 (75.6-81.3)
No	28.3 (24.7-32.1)	19.7 (16.8-22.8)	38.3 (32.8-44.1)	37.4 (32.2-42.9)	39.5 (34.4-44.7)	31.1 (26.8-35.8)	26.2 (23.2-29.5)	16.4 (14.3-18.7)
Don't know	0.3 (0.1-1.4)	14.0 (11.4-17.0)	0.2 (0.0-1.1)	7.4 (5.5-9.8)	0.5 (0.2-1.6)	13.5 (10.3-17.5)	0 (0-0)	0 (0-0)
No response	0.2 (0.0-1.5)	0.2 (0.0-1.3)	0.2 (0.0-1.1)	0 (0-0)	0.4 (0.1-1.4)	0 (0-0)	0.6 (0.3-1.3)	0 (0-0)
Decision making – other [3]	n=635	n=1,088	n=439	n=596	n=356	n=482	n=816	n=1,312
No one	91.5 (88.4-93.8)	51.1 (46.7-55.5)	82.0 (77.0-86.1)	71.5 (65.9-76.5)	81.5 (77.1-85.2)	56.0 (50.5-61.4)	77.9 (74.0-81.4)	60.6 (57.1-64.0)
Mother	2.0 (1.1-3.7)	14.3 (12.0-17.0)	6.4 (4.0-9.9)	9.4 (6.5-13.4)	6.5 (4.2-9.9)	4.8 (3.2-7.1)	6.3 (4.8-8.2)	8.8 (7.3-10.7)
Health worker	3.5 (2.1-5.6)	11.0 (8.9-13.6)	3.0 (1.5-5.7)	8.2 (5.9-11.4)	3.4 (2.0-5.6)	11.2 (7.9-15.7)	7.8 (5.9-10.3)	9.0 (7.4-10.9)
Mother-in-law	0.9 (0.4-2.1)	6.4 (4.5-9.1)	3.4 (1.9-5.9)	4 (2.5-6.5)	2.8 (1.4-5.4)	8.9 (6.2-12.8)	2.8 (1.9-4.2)	8.8 (7.1-11.0)
Friends/peers	1.1 (0.4-2.7)	8.3 (6.5-10.4)	3.0 (1.7-5.2)	3.9 (2.5-6.0)	3.1 (1.6-5.7)	7.7 (5.5-10.6)	1.5 (0.8-2.7)	6.4 (5.1-8)
Sister	0.8 (0.3-2.2)	7.1 (5.4-9.2)	0.9 (0.3-2.4)	1.7 (0.9-3.0)	2.0 (1.0-4.0)	7.9 (5.7-10.9)	1.8 (1.1-3.2)	5.6 (4.3-7.3)
Other	0.2 (0.0-1.1)	1.4 (0.8-2.3)	1.1 (0.5-2.7)	0.7 (0.3-1.8)	0.3 (0.0-1.9)	3.1 (1.7-5.6)	0.9 (0.4-1.8)	0.7 (0.4-1.3)
No response	0 (0-0)	0.4 (0.1-1.0)	0.2 (0.0-1.5)	0.7 (0.3-1.8)	0.6 (0.1-2.2)	0.4 (0.1-1.6)	1.0 (0.5-2.1)	0 (0-0)
Approval – mother [2]	n=657	n=1,088	n=455	n=596	n=374	n=482	n=725	n=1,312
Yes	28.2 (23.6-33.2)	49.5 (45.7-53.2)	17.4 (14-21.4)	35.9 (31.1-41)	18.5 (14.7-22.9)	39.8 (34.1-45.9)	33.2 (29.4-37.3)	58.2 (54.9-61.4)
No	31.4 (27.1-36)	30.4 (27-34.1)	43.7 (38.5-49.1)	50.8 (45.3-56.4)	40.6 (35.4-46.1)	44.6 (39.2-50.1)	32 (28.3-35.9)	31.3 (28.4-34.4)
Don't know	40.3 (35.4-45.4)	17.6 (14.9-20.5)	37.8 (32.4-43.5)	12.9 (9.8-16.8)	40.4 (34.9-46.1)	14.3 (11.2-18.1)	34.2 (30.3-38.3)	9.1 (7.2-11.4)
Not applicable	0 (0-0)	2.4 (1.6-3.5)	0.4 (0.1-1.7)	0.3 (0.1-1.3)	0.3 (0.0-1.9)	1 (0.4-2.5)	0.1 (0-1)	1.4 (0.9-2.4)
No response	0.2 (0.0-1.1)	0.2 (0.0-0.7)	0.7 (0.2-2.0)	0 (0-0)	0.3 (0.0-1.9)	0.2 (0.0-1.5)	0.4 (0.1-1.3)	0 (0-0)
Approval – community [2]	n=863	n=1,088	n=554	n=596	n=531	n=482	n=956	n=1,312
Yes	40.3 (35.1-45.8)	41.9 (36.8-47.2)	21.1 (16.7-26.3)	35.6 (29.9-41.6)	26.2 (21.9-31.0)	29.9 (23.8-36.7)	44.8 (40.0-49.6)	60.5 (56.0-64.8)
No	19.0 (15.8-22.7)	18.1 (14.9-21.9)	28.5 (24.5-32.9)	34.1 (28.4-40.2)	30.7 (26.1-35.7)	38.2 (31.7-45.2)	14.1 (11.6-17.1)	20.0 (16.5-23.9)
Not applicable	0 (0-0)	1.2 (0.6-2.4)	0 (0-0)	0.3 (0.1-1.3)	0.2 (0.0-1.3)	0 (0-0)	0 (0-0)	0.4 (0.1-1.2)
Don't know	40.7 (35.8-45.7)	38.1 (33.6-42.9)	50.4 (44.8-55.9)	30 (25.7-34.7)	42.9 (38.1-47.9)	31.7 (26.4-37.7)	41.1 (36.7-45.7)	19.1 (16.1-22.4)
No response	0 (0-0)	0.6 (0.3-1.5)	0 (0-0)	0 (0-0)	0 (0-0)	0.2 (0.0-1.5)	0 (0-0)	0.1 (0.0-0.5)
Community acceptance, index (0-2) [4]	0.8 (0.7-0.9)	1.1 (1.0-1.2)	0.5 (0.4-0.6)	0.9 (0.8-1.0)	0.5 (0.5-0.6)	0.8 (0.7-1.0)	0.9 (0.9-1.0)	1.4 (1.3-1.5)

[1]Measured through the question "Who will decide whether or not you use a method of family planning? Would you say that it will be mainly your decision, mainly your husband/partner's decision, or you will decide together?" [2]Measured through the question "Does your partner/mother/community approve or disapprove of girls your age using a modern contraceptive method to avoid or delay pregnancy?"

[3]Measured through the question "Who else will influence your decision to use a method of family planning?" [4]Community acceptance towards the use of modern contraceptives was assessed through questions on partner/husband and community approval of adolescent girls using a modern contraceptive method to avoid or delay pregnancy.

C, Comparison site, I, Intervention site.

Table 26: **Descriptive results - Respondents' influencers and influencers' approval of adolescent girls using a modern contraceptive method to avoid or delay pregnancy, according to the respondent (Estimate, 95% Confidence Interval) by LGA in Ogun State at baseline (2017) and endline (2020)**

