A GAME, A PASSPORT, AND A POSTER:

Changing Contraceptive Attitudes, Intentions, and Behaviors Among School Girls in Urban Burkina Faso

(RE)SOLVE PROJECT EVALUATION REPORT | DECEMBER 2020

(re)solve   Pathfinder INTERNATIONAL   CAMBER COLLECTIVE   ICRW INTERNATIONAL CENTER FOR RESEARCH ON WOMEN PASSION. PROOF. POWER.   ideas 42

About (re)solve Project and Partnership

Launched in 2016, (re)solve is a four-year project funded by the Bill & Melinda Gates Foundation. It is led by Pathfinder International in partnership with Camber Collective, the International Center for Research on Women (ICRW), and ideas42. (re)solve is active in Bangladesh, Burkina Faso, and Ethiopia.

(re)solve combines expertise from consumer insights, behavioral design, and public health to discover what stops women from using contraception when they express a desire to avoid pregnancy but do not use a modern contraceptive method.

At (re)solve's heart is the conviction that one size does not fit all. (re)solve designs and customizes data-informed family planning solutions to the needs, motivations, and lived experiences of the women and girls we serve. We believe that women and girls deserve products and services designed for them.

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Acknowledgements

List of Abbreviations

ALM   adaptive learning meeting

CEIRSS   Comite D'Ethique Institutionnelle Pour la Recherche en Sciences de la Sante

DHS   Demographic and Health Surveys

FP   family planning

FP2020   Family Planning 2020

GEE   generalized estimating equations

HIV   human immunodeficiency virus

ICRW   International Center for Research on Women

IDI   in-depth interview

IUD   intrauterine device

KII   key-informant interview

PYY   Project Yam Yankré

SBC   social and behavior change

SRH   sexual and reproductive health

STI   sexually transmitted infection

TOC   theory of change

YFS   youth-friendly services

Executive Summary

Family planning (FP) plays a uniquely powerful role in enabling women and men to achieve their desired family size and build more equitable societies. For many years we have known that investing in FP also makes economic sense: every dollar invested in family planning can generate up to six dollars in savings for governments (USAID, 2006).

And yet in 2020, global planning programs were at risk of a funding gap of more than $320 million in commodities alone (WHO, 2018). More than 200 million women and girls who said they do not want to get pregnant do not use modern contraceptives and more than 100 million pregnancies in low- and middle-income countries were unintended (Sully, et al, 2020). *What more can we do to ensure that women and girls can and will voluntarily use contraceptives when they want to?*

Despite progress in addressing nonuse of contraception through traditional social and behavior change (SBC), these programs are limited by assumptions about what prevents women from using contraception. Mismatches persist between a woman's personal preferences, the barriers she faces, and the interventions designed to help her voluntarily access and use FP correctly and consistently. The (re)solve project was designed to examine these barriers using behavioral science and to design, test, and evaluate products and services that address these barriers.

Launched in 2016, (re)solve is a four-year cross-disciplinary project funded by the Bill & Melinda Gates Foundation and led by Pathfinder International in partnership with Camber Collective, the International Center for Research on Women (ICRW), and ideas42. (re)solve is active in Bangladesh, Burkina Faso, and Ethiopia. The project used data on and insights into women's and girls' barriers to contraceptive use and nonuse to design and test a unique solution set in each country.

In Burkina Faso, where we focused on unmarried girls, this solution set consisted of a participatory board game (*La Chance*) that corrected myths and misconceptions and increased pregnancy-risk perception; a health passport that eased girls' access to health facilities; posters in health facilities that normalized consultations for adolescent girls; and name tags that identified youth-friendly health care providers. We also trained participating health care professionals on how to provide youth-friendly services and oriented them to the solutions and their rationale.

We implemented the (re)solve solutions in 16 randomly selected secondary schools—eight each in Bobo-Dioulasso (Bobo) and Ouagadougou (Ouaga) — in 4ème and 3ème (grades 9 and 10 respectively). In each location, we trained 16 community-based facilitators to play the board games and distribute the passports. A total of 3,120 girls in grades 3ème and 4ème played *La Chance* between December 2019 and March 2020. Facilitators distributed 11,908 passports to girls in this timeframe.

The impact evaluation examined whether the (re)solve package of solutions changed girls' intentions to use contraception as well as other behavioral and attitudinal outcomes. We also evaluated the implementation process to understand how the solutions were carried out and perceived by stakeholders. We used a mixed-method cluster randomized trial (CRT) design. We conducted 2,372 quantitative surveys at baseline and 2,072 at endline (87.4 percent retention rate) with girls; 48 in-depth interviews with girls at baseline and 41 at endline; 35 endline in-depth interviews with implementing staff; and 14 endline key informant interviews with stakeholders.

The results showed the following:

+ The (re)solve solution set was found to be highly acceptable among adolescent girls and other key stakeholders, including health facility staff, game facilitators, and ministers.

+ We found statistically significant differences in contraceptive attitudes and beliefs at endline between intervention- and control-school girls.

+ A sizeable number of intervention-school girls went to a health facility for sexual and reproductive health (SRH) information or reported an intention to visit a health facility.

+ We saw a positive relationship between exposure to the intervention and intention to use contraception in the next three months, although it was not statistically significant.

We believe the solution set holds promise and should be replicated. The solution set improved key attitudes and beliefs and significantly increased the number of intervention-school girls who went to the health facility for SRH information and received satisfactory services. The last outcome cannot be overstated within the broader context of provider bias toward adolescents seeking contraceptives.

The report concludes with recommendations for future iterations, wrap-around services, and additional user groups for the solution set. We outline research questions for future iterations, which will ensure that the intervention, if and when scaled up, is informed by rigorous evaluations and research.

Any scale-up efforts and future evaluations will require close coordination between and oversight from the Ministries of Health and Education to ensure successful integration and implementation. Behavioral solutions like the game, health passport, and poster can complement existing demand-generation interventions and connect youth to youth-friendly health facilities so they can make informed decisions that benefit them. Our integrated behavioral solutions are a humble but important contribution to Burkina Faso's efforts to address adolescent health and wellbeing, enable adolescents to make healthy choices, potentially reduce the adolescent fertility rate among unmarried adolescents, and support policy makers' efforts to reap the demographic dividend by investing in its most valuable asset: youth.

Introduction

Family planning (FP) plays a uniquely powerful role in enabling women and men to achieve their desired family size, contribute to strong economies, and build more equitable societies. Global commitments to Family Planning 2020 (FP2020) and the Sustainable Development Goals recognize that while access to modern contraceptives has improved dramatically in recent decades across remote and marginalized parts of the world, contraceptive uptake and continuation continue to present complex challenges (Deitch & Stark, 2019).

FP implementation organizations and government partners have extensive experience increasing FP access through supply-chain improvements, community- and facility-level service-delivery support, and awareness-raising. Despite progress in addressing nonuse of contraception through traditional social and behavior change (SBC), these programs are limited by assumptions about what prevents women from using contraception. Mismatches persist between a woman's personal preferences, the barriers she faces, and the interventions designed to help her voluntarily access and use FP correctly and consistently.

The urgent need to support women's informed contraceptive choices creates opportunities for innovation in contraceptive service-delivery design and user-responsive services. Data-informed behavior-change approaches, relatively unexplored within the FP sector, can accelerate transformative progress. The (re)solve project is built on the belief that women deserve well-designed products and services that are more responsive to her life now and her hopes for her future.

(RE)SOLVE PROJECT

Launched in 2016, (re)solve is a four-year cross-disciplinary project funded by the Bill & Melinda Gates Foundation and led by Pathfinder International in partnership with Camber Collective, the International Center for Research on Women (ICRW), and ideas42. (re)solve is active in Bangladesh, Burkina Faso, and Ethiopia.

Our unique, cross-disciplinary approach was designed to do the following:

+ Combine expertise from behavioral design, consumer insight, and public health to discover what stops women from forming or following through on the intention to use a modern contraception method when they wish to avoid pregnancy;

+ Challenge assumptions about contraceptive decision-making;

+ Test new approaches based on local, contextualized behavioral insights;

+ Generate adaptable, scalable solutions that address unmet need for FP;

+ Design and customize data-informed FP solutions to the needs, motivations, preferences, and lived experiences of the women and girls we serve.

A common framework and approach were core to the (re)solve project **(FIGURE 1)**. Data and insights on young women's barriers to contraceptive use and nonuse generated from behavioral landscape analysis and behavioral diagnosis informed the design and user testing of unique solution sets in each country. The solution set was then implemented and rigorously evaluated in Burkina Faso.

ADOLESCENT SEXUAL AND REPRODUCTIVE HEALTH IN BURKINA FASO

In Burkina Faso, the modern contraceptive prevalence rate has increased nearly seven-fold in the past two decades, from 4 percent in 1993 (Konaté, Sinaré, & Seroussi, 1994) to 27.3 percent among all women ages 15 to 49 in 2019 (PMA 2020, 2019). Despite this, the total fertility rate during that time was slow to change, decreasing from 6.5 in 1993 to 5.2 in 2017/18 (ICF International, 2012). While overall, women have about the number of children they want (5.5 desired, 6.0 actual in 2010), pockets of unmet demand persist, particularly among young women ages 15 to 24 (Institut National de la Statistique et de la Démographie - INSD/Burkina; ICF International, 2010). This is particularly relevant given that approximately one-third of the population of Burkina Faso is between the ages of 10 and 19 (PMA 2020, 2018). Among women ages 18 to 24, two in five were married, and one in four had given birth, before the age of 18 (PMA 2020, 2019). Among young women ages 15 to 24, 69 percent have had sex, and 38 percent are classified as currently sexually active (within the last four weeks). Despite this, 83 percent of people in this group have never used a modern contraceptive method, and 88 percent are not currently using a method. Young women in Burkina Faso are also less likely compared to older women to use a modern method of contraception (12 percent vs. 16 percent among women ages 25 and older) (Institut National de la Statistique et de la Démographie — INSD/Burkina; ICF International, 2010).

THE (RE)SOLVE FRAMEWORK
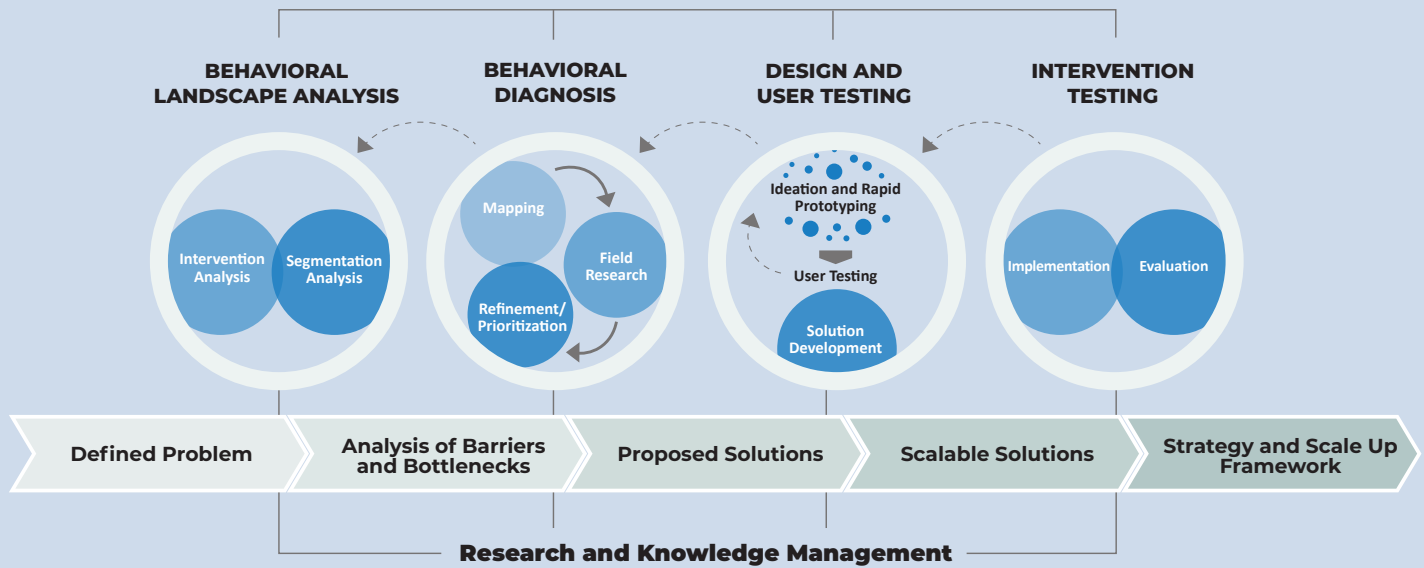
The median age at first contraceptive use for urban women ages 25 to 49 is 22, four years after their first sex at 18.1 and one year after their first marriage at 20.9 (PMA 2020, 2018). Among nonusers of contraceptives who also want to delay their next birth by two or more years, 23.1 percent said they were not using contraceptives because they were not married, and 47.9 percent did not believe themselves to be at risk of pregnancy or in need of contraceptives (PMA 2020, 2019). This gap between the desire to not become pregnant and the perceived necessity of contraceptives contributes to unintended pregnancies, reported at 609,000 in 2019 (FP 2020, 2019).

Almost half of the population in Burkina Faso is under the age of 15 (PMA 2020, 2018). Many of these young people will become sexually active in their teens and, thus, be at risk of or experience an unplanned pregnancy or a sexually transmitted infection (STI), including HIV. To minimize these risks and secure a healthy future for adolescents, policymakers, journalists, service providers, and advocates must have solid evidence regarding the sexual and reproductive health (SRH) needs of Burkinabé youth (Guttmacher Institute, 2004).

Focusing on young women ages 15 to 19 allows (re)solve to address unmet need during the years when young women are making key SRH decisions, including uptake of modern contraceptives. (re)solve also recognizes that adolescent-friendly services are critical to changing behavior and increasing demand for contraceptives among adolescents (Darroch, Woog, Bankole, & Ashford, 2016; WHO, 2012).

Overview of the (re)solve Intervention in Burkina Faso

Through behavioral landscape analysis and behavioral diagnosis, the project team identified behavioral segments[1] through segmentation analysis and prioritized behavioral bottlenecks[2] through behavioral diagnosis respectively.

The combined insights from segmentation analysis and behavioral diagnosis into individual, social, and structural barriers served as primary inputs into the design of solutions. The insights and the solutions themselves informed the identification of the specific subpopulation of unmarried school girls in 4ème and 3ème (grades 9 and 10 respectively) among whom the solutions were user tested (Pathfinder International, 2020). The solutions were also tested with health providers and program implementers. This collective feedback informed the final content, design, and implementation of the solution set.

The solution set comprised three main components:

1. BOARD GAME (played at school): The main activity of this solution set was a board game called *La Chance*. Students played the game in a classroom, facilitated by a trained member of a local community-based organization, in three teams of two during the lunch break or "free classes." After the end of each game, the facilitator led a brief discussion on what the girls learned about pregnancy risk and contraceptive options, summarizing key takeaways and addressing any questions about modern contraceptives. The facilitator concluded by encouraging the girls to talk to a health care provider.

2. HEALTH PASSPORT (received at school): At the end of the game, the facilitator gave girls business card-sized passports that listed health facilities that recognized the passport. The passports signified girls' interest in SRH counseling or services, including contraception. When girls arrived at the health facility, they showed the passport to the first health worker they encountered to receive quick, discreet services. (If the facility was busy, girls were directed to a private area to wait.)

3. POSTER, NAME TAG, AND YOUTH-FRIENDLY SERVICE TRAINING (viewed at health facility): Administrative staff and health providers in participating facilities received a half-day youth-friendly service (YFS) training. Participating health facilities then displayed posters advertising services for girls. Service providers wore name tags so that girls would know they were in the right place and feel assured that they belonged there.

For more details on the rules of the board game and objectives of each solution, see **ANNEX A**.

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[1] A segment is a subgroup of people that share characteristics, such as shared needs, common interests, similar lifestyles, or even comparable demographic profiles within a segment. There is heterogeneity across segments but homogeneity within them.