	Comparison site Shagamu (C)		Intervention site Ado-Odo/Ota (I)	
	Baseline	Endline	Baseline	Endline
Decision making – partner [1]	n=939	n=898	n=725	n=830
We will decide together	69.7 (66.4-72.7)	57.7 (53.9-61.4)	69.5 (65.7-73.1)	60.1 (56.1-64.0)
Mainly my boyfriend's decision	7.9 (6.4-9.7)	11.8 (9.7-14.3)	6.1 (4.4-8.3)	7.3 (5.7-9.4)
Mainly my decision	19.0 (16.6-21.6)	29.0 (25.9-32.2)	19.6 (16.6-23)	31.0 (27.1-35.1)
No response	0.5 (0.2-1.3)	0.3 (0.1-1.0)	0.8 (0.4-1.8)	0.4 (0.1-1.1)
Don't know	3.0 (2.1-4.3)	1.2 (0.7-2.2)	4.0 (2.8-5.7)	1.2 (0.7-2.2)
Approval – partner [2]	n=905	n=898	n=723	n=830
Yes	59.2 (55.9-62.5)	59.1 (55.7-62.5)	59.8 (55.5-63.9)	58.6 (54.5-62.5)
No	21.3 (18.6-24.4)	34.6 (31.4-38.0)	19.5 (16.3-23.2)	35.3 (31.5-39.3)
Not applicable	0.6 (0.2-1.5)	0.3 (0.1-1.0)	0 (0-0)	2.0 (1.2-3.4)
Don't know	18.5 (15.9-21.3)	5.7 (4.3-7.4)	20.8 (17.6-24.3)	4.1 (3.0-5.7)
No response	0.4 (0.2-1.2)	0.2 (0.1-0.9)	0 (0-0)	0 (0-0)
Decision making – other [3]	n=885	n=898	n=692	n=830
No one	59.2 (55.5-62.8)	37.2 (33.7-40.8)	70.4 (66.7-73.8)	43.3 (40.0-46.6)
Mother	22.4 (19.6-25.4)	21.8 (19.0-25.0)	16.5 (13.8-19.6)	18.7 (16.1-21.5)
Health worker	5.3 (4.0-7.0)	3.1 (2.1-4.6)	5.1 (3.7-6.9)	2.4 (1.6-3.7)
Mother-in-law	4.6 (3.4-6.3)	0.4 (0.2-1.2)	2.9 (1.9-4.4)	0.7 (0.3-1.8)
Friends/peers	3.1 (2.1-4.4)	22.9 (19.8-26.4)	1.3 (0.7-2.5)	16.6 (13.9-19.8)
Sister	3.6 (2.5-5.1)	11.4 (9.3-13.7)	2.3 (1.4-3.7)	14.8 (12.1-18.0)
Other	0.9 (0.4-1.9)	3.0 (2.0-4.5)	0.7 (0.3-1.7)	3.4 (2.3-4.9)
No response	0.9 (0.5-1.8)	0.1 (0.0-0.8)	0.9 (0.4-1.9)	0.1 (0.0-0.9)
Approval – mother [2]	n=834	n=898	n=655	n=830
Yes	21.8 (18.9-25.1)	23.8 (21.0-27.0)	18.6 (15.9-21.7)	23.4 (20.5-26.5)
No	55.3 (51.4-59.1)	71.6 (68.3-74.7)	50.4 (45.7-55.0)	70.8 (67.5-73.9)
Not applicable	0.2 (0.1-1.0)	0.9 (0.4-1.9)	0.2 (0.0-1.1)	0.1 (0.0-0.9)
Don't know	22.4 (19.5-25.6)	3.5 (2.4-5.0)	30.5 (26.5-34.8)	5.7 (4.3-7.4)
No response	0.2 (0.1-1.0)	0.2 (0.1-0.9)	0.3 (0.1-1.2)	0 (0-0)
Approval – community [2]	n=972	n=898	n=772	n=830
Yes	17.3 (14.8-20.0)	27.6 (24.5-31.0)	13.9 (11.4-16.8)	23.5 (20.4-27.0)
No	47.0 (43.8-50.3)	59.5 (56.0-62.8)	47.8 (43.5-52.1)	63.7 (60.0-67.3)
Not applicable	0.3 (0.1-1)	-	0 (0-0)	-
Don't know	35.2 (31.9-38.6)	12.8 (10.7-15.3)	38.3 (34.2-42.6)	12.7 (10.2-15.5)
No response	0.2 (0.1-0.8)	0.1 (0.0-0.8)	0 (0-0)	0.1 (0.0-0.9)
Community acceptance, index (0-2) [4]	0.7 (0.7-0.8)	0.5 (0.5-0.6)	0.7 (0.6-0.8)	0.5 (0.4-0.5)

[1]Measured through the question "Who will decide whether you use a method of family planning? Would you say that it will be mainly your decision, mainly your husband/partner's [Nasarawa] boyfriend's [Ogun] decision, or you will decide together?" [2]Measured through the question "Does your partner/mother/community approve or disapprove of girls your age using a modern contraceptive method to avoid or delay pregnancy?" [3]Measured through the question "Who else will influence your decision to use a method of family planning?" [4]Community acceptance towards the use of modern contraceptives was assessed through questions on mother and community approval of adolescent girls using a modern contraceptive method to avoid or delay pregnancy.

C, Comparison site, I, Intervention site.

Note: only sexually active girls were considered.

Trust and credibility of family planning products

Table 27: **Descriptive results - Misconceptions about modern contraception and disadvantages of modern contraceptive methods according to adolescent girls (Estimate, 95% Confidence Interval) by LGA in Nasarawa State at baseline (2017) and endline (2020)**

	Comparison sites				Intervention sites			
	Nasarawa (C)		Toto (C)		Doma (I)		Karu (I)	
	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
	n=637	n=1,088	n=450	n=596	n=364	n=482	n=821	n=1,312
Misconception about modern contraception, index (0-3) [1,2]	0.8 (0.7-0.9)	0.5 (0.4-0.6)	0.6 (0.4-0.7)	0.8 (0.7-0.9)	0.7 (0.6-0.8)	0.7 (0.6-0.9)	0.8 (0.7-0.9)	0.7 (0.6-0.7)
Misconception about modern contraception, components [3]								
Some modern contraception can stop a girl from ever being pregnant again even after she stops using it	33.1 (29.0-37.6)	22.7 (19.4-26.4)	25.1 (20.1-30.9)	35.7 (30.8-41.0)	30.2 (25.2-35.7)	35.7 (30.7-41.0)	33.9 (30.0-38.0)	29.8 (26.2-33.7)
If a modern contraception changes a girl's menstrual bleeding, it's bad for her health and can harm her womb	26.7 (23.1-30.6)	18.3 (15.2-21.8)	20.0 (15.4-25.5)	27.9 (23.7-32.4)	25.3 (20.9-30.2)	30.9 (25.4-37.0)	23.8 (20.3-27.6)	23.8 (20.6-27.4)
Some modern contraceptives can make adolescent girls permanently fat	17.6 (14.2-21.6)	8.4 (6.6-10.6)	11.6 (8.2-16.0)	15.4 (12.4-19.1)	18.4 (14.6-23.0)	7.9 (5.5-11.1)	20.0 (16.8-23.6)	11.7 (9.6-14.1)
Disadvantages of modern contraceptives [1,4]		n=1,088		n=596		n=482		n=1,312
Complications/ side effects	NA	78.0 (74.8-81.0)	NA	76.3 (71.7-80.5)	NA	79.3 (74.3-83.5)	NA	82.9 (80.3-85.3)
Does not work sometimes	NA	20.0 (16.8-23.7)	NA	13.4 (9.9-17.9)	NA	32.8 (28.0-37.9)	NA	33.7 (30.3-37.3)
Uncomfortable to use	NA	7.7 (5.8-10.3)	NA	8.4 (6.1-11.5)	NA	9.1 (6.4-12.8)	NA	13.0 (10.8-15.5)
Causes problems with husband/ partner	NA	4.8 (3.3-6.9)	NA	3.7 (2.2-6.2)	NA	13.3 (9.8-17.7)	NA	12.2 (9.8-15.1)
Against religious beliefs	NA	4.6 (3.2-6.6)	NA	5.0 (3.2-7.7)	NA	5.6 (3.7-8.5)	NA	6.2 (4.6-8.2)
Others [5]	NA	9.3 (7.1-12.1)	NA	10.1 (7.1-14.2)	NA	13.5 (10.1-17.7)	NA	15.9 (13.2-18.9)
None	NA	4.8 (3.4-6.8)	NA	4.2 (2.8-6.2)	NA	3.7 (2.3-6.1)	NA	3.0 (2.1-4.3)
Don't know	NA	10.5 (8.4-13.0)	NA	9.9 (6.8-14.1)	NA	7.9 (5.4-11.4)	NA	2.3 (1.5-3.5)

[1]Among girls who had heard about modern contraceptives and girls who responded to the phone survey. [2]Respondents were read a number of statements representing common misconceptions about contraception in Nigeria. They were asked whether they agreed or disagreed with the statements. [3]Proportions who disagreed with statements. [4]Respondents were asked to mention disadvantages. [5]Include family opposition (4%), embarrassing to buy (3%), causes problems with family members (3%), costly/expensive (2%), against cultural beliefs (2%), embarrassing to use (1%). C, Comparison site, I, Intervention site

Table 28: **Descriptive results - Misconceptions about modern contraception and disadvantages of modern contraceptive methods according to adolescent girls (Estimate, 95% Confidence Interval) by LGA in Ogun State at baseline (2017) and endline (2020)**