[2] Behavioral bottlenecks prevent individuals from making decisions or taking action that would otherwise meet their needs (for example, using a contraceptive method to avoid unintended pregnancy).
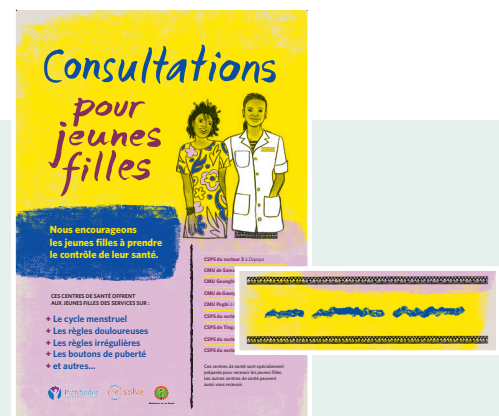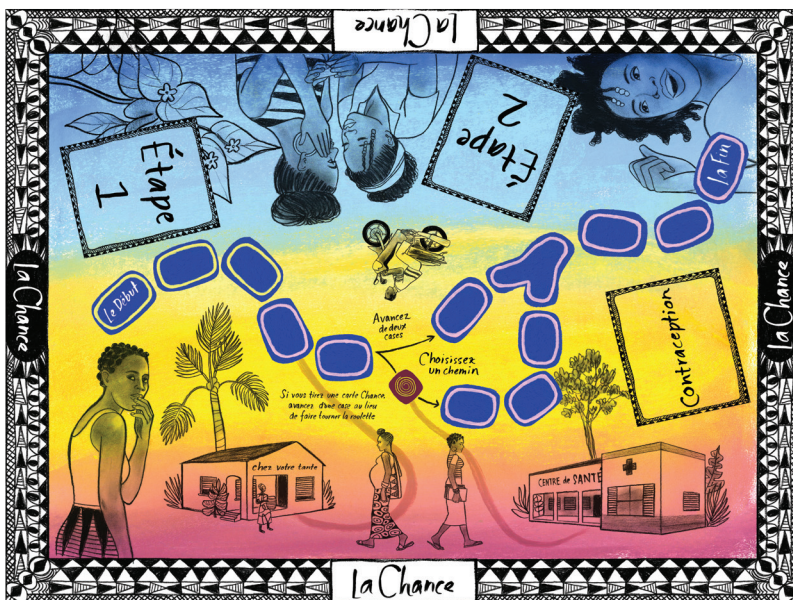
SOLUTION SET COMPONENTS:
La Chance board game with passport, poster, nametag
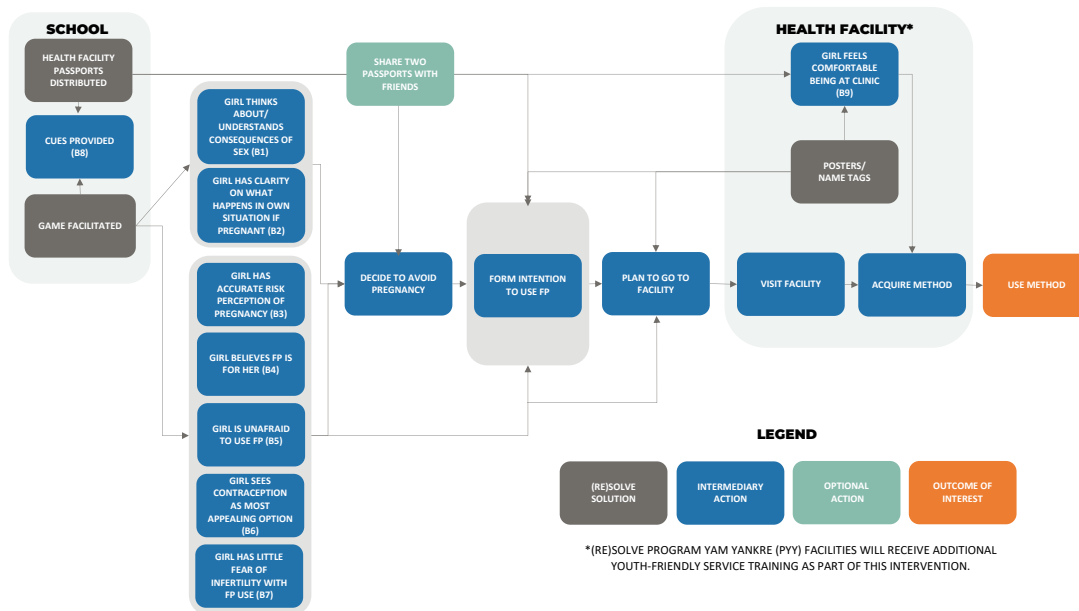
THEORY OF CHANGE

The theory of change **(FIGURES 2 AND ANNEX A1)** visualized how the intervention addressed barriers, enabling a girl to visit her health facility and, ultimately, access a modern contraceptive method if she chose.

Through the interactive board game, girls explored a series of real-life scenarios whose development was informed by the qualitative research. Players engaged in strategic decision making, answered trivia questions, and responded to discussion prompts. The goals of the game were to:

+ Adjust girls' perceptions of their own pregnancy risk;

+ Counter misperceptions about fertility and contraceptives;

+ Increase girls' comfort speaking and asking questions about sensitive topics; and

+ Prompt girls to visit their health facility and provide them with strategies to feel comfortable doing so.

Repeated simulations of risky scenarios helped girls better understand the consequences of sex (B1, B2, B3 in **FIGURE 2** above and **ANNEX A1**)—for example, the risk of pregnancy associated with unprotected sex. Girls started to understand that contraceptives were appropriate for them and their peers (B4) and to gain confidence in their ability to stand up for their decision to use contraceptives or their ability to keep that decision private (B5, B9). The game taught benefits and side effects of different modern contraceptive methods, contrasting them to the pervasive and often-incorrectly-used rhythm method (B6). It also debunked common myths—for example, that specific contraceptives cause infertility (B7). Game play might have

led to a desire to avoid pregnancy, which could motivate a visit to the health facility for information or counseling, and the subsequent uptake of a contraceptive method.

After a girl played the game, she received a passport for quick and discreet health services for herself and two copies to share with friends of her choosing. The passport cued her to follow through on her intention to avoid pregnancy by visiting a health facility for contraceptive information and services (B8) with confidence that she could keep her contraceptive use private (B9). Finally, the act of sharing the health passport with up to two friends served as a moderator (green box) to the intention-formation and follow-through stages, while at the same time providing entry into the intervention for other girls who did not play the game.

When a girl visited a health facility, she might have seen a poster on the wall or noticed that the health workers' name tags matched the visual branding of the passport. The posters listed available non-contraceptive primary health care services for girls, normalizing their presence at the health facility and giving a girl plentiful excuses for being there if anyone recognized her or asked about the purpose of her visit. The health workers' name tags assured girls that they were in the right place and that the health worker would recognize the passport. These tools were intended to make girls feel comfortable at the facility (B9).

Not every girl who visited a facility left with a contraceptive method. A girl might have looped back into another intention-formation phase before she was ready to commit to a method. Eventually, she will visit the facility with a fully formed intention, talk to her provider, get a method, and begin using it.

Implementation of (re)solve Solutions in Burkina Faso

We implemented the (re)solve solutions in 16 randomly selected secondary schools—eight each in Bobo-Dioulasso (Bobo) and Ouagadougou (Ouaga). Regional Health Directorates and secondary-education departments supported the introduction of the solutions in health facilities and schools, respectively.

As part of our launch activities, our project team oriented the principal and parent-teacher association of each school to the solution set. We invited parents of girls from participating schools and grades to a meeting at which we introduced and explained the solutions and addressed questions and concerns.

In each location, we trained 16 community-based facilitators to play the board games and distribute the passports. The facilitators included both men and women who were selected based on a range of criteria, including: French fluency; knowledge of local languages; background or experience working with youth or secondary-school students; and background or experience in a health profession, preferably with prior knowledge of or training in SRH. Each intervention school was assigned two facilitators, each of whom played one to two games per day. Game facilitators provided weekly reports on the number of girls who played the game, number of girls who refused to play the game, and number of passports distributed. Our program team conducted weekly half-day meetings with the facilitators in Bobo and Ouaga to collect real-time information on what was working and where they were struggling. These weekly sessions served as opportunities for active knowledge sharing, problem solving, and peer learning.

Between September and November 2019, we conducted a half-day YFS training for all administrative staff and health care providers at each participating health facility. We also

oriented providers to the project and the rationale behind the solutions before giving them posters and name tags. A total of 18 health facilities near schools—nine in Bobo region and nine in Ouaga region—were included in the intervention. Our program team conducted monthly onsite follow-up visits to participating health facilities to gather information on the number of girls who were coming to the health facilities with passports.

A total of 3,120 girls in grades 3ème and 4ème played *La Chance* between December 2019 and March 2020. Facilitators distributed 11,908 passports to girls in this timeframe. Then in mid-March, schools were closed as a result of COVID-19. Between March and July 2020, we attempted to collect health-service-delivery data through WhatsApp from participating health facilities on the number of girls who were coming to the health facilities with passports.

Every two weeks during implementation, we held a combined Burkina Faso — US program team Adaptive Learning Meeting (ALM) based on monitoring data and facilitator meeting notes shared by the Burkina Faso program team. During the ALMs, the Burkina Faso team reported on what they were hearing from the facilitators and how they were problem solving based on the country context. We discussed and documented what we termed *short-loop*[3] (such as conducting quick refreshers for facilitators on SRH topics selected by them) and *long-loop adaptations*[4] (expanding the game to younger girls and boys) emerging from the feedback and experiences of facilitators and our in-country program team. **ANNEX B** provides details on short-loop adaptations we made as well as recommendations for long-loop adaptations that emerged from girls and facilitators during implementation. We also discussed unintended or unanticipated consequences (see Discussion section).

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[3] Short-loop adaptations are organic or deliberate changes to the intended implementation of the solution and related activities that emerged from or in response to challenges faced by real-world implementation of the program.

[4] Long-loop adaptations are recommendations for changes emerging from or in response to challenges faced by real-world implementation of the program that could not be implemented within the scope and timeline of our intervention, but ought to be considered for future replication of the solutions.

Study Design and Methodology

OVERVIEW OF THE EVALUATION

The aim of this research was to evaluate whether the (re)solve package of solutions changed girls' intentions to use contraception, among other behavioral and attitudinal outcomes. We also aimed to evaluate the implementation process to understand how the solutions were carried out and perceived by stakeholders.

The primary hypothesis of the impact evaluation was that girls in 4ème and 3ème who were exposed to the board game and given a health passport to facilitate follow-up at health center would be more likely to report accurate perceptions about sex and contraception, form intentions that match their risk status—such as intent to use contraception—and seek more information and/or contraceptive services at a health center, compared to similar girls who were not exposed to this solution.

To address our research aims, we used a mixed-method cluster randomized trial (CRT) design. Specifically, we used the following methods:

+ Baseline/midline/endline longitudinal quantitative surveys with a cohort of girls ages 14 to 18 in 4ème and 3ème in intervention schools and baseline/endline longitudinal quantitative surveys with the same population in control schools;

+ Baseline/endline longitudinal in-depth interviews (IDIs) with girls ages 14 to 18 in 4ème and 3ème in intervention schools;

+ Endline qualitative interviews with implementation staff; and

+ Endline key-informant interviews (KIIs) with experts and authorities.

For additional details beyond what is presented in this section on the sampling procedures, methods, analysis, unique ethical considerations, response rates, and analysis of dropouts, see **ANNEX C**.

SAMPLING, RECRUITMENT, CONSENT, AND DATA COLLECTION

QUANTITATIVE SURVEY: We used a multi-stage cluster design where secondary schools were the unit for clustering. In the first stage, the team purposively selected health centers from a list of eligible facilities in both cities. Next, the team randomly selected schools in the catchment areas of these health centers. In the final stage, students were randomly selected for participation in the evaluation. To reach a sample size of 2,400 girls with the quantitative survey, we selected 32 schools total (16 in Bobo and 16 in

Ouaga). We randomly assigned the (re)solve intervention to half of the schools. The other half were comparison schools.

At each intervention school, we invited all girls who were interested in participating in the (re)solve intervention to be part of the study. Once the full list of interested girls was ready, the team randomly sorted the list and then invited the first set of girls to participate in the quantitative survey. First, the team informed girls that they had been chosen for the research. Next, the team got girls' permission to contact parents to get parental consent. Once we had parental consent, the team returned to the girls, obtained assent, and conducted the interview. Baseline interviews were done in person, and endline interviews were done over the phone (due to COVID-19). At endline, we received parental permission to conduct the interview over the phone and for new parents that had not originally consent, we gained their full consent.

IN-DEPTH INTERVIEWS WITH GIRLS: At baseline—once the 4ème and 3ème girls agreed to be part of the program—we randomly selected girls out of all of those who were interested in participating in the research. At endline, when possible, we re-interviewed the same girls who had participated at baseline. In cases where girls could not be reached or declined to participate again, replacement girls were purposively selected by school staff at the school attended by the original girl. At endline, only girls over the age of 18 were selected, to reduce the data-collection burden related to obtaining parental consent for minors and because baseline information suggested that a sufficient proportion of girls in 4ème and 3ème are over 20.

Similar to the quantitative survey procedures, recruitment, consent, assent, and data collection were conducted in person at baseline and over the phone at endline, due to precautions related to COVID-19. Following the selection process, the research team informed girls that they had been chosen to participate and provided information about the study process and procedures, before confirming girls' interest in participating. Girls under the age of 18 who were still interested gave permission to the research team to contact their parents to obtain parental consent, which the research team obtained before returning to the girls for minor assent and to conduct the interview. At endline, we obtained parental permission to conduct the interview over the phone. Girls over the age of 20 provided consent before beginning the interview.

ALL OTHER QUALITATIVE INTERVIEWS: At endline, we purposively identified research and implementation team participants for the qualitative interviews and KIIs. Implementation team participants included game

facilitators and health-facility staff. KII participants included health-facility managers, school principals, parent-association members, Ministry of Education and Health representatives, and local Pathfinder staff. The research and program teams together determined the most suitable participants. Once a list was compiled, the research team called prospective participants to inform them of the study and confirm their willingness to participate. Those who were interested gave consent, and the interview was conducted over the phone.

ANALYSIS

QUANTITATIVE

Our primary analyses were based on the intention-to-treat principle, where all clusters, and individuals within these clusters, were analyzed according to the intervention to which the cluster was randomized.

Our primary outcome of interest was intention to use contraception within the next three months. Secondary outcomes of interest included attitudes and beliefs related to contraception, such as belief that contraception causes infertility.

For the analysis at endline, we first described the cohort recruited at baseline and assessed the data for evidence of imbalance between control and intervention schools in all outcomes of interest. Then we examined sociodemographic characteristics at baseline and endline.

For the main analyses, we used generalized estimating equations (GEE) analysis to examine the impact of the intervention on our primary outcome of interest using the endline data. Specifically, we fitted individual-level unadjusted and adjusted logistic regression models with exchangeable correlation matrix (to allow for correlations between cases within the same cluster) and robust standard errors, as recommended for cluster randomized trials with more than 15 clusters per arm (Hayes & Moulton, 2017).

We first examined the association between key sociodemographic and attitudinal predictors and the primary outcome within the regression framework described above. We then developed four models, all of them adjusted for baseline values of the outcome. In the first model (unadjusted model) we reported the crude estimate of the impact of the intervention on our outcome of interest. For the adjusted analyses, we first fit models adjusted for age (Adjusted Model 1). We then additionally adjusted for predictors that were found to have a statistically significant association with our primary outcome (for example, the effect of COVID-19 on mobility, adjusted Model 2). In the final model, we also adjusted for predictors that were selected a priori based on input from subject-matter experts (i.e. city, grade, and wealth quintile, adjusted Model 3). In sensitivity analyses, we ran our models stratified by reporting ever having had sex, type of school, grade, and whether girls in the intervention schools

visited a health facility. Finally, we looked at the impact of the intervention for girls who intended to go to a facility but did not follow through (i.e. the "near misses") because of reasons such as COVID-19 restrictions or a lack of time.

We examined interaction effects between intervention arm and the variables above, including attitudinal variables. We reported results as odds ratios with 95 percent confidence intervals. A priori alpha level was set at 0.05; all analyses were two-sided.

QUALITATIVE

Following data collection, the research team transcribed and translated recordings of all interviews. Both the English translations and the French transcripts were sent to ICRW, where the research team reviewed them for clarity and quality. The verbatim transcripts were analyzed using NVivo 11, coded by a team of researchers from ICRW and Pathfinder International. The team developed codes based on the objectives of the qualitative research, namely understanding girls' own sexual activity and use of contraception as well as others' perceptions of and attitudes toward these things. Their goal was to test whether and how the (re)solve solutions influenced girls' intentions and follow-up behaviors around family planning. Intercoder reliability was conducted on approximately 15 percent of transcripts for each interview type. Two members of the research team read and coded randomly selected transcripts of each type and then compared for percentage agreement and Kappa coefficient until agreement was deemed sufficient — in most cases, above 95 percent for the majority of coded themes. After all the transcripts were coded, the research team reviewed code reports to identify common themes.

EVALUATION TIMELINE

The (re)solve research team collected baseline data between November 2019 and January 2020, after a seven-day training in Ouaga for the research partners. Then, after a refresher training, the research team collected midline data in person in January and February 2020. The research team collected all endline data, originally scheduled for late March 2020, in July 2020 by phone due to COVID-19. Due to the unusual nature of phone-based interviews at endline, we provided additional training and spent more time piloting the tools before implementing the final round of data collection.

ETHICAL CONSIDERATIONS

The ICRW Institutional Review Board, based in Washington, DC, reviewed and approved all initial and modified versions of this study, as did the Comite D'Ethique Institutionnelle Pour la Recherche en Sciences de la Sante (CEIRSS) in Burkina Faso. All individuals involved in the research completed certifications in ethical training. All participants signed either a consent or an assent form. For girls younger than 20, we obtained parental consent and then girls' assent for participation.

Results

SECTION 1: CHARACTERISTICS OF THE SAMPLES

We conducted 2,372 quantitative surveys at baseline and 2,072 at endline (87.4 percent retention rate) **(TABLE 1)**; 48 IDIs with girls at baseline and 41 at endline; 35 endline IDIs with implementing staff; and 14 endline KIIs with stakeholders.

QUANTITATIVE

At baseline, our quantitative sample was well-balanced on key demographic characteristics **(TABLE 1)**.

TABLE 1. Participant Socio-demographic Characteristics at Baseline

		CONTROL [N=1,200] N (%)	INTERVENTION [N=1,172] N (%)	TOTAL [N=2,372] N (%)
City	Ouagadougou	600 (50.0%)	572 (48.8%)	1,172 (49.4%)
	Bobo-Dioulasso	600 (50.0%)	600 (51.2%)	1,200 (50.6%)
School	Private	900 (75.0%)	872 (74.4%)	1,772 (74.7%)
	Public	300 (25.0%)	300 (25.6%)	600 (25.3%)
Grade**	4ème	587 (48.9%)	505 (43.1%)	1,092 (46.0%)
	3ème	613 (51.1%)	667 (56.9%)	1,280 (54.0%)
Age*	14	206 (17.2%)	247 (21.1%)	453 (19.1%)
	15	279 (23.3%)	281 (24.0%)	560 (23.6%)
	16	269 (22.4%)	275 (23.5%)	544 (22.9%)
	17	232 (19.3%)	197 (16.8%)	429 (18.1%)
	18	214 (17.8%)	172 (14.7%)	386 (16.3%)
Wealth	Lowest	267 (22.3%)	245 (20.9%)	512 (21.6%)
	Middle-low	274 (22.8%)	236 (20.1%)	510 (21.5%)
	Middle	226 (18.8%)	229 (19.5%)	455 (19.2%)
	Middle-high	220 (18.3%)	231 (19.7%)	41 (19.0%)
	Highest	213 (17.8%)	231 (19.7%)	444 (18.7%)

Statistically significant at * p<0.05, **p<0.01, ***p<0.001

Standardized wealth quintiles were created using presence or absence of four household assets variables and validated using principal component analysis.

We also assessed differences between control and intervention-school girls at baseline on SRH-related aspects, such as behaviors, attitudes, and beliefs **(TABLE 2)**.

TABLE 2. **SRH-related Behaviors, Attitudes, Beliefs and Norms at Baseline Between Control and Intervention-school Girls**

	CONTROL [N=1,200] N (%)	INTERVENTION [N=1,172] N (%)	TOTAL [N=2,372] N (%)
% reporting they are currently sexually active	96 (8.0%)	97 (8.3%)	193 (8.1%)
% reporting ever having had sex	165 (13.8%)	169 (14.4%)	334 (14.1%)
% reporting they are currently using contraception	44 (3.4%)	46 (3.9%)	90 (3.8%)
PRIMARY OUTCOME			
Intention to use contraception in next three months	131 (10.9%)	133 (11.4%)	264 (11.1%)
SECONDARY OUTCOMES			
Strongly agree or agree that contraception causes infertility**	989 (85.3%)	920 (81.1%)	1,909 (83.2%)
Strongly agree or agree that contraception is the best option	880 (74.1%)	852 (73.2%)	1,732 (73.6%)
Strongly agree or agree that she has the confidence to both get and use contraception	630 (52.5%)	629 (53.7%)	1,259 (53.1%)
Strongly agree or agree that health care workers do not like to give contraceptive advice to unmarried girls	450 (38.8%)	437 (38.5%)	887 (38.6%)
Strongly agree or agree that unmarried girls should not and do not use contraception (normative beliefs)	402 (33.5%)	386 (32.9%)	788 (33.2%)

Statistically significant at * $p<0.05$, ** $p<0.01$, *** $p<0.001$

Results indicate few differences between control and intervention-school girls on key SRH-related behaviors, attitudes, beliefs, and norms with one exception: there was a slightly higher number of girls in the control arm that agreed that contraception causes infertility than in the intervention arm ($p=0.006$). There was not a statistically significant difference between control and intervention-school girls on the main outcome of interest, intention to use contraception in the next three months.

Additional information about the sample is available in the Annexes, including an analysis of dropouts **(ANNEX D)** and of key differences at baseline between Ouaga and Bobo **(ANNEX E)**.

QUALITATIVE

At baseline, 48 unmarried schoolgirls in 4ème and 3ème, evenly distributed between Bobo and Ouaga, participated in IDIs. When possible, the same girls participated in endline IDIs; however, 17 girls who participated at baseline were unable to be contacted at endline or declined to participate a second time. Therefore, the team replaced them with other girls from the same school who had participated in the game. At endline, the team conducted 41 interviews with girls, with 23 from Bobo and 18 from Ouaga.

At baseline, girls were between the ages of 14 and 18, and at endline, girls ranged in age from 15 to 25. Per exclusion criteria that girls be unmarried, no girls were married, but two were mothers.

At endline, the research team conducted 35 IDIs with implementation staff, including 18 in Bobo and 17 in Ouaga. This group included game facilitators, health workers at targeted centers, and Pathfinder staff. The research team also conducted 14 KIIs with experts and authorities, including six in Bobo and eight in Ouaga.

At endline, the majority of girls who participated in IDIs (29 girls out of 41, or about 70 percent), reported that they currently had boyfriends or romantic partners. Most of these relationships were at least one year long, but relationships ranged from a few weeks to eight years long. However, girls in these relationships were often not

sexually active. Overall, about 66 percent of all girls we interviewed had never had sex, including 15 out of 29 girls currently in relationships, or 52 percent **(TABLE 3)**. Furthermore, many of the 14 girls we interviewed who had ever had sex reported that they were not currently sexually active. As one 20-year-old girl in Ouaga in 3ème put it, "I can't say I'm really sexually active because I've only done it once."

TABLE 3. **Relationships and Sexual Activity of Participants in IDIs**

	BOBO - DIOULASSO	OUAGADOUGOU	TOTAL
NOT IN A RELATIONSHIP	**6**	**6**	**12**
Never had sex	6	6	12
Ever had sex	0	0	0
IN A RELATIONSHIP FOR LESS THAN ONE YEAR	**3**	**4**	**7**
Never had sex	2	3	5
Ever had sex	1	1	2
IN A RELATIONSHIP FOR MORE THAN ONE YEAR	**14**	**8**	**22**
Never had sex	8	2	10
Ever had sex	6	6	12
TOTAL	**23**	**18**	**41**

The Impact of COVID-19

We assessed the impact of COVID-19 on our sample to understand if it differentially impacted our control and intervention-school girls **(TABLE C1)**.

TABLE C1. Comparison of Impacts of COVID-19 on Control and Intervention-school Girls

		CONTROL	INTERVENTION	TOTAL
How much COVID-19 has affected daily life	A lot	638 (60.7%)	592 (58.3%)	1,230 (59.5%)
	Somewhat	141 (13.4%)	130 (12.8%)	271 (13.1%)
	A little	159 (15.1%)	185 (18.2%)	344 (16.6%)
	Not at all	114 (10.8%)	10 (10.7%)	223 (10.8%)
How much anxiety is felt on a daily basis because of COVID-19	A lot	626 (59.5%)	592 (58.2%)	1,218 (58.8%)
	Somewhat	110 (10.5%)	108 (10.6%)	218 (10.5%)
	A little	256 (24.3%)	259 (25.4%)	515 (24.9%)
	Not at all	61 (5.8%)	59 (5.8%)	120 (5.8%)
How often could leave home to see friends/others during COVID-19	A lot	134 (12.7%)	125 (12.3%)	259 (12.5%)
	Somewhat	277 (26.3%)	267 (26.2%)	544 (26.3%)
	A little	299 (28.4%)	265 (26.0%)	564 (27.2%)
	Not at all	344 (32.6%)	361 (35.5%)	705 (34.0%)

Statistically significant at * p<0.05, **p<0.01, ***p<0.001

The COVID-19 pandemic had some impact on girls, according to their responses at endline. Exactly 1,230 (59.5%) said that in addition to disruptions to school, COVID-19 had had a big impact on their daily lives. Nearly 60 percent of the sample (N=1,218, 58.8%) said that they had a lot more anxiety daily with COVID-19. Fewer girls—only 12.5 percent (N=259)—said that the pandemic had a lot of impact on their ability to go out and see friends. There were no statistically significant differences in these experiences between control and intervention arms.

In IDIs, girls focused on the impacts of COVID-19 on their education and the closure of schools, particularly with the upcoming exam period. Some also mentioned the closure of businesses and markets and the related economic impacts on their families. Many implementers and KII participants, however, described a greater impact on adolescent girls' sexual activity, with about two-thirds of the adult qualitative participants suggesting that the lockdown and curfew policies related to the pandemic prevented girls from meeting their sexual partners and reduced their ability to go out without their parents' knowledge. Most girls did not report such a change, because the majority of participants were not having sex before the pandemic began, although one formerly sexually active 23-year-old girl in Bobo in 3ème did say, "Currently, because of COVID, [my boyfriend and I] are keeping our distance [i.e. not having sex]."

Similarly, the majority of adults and a small subset of girls who participated in qualitative research believed that the pandemic impacted girls' ability to visit health centers and obtain contraceptive methods, both because the lockdowns restricted their movement and because other policies that were implemented in response to the pandemic, like mask requirements, affected girls' behavior. One health worker in Bobo said the pandemic "has paralyzed everyone…. There was no class, and when there is no class, generally the students stay at home. It has made it so that we didn't receive [girls with] a passport." For the most part, girls did not express this. As an 18-year-old girl in Bobo 4ème said, "As I was not used to going to those places [health centers], I cannot, therefore, say that it is due to the coronavirus [that] I didn't go." A 16-year-old girl in Ouaga in 4ème also said, "No, [the pandemic] has not changed my capacity to visit the health center for contraception or menstruation, because if we desire to go there, we can protect ourselves by wearing masks [and] respecting barrier measures." Some girls, though, did report an impact. One sexually active 20-year-old girl in 3ème in Ouaga who had been using contraception reported, "Due to the pandemic, I did not go to the health center to take a contraceptive measure, so there is a big chance that I will become pregnant because I don't protect myself."

SECTION 2: EXPERIENCE WITH THE (RE)SOLVE INTERVENTION AT ENDLINE

UPTAKE OF (RE)SOLVE INTERVENTION AMONG QUANTITATIVE PARTICIPANTS

Of girls participating in the (re)solve research and programming—henceforth termed intervention-school girls (N=1,013)—96.2 percent (N=974) reported ever playing the game, and 96.7 percent (N=950) received a passport. The majority received either two (97.2%, N=803) or more than two (14.1%, N=143) passports to give to other girls, as was intended. The majority of girls (41.9%) reported giving at least one passport to a peer at a different school, followed by an older family member (29.9%) **(FIGURE 3)**.

FIGURE 3. **To whom intervention-school girls gave their passports at endline (N=1,018)**
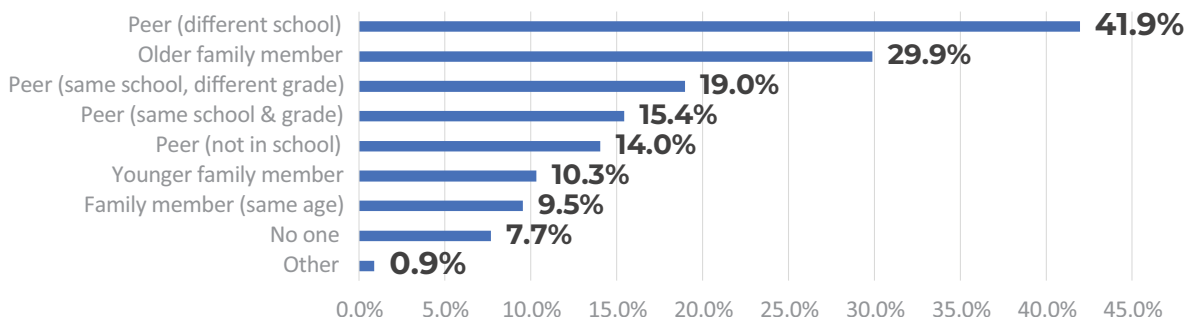
*Note: Multiple responses were allowed.

Ninety-one percent (N=923) saw the posters in school. At endline, 28.7 percent (N=291) of intervention-school girls had ever gone to a health facility *for information or services related to puberty or menstruation*, and 20.1 percent (N=204) had ever done so for contraceptive information or services.

Of the 204 girls who had *ever gone* to a health facility *for contraceptive information or services*, 194 girls (of 1,013, 19.2 percent of total) reported having gone to a health facility *in the last seven months* (during (re)solve implementation) for contraceptive information or services: 14.5 percent in Ouaga (N=75) and 23.9 percent in Bobo (N=119) **(TABLE 4)**.

TABLE 4. **Experience of Girls at (re)solve Health Facilities**

		TOTAL N (%)
Saw posters at health center (N=194)		178 (91.8%)
Method received at health center, as reported by girls (N=194)	Modern method[a]	36 (18.6%)
	Condoms[b]	13 (6.7%)
	Abstinence	58 (29.9%)
	Other methods or preferred not to respond[c]	87 (44.8%)
Reasons for not visiting health center for contraception information or services (among the N=809 girls who did not go)	Not sexually active	331 (40.9%)
	Already using a method	15 (1.9%)
	Not interested	66 (8.2%)
	Intended to but busy with school	210 (26.0%)
	Intended to, but COVID-19	89 (11.0%)
	Intended to but (other reasons)[d]	66 (8.2%)
	Other, don't know, or prefer not to respond	32 (4.0%)

[a] Modern methods include all hormonal methods and emergency contraception.

[b] Condoms include male and female condoms.

[c] Other methods include 67 girls reporting "prefer not to answer."

[d] Other reasons include lack of means, transport, and support.

UPTAKE OF (RE)SOLVE INTERVENTION AMONG QUALITATIVE PARTICIPANTS AT ENDLINE

The (re)solve project was well-received by participants in the qualitative sample. Most girls reported enjoying playing the game, learning through play, and interacting with facilitators. A 16-year-old girl in 4ème in Ouaga shared, "What I liked about this game was the way the facilitators were available to us; they were courteous, they listened to us, and they gave us good advice. They showed us what path to take to avoid pregnancy." Participants even requested to play the game again.

In the IDIs, many facilitators noted high engagement by the girls during game play and noted that they personally enjoyed the opportunity to act as mentors. One facilitator in Bobo said, "I was able to build good relationships with the girls. I also liked the organization and collaboration with the other [facilitators]."

Several facilitators recommended expanding the intervention to other grades, to boys, and to multiple game-play sessions. A facilitator in Ouaga noted, "What could have been done differently, in my opinion, is to extend the game…to an age group lower than the one we have targeted, for example [5ème (8th grade)], because there is an age group at this level that is already experimenting [sexually]." Another facilitator from Bobo recommended, "Consider the boys, because they want to play. It will be really good for them to have the same information as girls."

SECTION 3: CONTRACEPTIVE ATTITUDES, NORMS, AND BELIEFS

In the next two sections we explore secular trends and differences between control and intervention arms. Our main analyses, in Section 5, examine the impact of the intervention on intention to use contraception in next three months using unadjusted and adjusted models within a GEE framework, as described in the methods.

We assessed changes in key attitudes, beliefs, and norms variables that related to our theory of change along the pathway from the intervention to our main outcome: intention to use family planning in the next three months. **TABLE 5** shows the frequencies of these variables at baseline and endline, and the absolute change over time between control and intervention-school girls in the quantitative sample.

TABLE 5. **Frequencies of Contraceptive Attitudes, Norms, and Beliefs over Time Among Control and Intervention-school Girls**

	CONTROL			INTERVENTION		
	BASELINE CONTROL (N=1,054)	ENDLINE CONTROL (N=1,054)	ABSOLUTE CHANGE OVER TIME	BASELINE INTERVENTION (N=1,018)	ENDLINE INTERVENTION (N=1,018)	ABSOLUTE CHANGE OVER TIME
Strongly agree or agree that contraception causes infertility	871 (82.6%)	886 (84.1%)	1.5%	807 (79.3%)	785 (77.1%)	-2.2%
Strongly agree or agree that contraception is the best option	765 (72.6%)	806 (76.5%)	3.9%	735 (72.2%)	851 (83.6%)	11.4%
Strongly agree or agree that she has the confidence to both get and use contraception	562 (53.3%)	664 (63.0%)	9.7%	559 (54.9%)	759 (74.6%)	19.7%
Strongly agree or agree that health care workers do not like to give contraceptive advice to unmarried girls	403 (38.2%)	381 (36.2%)	-2.0%	389 (38.2%)	276 (27.1%)	-11.1%
Strongly agree or agree that unmarried girls should not and do not use contraception (normative beliefs)	354 (33.6%)	299 (28.4%)	-5.2%	327 (32.1%)	180 (17.7%)	-14.4%

We consistently found that girls in the intervention schools shifted their contraceptive attitudes and beliefs in desired ways, more than control-school girls. For example, there was an absolute shift between baseline and endline of 19.7 in the percentage of intervention-school girls reporting that they had the confidence to get and use contraception, as compared to a shift of only 9.7 among control-school girls.

INSIGHTS FROM QUALITATIVE PARTICIPANTS

Qualitative results suggest that the solutions challenged girls' misconceptions and taught them how and where to obtain medically accurate information. Facilitators remarked that girls were motivated to learn and ask questions about contraception, menstruation, and sexual health. The game sparked curiosity and encouraged girls to seek more information, in some cases to the extent of visiting a health center. "I think the girls are starting to understand. They buy into it," said a health worker in Bobo. "Especially those who have enough information about contraception, they do not hesitate to take up a method." A 19-year-old girl in Ouaga in 3ème reported, "I thought that [contraception] was not a good thing and that what people were saying about it was not true. I thought contraceptives weren't safe to avoid getting pregnant. But after the game, that changed."