	Shagamu (C)		Ado-Odo/Ota (I)	
	Baseline	Endline	Baseline	Endline
	n=939	n=898	n=725	n=830
Misconception about modern contraception, index (0-3) [1,2]	0.8 (0.7-0.9)	0.7 (0.6-0.7)	0.8 (0.7-0.8)	0.7 (0.6-0.8)
Misconception about modern contraception, components [3]				
Some modern contraception can stop a girl from ever being pregnant again even after she stops using it	32.7 (29.5-36.1)	25.5 (22.6-28.7)	32.1 (28.8-35.7)	26.4 (23.3-29.8)
If a modern contraception changes a girl's menstrual bleeding, it's bad for her health and can harm her womb	23.1 (20.2-26.3)	20.2 (17.5-23.1)	20.3 (17.1-23.9)	18.7 (16-21.7)
Some modern contraceptives can make adolescent girls permanently fat	25.9 (23.2-28.7)	22.2 (19.5-25)	25.2 (22-28)	26.6 (23.6-29)
Disadvantages of modern contraceptives [1,4]		n=898		n=830
Complications/ side effects	NA	75.3 (71.5-78.7)	NA	68.4 (64.7-72.0)
Does not work sometimes	NA	14.9 (12.6-17.6)	NA	18.7 (15.8-21.9)
Uncomfortable to use	NA	6.1 (4.6-8.1)	NA	7.1 (5.4-9.2)
Causes problems with boyfriend/ partner	NA	1.3 (0.8-2.3)	NA	2.0 (1.2-3.4)
Against religious beliefs	NA	3.3 (2.3-4.9)	NA	4.2 (3.1-5.8)
Embarrassing to buy	NA	6.5 (4.8-8.6)	NA	11.5 (9.4-13.9)
Costly/expensive	NA	1.3 (0.7-2.4)	NA	7.8 (5.4-11.3)
Family opposition	NA	2.0 (1.3-3.1)	NA	3.5 (2.4-5.1)
Others [5]	NA	3.5 (2.5-4.9)	NA	6.7 (5.0-8.9)
None	NA	7.9 (5.9-10.5)	NA	8.0 (6.2-10.2)
Don't know	NA	10.1 (8.1-12.6)	NA	10.2 (7.8-13.3)

[1]Among girls who had heard about modern contraceptives. At endline, respondents were those who responded to the phone survey, who are also sexually active in the last 12 months. At baseline, we restricted respondents to girls who had been sexually active in the last 12 months, for comparability with the endline population. [2]Respondents were read a number of statements representing common misconceptions about contraception in Nigeria. They were asked whether they agreed or disagreed with the statements. [3]Proportions who disagreed with statements. [4]Respondents were asked to mention disadvantages. [5]Include problems with family members (1%), against cultural beliefs (2%), embarrassing to use (1%).

C, Comparison site, I, Intervention site

Secondary outcomes – Analytical results

Table 29: **Analytical results - the relationship between primary outcomes and time in Nasarawa State, by levels of A360, adjusted for confounders**

	LARC		mCPR in past 12 months		Age at first birth		Gave birth in last 12 months		Unmet need	
	Model 1 [1]	p-value	Model 2 [1]	p-value	Model 3 [2]	p-value	Model 4 [1,3]	p-value	Model 5 [1]	p-value
Model variables										
Time (Ref: Baseline)	1.81 (1.21, 2.69)	0.004	2.02 (1.70, 2.41)	<0.001	0.43 (0.29, 0.56)	<0.001	1.72 (1.57, 1.88)	<0.001	1.00 (0.89, 1.12)	0.979
A360 (Ref: Comparison sites)	1.61 (1.05, 2.47)	0.030	1.08 (0.89, 1.30)	0.433	0.24 (0.10, 0.38)	0.001	0.99 (0.88, 1.11)	0.864	0.90 (0.78, 1.03)	0.118
A360*Time	0.66 (0.41, 1.06)	0.086	0.97 (0.78, 1.22)	0.821	-0.07 (-0.23, 0.10)	0.448	1.00 (0.87, 1.14)	0.959	0.99 (0.83, 1.18)	0.909
Pair (Ref: Pair 1)	1.64 (1.26, 2.14)	<0.001	1.25 (1.08, 1.44)	0.002	0.30 (0.21, 0.40)	<0.001	0.89 (0.84, 0.95)	<0.001	1.02 (0.92, 1.13)	0.683
Demographic variables										
Age (linear)	1.10 (0.98, 1.23)	0.116	1.11 (1.05, 1.17)	<0.001	0.52 (0.48, 0.56)	<0.001	1.27 (1.23, 1.31)	<0.001	0.92 (0.88, 0.96)	<0.001
Religion (Ref: Muslim, Traditional, No religion, or Others)	1.20 (1.00, 1.45)	0.056	1.69 (1.54, 1.87)	<0.001	0.09 (0.01, 0.17)	0.032	0.97 (0.92, 1.03)	0.322	1.45 (1.33, 1.58)	<0.001
Education level (Ref: No education)	0.96 (0.79, 1.15)	0.639	1.33 (1.19, 1.48)	<0.001	0.25 (0.17, 0.33)	<0.001	0.94 (0.89, 1.00)	0.068	1.05 (0.96, 1.15)	0.262
Number of living children (Ref: 0)	4.07 (2.74, 6.03)	<0.001	1.82 (1.61, 2.04)	<0.001	-0.41 (-0.54, -0.28)	<0.001	-		1.89 (1.71, 2.09)	<0.001
Wealth quintile (linear)	0.98 (0.89, 1.07)	0.626	1.24 (1.17, 1.31)	<0.001	0.03 (0.00, 0.07)	0.066	0.96 (0.94, 0.99)	0.004	1.02 (0.98, 1.07)	0.306
Constant	0.07 (0.01, 0.64)	0.018	0.00 (0.00, 0.01)	<0.001	6.41 (5.74, 7.08)	<0.001	0.00 (0.00, 0.01)	<0.001	0.53 (0.27, 1.05)	0.068
Observations	1,332		5,413		5,426		9,651		8,687	

[1]RR (95%CI), results of a Poisson regression model with robust standard errors. [2]Coefficient (95%CI), results of a linear regression model with robust standard errors. [3]The main association was not adjusted for number of living children as it is highly associated with the outcome; gave birth in the last 12 months.

LARC, long-acting reversible contraception.

Table 30: **Analytical results - the relationship between binary secondary outcomes and time in Nasarawa State, by levels of A360, adjusted for confounders**

	Awareness of where to obtain health services		Awareness of contraceptive products		Benefit 1 of modern contraception		Intention to use a modern method	
	Model 6 [1]	p-value	Model 7 [1]	p-value	Model 8 [1]	p-value	Model 9 [1]	p-value
Model variables								
Time (Ref: Baseline)	1.70 (1.54, 1.89)	<0.001	1.68 (1.56, 1.80)	<0.001	1.00 (0.97, 1.02)	0.811	1.27 (1.19, 1.35)	<0.001
A360 (Ref: Comparison sites)	0.89 (0.77, 1.03)	0.109	1.13 (1.04, 1.23)	0.004	0.98 (0.95, 1.01)	0.203	1.02 (0.94, 1.09)	0.686
A360*Time	1.13 (0.97, 1.31)	0.116	0.88 (0.80, 0.96)	0.006	1.05 (1.01, 1.09)	0.009	0.98 (0.90, 1.07)	0.639
Pair (Ref: Pair 1)	1.05 (0.99, 1.11)	0.137	0.97 (0.93, 1.02)	0.236	1.01 (0.99, 1.03)	0.39	1.06 (1.00, 1.12)	0.035
Demographic variables								
Age (linear)	1.01 (0.98, 1.05)	0.36	1.15 (1.13, 1.17)	<0.001	1.00 (0.99, 1.01)	0.733	1.00 (0.99, 1.02)	0.595
Religion (Ref: Muslim, Traditional, No religion, or Others)	1.00 (0.95, 1.05)	0.975	1.08 (1.04, 1.12)	<0.001	1.05 (1.03, 1.07)	<0.001	1.16 (1.12, 1.20)	<0.001
Education level (Ref: No education)	1.06 (1.01, 1.12)	0.031	1.20 (1.16, 1.24)	<0.001	1.07 (1.04, 1.09)	<0.001	1.12 (1.08, 1.16)	<0.001
Number of living children (Ref: None)	1.09 (1.03, 1.16)	0.004	1.18 (1.14, 1.22)	<0.001	1.04 (1.02, 1.06)	<0.001	1.14 (1.11, 1.18)	<0.001
Wealth quintile (linear)	1.03 (1.00, 1.05)	0.030	1.10 (1.08, 1.12)	<0.001	1.01 (1.00, 1.02)	0.194	1.04 (1.02, 1.06)	<0.001
Constant	0.32 (0.18, 0.55)	<0.001	0.02 (0.02, 0.03)	<0.001	0.83 (0.72, 0.95)	0.009	0.38 (0.28, 0.51)	<0.001
Observations	1,998		9,643		6,255		5,738	

[1]RR (95%CI), results of a Poisson regression model with robust standard errors.