Compared to findings at baseline, fewer girls at endline reported strong negative attitudes toward contraception in general in the qualitative interviews. Even though some girls did not feel they wanted to use contraception, often because they did not feel it was relevant for them at the time, there was less focus than at baseline on the idea that contraceptives are inherently "bad" or only for girls with multiple sexual partners. One 19-year-old respondent in 3ème in Ouaga reflected, "Contraception! It's for all girls. It's a choice. If you want, you can... use it, and if you don't want [to], you leave it. Otherwise it's for every girl.... It depends on what you want."

Similarly, while some adults and girls expressed a preference for abstinence among adolescents, they have adopted a sense that contraception could be an acceptable second choice. Girls themselves continued to say that they wanted to wait until they are older or are married to have sex. However, many agreed that if girls must have sex, they should protect themselves to avoid pregnancy — and therefore stay in school — and STIs. One 19-year-old 3ème girl in Ouaga said that the game taught her that "birth control methods are good, but abstinence is better. But," she reflected, "abstinence is hard to practice." Many IDI participants believed that parents would support contraceptive use among their daughters or other girls, especially if the alternative was an unwanted pregnancy and/or an unsafe abortion. "Nowadays adults have understood [about contraception]," said a health worker in Ouaga. "Better to adopt contraception than to have an unwanted pregnancy and have an abortion at the risk of losing her life."

However, misinformation and fear—especially of a link between contraception, particularly implants, and permanent infertility—were still commonly reported by intervention-school girls. A 17-year-old girl in 4ème in Ouaga shared, "I am afraid...of using contraception, because [if I use it,] later on I will have no more children." These fears remain a significant barrier to contraceptive use, and many girls who say they will never use contraception cite fear of negative side effects as the primary driver of this decision. Several girls also believed that their parents or other adults would disapprove of girls using contraception. While adults themselves did not express this as strongly, girls' perception of society's feelings about contraception affects their use of it, including driving them to use it discreetly, as discussed below.

SECTION 4: CONTRACEPTIVE INTENTION AND BEHAVIORS

We also assessed changes in contraceptive behaviors over time, including our main outcome of interest **(FIGURE 4**) and contraceptive use (**FIGURE 5**), among girls answering these quantitative questions at baseline and endline.

FIGURE 4. **Intention to Use Contraception in Next Three Months Among Girls Not Currently Using Contraception: Baseline to Endline Trends Between Control and Intervention-school Girls (N=1,807)**
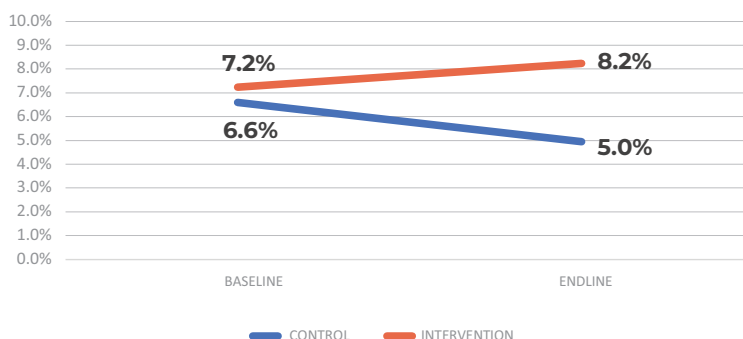
FIGURE 5. **Trends in Contraceptive Use Between Baseline and Endline, Between Control and Intervention-school Girls (N=2,072)**
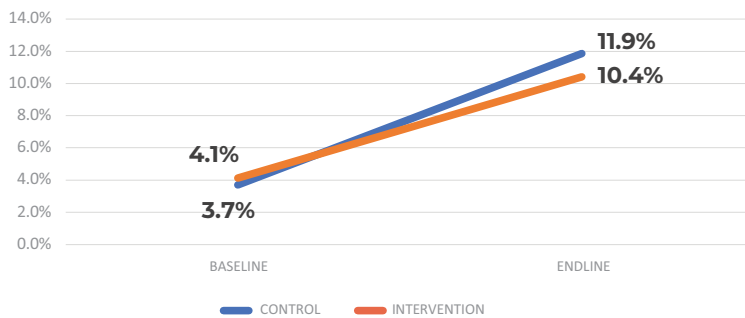
Compared to girls in the control group, there was a higher percentage of girls in the intervention-school group with an intention to use contraception in the next three months at endline (8.2 percent versus 5.0 percent). However, at endline, there were slightly more girls reporting current contraceptive use in control schools (11.9 percent, as compared to 10.4 percent in intervention schools).

Among qualitative participants, many girls expressed an intention to use family planning in the future—when they are older or married or have finished school. Two girls cited age 18 as when they would begin to use contraception. One 17-year-old girl in 3ème in Ouaga, not currently in a sexual or romantic relationship, had no immediate intention to use contraception, "Because I really want to focus on studying." A 16-year-old girl in Bobo in 3ème shared, "[I will use contraception in the future], because at some point I will have sex, and I will have to protect myself to avoid unwanted pregnancies." While not necessarily opposed to the idea of adolescent girls using contraception, girls were fairly dismissive of the idea. When asked if she saw herself using a contraceptive method at any time, one 15-year-old girl in 4ème in Ouaga responded, "No, not really.... because I don't intend to be in a relationship." Others spoke vaguely of plans to use contraceptives in the future, after marriage, including to space births.

While most girls participating in IDIs reported that they themselves had never used a method of contraception — primarily because they were not sexually active — participants largely said that some or many adolescent girls do use a method. However, because stigma against adolescent contraceptive use remains high, many girls who are sexually active and do use contraception do so without their parents' knowledge. Some maintain secrecy about contraceptive use even from their sexual partner. The desire for discreet use of contraception drives girls' method choice and affects their experience at health facilities. IDI participants described girls choosing methods of contraception, such as implants and injectables, which are more easily kept private, over pills, for instance, which parents could easily discover. Said one facilitator in Bobo, "You may one day be taking your pills, and the parents will surprise you; you will have to explain what it is and [because] parents are against these methods it will really heat up for [you]." By comparison, another facilitator in Bobo said, "The injectable doesn't [leave a mark]; you go to the hospital, we [give you] the injection, and it is finished."

Girls also desire anonymity at facilities, and many participants spoke of fear of being seen and recognized at a facility, which they saw as a major barrier to girls' access to contraception and reproductive health care more broadly. Several adult participants — both implementers and stakeholders — remarked that girls avoid health facilities because of their concern that someone will see them and find out or deduce that they are sexually active. As one facilitator in Bobo said, girls do not "feel comfortable going to a health center for a contraceptive method.... If, for example, one of their neighbors sees them getting information on contraceptive methods, she will tell the girl's parents that she saw their daughter in a health center and even [explain]... what their daughter had gone to look for there. This represents a real block for these girls to go to the health center." These individuals suggested that facilities with a private entrance or waiting area for adolescent girls would mitigate these fears and encourage more girls to visit.

FIGURE 6 shows the percentage of girls who reported ever visiting a health center for SRH information or services, among intervention-school girls only.

FIGURE 6. Percentage of Intervention-school Girls Who Have Ever Visited a Health Facility for SRH Information or Services (N=999)
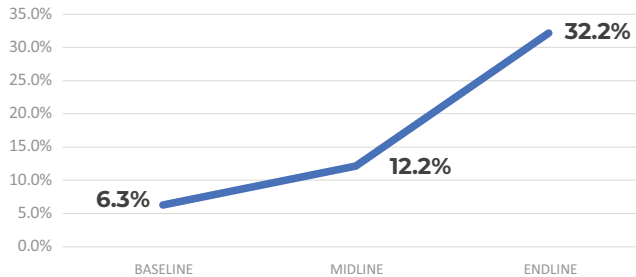
There was a huge uptick in girls reporting they had visited a health facility for SRH information or services, from only 6.2 percent of intervention-school girls at baseline to 32.1 percent at endline. At baseline, 6.4 percent (N=77) of control-school girls had ever visited a facility (not shown), and there were not statistically significant differences between girls in intervention versus control schools on this indicator. We did not have data available on this indicator for control-school girls at endline.

Results from the qualitative interviews suggest that girls who visited a health center in either Bobo or Ouaga had overwhelmingly positive experiences. Almost universally, girls who participated in IDIs shared that they were seen by a provider quickly and without harassment or embarrassment. As one 16-year-old girl in Bobo in 3ème told an interviewer, "The agents [at the health center] welcomed me as soon as I presented the passport to them, they gave me a place....I was comfortable, because all the questions were confidential. I felt satisfied."

Girls' reasons for visiting the health center were primarily to get information and ask questions — about menstruation and puberty and about family planning and contraceptive methods — rather than to obtain a method. Some were seeking care related to painful menstruation, including one 19-year-old girl in Ouaga in 3ème who said, "I wanted to know [why] when I am in my menstrual cycle it gives me pain and he [the provider] answered all my questions well."

Some girls went to the health center to learn more about a specific method or discuss options available to them, but few were interested or ready to take up a method. Some girls visited the health center with specific questions in mind, or to confirm things they had heard — most commonly that implants and other methods cause infertility — while others were generally curious about what the health facility could offer them. According to a 21-year-old girl in Bobo in 3ème, "As I had doubts about the implants, I went to a health center and it was explained to me." Similarly, a 16-year-old girl in Ouaga in 4ème said she went to the center because "I wanted to find out if what we have been told at school is the same [as] what I would hear at the health center," and a 19-year-old girl in Ouaga in 3ème said, "We went to find out more about what the game had already told us."

SECTION 5: IMPACT OF THE (RE)SOLVE INTERVENTION ON GIRLS' INTENTION TO USE CONTRACEPTION IN THE NEXT THREE MONTHS

Our analysis of association between individual predictors and our primary outcome of interest, intention to use contraception in the next three months, revealed that only a small number of sociodemographic variables were associated with intention, while most of the beliefs and attitudes toward contraception use were significantly associated with intention to use in the next three months. See **ANNEX F** for a full description of this analysis.

The results of our main analyses looking at the impact of (re)solve on intention to use contraception in the next three months are presented in **TABLE 6**, stratified among girls who reported ever being sexually active and girls who reported never having sex. The intervention had a positive impact on intention to use contraception but did not reach statistical significance in any of the adjusted models, or when stratifying the analysis by sexual activity. Across the whole population, girls who received the (re)solve intervention had higher odds of reporting

intention to use contraception in the next three months compared to girls not receiving the intervention (aOR=1.59, 95% CI 0.97-2.61). We observed similar trends for girls who reported ever having sex (aOR=1.43, 95% CI 0.79-2.59). Girls in the intervention schools who reported never having sex were almost twice likely to report an intention to use contraception in the next three months compared to girls in the control schools (aOR=1.80, 95% CI 0.95-3.42). We found no evidence of interaction between arm and having ever been sexually active on having an intention to use contraception in the next three months (p for interaction = 0.685), **(ANNEX G)**. Please refer to **ANNEX H** to see the complete table of results across the different models and stratifications (including coefficients from the adjusted variables).

TABLE 6. **Impact of (re)solve on Intention to Use Contraception in the Next Three Months Among All Girls, Girls Who Have Ever Had Sex, and Girls Who Have Never Had Sex**

	UNADJUSTED MODEL	ADJUSTED MODEL 1	ADJUSTED MODEL 2	ADJUSTED MODEL 3
	OR/95% CI	OR/95% CI	OR/95% CI	OR/95% CI
ALL GIRLS (N=2,072)				
Control	1.00	1.00	1.00	1.00
Intervention	1.23 (0.76-1.97)	1.20 (0.69-2.08)	1.47 (0.92-2.34)	1.59 (0.97-2.61)
EVER SEXUALLY ACTIVE GIRLS ONLY (N=391)				
Control	1.00	1.00	1.00	1.00
Intervention	1.32 (0.75-2.33)	1.27 (0.71-2.25)	1.38 (0.83-2.31)	1.43 (0.79-2.59)
GIRLS THAT HAD NEVER HAD SEX (N=1,681)				
Control	1.00	1.00	1.00	1.00
Intervention	1.72 (0.88-3.38)	1.78 (0.90-3.53)	1.83 (0.92-3.65)	1.80 (0.95-3.42)

All models are adjusted for intention to use contraception at baseline and clustering of girls with robust standard errors. Model 1 adjusted for age. Model 2 adjusted for age, COVID-19 effect on mobility and currently doing something to avoid a pregnancy. Model 3 adjusted for age, COVID-19 effect on mobility, currently doing something to avoid a pregnancy, city, grade, and wealth quintile. Wald test for all models (unadjusted and adjusted) had a p value <0.05.

We subsequently ran our stratified analysis by type of school and grade **(TABLE 7)**. The results for type of school should be interpreted with caution, as we have a smaller number of clusters included in this stratified analysis. Specifically, we have 12 clusters per arm for private schools and four clusters per arm for public schools, which is smaller than the 15 clusters per arm that is recommended when undertaking individual-level analyses with GEE using CRT data. Our analysis indicates that private-school girls in the intervention schools were more than twice as likely to have an intention to use contraception in the next three months compared to private-school control schools (aOR=2.43, 95% CI 1.62-3.63). The results for public schools were not significant [aOR=0.48 (0.20-1.15)]. We looked at the interaction between type of school and arm on intention to use contraception using all the data from the 32 clusters and found a significant interaction (p<0.001, **ANNEX I**). This indicates that the impact of the (re)solve intervention on intention to use contraception in the next three months is different in public schools from in private schools. The complete presentation of these models and analyses can be found in **ANNEX J**.

TABLE 7. Impact of (re)solve on Intention to Use Contraception in the Next Three Months Among Girls in Private and Public Schools

	UNADJUSTED MODEL OR/95% CI	ADJUSTED MODEL 1 OR/95% CI	ADJUSTED MODEL 2 OR/95% CI	ADJUSTED MODEL 3 OR/95% CI
PRIVATE SCHOOLS (N=1,528)*				
Control	1.00	1.00	1.00	1.00
Intervention	1.79 (1.07-3.00)	1.88 (1.08-3.27)	2.13 (1.36-3.35)	2.43 (1.62-3.63)
PUBLIC SCHOOLS (N=544)**				
Control	1.00	1.00	1.00	1.00
Intervention	0.41 (0.20-0.83)	0.38 (0.16-0.87)	0.48 (0.20-1.16)	0.49 (0.20-1.17)

*Twelve clusters per arm**Four clusters per arm

All models are adjusted for intention to use contraception at baseline and clustering of girls with robust standard errors. Model 1 adjusted for age. Model 2 adjusted for age, COVID-19 effect on mobility, and currently doing something to avoid a pregnancy. Model 3 adjusted for age, COVID-19 effect on mobility, currently doing something to avoid a pregnancy, city, grade, and wealth quintile.

When we stratified the analysis by grade **(TABLE 8)**, we found that girls in grade 3ème in the intervention schools were significantly more likely to report having an intention to use contraception in the next three months compared to girls of similar grade in the control schools (aOR=1.61, 95% CI 1.01-2.57). The results for grade 4ème were not significant, and we found no interaction between grade and arm on having an intention to use contraception **(ANNEX K)**. The complete presentation of these models and analyses can be found in **ANNEX L**.

TABLE 8. Impact of (re)solve on Intention to Use Contraception in the Next Three Months Among Girls in 3ème and 4ème Grade

	UNADJUSTED MODEL OR/95% CI	ADJUSTED MODEL 1 OR/95% CI	ADJUSTED MODEL 2 OR/95% CI	ADJUSTED MODEL 3 OR/95% CI
3ÈME (N=1,124)				
Control	1.00	1.00	1.00	1.00
Intervention	1.34 (0.77-2.31)	1.41 (0.77-2.58)	1.58 (0.97-2.55)	1.61 (1.01-2.57)
4ÈME (N=948)				
Control	1.00	1.00	1.00	1.00
Intervention	1.21 (0.65-2.24)	1.25 (0.64-2.45)	1.77 (0.89-3.51)	1.85 (0.90-3.78)

All models are adjusted for intention to use contraception at baseline and clustering of girls with robust standard errors. Model 1 adjusted for age. Model 2 adjusted for age, COVID-19 effect on mobility, and currently doing something to avoid a pregnancy. Model 3 adjusted for age, COVID-19 effect on mobility, currently doing something to avoid a pregnancy, city, and wealth quintile.

We also examined whether the impact of (re)solve was different among girls who went to a health facility and among girls who reported that they intended to go to a facility but had not yet been able to do so (i.e. "near misses") **(TABLE 9)**. When we restricted the sample among girls who went to a health facility in the intervention group, we found that girls in the intervention schools were almost twice as likely to express an intention to use contraception in the next three months compared to all girls in the control schools (aOR=2.02, 95% CI 1.08-3.77). We did not find any significant impact of (re)solve on intention to use contraception among girls in the intervention group who did not go to a health facility and among girls classified as "near misses." The complete presentation of these models and analyses can be found in **ANNEX M**.