Table 31: **Analytical results - the relationship between continuous secondary outcomes and time in Nasarawa State, by levels of A360, adjusted for confounders**

	Misconceptions about modern contraceptives		Self-efficacy		Attitudes		Community acceptance	
	Model 10 [1]	**p-value**	**Model 11** [1]	**p-value**	**Model 12** [1]	**p-value**	**Model 13** [1]	**p-value**
Model variables								
Time (Ref: Baseline)	-0.04 (-0.09, 0.01)	0.115	0.43 (0.27, 0.59)	<0.001	0.18 (0.12, 0.24)	<0.001	0.32 (0.24, 0.40)	<0.001
A360 (Ref: Comparison sites)	0.09 (0.04, 0.14)	0.001	0.07 (-0.08, 0.21)	0.372	0.10 (0.03, 0.17)	0.004	0.08 (0.00, 0.16)	0.04
A360*Time	-0.05 (-0.12, 0.02)	0.196	0.10 (-0.11, 0.30)	0.363	0.10 (0.01, 0.18)	0.023	0.07 (-0.04, 0.17)	0.212
Pair (Ref: Pair 1)	-0.09 (-0.13, -0.05)	<0.001	0.20 (0.07, 0.33)	0.003	0.00 (-0.05, 0.05)	0.957	0.26 (0.19, 0.33)	<0.001
Demographic variables								
Age (linear)	0.02 (0.01, 0.04)	0.001	0.19 (0.15, 0.22)	<0.001	-0.01 (-0.03, 0.01)	0.414	0.03 (0.01, 0.05)	0.002
Religion (Ref: Muslim, Traditional, No religion, or Others)	-0.02 (-0.05, 0.01)	0.269	0.32 (0.22, 0.42)	<0.001	0.29 (0.26, 0.33)	<0.001	0.14 (0.09, 0.18)	<0.001
Education level (Ref: No education)	0.04 (0.01, 0.07)	0.009	0.45 (0.35, 0.55)	<0.001	0.11 (0.07, 0.15)	<0.001	0.21 (0.16, 0.26)	<0.001
Number of living children (Ref: None)	0.03 (0.00, 0.05)	0.083	0.51 (0.42, 0.60)	<0.001	-0.02 (-0.05, 0.02)	0.391	0.19 (0.14, 0.23)	<0.001
Wealth quintile (linear)	0.01 (-0.01, 0.02)	0.403	0.25 (0.20, 0.29)	<0.001	0.05 (0.04, 0.07)	<0.001	0.05 (0.03, 0.08)	<0.001
Constant	0.05 (-0.20, 0.30)	0.694	-3.78 (-4.40, -3.16)	<0.001	0.85 (0.54, 1.17)	<0.001	-0.71 (-1.03, -0.40)	<0.001
Observations	5,643		5,423		6,255		6,212	

[1]Coefficient (95%CI), results of a linear regression model with robust standard errors.

Table 32: **Analytical results - the relationship between primary outcomes and time in Ogun State, by levels of A360, adjusted for confounders**

	LARC		mCPR in past 12 months		Age at first birth		Gave birth in last 12 months		Unmet need	
	Model 1 [1]	**p-value**	**Model 2** [1]	**p-value**	**Model 3** [2]	**p-value**	**Model 4** [1,3]	**p-value**	**Model 5** [1]	**p-value**
Model variables										
Time (Ref: Baseline)	0.68 (0.25, 1.83)	0.442	1.04 (0.95, 1.15)	0.388	-0.03 (-0.38, 0.31)	0.847	1.02 (0.66, 1.55)	0.944	0.82 (0.70, 0.96)	0.015
A360 (Ref: Comparison sites)	0.22 (0.03, 1.74)	0.151	0.91 (0.82, 1.00)	0.050	-0.01 (-0.31, 0.28)	0.923	0.72 (0.47, 1.11)	0.136	1.02 (0.89, 1.18)	0.753
A360*Time	13.32 (1.44, 123.09)	0.022	1.06 (0.91, 1.24)	0.422	0.17 (-0.30, 0.65)	0.472	2.12 (1.20, 3.76)	0.01	0.92 (0.73, 1.15)	0.467
Demographic variables										
Age (linear)	0.97 (0.53, 1.75)	0.909	1.03 (1.00, 1.06)	0.088	0.78 (0.66, 0.90)	<0.001	2.88 (2.48, 3.34)	<0.001	1.05 (1.00, 1.11)	0.039
Religion (Ref: Muslim, Traditional, No religion, or Others)	4.03 (1.19, 13.68)	0.025	1.12 (1.04, 1.21)	0.003	-0.09 (-0.32, 0.15)	0.475	1.08 (0.81, 1.43)	0.606	0.91 (0.82, 1.02)	0.100
Education level (Ref: No education)	1.96 (0.19, 20.16)	0.573	1.65 (1.33, 2.05)	<0.001	0.36 (0.02, 0.69)	0.035	0.61 (0.37, 1.01)	0.053	0.72 (0.60, 0.85)	<0.001
Number of living children (Ref: 0)	51.21 (18.36, 142.84)	<0.001	0.90 (0.78, 1.03)	0.130	-0.36 (-1.09, 0.38)	0.34	-		1.17 (0.99, 1.39)	0.064
Wealth quintile (linear)	0.73 (0.42, 1.27)	0.27	1.14 (1.06, 1.23)	<0.001	0.13 (-0.04, 0.30)	0.14	0.57 (0.49, 0.68)	<0.001	0.90 (0.83, 0.97)	0.005
Constant	0.09 (0.00, 2279.78)	0.644	0.1 (0.05, 0.19)	<0.001	2.26 (-0.21, 4.73)	0.073	0.00 (0.00, 0.00)	<0.001	0.29 (0.11, 0.76)	0.012
Observations	1,593		3,229		437		25,436		3,419	

[1]RR (95%CI), results of a Poisson regression model with robust standard errors. [2]Coefficient (95%CI), results of a linear regression model with robust standard errors. [3]The main association was not adjusted for number of living children as it is highly associated with the outcome; gave birth in the past 12 months.

LARC, long-acting reversible contraception.

Table 33: **Analytical results - the relationship between binary secondary outcomes and time in Ogun State, by levels of A360, adjusted for confounders**

	Awareness of where to obtain health services		Awareness of contraceptive products		Benefit 1 of modern contraception		Intention to use a modern method	
	Model 6 [1]	**p-value**	**Model 7** [1]	**p-value**	**Model 8** [1]	**p-value**	**Model 9** [1]	**p-value**
Model variables								
Time (Ref: Baseline)	1.35 (1.07, 1.71)	0.012	0.94 (0.91, 0.98)	0.002	1.02 (0.99, 1.05)	0.257	0.87 (0.81, 0.93)	<0.001
A360 (Ref: Comparison sites)	0.92 (0.72, 1.19)	0.527	0.94 (0.91, 0.97)	0.001	1.00 (0.97, 1.03)	0.843	1.02 (0.96, 1.09)	0.529
A360*Time	1.03 (0.74, 1.44)	0.857	1.01 (0.95, 1.07)	0.777	0.93 (0.88, 0.97)	0.001	0.98 (0.89, 1.08)	0.718
Demographic variables								
Age (linear)	1.03 (0.96, 1.11)	0.394	1.09 (1.09, 1.10)	<0.001	1.03 (1.03, 1.04)	<0.001	0.99 (0.97, 1.01)	0.299
Religion (Ref: Muslim, Traditional, No religion, or Others)	0.85 (0.73, 1.00)	0.054	1.03 (1.01, 1.05)	<0.001	0.96 (0.94, 0.98)	<0.001	1.01 (0.96, 1.06)	0.610
Education level (Ref: No education)	0.87 (0.69, 1.11)	0.260	1.20 (1.14, 1.26)	<0.001	0.97 (0.93, 1.02)	0.250	1.05 (0.95, 1.16)	0.321
Number of living children (Ref: None)	1.37 (1.09, 1.72)	0.007	1.07 (1.03, 1.10)	<0.001	1.15 (1.11, 1.19)	<0.001	1.13 (1.05, 1.21)	0.001
Wealth quintile (linear)	1.00 (0.88, 1.14)	0.984	1.10 (1.08, 1.12)	<0.001	0.99 (0.97, 1.01)	0.275	1.06 (1.02, 1.11)	0.006
Constant	0.25 (0.06, 1.03)	0.055	0.09 (0.08, 0.11)	<0.001	0.48 (0.42, 0.55)	<0.001	0.66 (0.43, 1.00)	0.049
Observations	860		25,414		19,341		3,097	

[1]RR (95%CI), results of a Poisson regression model with robust standard errors.