TABLE 9. **Impact of (re)solve on Intention to Use Contraception in the Next Three Months Among Girls Who Did or Did Not Visit a Health Center**

	UNADJUSTED MODEL OR/95% CI	ADJUSTED MODEL 1 OR/95% CI	ADJUSTED MODEL 2 OR/95% CI	ADJUSTED MODEL 3 OR/95% CI
GIRLS WHO WENT TO A HEALTH FACILITY IN THE INTERVENTION GROUPˆ (N=1,379)				
Control	1.00	1.00	1.00	1.00
Intervention	1.90 (1.12-3.21)	1.75 (0.98-3.10)	1.91 (1.08-3.37)	2.02 (1.08-3.77)
GIRLS WHO DID NOT GOT TO A HEALTH FACILITY IN THE INTERVENTION GROUPˆ (N=1,747)				
Control	1.00	1.00	1.00	1.00
Intervention	0.91 (0.54-1.55)	0.89 (0.48-1.62)	1.17 (0.73-1.90)	1.30 (0.79-2.14)
GIRLS WHO WERE CLASSIFIED AS "NEAR MISSES"* IN THE INTERVENTION GROUPˆ (N=1,419)				
Control	1.00	1.00	1.00	1.00
Intervention	1.23 (0.73-2.07)	1.20 (0.67-2.16)	1.45 (0.88-2.40)	1.52 (0.92-2.51)

All models are adjusted for intention to use contraception at baseline and clustering of girls with robust standard errors.

*Girls who had an intention to go to health center (but did not follow through because of COVID, time constraints, lack of support).

ˆOne cluster had no events and was dropped from analysis. Model 1 adjusted for age. Model 2 adjusted for age, COVID-19 effect on mobility, and currently doing something to avoid a pregnancy. Model 3 adjusted for age, COVID-19 effect on mobility, currently doing something to avoid a pregnancy, city, grade, and wealth quintile.

Finally, we looked at whether the impact of (re)solve on intention to use contraception differs by responses to attitudes, beliefs, and norms. We only found that intention to use contraception in the next three months differs significantly between girls in the control and intervention schools who said they felt confident to use contraception secretly (or who agreed or disagreed with the statement at they felt confident to use contraception secretly) (p=0.024, found in **ANNEX N** with other interaction term results).

Attitudinal Trends Among Intervention-School Girls

To understand the short-term impacts of the intervention, we assessed how attitudes changed at midline (within a week of game playing) and compared that to responses at endline. We found that for all except two of the statements — the confidence to get/use contraception, and norms related to unmarried girls' use of contraception — there was an uptick in reporting right after playing the game, followed by a small attenuation. Most notable was the decrease in the percentage of girls failing to report a belief that contraception causes infertility, which went from 20.6 percent at baseline, up to 38.9 percent at midline, and back down to 23.1 percent at endline. This might indicate that the game had a booster effect directly afterward but one that was not necessarily sustained over time.

FIGURE C1: **Trends in agreement with statements related to contraceptive attitudes, beliefs and norms between baseline, midline, and endline (intervention-school girls, N=999)**

Legend:
- CONTRACEPTION DOES NOT CAUSE INFERTILITY
- CONTRACEPTION IS THE BEST OPTION
- CONFIDENCE TO GET/USE CONTRACEPTION
- PROVIDERS NOT BIASED AGAINST UNMARRIED GIRLS
- UNMARRIED GIRLS CAN AND SHOULD USE CONTRACEPTION

Discussion

The (re)solve intervention showed promise for supporting adolescent girls to use contraception and potentially avoid pregnancies in two large cities in Burkina Faso. Overall, girls and other research participants reported high levels of satisfaction with the game and positive experiences at the (re)solve health facilities. Girls enjoyed playing the game, asking questions, and learning through gameplay and facilitated dialogue. Participants gave their extra passports to friends who attended the same school, friends who attended different schools, girls who were out of school, and various family members. This suggests that the girls felt that the intervention was valuable and wanted to facilitate access to SRH information and services among their friends and family as well.

We saw an increase in intervention-school girls' intention to use contraception in the near future—our primary outcome for the evaluation—compared to control-school girls, although the relationship was not statistically significant. We noted improvements over time in other key outcomes, such as attitudes about contraception and

beliefs about girls who use contraception among intervention-school girls, as compared to control-school girls. We also found that nearly 30 percent of girls in intervention schools reported that they went to a health facility to receive SRH information and/or services at endline; roughly a 25 percent increase from baseline. In addition, an unexpectedly large percentage of girls (365 of 809, or 45.1%) intended to go to a facility but had not yet gone because of other obligations or COVID-19 pandemic-related restrictions. Finally, intervention-school girls who went to a facility were more than twice as likely to have an intention to use contraception than girls in the control schools. However, the results from the sub-analyses must be interpreted with caution due to small clusters.

That the intervention did not encourage more girls to form intentions to use contraception in the next few months is, in some ways, not surprising. On one hand, intention to use contraception is likely to be most relevant to girls who are currently sexually active. Yet despite informal sources and formative research from our team suggesting that many Burkinabe girls are sexually active, our baseline data did not support this. Other evidence from sub-Saharan Africa suggests low rates of reported sexual activity among youth (Shayo & Kalomo, 2019). Our qualitative data showed that many girls are naïve to relationships with boys, or are in relationships but not sexually active, indicating that contraceptive need is not yet relevant in their lives. In addition, among girls who reported that they were currently sexually active at endline (n=222), 49 percent reported having sex only on a monthly basis and 18 percent reported infrequent sexual activity. Given low frequency of sexual activity, contraceptive intention might not be at the forefront of young girls' minds.

On the other hand, we found that girls who have never had sex had much higher odds of intention to use contraception. It might be that girls who are not yet sexually active are more future-oriented, and less likely to take risks than girls who have begun sexual relationships. In other words, girls who are risk-takers might be less influenced by the game, whereas sexually naïve girls are able to use the game messages to reinforce abstinence-only messaging and contraceptive messaging simultaneously: continue to not have sex, but if you do, use contraception. Our qualitative findings suggest that girls are on the precipice of sexual activity, given how many were in longer-term relationships.

Our findings on comparative trends in intention to use and contraceptive use over time between intervention and control-school girls showed that intervention-school girls' intention to use contraception increased over time, as did

their contraceptive use (but not as much as for control-school girls, for the latter). These findings should be interpreted with caution, as both figures include both sexually active and non-sexually active girls. Given low prevalence of reported sexual activity in the sample, we were unable to further restrict these analyses. That more girls in the control schools were found to be using contraception at endline than intervention-school girls might indicate that they are also going to facilities and learning about contraception, or the difference could be attributed to chance. The findings at endline that contraception was higher among control-school girls than those in intervention schools was minimal and not statistically significant (p=0.30). More research in this area is warranted.

We were encouraged by the results suggesting that the intervention shifted attitudes and beliefs. We noted much lower percentages of intervention-school girls (compared with control-school girls) with beliefs that contraception causes infertility, that providers stigmatize young girls, and that it is normative for unmarried girls not to use contraception. Similarly, there was a higher percentage of girls at endline in intervention schools (compared to control schools) with beliefs that contraception is an option for them, and they feel confident they can both get and use it. This is an important achievement considering that shyness and embarrassment is a barrier for adolescent access to SRH services (Bankole & Malarcher, 2010). Some of these attitudes and beliefs, such as having high levels of perceived self-efficacy and/or fewer infertility-related fears, have been associated with outcomes such as intention to use and contraceptive adoption (Agha, 2001; Babalola, John, Ajao, & Speizer, 2015; Khumsaen & Gary, 2009; Kumi-Kyereme & Amo-Adjei, 2013). However, fears and misconceptions are still rampant among school-age girls, especially related to perceptions of infertility with modern methods like the IUD and the stigma associated with contraceptive use. This is reflected in large, multi-country studies exploring the reasons for nonuse (Adanu, Hindin, Mcgough, & Adanu, 2013; Adongo et al., 2014; Guttmacher Institute, 2016; N, TG, A, N, & CI, 2010; Williamson, Parkes, Wight, Petticrew, & Hart, 2009); these myths and misconceptions are indirectly related to contraceptive use (Gueye, Speizer, Corroon, & Okigbo, 2015).

That girls in private schools and girls in 3ème were more likely to have an intention to use compared to their counterparts is intriguing. The Pathfinder Burkina Faso team indicates that there are few differences between students in private and public schools. The school and class sizes tend to be similar, and neither private nor public schools cover SRH topics as part of the curriculum. The teachers across both types of schools are also comparable in qualifications, background, and experience. It might be

that the findings were by chance, although further inquiry into differences between private and public schools might be warranted. The grade differences could be explained by age and sexual activity, although we did not note significant differences in these variables by grade.

The improvements we saw in contraceptive attitudes and beliefs—coupled with the trends in intention to use a method of contraception in the next three months and visits to a facility for SRH information—suggest the (re)solve solutions 'prime the pump'. The well-received solutions appear to pique girls' curiosity about SRH, including contraceptives. Behavior change, such as getting girls to use contraception, or even to hold an intention to do so, is not an overnight process. Even though many girls did not take up a method during the visit, their desire to learn about different types of contraception, side effects, menstruation, and other SRH topics, suggests that the solutions might have been able to move them further along in their intention formation. It could be that getting unmarried girls to go to the health facility (many for the first time) to gain SRH information and then ensuring a positive interaction with the health provider is a gateway to future use of SRH services, including contraceptive uptake.

Two unanticipated consequences of engagement with the solution set are worth noting. First, while we expected that facilitators would bond with girls while playing the game, we did not expect that girls would seek out facilitators outside of the game-playing environment to ask questions over the phone about menstruation or vaginal discharge, or to report on conversations with boyfriends about using contraceptives. Facilitators seemed keen to either answer these questions or to use the opportunity to encourage girls to go to the health facility for answers. This finding suggests girls' interest in SRH issues that relate to their bodies and the importance of connecting them to trusted adults who provide SRH information and answer their questions or connect them to those who can.

Second, many girls asked facilitators questions about abstinence at the end of the game and wanted to know how they could continue to abstain in the future. (This was corroborated by our endline data.) Our trivia cards did not promote abstinence. However, we included abstinence as one of the methods, along with its pros and cons, that girls can use to prevent an unintended pregnancy.

FUTURE CONSIDERATIONS FOR THE SOLUTION SET AND RESEARCH

Based on these results, we are optimistic about the success of this intervention among 4ème and 3ème girls (ages 14 to 18) in schools in urban areas in terms of shifting SRH attitudes and beliefs and getting girls to visit a health facility.

Girls and implementation staff enjoyed playing and facilitating the game and liked the passports. Our findings indicate that school-based encouragement by facilitators to visit health facilities worked well. Girls used the passports and shared them with other girls and older family members. This suggests that health passports are a coveted feature of the intervention. That girls continued to reach out to facilitators after gameplay suggests that girls want more SRH information and that facilitators might have filled an important gap as a trustedsource of SRH information. Girls sought information from facilitators and health providers on topics including menstruation, puberty changes, and how to abstain from sex. The intervention could also be reinforced with accompanying comprehensive and age-appropriate sexuality education curricula.

The solution set improved key attitudes and beliefs, increased intention to use a contraceptive method (though not statistically significantly), and significantly increased the number of intervention-school girls who went to the health facility for SRH information and received satisfactory services. The last outcome cannot be overstated within the broader context of provider bias toward adolescents seeking contraceptives. While we do not know if the girls who visited the health facilities will take up a contraceptive method over time, ensuring positive experiences at health facilities for adolescents will go a long way in engendering trust between them and health providers. This finding also points to the importance of wrap-around World Health Organization (WHO)-recommended adolescent and youth SRH interventions that can ensure YFS, such as YFS training of health care providers. WHO considers youth-friendly and youth-responsive services necessary for ensuring the health and wellbeing of adolescents (WHO, 2015).

Connecting girls to youth-friendly providers who, through counseling, could address myths and misconceptions such as the fear of perceived future infertility from contraceptives is worth considering in future iterations. The sticky belief that contraceptives cause infertility is usually grounded in deeper social norms around proving fertility after marriage and the importance of parenthood (Dyer, 2007; Williamson, Parkes, Wight, Petticrew, & Hart, 2009). It is unsurprising that fear of future infertility would be resilient to a time-bound behavioral intervention such as ours. We might need interventions with norm change components to address deep-seated norms and beliefs.

Our results suggest that girls actively sought information on abstinence. While this might be indicative of sexual inactivity, future iterations of the game might need to address the challenges with abstinence in the context of infrequent but imminent and spontaneous sexual activity. Lastly, given that parents expressed support for the

solutions during socialization meetings, in particular for the game's potential to reduce unintended pregnancies, future iterations could include activities to engage and encourage parents to discuss SRH matters with their children and/or support adolescents' decisions to seek out correct SRH information from trusted sources.

Based on our results and the recommendations from participating girls, facilitators, and the implementation team, we see future opportunities to expand the (re)solve solutions to other schools in Burkina Faso. We also see an opportunity to test the solution set with new audiences, such as older and younger girls, out-of-school girls, and boys. The intervention will need to be further contextualized and adapted to the needs of each new group. If the game is played with boys, we might need more formative research to supplement risk and relationship scenarios from boys' perspectives. The board game, passport, and posters might need to be re-designed to reflect some of the behavioral bottlenecks boys encounter. We see opportunities to develop special card packs that target different bottlenecks for younger girls (more trivia cards on puberty and physiological changes, for example) and older girls (more relationship scenario cards sourced from the behavioral diagnosis research).

Future evaluations will be needed to understand how the intervention differentially affects these diverse groups. Replication efforts could benefit from exploring the possibility of tapping into older girls who age out of schools to return as facilitators in future rounds with younger classes. While our intervention was school-based, the game could conceivably be implemented in youth centers and communities to reach a similar out-of-school age group with minor adaptations. The most important among these adaptations might be ensuring privacy for the girls playing the game like we were able to do in classroom settings.

The solution was implemented among school girls in urban Burkina Faso who were roughly between the ages of 14 and 18. Our results indicate that the game might be better suited to girls who are on the brink of sexual activity rather than girls who are already sexually active. We acknowledge the challenge of identifying such a specific audience and recommend that future efforts cast a wider net across grades and age categories. The game provides correct, easy-to-understand SRH information in a fun and accessible format, and the health passport provides the nudge to seek out information from health providers. (re)solve's work in Burkina Faso is the first application of this behavioral intervention. We will learn more if we do more with the same and different audiences.

Future research could also explore other questions about the game, such as the following:

+ Whether playing the game more than once can increase intention and amplify behavior change;

+ Whether early exposure to the game prompts more girls to take up contraception once they become sexually active, or if game play needs to be closer to sexual initiation to be effective;

+ Whether girls who did not play the game but were given the passport by a game player followed up at a facility, especially those girls at different schools who were the majority recipient of the passports;

+ Whether the iterative process of intention and behavior formation around contraception use could be elucidating. Specifically, could we learn from girls who go to the facilities but do not yet take a contraception what would encourage them to return for services?

Scale-up efforts and future evaluations of (re)solve solutions at scale, or future iterations, will require close coordination between and oversight of the Ministries of Health and Education to ensure successful integration and implementation. Behavioral solutions like the game, health passport, and poster can complement existing demand-generation interventions and connect girls to youth-friendly health facilities so they can make informed decisions that benefit them.

CONSIDERATIONS FOR THE EVALUATION

First and foremost, the COVID-19 pandemic might have impacted our study. Although implementation in the schools was nearly finished by the time the pandemic arrived in Burkina Faso, with the school closures and mobility restrictions, follow up at the health centers for SRH information or services was likely hampered. This might have attenuated the impact of the intervention on our outcome of intention to use, as fewer girls might have gone to the health center and formed an intention through continued conversations with health-facility staff. In fact, given at endline that a large percentage of girls reported that they intended to go the health center but did not because of COVID-19, we have evidence that fewer girls went for health-center visits for SRH information and services than might have gone in the absence of a pandemic.

By design, the implementation of (re)solve was staggered, beginning in Bobo and followed by Ouaga. For this reason, several tweaks were made to implementation that might have influenced differential game playing and follow-up experiences for girls and might explain some of the differences noted between the two cities. For example, in Bobo, 314 girls from the endline quantitative survey

reported they played the game more than once; playing the game multiple times might have had more impact on outcomes, but as this was not something we formally set out to evaluate, it remains unknown.

When developing our sampling frame of potential schools, there was only one school, in Ouaga, that declined to participate and was replaced. Our results are only generalizable to the type of girls who attend urban public and private schools like those included in our study.

Our qualitative sample included girls, facilitators, and other stakeholders who participated in the (re)solve project. Especially for health providers trained by Pathfinder in YFS and on the goals of the (re)solve project, it is possible that their perspectives were biased toward a more favorable impression of (re)solve than was achieved.

Even though our previous behavioral-diagnosis data indicated that girls would be sexually active, we did not find this to be true in our evaluation data. Given that our outcome of interest is highly related to sexual activity, our subgroup and stratified analyses were underpowered. Caution should be noted in their interpretation. In addition, due to low prevalence of our outcome of interest, the lack of statistical significance in the relationship between the intervention and the outcome might have been due to power; however, we note that the trend was in the expected direction, and other indicators provide evidence of success. Relatedly, as we used the same model for our analyses with secondary outcomes and stratified analyses, caution should be used in the interpretation when the number of clusters in these analyses was less than 15 per arm (for example, stratified analyses by type of school).

Conceptualization and measurement of the proximate and distal determinants of intention to use contraception is notoriously challenging (Callahan & Becker, 2014), especially in a young population. Although we developed a theory of change for the project and attempted to measure rigorously and widely, we were unable to measure every aspect and thus might be missing some variables on the casual pathway.

In addition, obtaining accurate data on sensitive topics such as sexual activity and contraceptive use is challenging (Fenton, Johnson, McManus, & Erens, 2001), and it is possible that our evaluation data under (or in some cases, over) reports on these indicators. For example, we found somewhat conflicting results around reported sexual activity between the quantitative data and different participants in the qualitative data, which suggested higher sexual activity among young girls. It is possible that girls are underreporting sexual activity. To try and counter this bias, the team spent ample time during training on rapport-building tactics, especially for over-

the-phone interviews at endline, to ensure privacy and a safe space for sharing personal information.

Some of our measures were limited. Intention to use contraception, although commonly used in the field, is challenging, because different people might understand differently what "intention" means. To some, it might be a nascent idea, yet to others it means action (Callahan & Becker, 2014). In our study, we have no way of knowing how participants interpreted the question about their intention to use contraception. In addition, the pandemic might have also impacted how girls interpreted the question of intention in the next three months; we know little about how intention in the near future is shaped when that very future is so uncertain.

Our sensitivity analyses found some evidence that the intervention had a greater impact on girls who have not had sex, although it should be noted that results in either group were not statistically significant. Several reasons could explain this. For example, girls who are already sexually active might have already considered using contraception and would therefore be more familiar with such methods compared to girls who are not sexually active. This, in turn, would indicate that the intervention might have made a smaller impact on their intention to use contraception in the next three months. Although we ran sub-analyses among sexually active girls using contraception, due to small cell sizes, we do not present them. In addition, we believe we have measured the most critical variables in the casual pathway, as described in our conceptual framework. Specifically, we looked at whether the impact of the intervention onintention to use contraception in the next three months differed by different responses to attitudes and beliefs related to contraception. Our interaction analyses provided limited evidence that this was the case across a range of different attitudes and beliefs.

Our CRT design and GEE analysis had several strengths. By randomly assigning the intervention to schools from a sampling frame of schools with similar characteristics, we believe our randomization scheme was successful, and we have confidence in our ability to compare our intervention and control groups. We assumed that the correlation

matrix was exchangeable, which was in accordance with assumptions made using CRT data where observations within the same cluster might be correlated, but observations on individuals from different clusters are not correlated (Hayes & Moulton, 2017). We have also accounted for any imbalances at baseline by adjusting for baseline values. We did this for two reasons: first in order to reduce between-cluster variation in our primary outcome at endline and increase the power and precision of the study, and second to take into account regression to the mean. For example, those with low observed values at baseline are expected to show an increase in observed value at endline even in the absence of any true change, while those with higher observed values at baseline are expected to show a decrease (Hayes & Moulton, 2017). Including a wide variety of stakeholders in qualitative interviews additionally shored up the CRT evidence and bolstered our ability to interpret both expected and unexpected findings. Finally, the COVID-19 pandemic offered an unplanned opportunity to estimate the resilience of our intervention as a stepping stone to accessing SRH resources at the clinical level. Additionally, it allowed us to test phone-based consent and interview processes with a vulnerable population.

CONCLUSION

Given the paucity of rigorous data on what works to increase adolescent contraceptive use in West Africa, our findings are an important contribution to the literature. With substantial documented barriers to girls' access of SRH information and services in sub-Saharan Africa (Bankole & Malarcher, 2010), we are encouraged by the shift this intervention appeared to have in boosting girls confidence, decreasing negative contraceptive attitudes and beliefs, and getting girls to visit a health facility, or even to intend to visit a health facility.

Our integrated behavioral solutions are a humble but important contribution to Burkina Faso's efforts to address adolescent health and wellbeing, enable adolescents to make healthy choices, potentially reduce the adolescent fertility rate among unmarried adolescents, and reap the demographic dividend by investing in its most valuable asset: youth.

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Annexes
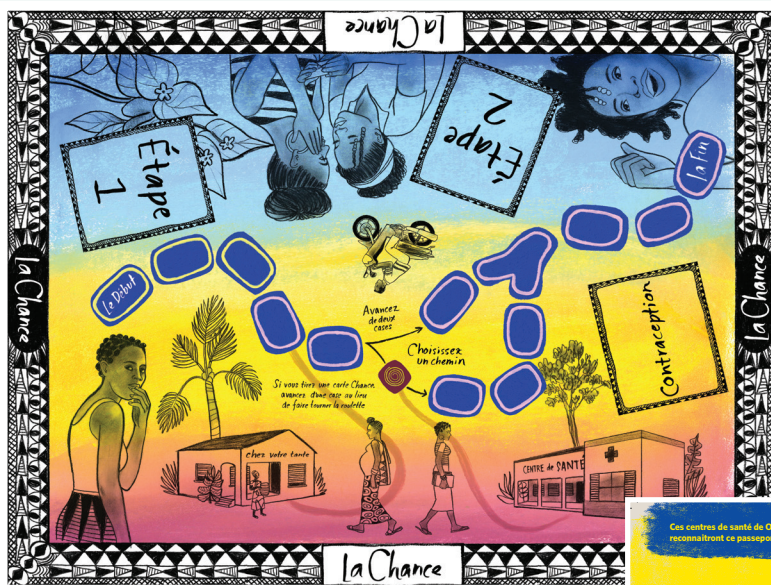
SOLUTION SET COMPONENTS:
La Chance board game
with spinning tops, passport,
poster, nametag
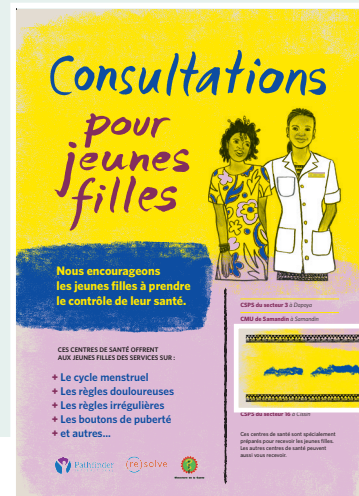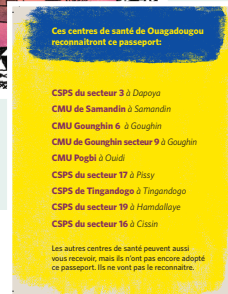
ANNEX A. The (re)solve Solution Set in Burkina Faso

Earlier phases of the project informed the solutions tested in this research. The team identified segmentation drivers and prioritized behavioral bottlenecks and the contextual features that caused those bottlenecks. These served as primary inputs into solution design.

Three main components comprise the solution set:

1. BOARD GAME: The board game, called *La Chance*, is the main activity of the solution set. Students play the game in a classroom, facilitated by a trained member of a local community-based organization, in three teams of two schoolgirls each from 3ème and 4ème (9th and 10th grades). After the game ends, the facilitator leads a brief discussion on what the girls learned and answers any questions they have.

The game has the following objectives:

+ Adjust girls' perceptions of their own pregnancy risk;

+ Counter misperceptions about fertility and contraceptives;

+ Increase girls' comfort speaking and asking questions about sensitive topics; and

+ Prompt girls to visit their health facility and provide them with strategies to feel comfortable doing so.

At the start of the game, each team selects an avatar (see above) and places it on the first space of the path. The path progresses through two phases, gradually easing girls into more sensitive material. Phases are indicated by the color of the thin outline within each step in the path, which corresponds to the color of a deck of cards (pictured above). Girls read each card's content out loud. There are four types of cards in the game:

TRIVIA CARDS (in both phases) The team must answer a trivia question. The answer is concealed and can only be read once a team makes a guess and uses the decoder glass to read the correct answer out loud. If the team answers correctly, they advance one space. If the team answers incorrectly, they stay on their current space. To encourage discussion, teammates are instructed to deliberate with each other prior to voicing their collective guess. Trivia cards are primarily intended to address girls' misperceptions about their own pregnancy risk and myths about contraceptives. The same information is reiterated multiple times, but in different ways, to drive attitudinal change.

GOOD LUCK CARDS (in both phases) The team reads a scenario in which a good thing happens to their character, which allows them to advance one space. These cards move teams forward faster and add levity to the game.

ADVICE CARDS (in both phases) The team reads a scenario in which a friend needs advice. The team must share with the other teams what advice it would give or what stories it would tell. Discussion is encouraged among all players once the team has offered their advice. Each other player then votes on whether the team's advice was "good" and whether they should move forward one space. If the majority votes that the team should move forward, it can do so. Otherwise, the team stays where it is.

Advice cards are intended to spark discussion around sensitive topics so that girls feel more comfortable doing so with each other outside of the game environment. Cards also often ask girls to take a position that they may not necessarily agree with (for example, arguing that using a contraceptive and condoms is much more effective than using condoms alone). Experiencing this cognitive dissonance might lead girls to begin to adjust their beliefs and attitudes. Lastly, these cards prompt girls to generate strategies for how to acquire contraceptives and how to communicate about contraceptives with people who might be unsupportive. Girls are exposed to the advice of others and can use or repeat that advice when faced with a similar situation in real life.

CHANCE CARDS (in second phase only) The team reads a scenario in which their character has sex without contraceptives and therefore has the chance of becoming pregnant. The team spins the top to find out if its character becomes pregnant. If the top falls on "not pregnant," the team can advance one space. If the top falls on "pregnant," the team is sent back to the first game space in Phase 2, which is called "Auntie's house." The Chance cards are intended to prompt girls to think about risky situations that they or girls they know might find themselves in. The spin of the top is intended to simulate the gamble or risk that girls take when they have sex without protection. The concept of going to "Auntie's house" is intended to simulate real-life outcomes when girls get pregnant in Burkina Faso: they are often disowned by their families and forced to find shelter with a relative.

In the second phase, teams face a decision on whether they'd like to take a shorter route or a longer route. If they take the longer route, they stop at the "health facility," draw a contraceptive card, and are protected from spinning the top if they draw a Chance card on future turns. Contraceptive cards represent actual contraceptives that protect the character from the gamble of pregnancy. Contraceptive cards, which are read out loud, each describe a different scenario of a girl visiting a health facility in a creatively discrete way. The scenarios are intended to equip girls with strategies for visiting a health facility in real life.

The game concludes when the first team reaches the last space on the path. The facilitator then leads a brief post-game discussion during which players are asked to review the cards they drew and describe what they learned in the game. The facilitator asks what questions the girls have and then directs them to visit the health facility for more information or to receive a contraceptive method. To facilitate visiting the health facility, girls are each given a health passport.

2. HEALTH PASSPORT: At the conclusion of the game, the facilitator gives girls three business-card-sized passports: one for themselves and two to give to friends or family members. The passport serves as a simple reminder to visit a health facility.

The passports are distributed with the following objectives:

+ Prompt girls to visit a health facility with a specific plan;

+ Add value and novelty to health facility visit, from the perspective of girls;

+ Address anticipated stigma by helping girls to feel more comfortable at the health facility;

+ Reduce the likelihood that girls will be seen by acquaintances at the health facility, thereby reducing potential feelings of shame or embarrassment;

+ Help girls understand what to expect when visiting a health facility; and

+ Encourage joint action by having girls invite friends to go with them to the facility.

Poster, name tag, and youth-friendly service training: Administrative staff and health providers in participating facilities receive a half-day youth- friendly service (YFS) training on the key principles and importance of providing comprehensive, high quality, and unbiased SRH services to adolescents and youth. Participating health facilities then display posters advertising services for girls. Service providers wear branded name tags that match the posters and the passport so that girls will know they are in the right place and feel assured that they belong there.

The posters and name tags were designed to increase girls' feelings of self-efficacy and agency upon recognition of a familiar image and to engender the perception that their health-care provider is personally committed to providing YFS.

FIGURE A1. Theory of Change

SCHOOL

HEALTH FACILITY PASSPORTS DISTRIBUTED

CUES PROVIDED (B8)

GAME FACILITATED

GIRL THINKS ABOUT/ UNDERSTANDS CONSEQUENCES OF SEX (B1)

GIRL HAS CLARITY ON WHAT HAPPENS IN OWN SITUATION IF PREGNANT (B2)

GIRL HAS ACCURATE RISK PERCEPTION OF PREGNANCY (B3)

GIRL BELIEVES FP IS FOR HER (B4)

GIRL IS UNAFRAID TO USE FP (B5)

GIRL SEES CONTRACEPTION AS MOST APPEALING OPTION (B6)

GIRL HAS LITTLE FEAR OF INFERTILITY WITH FP USE (B7)

SHARE TWO PASSPORTS WITH FRIENDS

DECIDE TO AVOID PREGNANCY

FORM INTENTION TO USE FP

PLAN TO GO TO FACILITY

HEALTH FACILITY*

GIRL FEELS COMFORTABLE BEING AT CLINIC (B9)

POSTERS/ NAME TAGS

VISIT FACILITY

ACQUIRE METHOD

USE METHOD

LEGEND

| (RE)SOLVE SOLUTION | INTERMEDIARY ACTION | OPTIONAL ACTION | OUTCOME OF INTEREST |

*(RE)SOLVE PROGRAM YAM YANKRE (PYY) FACILITIES WILL RECEIVE ADDITIONAL YOUTH-FRIENDLY SERVICE TRAINING AS PART OF THIS INTERVENTION.

ANNEX B. Short- and Long-Loop Adaptations

SHORT-LOOP ADAPTATIONS

Short-loop adaptations are organic or deliberate changes to the intended implementation of the solution and related activities. These adaptations emerged from or in response to challenges that emerged during real-world implementation of the program.

TABLE B1. Short-loop Adaptations in Response to Implementation Challenges

ORIGINAL APPROACH	CHALLENGE IDENTIFIED/EXPERIENCED BY IMPLEMENTATION TEAM	ADAPTATION
Half-day YFS training	Facilitators shared that girls were not always having a positive experience at the health facilities	Our program team reinforced the need for judgment-free service provision during follow-up monitoring visits to the health facilities.
Facilitators distribute three passports to each player.	Girls asked for more than three passports to distribute to their friends and family members.	The facilitators continued to give three passports to each girl during the first round so as to not affect the intervention. If girls played for the second round, facilitators could distribute up to four passports.
n/a	Girls wanted to know the cost of contraceptives and services, should they want to go to the health facility.	Program team collected information on the current cost of all services and contraceptives. They noted the names of the facilities providing free or subsidized services. They shared this information with the facilitators in the weekly check-in sessions and instructed the facilitators to keep this information on hand to share with the girls after each game.
Name badges created by graphic designer to match the game board, passports, posters	Due to procurement challenges, the name badges did not perfectly coordinate with the color/look of the passport and games.	The health providers started using plain white badge inserts in week one, when girls started coming to the health facilities. In order to keep the intervention uniform, we decided not to switch the badges mid-implementation since the purpose of the badges – helping girls identify YFS providers – was being served.
Prioritize, to the extent possible, SRH training in recruitment of facilitators.	During training, we realized that many of the facilitators who had received prior SRH training were not fluent in French. French-speaking capabilities needed to be prioritized over SRH training since the game and accompanying materials were in French.	The program team reserved half of every weekly debrief meeting with facilitators for training and reinforcement of knowledge on SRH topics that facilitators identified. Weekly topics differed in Bobo and Ouaga depending on the context and needs expressed by the facilitators.
Game designed in French to be accessible throughout Burkina Faso.	Some girls did not understand the content of the cards in French (words for acne, puberty, etc.).	The facilitators reported that they had to sometimes explain again in the local language. They always referred the girls to the facilities if they could not explain in detail.
The posters were designed to address the stigma of girls being seen at facilities. They were there so the people waiting in the facilities can recognize that the girls might be there for a number of health issues.	Girls asked if the facilitators or supervisors would accompany them to the facilities.	The program team agreed that this was not sustainable. Instead, facilitators offered different strategies the girls could use, such as going with a friend or group of friends or a trusted family member or adult.

Games scheduled for one hour at lunch breaks.	Mobilizing girls and getting the classrooms set up to play cuts into the hour available for playing the game.	When there was limited time, the facilitators would speed up the game by having girls move two spaces on the board with each turn instead of one. Facilitators recommended that they identify one student (class leader) who would be responsible for reminding the girls who would be playing the game the following day to be ready at the scheduled time.
Held meetings with administrators and parents (separately) before implementing the game to give them opportunity to learn about the intervention and raise any questions	The program team needed to hold a meeting with the school administration in Ouaga to explain the intervention after a parent, who had missed the orientation session, found the passport and went to the school for information.	Noted instances and reasons for parental objections/concerns.
Providers in facilities were trained to note 'P' next to the name of a girl in their register when she brings in a passport.	In the first few weeks, we realized that many providers recorded a girl's visit in the register only if she took up a contraceptive method.	During supervisory visits at facilities, Pathfinder staff reminded providers they need to mark down all girls who visit with a passport with a 'P' in their register, even if they only seek advice. They should mark them down as 'counselling' if they do not take up a method.
Conducted orientations/trainings on the (re)solve intervention and provide (re)solve posters to the selected health facilities only.	We learned that girls were going to non-participating health facilities in the area.	The program team went to some of the facilities that were not included in the (re)solve interventions and explained the purpose of the passport. We decided against placing posters in these health facilities because it created logistical challenges for the program team conducting monitoring visits.