Table 34: **Analytical results - the relationship between continuous secondary outcomes and time in Ogun State, by levels of A360, adjusted for confounders**

	Misconceptions about modern contraceptives		Self-efficacy		Attitudes		Community acceptance	
	Model 10 [1]	**p-value**	**Model 11** [1]	**p-value**	**Model 12** [1]	**p-value**	**Model 13** [1]	**p-value**
Model variables								
Time (Ref: Baseline)	-0.15 (-0.24, -0.07)	<0.001	-0.14 (-0.32, 0.03)	0.108	0.07 (0.02, 0.11)	0.004	0.22 (0.14, 0.30)	<0.001
A360 (Ref: Comparison sites)	-0.07 (-0.15, 0.01)	0.102	-0.02 (-0.17, 0.14)	0.841	0.05 (0.00, 0.09)	0.033	-0.06 (-0.11, 0.00)	0.044
A360*Time	0.10 (-0.03, 0.22)	0.125	-0.15 (-0.42, 0.12)	0.274	-0.09 (-0.16, -0.03)	0.003	0.00 (-0.11, 0.10)	0.977
Demographic variables								
Age (linear)	-0.02 (-0.04, 0.01)	0.157	0.1 (0.05, 0.15)	<0.001	0.06 (0.06, 0.07)	<0.001	0.03 (0.01, 0.05)	0.005
Religion (Ref: Muslim, Traditional, No religion, or Others)	-0.03 (-0.09, 0.03)	0.342	0.00 (-0.11, 0.11)	0.944	0.01 (-0.02, 0.03)	0.499	-0.03 (-0.08, 0.02)	0.216
Education level (Ref: No education)	-0.1 (-0.23, 0.03)	0.130	0.54 (0.31, 0.77)	<0.001	0.01 (-0.05, 0.07)	0.699	0.04 (-0.05, 0.14)	0.360
Number of living children (Ref: None)	-0.01 (-0.11, 0.10)	0.915	0.21 (0.02, 0.4)	0.033	0.29 (0.23, 0.36)	<0.001	0.31 (0.22, 0.41)	<0.001
Wealth quintile (linear)	-		0.22 (0.12, 0.32)	<0.001	0.06 (0.04, 0.08)	<0.001	0.04 (0.01, 0.08)	0.027
Constant	1.53 (1.01, 2.05)	<0.001	-0.63 (-1.62, 0.35)	0.207	-0.28 (-0.46, -0.10)	0.002	-0.43 (-0.81, -0.05)	0.026
Observations	4,360		3,238		19,343		3,087	

[1]Coefficient (95%CI), results of a linear regression model with robust standard errors.

Descriptive and analytical results for the relationship between self-reported exposure to A360 and outcomes

Table 35: **Descriptive and analytic relationship between binary outcomes and self-reported exposure in Nasarawa State, adjusted for confounders**

	Descriptive results			Analytic results, RR (95%CI) [3]	
	% (n/n) with outcome among those not exposed [1]	% (n/n) with outcome among those exposed [1]	Ratio [2]	Exposure (Ref: Not exposed)	n
LARC	29.77 (145/487)	40.00 (20/50)	1.34	1.25 (0.87, 1.81)	532
mCPR in past 12 months	5.26 (45/855)	9.65 (53/549)	1.83	1.50 (1.22, 1.83) ***	1,373
Gave birth within the past 12 months	42.19 (1,021/2,420)	51.41 (73/142)	1.22	1.18 (1.01, 1.40) *	2,495
Unmet need	20.72 (473/2,283)	13.33 (18/135)	0.64	0.60 (0.39, 0.94) *	2,357
Awareness of where to obtain health services	91.04 (447/491)	100.00 (32/32)	1.10	1.11 (1.07, 1.16) ***	517
Awareness of contraceptive products	80.04 (1,937/2,420)	96.48 (137/142)	1.21	1.18 (1.11, 1.25) ***	2,495
Benefit 1 of modern contraception	93.70 (1,815/1,937)	97.81 (134/137)	1.04	1.05 (1.02, 1.08) **	2,027
Benefit 2 of modern contraception	94.63 (1,796/1,898)	96.32 (131/136)	1.02	1.02 (0.99, 1.06)	1,989
Intention to use a modern method	83.53 (1,415/1,694)	98.98 (97/98)	1.17	1.20 (1.15, 1.25)***	1,777

[1]The variation in the denominator was due to the way the outcome was calculated; see Appendix B for details. [2]Proportion with outcome among exposed divided by proportion with outcome among those not exposed. [3]Results of a Poisson regression model with robust standard errors, adjusted for age, religion, education, number of living children and wealth quintile. LARC, long-acting reversible contraception, B_0, constant, n, number of observations used in the regression model, *** p<0.001, ** p<0.01, * p<0.05

Table 36: **Descriptive and analytic relationship between continuous outcomes and self-reported exposure in Nasarawa State, adjusted for confounders**

	Descriptive results			Analytic results, Coefficient (95%CI) [4]	
	Mean (95%CI) outcome among those not exposed	Mean (95%CI) outcome among those exposed	Difference [3]	Exposure (Ref: Not exposed)	n
Age at first birth	16.92 (16.84, 17.00)	16.80 (16.52, 17.07)	-0.12	-0.15 (-0.38, 0.08)	1,358
Misconceptions about modern contraceptives index score (0-3) [1]	0.68 (0.61, 0.74)	0.69 (0.47, 0.91)	0.01	0.02 (-0.19, 0.22)	1,779
Self-efficacy index score (0-4) [1]	2.15 (2.03, 2.28)	2.24 (1.89, 2.60)	0.09	0.11 (-0.19, 0.42)	1,374
Attitudes index score (0-2) [1]	1.50 (1.46, 1.53)	1.66 (1.58, 1.75)	0.16	0.20 (0.10, 0.30) ***	2,027
Community acceptance index score (0-2) [1]	1.24 (1.19, 1.30)	1.28 (1.12, 1.43)	0.08	0.03 (-0.11, 0.17)	1,779
Aspirations index score (0-9) [1]	5.68 (5.53, 5.84)	6.32 (5.92, 6.72)	0.64	0.56 (0.13, 0.99) *	2,100
Disadvantages of contraceptives index score (0-7) [2]	1.63 (1.56, 1.70)	1.88 (1.63, 2.12)	0.25	0.24 (-0.02, 0.49)	1,779
Descriptive norms index score (0-6) [1]	3.34 (3.21, 3.48)	3.77 (3.46, 4.07)	0.43	0.44 (0.14, 0.73) **	1,779

[1]Greater scores are more desirable than lower scores. [2]Greater scores are less desirable than lower scores (i.e. greater number of disadvantages mentioned). [3]Mean outcome among exposed minus mean outcome among those not exposed. [4]Results of a linear regression model with robust standard errors, adjusted for age, religion, education, number of living children and wealth quintile. B_0, constant, n, number of observations used in the regression model, *** p<0.001, ** p<0.01, * p<0.05

Table 37: **Descriptive and analytic relationship between binary outcomes and self-reported exposure in Ogun State, adjusted for confounders**

	Descriptive results			**Analytic results, RR (95%CI)[1]**	
	% (n/n) with outcome among those not exposed	% (n/n) with outcome among those exposed	Ratio[2]	Exposure (Ref: Not exposed)	n
LARC	2.37 (8/338)	0.00 (0/22)	0.00	-	-
mCPR in past 12 months	5.26 (45/855)	6.15 (23/374)	0.72	0.82 (0.61, 1.11)	736
Gave birth within the past 12 months	6.72 (71/1,056)	5.81 (5/86)	0.86	0.87 (0.37, 2.04)	1,138
Unmet need	24.37 (175/718)	32.14 (18/56)	1.32	1.32 (0.89, 1.96)	772
Awareness of where to obtain health services	46.67 (84/180)	47.06 (8/17)	1.01	1.01 (0.62, 1.65)	195
Awareness of contraceptive products	83.43 (881/1,056)	90.70 (78/86)	1.09	1.07 (1.00, 1.15)	1,138
Benefit 1 of modern contraception	86.27 (760/881)	88.46 (69/78)	1.03	1.02 (0.93, 1.12)	955
Benefit 2 of modern contraception	84.14 (732/870)	87.01 (67/77)	1.03	1.03 (0.94, 1.13)	943
Intention to use a modern method	66.67 (506/759)	56.52 (39/69)	0.85	0.85 (0.67, 1.06)	824

[1]Results of a Poisson regression model with robust standard errors, adjusted for age, religion, education, number of living children and wealth quintile. [2]Proportion with outcome among exposed divided by proportion with outcome among those not exposed. LARC, long-acting reversible contraception, B_0, constant, n, number of observations used in the regression model, *** p<0.001, ** p<0.01, * p<0.05

Table 38: **Descriptive and analytic relationship between continuous outcomes and self-reported exposure in Ogun State, adjusted for confounders**

	Descriptive results			**Analytic results, Coefficient (95%CI)[4]**	
	Mean (95%CI) outcome among those not exposed	Mean (95%CI) outcome among those exposed	Difference[3]	Exposure (Ref: Not exposed)	n
Age at first birth	17.16 (16.89, 17.43)	17.86 (17.11, 18.61)	0.70	0.58 (-0.24, 1.40)	95
Misconceptions about modern contraceptives index score (0-3) [1]	0.72 (0.65, 0.80)	0.67 (0.43, 0.91)	-0.05	-0.04 (-0.29, 0.21)	826
Self-efficacy index score (0-4) [1]	2.35 (2.17, 2.53)	2.65 (2.20, 3.10)	0.30	0.28 (-0.20, 0.76)	736
Attitudes index score (0-2) [1]	1.40 (1.35, 1.46)	1.33 (1.17, 1.49)	-0.07	-0.08 (-0.25, 0.08)	955
Community acceptance index score (0-2) [1]	0.47 (0.41, 0.54)	0.63 (0.40, 0.85)	0.16	0.18 (-0.05, 0.41)	586
Aspirations index score (0-9) [1]	6.95 (6.83, 7.08)	7.13 (6.82, 7.45)	0.18	0.13 (-0.20, 0.47)	966
Disadvantages of contraceptives index score (0-7) [2]	1.30 (1.20, 1.40)	1.13 (0.79, 1.47)	-0.17	-0.18 (-0.51, 0.15)	826
Descriptive norms index score (0-6) [1]	3.09 (2.91, 3.27)	2.91 (2.50, 3.33)	-0.18	-0.20 (-0.64, 0.24)	826

[1]Greater scores are more desirable than lower scores. [2]Greater scores are less desirable than lower scores (i.e. greater number of disadvantages mentioned). [3]Mean outcome among exposed minus mean outcome among those not exposed. [4]Results of a linear regression model with robust standard errors, adjusted for age, religion, education, number of living children and wealth quintile. B_0, constant, n, number of observations used in the regression model, *** p<0.001, ** p<0.01, * p<0.05

Appendix D: DHS mCPR definition and results table

[See document attached]

Appendix E: Co-habiting adults results

Overall, co-habitant adults' attitudes, beliefs and misconceptions remained constant or worsened over time. On the other hand, a greater proportion of respondents reported having discussed family planning with the adolescent girl at endline versus baseline, across all sites.

Characteristics of co-habiting adults

Among all the girls who were asked permission to interview a co-habiting adult, only a small proportion agreed (31%; **Table 38**). **Tables 39 and 40** describe the background characteristics of co-habiting adults surveyed in Nasarawa and Ogun States, respectively.

Attitudes towards using contraceptive methods

Contrary to the girls' views, (**Table 25**) in Nasarawa State, the proportion of husbands/partners surveyed who approved of unmarried couples using modern contraceptives remained constant (around 41%) except for in Nasarawa (C), where it dropped from 46% to 20%. The proportion who approved of married couples using modern contraceptives also remained constant (around 64%; **Table 41**).

In Ogun, at the intervention site Ado-Odo/Ota, the proportion of co-habiting adults surveyed who approved of unmarried couples using modern contraceptives increased from 43% at baseline to 56% at endline. However, the proportion who approved of married couples using modern contraceptives dropped by 20% in Ado-Odo/Ota (I) and Shagamu (C; **Table 42**).

Beliefs about self-efficacy of adolescent girls to access and use contraceptive methods

In Nasarawa State, beliefs about the self-efficacy of adolescent girls dropped over time. This was particularly true for comparison sites Nasarawa (C) and Toto (C; **Table 41**). Nevertheless, the proportion of respondents who reported having discussed family planning with the adolescent girl in their household in the six months before the survey, increased over time in Doma (I), and tended to increase in the other LGAs too (**Table 43**).

In Ogun State, at baseline, 53% of the respondents in Ado-Odo/Ota (I) believed it was "acceptable for an adolescent girl to obtain a contraception method if she decides to use one," and at endline, it increased to 65%. Other beliefs about the self-efficacy of adolescent girls remained constant over time (**Table 42**). The proportion of respondents who reported having discussed family planning with the adolescent girl in their household in the six months before the survey increased over time by 20% in Ado-Odo/Ota (I), and Shagamu (C; **Table 43**).

Descriptive norms

At endline, we assessed descriptive norms regarding modern contraception by asking respondents what they thought was the behavior of girls aged 15–19 years old in the community in relation to contraceptives. As with adolescent girls, Karu (I) had the highest descriptive norms (**Tables 44 and 45**).

Misconceptions about modern contraceptives and modern contraceptive disadvantages

Contrary to what was expected, misconceptions about modern contraceptives appeared to increase over time, particularly in intervention sites (**Tables 46 and 47**).

Disadvantages of modern contraception mentioned by co-habitant adults followed the same patterns as those mentioned by adolescent girls. In Nasarawa State, a greater proportion of co-habitant adults mentioned that modern contraceptives cause problems with husbands/partners in intervention sites (16%) then in comparison sites (6%; **Table 46**). In Ogun State, there was also a greater proportion who mentioned that modern contraceptives were embarrassing to buy or costly/expensive, at the intervention site than at the comparison site (**Table 47**).

Descriptive tables for co-habiting adults

Response rates

Table 39: **Reasons for non-response and response rates among co-habiting adults by State at baseline (2017) and endline (2020)**

	Nasarawa State				Ogun State			
	Comparison sites		Intervention sites		Comparison sites		Intervention sites	
	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
Co-habiting adults identified [1]	497	1,799	454	1,061	508	683	590	575
Interviewed	170	382	166	317	161	180	176	207
Reasons for non-response								
Girl did not allow for husband to be interviewed	323	1,415	280	721	345	495	414	367
Respondent refused	4	2	8	23	2	8	0	1
Response rate	34.2%	21.2%	36.6%	29.9%	31.7%	26.4%	29.8%	36.0%

[1] Husbands/partners of married girls surveyed in Nasarawa State, and nominated co-habitant adult of unmarried girls surveyed in Ogun State.

Note: In Nasarawa State, the original sampling approach was planned to include a random assignment of a cohabiting adult interviews in approximately 20% of interviews. However, due to a programming issue, all girls' interviews conducted in the first two weeks of data collection were put forward for an adult interview. Enumerators proceeded to conduct interviews in cases where the husband was available for the interview. For this reason, 700 cohabiting adult interviews were completed, surpassing the target of 326.

Characteristics

Table 40: **Descriptive results - Percentage distribution of co-habiting adult by LGA in Nasarawa State, according to selected characteristics, baseline (2017) and endline (2020)**

	Comparison sites				Intervention sites			
	Nasarawa (C)		Toto (C)		Doma (I)		Karu (I)	
	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
	n=92	n=224	n=74	n=158	n=74	n=258	n=86	n=59
Relationship to adolescent girl								
Husband	96.7	85.3	94.6	96.2	98.7	89.9	88.4	72.9
Co-habiting partner	3.3	14.3	5.4	3.2	1.4	8.5	11.6	27.1
Mother-in-law	0	0.4	0	0	0	0	0	0
Age (years) [1]								
20-29	35.9	50.9	44.6	44.9	27.0	45.0	39.5	37.3
30-39	52.2	42.9	35.1	49.4	47.3	47.7	43.0	62.7
40-49	6.5	5.4	9.5	4.4	6.8	5.8	7.0	0
50-59	1.1	0.9	0	0.6	0	0.8	1.1	0
>59	0	0	0	0.6	0	0.8	0	0
Don't know	4.3	0	10.8	0	18.9	0	9.3	0
Education level								
No education	18.5	8.9	21.6	5.1	31.1	14.0	5.8	0
Qur'anic only	1.1	3.1	0	0.6	0	4.3	0	1.7
Primary	9.8	12.1	6.8	7.0	16.2	17.8	4.7	3.4
Secondary	50.0	54.0	58.1	48.1	46.0	45.4	59.3	50.9
Higher	20.7	19.6	13.5	37.3	6.8	11.2	30.2	44.1
Don't know	0	1.8	0	1.3	0	7.4	0	0
No response	0	0.5	0	0.6	0	0	0	0
Religion								
Roman Catholic	0	4.9	1.4	2.5	14.9	17.1	15.1	17
Protestant/other Christian	29.4	27.7	46.0	31.0	47.3	39.5	45.4	33.9
Muslim	70.7	67.4	52.7	66.5	37.8	40.3	39.5	49.2
Traditional	0	0	0	0 (0)	0	2.7	0	0
No religion	0	0	0	0 (0)	0	0	0	0
No response 0	0	0	0	0 (0)	0	0.4	0	0

[1]Median (interquartile range) age at baseline, B, and endline, E, in Nasarawa B 32 (28-36) E 29 (25-32), Toto B 30 (26-35) E 30 (27-34), Doma B 34.5 (29-40) E 30 (27-33), and Karu B 30 (28-36) E 30 (28-33).