LONG-LOOP ADAPTATIONS

Long-loop adaptations are changes or recommendations emerging from or in response to challenges faced by real-world implementation of the program. While they could not be implemented within the scope and timeline of our intervention, they ought to be considered for future replication of the solutions.

TABLE B2. **Long-loop Adaptations for Consideration in Future Replication of the Solutions**

ORIGINAL APPROACH	CHALLENGE IDENTIFIED/EXPERIENCED BY IMPLEMENTATION TEAM	ADAPTATION
The game was designed in French because French was spoken in all schools.	Some girls had difficulties understanding the content in French. This will be a bigger challenge if the game is played in younger grades.	Consider translating the game content (rules, card content, passport) into local languages.
Held group information session for key educators from across schools before implementation		Schedule information sessions at the beginning for all administration staff in each school so that they can accurately respond to parent questions during implementation.
Played game during lunch time and breaks from classes	Finding time to play the game during breaks requires a lot of coordination and could challenge institutionalization.	A school director suggested that the game could be integrated into biology classes. It could help to address logistical challenges with playing the game at lunch and breaks and could be available to both girls and boys as many students have requested.

Played one round of the game	We decided to play the game just once, given time and budget constraints. We, therefore, missed the opportunity to see if there is a dose-response correlation between the game and health-seeking behavior and if playing the game multiple times can reinforce the messaging and/or increase health seeking. Facilitators in Bobo noted that playing the game for the second time helped the girls focus more on the game and the content rather than learning the rules. The game moved faster in the second round.	Play at least two rounds of the game to help reinforce the messages. This will have time and budget implications. We need to plan for this up front and inform the schools. We also need a contingency plan to work with any schools that are not interested in the time commitment of multiple rounds.
Held a meeting with parents at each school before implementation.	The role of how we engage parents will become even more important as we implement in more traditional and/or conservative areas with strong social norms about premarital sexual activity and contraceptive use.	We have not tested information for parents and might want to do that with scale up. Girls suggest that parents should be sensitized to accept that their daughters visit health centers for SRH needs.
Game was designed for and played with unmarried girls in 3ème and 4ème.	Girls, facilitators, and administrators asked that the game be expanded to younger and older audiences and boys. Some girls wanted to play the game with their boyfriends/partners.	Game should be available to both older and younger girls, university students, and boys. Adapt the game for these audiences? Expansion packs specifically for these audiences? Separate versions of the game for them?
Played game with designed cards.	Girls wanted to play the game more than once, leading to a shortage of cards and content. When girls played a second time, they were not encountering any new content. The game needs to continue to entertain, challenge, and provide information through multiple rounds or longer games. Girls, facilitators, health providers, administrators, and implementers recommended expanding the game audience, including to some or all of the following: boys, younger girls, university girls, and girls who are in the community but not in school. Girls have basic questions about anatomy and reproduction and more specific ones about cervical cancer and STIs. Girls wanted to know if they could use contraceptives	Design an expansion pack(s) with more cards. Additional cards could be designed around the particular audience (for example, school age girls, younger girls, boys, etc.). The original cards were designed based on (re)solve's behavioral diagnosis findings. New cards could be based on implementation experiences and endline findings.

ANNEX C. Additional Methodological Processes and Considerations

SAMPLING PROCEDURES FOR SCHOOL AND HEALTH CENTER SELECTION

STAGE 1 - SELECTION OF HEALTH CENTERS

In the first stage, the team purposively selected health centers to be included as part of the (re)solve sampling frame. To inform this process, the team hired consultants who mapped Project Yam Yankré (PYY) facilities in Ouaga and Bobo, as well as the schools surrounding those facilities. PYY facilities are confined to two districts in both Ouaga and Bobo; therefore, the intervention and evaluation were limited to these districts. From the list of all available PYY facilities in both sites, we removed PYY facilities involved in Beyond Bias from the list to avoid overlap in evaluation sites. In total, we selected nine PYY facilities in Ouaga, and nine remaining facilities in Bobo were eligible for (re)solve's sampling frame.

STAGES 2 AND 3 - SELECTION OF SCHOOLS AND INDIVIDUALS

To be eligible for the sampling frame, schools needed to be within the catchment area of the selected PYY facilities. As part of the mapping exercise, consultants documented information from schools, such as the type of school and the total number of students in equivalent 7th-9th grade (who would be in 4ème and 3ème in the next year). Anywhere between 1 and 10 schools in each health center catchment area were eligible; thus, not all schools could be served through (re)solve. For feasibility of implementation and evaluation, eligible schools on the sampling frame needed to be co-ed, with a minimum of 75 girls across the two grades. In addition, eligible schools were not involved in the pilot of the solution. Finally, the sampling frame was equally split between public and private schools. We excluded 27 schools in Ouaga and 6 in Bobo based on size (i.e. having fewer than 75 girls in the target grades). One school in Ouaga was excluded because it was an all-girls school. Two schools in Bobo were excluded because one had taken part in earlier user testing, and one had not provided complete data on the student population.

To balance feasibility of implementation with a need to mitigate clustering effects, we implemented (re)solve solutions in 16 schools with 16 control schools, for a total of 32 schools involved in the evaluation. The intervention was randomly assigned to schools on the list. The intervention was randomly assigned to a higher proportion of private schools, as fewer public schools in Bobo met the criteria. Therefore, we used 4 public schools and 12 private schools each in Ouaga and Bobo. Of the 12 private schools and 4 public schools in each site, half were assigned the intervention and half the control. This was done by sorting the list of schools in Excel in each group type (for example, city, school type), and then using a random number generator to reorganize the list. Going down from the top, we assigned schools to intervention, and from the bottom up, we assigned control schools.

Figure C1. Assignment of Intervention and Control Schools
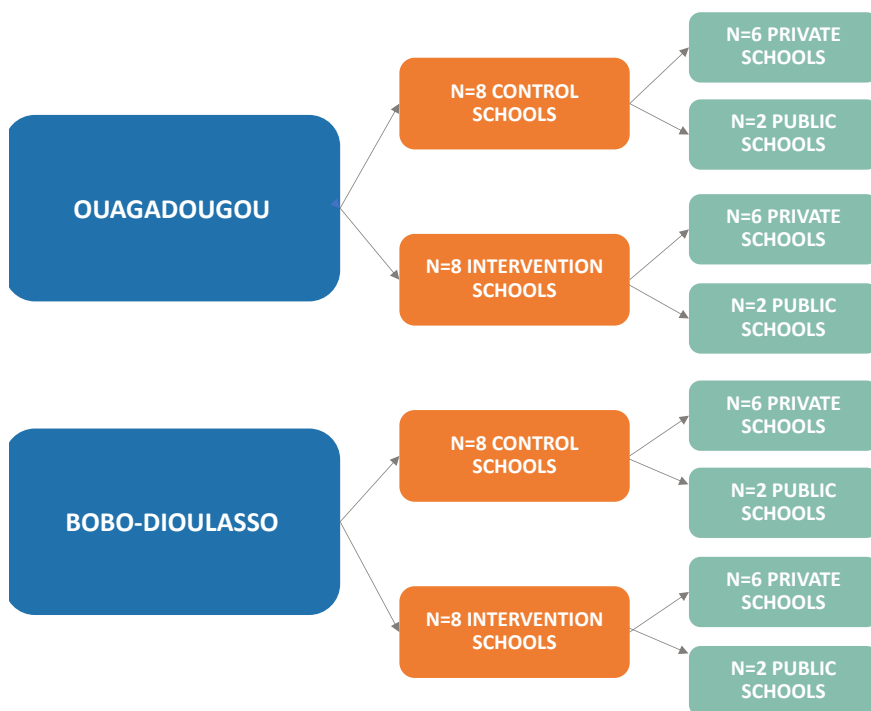
Once schools were selected for the intervention, all girls in 4ème and 3ème were eligible to participate in the intervention and the research activities. All girls in both grades could play the game, if interested. From each school, we involved a sample of girls in the evaluation. We took an equal number of girls per school regardless of the size of the school— approximately 75 girls per school. Girls were randomly selected to minimize bias in the sampling procedure.

SAMPLE-SIZE CONSIDERATIONS

This evaluation required a sample of 2,400 girls for the baseline/midline/endline longitudinal quantitative survey. This sample size was calculated using the following:

+ An assumption that 50 percent of the baseline population would have an intention to use contraception (the most conservative estimate, but also the prevalence of intention to use contraception from Camber's (re)solve survey among a nearly similar group of adolescent girls in Burkina Faso);

+ A minimal detectable change between baseline and endline of 10 percentage points.

+ An alpha of 0.05 and 80 percent power;

+ A design effect of 2.0 for clustering;

+ A 53 percent non-response rate on the outcome of interest (data point from Camber's segmentation survey, assuming girls who were not sexually active would have different intentions to use contraception);

+ An assumption of 10 percent attrition of participants between baseline and endline; and

+ A two-arm design.

This provided a sample of 2,497—rounded slightly down to 2,400 to ensure a minimum number of girls involved from each school (i.e. 2,400 divided by 32 = 75 girls sampled per school, and smallest school in (res) solve had an estimated 75 girls in relevant grades).

MEASUREMENT

QUANTITATIVE: We chose intention to use contraception in the next three months as our main outcome of interest because we predicted that impact was achievable in the timeframe available, unlike other relevant behaviors such as contraceptive use. Intention to use is a common proxy for contraceptive use and is widely used in the field, often shown as predictive of use. We restricted the timeframe of intention to the next three months for several reasons, mainly because an open-ended time in the future is not specific, and we wanted to know about current behaviors, especially as a result of playing the game.

Intention to use contraception, and girls' SRH behaviors in general, are influenced by many aspects including attitudes, norms, beliefs, and prior experiences. To stay focused and retain a parsimonious approach, we selected our analytic variables based on a mapping to the theory of change (see **FIGURE A1**), those most likely to be impacted from the game, existing literature, and availability in both rounds of data collection.

QUANTITATIVE: Baseline qualitative research with girls in intervention schools centered on girls' perceptions of and intention to use contraception, and served to illuminate major barriers to contraception use or access. At endline, we asked similar questions, in order to gauge any changes to girls' attitudes around contraception or intention to use it in the future. We included additional questions specifically around girls' experience with the interventions, including asking specifically whether and how lessons learned from the game influenced their thinking around contraception.

In endline interviews with project staff, we focused on understanding the implementation of the interventions, including any challenges faced and providers' perception of the interventions' efficacy. Key areas of inquiry in both interviews with implementers and KIIs included community perceptions of and attitudes around adolescent girls' use of contraception and sexual behavior.

OPERATIONALIZATION OF KEY INDICATORS

Our primary outcome (intention to use contraception in the next three months) was originally collected using a four-point Likert scale (1=Yes, definitely; 2=Yes, probably; 3=No, probably not; and 4=No, definitely not). A total of 12 girls responded that they preferred not to answer. We collapsed this to a binary variable (No vs Yes) and included the 12 girls into the No category.

We collapsed variables that had a "Yes", "No", "Don't know", and "Prefer not to answer" response to a binary variable with cases responding "Don't know" or "prefer not to answer" classified as "No". This was done for the following variable: current contraceptive use.

We collapsed variables that were originally collected using a four-point Likert scale (1=Strongly agree; 2=Agree; 3=Disagree; and 4=Strongly disagree) into a binary variable (0=Disagree and 1=Agree). This was done for the following variables: contraception causes infertility, contraception is the best option, confidence to get and use, provider bias, and normative beliefs about unmarried girls and contraceptive use.

Key Indicators for Quantitative Analysis

OUTCOMES	CONTENT AREA	INDICATOR
Primary	Intention to use contraception	% with an intention to use contraception in the next three months
Secondary	Current contraceptive use	% using a method of contraception ("Are you currently doing anything to avoid a pregnancy?")
	Follow-up at health center	% who have gone to a health center for SRH services or information ("Have you ever visited a health facility recently for puberty or menstruation information?")
	Contraception causes infertility	% who strongly agree or agree that contraception causes infertility ("Modern contraception can cause infertility.")
	Contraception is the best option	% who strongly agree or agree that contraception is the best option ("If I am having sex and want to avoid pregnancy modern contraception is best option.")
	Confidence to get and use	% who strongly agree or agree that they have the confidence to both (a) get and (b) use contraception ("I feel confident in my ability to use/get a contraceptive method, if I wanted to avoid pregnancy.")
	Provider bias	% who strongly agree or agree that health care workers do not like to give contraceptive advice to unmarried girls ("Health care workers do not like to give advice to young unmarried girls about family planning.")
	Normative beliefs about unmarried girls and contraceptive use	% of girls who strongly agree or agree that unmarried girls should not use, and do not use, contraception and that those around them do not use ("Most unmarried girls my age do not use modern contraception to avoid or delay pregnancy.", "Most girls think that unmarried girls should not use modern contraception.", and "The people most important to me do not think I should use a modern contraception method."

In addition, we used principal component analysis to generate the household wealth index using 10 variables that were collected in the baseline survey. These included access to electricity, a TV, pay for service TV, personal computer, bicycle, a car or van, a bank account, livestock, internet at home and a motorcycle or scooter. For our analyses, we standardized the index (using the mean and standard deviation of the raw values) and collapsed into quintiles, with the first and fifth quintiles reflecting least and most wealthy households, respectively.

ETHICAL AND OTHER CONSIDERATIONS

The ICRW Institutional Review Board, based in Washington DC, reviewed and approved all initial and modified versions of this study, as did the Comite D'Ethique Institutionnelle Pour la Recherche en Sciences de la Sante (CEIRSS) in Burkina Faso.

Before data collection, all individuals involved in the research completed certifications in ethical training. In addition, we conducted extensive training that reviewed important ethical considerations in the recruitment, consenting, and interviewing of participants, before all rounds of data collection. All participants signed either a consent or an assent form. For girls younger than 20, we obtained parental consent and then girls' assent for participation. Although the consent collected from parents at baseline gave permission for their daughters to participate in all (re)solve research activities, we sought parental approval (from those parents who consented at baseline) or consent (for any new parent) at endline, given the switch to phone-based interviewing and the delay.

The research team implemented additional protection measures, including the aforementioned practice of ongoing consent, at endline data collection to anticipate issues that might arise from the phone-based interview process. To address concerns about privacy, the interview scripts incorporated regular checks—particularly preceding potentially highly sensitive sections, such as those related to girls' own sexual relationships—to ensure that the interview remained private. Participants were prompted to change the subject to discreetly cue the interviewer that someone else was in the room. Only once the girl felt

comfortable again would the interview proceed. The research team implemented procedures to ensure girls' safety and privacy while minimizing participant burden. For example, the team reduced the instruments in length and piloted them with girls ages 18 to 24 to check the feasibility of conducting interviews over the phone. In addition, we also paused data collection after 10 percent of the data had been collected in order to conduct quality assurance, which we met with satisfaction. We added questions specifically about the impact of COVID-19 on the lives and relationships of the girls with whom we were speaking as well as on their ability to visit health facilities.

ANNEX D. Response Rates and Dropout Data for the (re)solve Study

QUANTITATIVE: Out of our target of 2,400 girls at baseline, we completed 2,372 quantitative interviews. The quantitative sample was mostly retained between rounds, with 87 percent of girls from intervention schools and 88 percent of girls from control schools participating at endline.

TABLE D1. Response Rates for Quantitative Interviews

	BASELINE (N=2372)	MIDLINE (N=1144) (INTERVENTION ONLY)	ENDLINE (N=2072)	SAMPLE RETENTION RATE (BASELINE TO ENDLINE)
	N (%)	N (%)	N (%)	
EXPOSURE				
Intervention	1172 (49.4%)	1144 (100%)	1018	87%
Control	1200 (50.6%)	-	1054	88%
LOCATION				
Bobo	1200 (50.6%)	585 (51.1%)	989	82%
Ouaga	1172 (49.4%)	559 (48.9%)	1083	92%
GRADE				
4ème	1092 (46.0%)	491 (42.9%)	948	87%
3ème	1280 (54.0%)	653 (57.1%)	1124	88%
SCHOOL TYPE				
Public	600 (25.3%)	293	544	91%
Private	1772 (74.7%)	851	1528	86%

At endline, several girls and their parents could not be found through the contact information provided at baseline. Other girls and/or their parents refused to participate. Although we did not formally ask those who declined to provide a reason out of respect for their privacy, we suspected that some parents wanted their girls to focus on the rescheduled national exam that was happening around the time of endline data collection.

QUALITATIVE: A total of 41 girls participated in both rounds of the (re)solve qualitative survey, with 35 implementation staff and 14 key stakeholders.