C, Comparison site, I, Intervention site

Table 41: **Descriptive results - Percentage distribution of co-habiting adult by LGA in Ogun State, according to selected characteristics, baseline (2017) and endline (2020)**

	Shagamu (C)		Ado-Odo/Ota (I)	
	Baseline	Endline	Baseline	Endline
	n=161	n=180	n=176	n=207
Relationship to adolescent girl				
Mother	37.3	42.8	54.0	38.2
Father	1.2	0.6	0.6	1.0
Mother-in-law	0	0.6	0	0
Grandmother	1.2	1.7	2.3	0.5
Aunt	22.4	20.0	14.2	21.7
Sister	28.6	32.8	24.4	37.7
Brother	0.6	0	1.1	0
Stepmother	1.2	0	1.1	0
Neighbor	3.1	0	1.7	0
Other	4.3	1.1	0.6	1.0
No response	0	0.6	0	0
Age (years) [1]				
20-29	33.5	23.9	22.7	30.0
30-39	23.0	29.4	22.2	31.9
40-49	28.6	28.3	30.7	26.1
50-59	10.6	15.0	15.9	7.2
>59	3.1	3.3	5.7	4.8
Don't know	1.2	0	2.8	0
Education level				
No education	5.6	9.4	17.1	7.2
Qur'anic only	0	0	0	0
Primary	14.9	14.4	22.7	19.3
Secondary	49.1	45.0	39.8	47.8
Higher	30.4	31.1	20.5	25.6
Religion				
Roman Catholic	3.1	0	2.3	1.0
Protestant/other Christian	66.5	77.2	70.5	63.8
Muslim	29.8	22.8	27.3	35.3
Traditional	0	0	0	0
No religion	0.6	0	0	0

[1]Median (interquartile range) age at baseline, B, and endline, E, in Shagamu B 35 (27-45) E 38 (30-44.5), and Ado-Odo/Ota B 40 (30.5-49) E 35 (28-42).

C, Comparison site, I, Intervention site.

Supportive environment for adolescent girls to access services

Table 42: **Descriptive results - Attitudes and beliefs of co-habiting adult respondents surveyed (Estimate, 95% Confidence Interval) by LGA in Nasarawa State at baseline (2017) and endline (2020)**

	Comparison sites				Intervention sites			
	Nasarawa (C)		Toto (C)		Doma (I)		Karu (I)	
	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
Attitudes [1]	n=92	n=224	n=74	n=158	n=74	n=258	n=86	n=59
Married couples using a modern contraceptive method to avoid or delay pregnancy	73.1 (58.2-84.2)	58.5 (51.6-65)	43.8 (28.3-60.6)	57.6 (48.1-66.6)	69.4 (54.1-81.4)	63.2 (55.7-70.1)	75.0 (63.7-83.7)	74.6 (60.3-85.0)
Couples who are not married using a modern contraceptive method to avoid or delay pregnancy	46.3 (34.4-58.6)	20.1 (14.8-26.8)	43.8 (28.3-60.6)	32.9 (24.4-42.7)	44.9 (30.7-60.0)	39.9 (33.2-47.1)	42.7 (30.8-55.4)	44.1 (31.9-57.0)
Beliefs [2, 3]	n=92	n=224	n=74	n=158	n=74	n=258	n=86	n=59
It is acceptable for an adolescent girl to start a conversation with her boyfriend/husband about contraception	88.1 (77.6-94.0)	72.3 (66.2-77.7)	89.6 (76.5-95.8)	75.3 (67.0-82.1)	81.6 (68.6-90.1)	82.2 (76.0-87.0)	89.7 (80.2-94.9)	89.8 (79.2-95.3)
It is acceptable for an adolescent girl to obtain information on contraception services and products if she needs to	92.5 (83.0-96.9)	67.0 (60.0-73.3)	89.6 (77.7-95.5)	65.8 (56.5-74.1)	83.7 (69.7-91.9)	75.6 (68.5-81.5)	83.8 (72.3-91.1)	83.1 (70.1-91.1)
It is acceptable for an adolescent girl to obtain a contraception method if she decides to use one	82.1 (69.7-90.1)	53.1 (45.9-60.3)	85.4 (73.0-92.7)	55.7 (45.9-65.1)	77.6 (63.5-87.3)	57.8 (50.8-64.5)	76.5 (65.0-85.1)	78.0 (65.3-87.0)
It is acceptable for an adolescent girl to use a method of contraception even if her husband/partner doesn't want her to	35.8 (23.4-50.5)	7.1 (4.4-11.5)	18.8 (9.7-33.1)	6.3 (3.4-11.4)	14.3 (6.4-29.0)	7.8 (4.9-11.9)	19.1 (11.2-30.8)	6.8 (2.5-16.9)

[1]Proportion of respondents who approved. [2]Respondents were read a number of statements related to girls' self-efficacy. They were asked whether or not they agreed with the statements.
[3]Proportions who agreed with the statements.

C, Comparison site, I, Intervention site.

Table 43: **Descriptive results - Attitudes and beliefs of co-habiting adult respondents surveyed (Estimate, 95% Confidence Interval) by LGA in Ogun State at baseline (2017) and endline (2020)**

	Comparison sites Shagamu (C)		Intervention sites Ado-Odo/Ota (I)	
	Baseline	Endline	Baseline	Endline
Attitudes [1]	n=161	n=180	n=176	n=207
Married couples using a modern contraceptive method to avoid or delay pregnancy	78.1 (69.8-84.7)	59.6 (57.4-61.8)	77.5 (69.9-83.7)	56.8 (54.8-58.9)
Couples who are not married using a modern contraceptive method to avoid or delay pregnancy	55.6 (48.0-63.0)	57.8 (55.7-60.0)	42.6 (36.0-49.9)	55.6 (53.5-57.7)
Beliefs [2, 3]	n=161	n=180	n=176	n=207
It is acceptable for an adolescent girl to start a conversation with her boyfriend/husband about contraception	58.1 (50.1-65.7)	64.4 (60.5-68.1)	55.0 (47.4-62.4)	59.4 (54.7-63.8)
It is acceptable for an adolescent girl to obtain information on contraception services and products if she needs to	68.1 (60.1-75.2)	70.5 (66.4-74.3)	65.1 (57.5-72.0)	63.8 (59.1-68.3)
It is acceptable for an adolescent girl to obtain a contraception method if she decides to use one	61.9 (53.9-69.3)	68.9 (65.1-72.5)	53.3 (46.0-60.3)	64.5 (60.1-68.7)
It is acceptable for an adolescent girl to use a method of contraception even if her husband/partner doesn't want her to	58.1 (50.4-65.5)	53.2 (49.4-57.0)	48.5 (40.7-56.4)	49.2 (44.1-54.3)

[1]Proportion of respondents who approved. [2]Respondents were read a number of statements related to girls' self-efficacy. They were asked whether or not they agreed with the statements.
[3]Proportions who agreed with the statements.

C, Comparison site, I, Intervention site.

Table 44: **Descriptive results - Proportion of co-habiting adult respondents who reported having discussed about family planning with adolescent girl in 6 months previous to the survey (Estimate, 95% Confidence Interval) by State and by LGA at baseline (2017) and endline (2020)**

				Discussed family planning with the adolescent girl in the 6 months prior to the survey	
				Yes	No
Nasarawa State	**Nasarawa (C)**	**Baseline**	n=92	26.5 (16.9-38.9)	73.5 (61.1-83.1)
		Endline	n=224	35.7 (29.5-42.5)	64.3 (57.5-70.5)
	Toto (C)	**Baseline**	n=74	30.6 (19.2-45.0)	69.4 (55.0-80.8)
		Endline	n=158	32.9 (25.7-41.0)	67.1 (59.0-74.3)
	Doma (I)	**Baseline**	n=74	15.4 (7.8-28.0)	82.7 (68.5-91.3)
		Endline	n=258	34.5 (28.2-41.4)	65.5 (58.6-71.8)
	Karu (I)	**Baseline**	n=86	34.3 (24.2-46.0)	65.7 (54.0-75.8)
		Endline	n=59	44.1 (31.1-57.9)	55.9 (42.1-68.9)
Ogun State	**Shagamu (C)**	**Baseline**	n=161	29.4 (22.4-37.4)	70.0 (61.9-77.0)
		Endline	n=180	50.0 (42.2-57.8)	49.4 (41.8-57.1)
	Ado-Odo/Ota (I)	**Baseline**	n=176	21.3 (15.9-28.0)	78.1 (71.5-83.5)
		Endline	n=207	40.6 (34.2-47.3)	59.4 (52.7-65.8)

C, Comparison site, I, Intervention site.

Table 45: **Descriptive results - Descriptive norms of co-habiting adult respondents surveyed (Estimate, 95% Confidence Interval) by LGA in Nasarawa State at endline (2020)**

Descriptive norms	Comparison sites		Intervention sites	
	Nasarawa (C)	Toto (C)	Doma(I)	Karu (I)
	n=224	n=158	n=258	n=59
How many husbands/partners of girls aged 15–19 years old in your community do you believe discuss using a method of contraception with their wife/partner?	22.3 (16.7-29.2)	21.5 (15.7-28.8)	14.7 (10.0-21.3)	30.5 (19.8-43.8)
How many couples in your community do you believe use contraceptive methods?	27.6 (23.6-31.0)	24.7 (20.4-29.0)	19.7 (15.5-24.0)	51.9 (48.2-55.0)

[1]Respondents were asked about their views regarding married girls aged 15–19 years old. They were asked whether they thought the statement applied to most girls, less than half or none.
[2]Proportions who answered that the statement applied to most girls.

C, Comparison site, I, Intervention site.

Note: Respondents were not asked about descriptive norms at baseline (2017).

Table 46: **Descriptive results - Descriptive norms of co-habiting adult respondents surveyed (Estimate, 95% Confidence Interval) by LGA in Ogun State at endline (2020)**

Descriptive norms	Comparison site	Intervention site
	Shagamu (C)	Ado-odo/Ota (I)
	n=180	n=207
How many husbands/partners of girls aged 15–19 years old in your community do you believe discuss using a method of contraception with their wife/partner?	36.1 (29.1-43.8)	25.1 (19.6-31.7)
How many parents/guardians of girls aged 15–19 years old in your community do you believe discuss using a method of contraception with their daughter?	30.6 (24.0-37.0)	18.4 (13.2-24.0)
How many girls aged 15–19 years old in your community do you believe use contraceptive methods?	45.6 (38.0-53.4)	37.7 (31.4-44.4)
How many girls aged 15–19 years old in your community do you believe use contraceptive methods in secrecy from their husband/partner or family?	44.4 (37.2-51.9)	36.7 (30.1-43.9)

[1]Respondents were asked about their views regarding unmarried (Ogun) girls aged 15–19 years old. They were asked whether they thought the statement applied to most girls, less than half or none.
[2]Proportions who answered that the statement applied to most girls.

C, Comparison site, I, Intervention site.

Note: Respondents were not asked about descriptive norms at baseline (2017).

Trust and credibility of family planning products

Table 47: **Descriptive results - Misconceptions about modern contraception and disadvantages of modern contraceptive methods according to co-habiting adult respondents surveyed (Estimate, 95% Confidence Interval) by LGA in Nasarawa State at baseline (2017) and endline (2020)**

	Comparison sites				Intervention sites			
	Nasarawa (C)		Toto (C)		Doma (I)		Karu (I)	
	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
	n=92	n=224	n=48	n=158	n=49	n=258	n=68	n=59
Misconception about modern contraception, components [1,2]								
Some modern contraception can stop a girl from ever being pregnant again even after she stops using it	56.7 (44.7-68.0)	67.0 (60.7-72.7)	62.5 (49.2-74.2)	65.2 (57.0-72.6)	42.9 (30.0-56.8)	68.6 (61.8-74.7)	60.3 (48.1-71.3)	67.8 (54.8-78.6)
If a modern contraception changes a girl's menstrual bleeding, it's bad for her health and can harm her womb	59.7 (47.5-70.9)	67.0 (59.8-73.4)	72.9 (58.8-83.6)	62.0 (53.2-70.1)	57.1 (42.1-71.0)	69.8 (62.6-76.1)	67.7 (55.0-78.2)	72.9 (59.7-83.0)
Some modern contraceptives can make adolescent girls permanently fat	65.7 (50.8-78.0)	63.0 (56.9-68.7)	56.3 (42.3-69.3)	70.9 (62.8-77.8)	51.0 (36.3-65.6)	79.8 (73.2-85.2)	48.5 (37.0-60.3)	84.8 (73.1-91.9)
Disadvantages of modern contraceptives [3]		n=224		n=158		n=258		n=59
Complications/ side effects	NA	72.3 (65.9-77.9)	NA	78.5 (70.7-84.6)	NA	70.5 (62.9-77.2)	NA	84.8 (73.1-91.9)
Does not work sometimes	NA	22.8 (16.9-30.0)	NA	20.9 (14.6-29.0)	NA	24.0 (18.6-30.5)	NA	30.5 (19.7-43.9)
Uncomfortable to use	NA	6.7 (3.8-11.6)	NA	8.2 (4.8-13.7)	NA	11.2 (7.9-15.7)	NA	15.3 (8.2-26.6)
Causes problems with husband/ partner	NA	7.6 (4.8-11.7)	NA	3.8 (1.8-7.9)	NA	18.2 (13.5-24.2)	NA	13.6 (6.5-26.1)
Against religious beliefs	NA	19.6 (14.3-26.4)	NA	18.4 (12.7-25.8)	NA	15.1 (10.4-21.6)	NA	13.6 (6.0-27.7)
Others [4]	NA	23.7 (17.9-30.5)	NA	20.3 (13.6-29.0)	NA	33.3 (27.6-39.6)	NA	15.3 (8.3-26.3)
None	NA	4.8 (3.4-6.8)	NA	4.2 (2.8-6.2)	NA	3.7 (2.3-6.1)	NA	3.0 (2.1-4.3)
Don't know	NA	10.5 (8.4-13.0)	NA	9.9 (6.8-14.1)	NA	7.9 (5.4-11.4)	NA	2.3 (1.5-3.5)

[1]Respondents were read a number of statements representing common misconceptions about contraception in Nigeria. They were asked whether they agreed or disagreed with the statements. [2]Proportions who agreed with statements. [3]Respondents were asked to mention disadvantages. [4]Include family opposition, embarrassing to buy, causes problems with family members, costly/expensive, against cultural beliefs, embarrassing to use.

C, Comparison site, I, Intervention site.

Table 48: **Descriptive results - Misconceptions about modern contraception and disadvantages of modern contraceptive methods co-habiting adult respondents surveyed (Estimate, 95% Confidence Interval) by LGA in Ogun State at baseline (2017) and endline (2020)**

	Comparison site		Intervention site	
	Shagamu (C)		Ado-Odo/Ota (I)	
	Baseline	Endline	Baseline	Endline
	n=160	n=180	n=169	n=207
Misconception about modern contraception, components [1,2]				
Some modern contraception can stop a girl from ever being pregnant again even after she stops using it	66.3 (58.2-73.5)	67.2 (60.1-73.6)	59.8 (51.9-67.2)	80.2 (75.0-84.5)
If a modern contraception changes a girl's menstrual bleeding, it's bad for her health and can harm her womb	71.3 (63.7-77.8)	74.4 (66.7-80.9)	68.6 (61.2-75.3)	79.2 (72.8-84.4)
Some modern contraceptives can make adolescent girls permanently fat	68.1 (59.9-75.4)	79.4 (72.4-85.0)	63.9 (56.6-70.6)	77.8 (70.6-83.6)
Disadvantages of modern contraceptives [3]		n=180		n=207
Complications/ side effects	NA	81.7 (74.1-87.4)	NA	86 (79.9-90.5)
Does not work sometimes	NA	24.4 (18.5-31.5)	NA	22.2 (16.4-29.3)
Uncomfortable to use	NA	5.6 (2.9-10.5)	NA	6.3 (3.7-10.4)
Causes problems with boyfriend/ partner	NA	3.9 (1.9-7.9)	NA	3.4 (1.5-7.5)
Against religious beliefs	NA	8.9 (5.3-14.5)	NA	6.3 (3.4-11.2)
Embarrassing to buy	NA	4.4 (2.3-8.6)	NA	13 (9-18.6)
Costly/expensive	NA	2.2 (0.8-5.7)	NA	16.9 (10.9-25.2)
Family opposition	NA	3.9 (1.9-7.9)	NA	6.8 (3.4-12.8)
Others [4]	NA	3.5 (2.5-4.9)	NA	6.7 (5-8.9)
None	NA	7.9 (5.9-10.5)	NA	8 (6.2-10.2)
Don't know	NA	10.1 (8.1-12.6)	NA	10.2 (7.8-13.3)

[1]Respondents were read a number of statements representing common misconceptions about contraception in Nigeria. They were asked whether they agreed or disagreed with the statements.
[2]Proportions who agreed with statements. [3]Respondents were asked to mention disadvantages. [4]Include problems with family members, against cultural beliefs, embarrassing to use.

C, Comparison site, I, Intervention site

Front cover image: Taken from Adolescents 360 website

Itad is a global organisation. Our strategy, monitoring, evaluation and learning services work to make international development more effective. We generate evidence on important issues – from malnutrition to migration – to support our partners to make informed decisions and improve lives.

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