TABLE D2. Participation in Qualitative Surveys

DATA-COLLECTION METHOD AND PARTICIPANT TYPE	NUMBER AND LOCATION
IDIs with girls ages 14 to 18 in 4ème and 3ème in intervention schools at baseline and endline	Baseline N=48 (24 in Bobo; 24 in Ouaga)
	Endline N=41 (23 in Bobo; 18 in Ouaga)
Qualitative interviews with implementation staff at endline	N=35 (18 in Bobo; 17 in Ouaga)
KIIs with experts and authorities at endline	N=14 (6 in Bobo; 8 in Ouaga

TABLE D3. Comparison of Those Who Dropped Out with Those Who Stayed in Between Baseline and Endline on Key Baseline Variables

		Dropped out N (%)	Stayed in N (%)
Arm	Intervention	154 (51.3%)	1,018 (49.1%)
	Control	146 (48.7%)	1,054 (50.9%)
City ***	Ouaga	89 (29.7%)	1,083 (52.3%)
	Bobo	211 (70.3%)	989 (47.7%)
Grade	4ème	144 (48.0%)	948 (45.8%)
	3ème	156 (52.0%)	1,124 (54.3%)
School type **	Public	56 (18.7%)	544 (26.3%)
	Private	244 (81.3%)	1,528 (73.8%)
Age	14	58 (19.3%)	39 (19.1%)
	15	74 (24.7%)	486 (23.5%)
	16	73 (24.3%)	471 (22.7%)
	17	54 (18.0%)	375 (18.1%)
	18	41 (13.7%)	345 (16.7%)
Wealth	Lowest	70 (23.3%)	442 (21.3%)
	Middle-low	71 (23.7%)	439 (21.2%)
	Middle	44 (14.7%)	411 (19.8%)
	Middle-high	59 (19.7%)	392 (18.9%)
	Highest	56 (18.7%)	388 (18.7%)
Level of parental education	None/illiterate	56 (18.7%)	431 (20.8%)
	Quranic school	31 (10.3%)	176 (8.5%)
	Can read/write	48 (16.0%)	26 (12.7%)
	Primary and/or partial secondary	100 (33.3%)	672 (32.4%)
	Secondary and beyond	45 (15.0%)	340 (16.4%)
	Don't know	20 (6.7%)	190 (9.2%)
Religion	Muslim	213 (71.0%)	1,393 (67.2%)
	Christian	87 (29.0%)	679 (32.8%)
Intention to use contraception in next 3 months (primary outcome)	Has an intention	34 (11.3%)	230 (11.1%)
	No intention	266 (88.7%)	1,842 (88.9%)
Contraceptive use	Current use	9 (3.0%)	81 (3.9%)
	Not currently using	291 (97.0%)	1,991 (96.1%)

Statistically significant at * p<0.05, **p<0.01, ***p<0.001

Note that Christian category also included three girls who reported "other"

Results indicate few differences between those who dropped out and those who stayed in, suggesting that dropout was random. However, two statistically significant differences were noted: between city and school type. Dropout girls were much more likely to be from Bobo than Ouaga, and from private schools than public schools. Our program team reports that this might be a combination of parents' concerns about the solution itself and the timing of the endline—we collected data for the endline just before the national examination. During parent sensitization meetings, our program team reported overwhelming support for the game. However, a few parents expressed concern about the content of the game and worry that we would provide contraceptive methods at school. Despite our team's reassurances that we would not be providing contraceptive methods in schools, parental opposition might have played role in the dropouts.

ANNEX E. Demographic and SRH Characteristics at Baseline, by City

TABLE E1. Demographic Results of the Quantitative Sample by City

		Ouaga	Bobo	Total [N=2,372] N (%)
SCHOOL	Private	872 (74.4%)	900 (75.0%)	1,772 (74.7%)
	Public	300 (25.6%)	300 (25.0%)	600 (25.3%)
GRADE	4ème	531 (45.3%)	561 (46.8%)	1,092 (46.0%)
	3ème	61 (54.7%)	639 (53.3%)	1,280 (54.0%)
AGE*	14	241 (20.6%)	212 (17.7%)	453 (19.1%)
	15	277 (23.6%)	283 (23.6%)	560 (23.6%)
	16	254 (21.7%)	290 (24.2%)	544 (22.9%)
	17	206 (17.6%)	223 (18.6%)	429 (18.1%)
	18	194 (16.6%)	192 (16.0%)	386 (16.3%)
WEALTH***	Lowest	194 (16.6%)	318 (26.5%)	512 (21.6%)
	Middle-low	218 (18.6%)	292 (24.3%)	510 (21.5%)
	Middle	226 (19.3%)	229 (19.1%)	455 (19.2%)
	Middle-high	252 (21.5%)	199 (16.6%)	451 (19.0%)
	Highest	282 (24.1%)	162 (13.5%)	444 (18.7%)
LEVEL OF HIGHEST PARENTAL EDUCATION**	None/illiterate	264 (22.5%)	223 (18.6%)	487 (20.5%)
	Quoranic school	87 (7.4%)	120 (10.0%)	207 (8.7%)
	Can read/write	142 (12.1%)	169 (14.1%)	207 (8.7%)
	Primary and/or partial secondary	365 (31.1%)	407 (33.9%)	772 (32.6%)
	Secondary and beyond	194 (16.6%)	191 (15.9%)	385 (16.2%)
	Don't know	120 (10.2%)	90 (7.5%)	210 (8.9%)

Statistically significant at * p<0.05, **p<0.01, ***p<0.001

TABLE E2. SRH Characteristics of the Quantitative Sample, by City

		Ouaga	Bobo	Total [N=2,372] N (%)
% CURRENTLY SEXUALLY ACTIVE**		11 (9.7%)	79 (6.6%)	193 (8.1%)
% CURRENTLY USING CONTRACEPTION		53 (4.5%)	37 (3.1%)	90 (3.8%)
% WITH INTENTION TO USE CONTRACEPTION IN NEXT THREE MONTHS**		156 (13.3%)	108 (9.0%)	264 (11.1%)
IDEAL NUMBER OF CHILDREN	Three or less	395 (33.7%)	444 (37.0%)	839 (35.4%)
	Four	478 (40.8%)	472 (39.3%)	950 (40.1%)
	Five or more	299 (25.5%)	284 (23.7%)	583 (24.6%)
% EVER VISITED A HEALTH CENTER FOR SRH SERVICES**		56 (4.8%)	94 (7.8%)	150 (6.3%)

Statistically significant at * p<0.05, **p<0.01, ***p<0.001

ANNEX F. Supplemental Information for Main Analysis

From the sociodemographic variables, only age (older girls were more likely to report an intention to use contraception in the next three months, p<0.001) and ever having sex (OR=11.18, 95% CI 7.52-16.62, p<0.001) were statistically significantly associated with intention. City was borderline significant. Girls in Bobo were 43 percent less likely to have an intention to use contraception in the next three months compared to Ouaga (OR: 0.57, 95% CI 0.32-1.02, p=0.059).

Among the COVID-19-related questions, only the question on mobility appeared to be a significant predictor for having an intention to use contraception in the next three months. Girls who reported that their ability to leave home to see friends or others during the COVID-19 pandemic was affected were significantly more likely to report having an intention to use contraception in the next three months (OR: 1.62, 95% CI 1.05-2.48, p=0.028).

As expected, girls who responded that they are currently doing something to avoid pregnancy were more likely to have an intention to use contraception in the next three months (OR: 18.93, 95% CI 12.02-29.79, p<0.001).

Agreement to the following questions related to beliefs and attitudes towards contraceptive use were statistically significantly and positively associated with having an intention to use contraception:

+ Confidence to use a contraceptive method (OR: 4.45, 95% CI 2.75-7.19, p<0.001);

+ Confidence to get a contraceptive method (OR: 4.78, 95% CI 2.59-8.82, p<0.001);

+ Confidence to use and get a contraceptive method (OR: 4.13, 95% CI 2.54-6.71, p<0.001);

+ Modern contraception can be used by girls (OR: 2.54, 95% CI 1.82-3.54, p<0.001);

+ Confidence to secretly use contraception (OR: 2.10, 95% CI 1.54-2.85, p<0.001); and

+ Contraception is the best option to avoid pregnancy (OR: 2.12, 95% CI 1.51-2.97, p<0.001).

Agreement to the following questions related to beliefs and attitudes toward contraceptive use were statistically significantly and negatively associated with having an intention to use contraception: modern contraception has negative side effects (OR: 0.65, 95% CI 0.42-1.00, p=0.049) and modern contraception causes infertility (OR: 0.65, 95% CI 0.43-0.98, p=0.038).

Norms were not significantly associated with having an intention to use contraception in the next three months (OR: 1.03, 95% CI 0.68-1.55, p=0.893). None of the individual norm items that were used to generate the combined norm variable were significantly associated with intention to use contraception in the next three months.

TABLE F1. Predictors of Intention to Use Contraception in the Next Three Months (N=2,072)

Variables (p value, Wald test)	N	%	OR/95% CI
CITY (P=0.059)			
Ouaga (Reference)	1083	52.3	1.00
Bobo	989	47.7	0.57 (0.32-1.02)
TYPE OF SCHOOL (P=0.864)			
Private (Reference)	1528	73.7	1.00
Public	544	26.3	0.95 (0.51-1.76)
AGE (YEAR) (P<0.001)			
14 (Reference)	92	4.4	1.00
15	426	20.6	1.43 (0.48-4.27)
16	514	24.8	3.11 (1.08-8.95)
17	437	21.1	4.27 (1.51-12.10)
18	424	20.5	6.17 (2.20-17.31)
19	179	8.6	8.55 (2.71-26.98)

GRADE (P=0.093)			
4ème (Reference)	948	45.8	1.00
3ème	1124	54.2	1.25 (0.96-1.61)
PARENTAL EDUCATION (P=0.342)			
None/illiterate (Reference)	757	36.5	1.00
Quoranic school	90	4.3	0.60 (0.34-1.04)
Can read and write	142	6.9	1.05 (0.62-1.77)
Primary school	438	21.1	0.95 (0.66-1.35)
Secondary school	509	24.6	0.94 (0.65-1.35)
Higher than secondary	71	3.4	1.09 (0.37-3.19)
Don't know	65	3.1	0.43 (0.14-1.30)
RELIGION (P=0.205)			
Muslim	1393	67.2	1.00
Christian	679	32.8	1.18 (0.91-1.52)
ETHNICITY (P=0.542)			
Mossi	1228	59.3	1.00
Other	844	40.7	1.08 (0.85-1.38)
WEALTH INDEX (P=0.195)			
First quintile (Less wealthy)	442	21.3	1.00
Second quintile	380	18.3	0.71 (0.50-1.01)
Third quintile	447	21.6	0.81 (0.56-1.16)
Fourth quintile	388	18.7	0.69 (0.45-1.06)
Fifth quintile (Most wealthy)	415	20.0	0.65 (0.43-0.97)
HAVE YOU EVER HAD SEXUAL INTERCOURSE? (P<0.001)			
Has never had sex (Reference)	1681	81.1	1.00
Yes	391	18.9	11.18 (7.52-16.62)
ARE YOU CURRENTLY DOING ANYTHING TO AVOID A PREGNANCY? (P<0.001)			
No, don't know, and prefer not to answer	1841	88.9	1.00
Yes	231	11.1	18.93 (12.02-29.79)
HOW MUCH OF AN IMPACT HAS COVID-19 HAD ON YOU OVERALL? (P=0.106)			
Not at all (Reference)	227	11.0	1.00
Somewhat	271	13.1	1.83 (1.09-3.07)
A little	344	16.6	1.13 (0.64-1.98)
A lot	1230	59.4	1.33 (0.84-2.11)
HOW MUCH OF AN IMPACT HAS COVID-19 HAD ON YOU OVERALL? (P=0.178)			
Not at all (Reference)	227	11.0	1.00
Somewhat, a little, or a lot	1845	89.0	1.35 (0.87-2.10)
HOW MUCH ANXIETY HAVE YOU FELT ON A DAILY BASIS BECAUSE OF COVID-19? (P=0.283)			
Not at all (Reference)	121	5.8	1.00
Somewhat	218	10.5	1.51 (0.78-2.93)
A little	515	24.9	0.94 (0.52-1.68)
A lot	1218	58.8	1.22 (0.69-2.14)
HOW MUCH ANXIETY HAVE YOU FELT ON A DAILY BASIS BECAUSE OF COVID-19? (P=0.554)			
Not at all	121	5.8	1.00
Somewhat, a little, or a lot	1951	94.2	1.18 (0.68-2.03)

HOW OFTEN COULD YOU LEAVE HOME TO SEE FRIENDS/OTHERS DURING COVID-19? (P=0.177)			
Not at all (Reference)	705	34.0	1.00
Somewhat	544	26.3	1.62 (0.99-2.66)
A little	564	27.2	1.60 (1.03-2.48)
A lot	259	12.5	1.64 (0.86-3.12)
HOW OFTEN COULD YOU LEAVE HOME TO SEE FRIENDS/OTHERS DURING COVID-19? (P=0.028)			
Not at all	705	34.0	1.00
Somewhat, a little, or a lot	1367	66.0	1.62 (1.05-2.48)
HEALTH CARE WORKERS DO NOT LIKE TO GIVE ADVICE TO YOUNG UNMARRIED GIRLS ABOUT FP. (P=0.375)			
Disagree	1393	67.2	1.00
Agree	657	31.7	0.82 (0.53-1.27)
Prefer not to answer	22	1.1	--
I FEEL CONFIDENT IN MY ABILITY TO GET A CONTRACEPTIVE METHOD, IF I WANTED TO AVOID PREGNANCY. (P<0.001)			
Disagree	501	24.2	1.00
Agree	1567	75.6	4.78 (2.59-8.82)
Prefer not to answer	4	0.2	--
I FEEL CONFIDENT IN MY ABILITY TO USE A CONTRACEPTIVE METHOD, IF I WANTED TO AVOID PREGNANCY. (P<0.001)			
Disagree	560	27.0	1.00
Agree	1510	72.9	4.45 (2.75-7.19)
Prefer not to answer	2	0.1	--
I FEEL CONFIDENT IN MY ABILITY TO USE AND GET A CONTRACEPTIVE METHOD, IF I WANTED TO AVOID PREGNANCY. (P<0.001)			
Disagree	643	31.0	1.00
Agree	1423	68.7	4.13 (2.54-6.71)
Prefer not to answer	6	0.3	--
MODERN CONTRACEPTION CAN BE USED BY GIRLS. (P<0.001)			
Disagree	722	34.8	1.00
Agree	1342	64.8	2.54 (1.82-3.54)
Prefer not to answer	8	0.4	--
I FEEL CONFIDENT I COULD USE CONTRACEPTION SECRETLY. (P<0.001)			
Disagree	867	41.8	1.00
Agree	1195	57.7	2.10 (1.54-2.85)
Prefer not to answer	10	0.5	--
ALL MODERN CONTRACEPTIVES HAVE NEGATIVE SIDE EFFECTS THAT MAKE ME NOT WANT TO USE THEM. (P=0.049)			
Disagree	588	28.4	1.00
Agree	1445	69.7	0.65 (0.42-1.00)
Prefer not to answer	39	1.9	--
MODERN CONTRACEPTION CAUSES INFERTILITY. (P=0.038)			
Disagree	384	18.5	1.00
Agree	1671	80.6	0.65 (0.43-0.98)
Prefer not to answer	17	0.8	
IF I AM HAVING SEX AND WANT TO AVOID PREGNANCY, MODERN CONTRACEPTION IS THE BEST OPTION. (P<0.001)			
Disagree	405	19.5	1.00
Agree	1657	80.0	2.12 (1.51-2.97)
Prefer not to answer	10	0.5	--
NORMS: UNMARRIED GIRLS DO NOT AND SHOULD NOT USE FP. (P=0.893)			
Disagree	1505	72.6	1.00
Agree	479	23.1	1.03 (0.68-1.55)
Prefer not to answer	36	1.7	--
NA	52	2.5	--

MOST UNMARRIED GIRLS MY AGE DO NOT USE MODERN CONTRACEPTION TO AVOID OR DELAY PREGNANCY. (P=0.565)			
Disagree	907	43.8	1.00
Agree	1139	55.0	1.10 (0.79-1.53)
Prefer not to answer	26	1.3	--
MOST GIRLS THINK THAT UNMARRIED GIRLS SHOULD NOT USE MODERN CONTRACEPTION. (P=0.127)			
Disagree	873	42.1	1.00
Agree	1183	57.1	0.80 (0.60-1.07)
Prefer not to answer	16	0.8	--
THE PEOPLE MOST IMPORTANT TO ME DO NOT THINK I SHOULD USE MODERN CONTRACEPTION. (P=0.642)			
Disagree	482	23.3	1.00
Agree	1518	73.3	0.93 (0.69-1.26)
Prefer not to answer	20	1.0	--
NA	52	2.5	--

All models are adjusted for clustering of girls with robust standard errors.

NA: Not applicable (Question not asked)

ANNEX G. Interaction Between Intervention and Ever Having Been Sexually Active on Intention to Use Contraception in the Next Three Months at Endline

FIGURE G1. Interaction Between Intervention and Ever Having Been Sexually Active on Intention to Use Contraception in the Next Three Months at Endline (N=2,072)

TABLE H1. **Impact of (re)solve on Intention to Use Contraception in the Next Three Months (N=2,072)**

	Unadjusted model OR/95% CI	Adjusted model 1 OR/95% CI	Adjusted model 2 OR/95% CI	Adjusted model 3 OR/95% CI
ARM				
Control	1.00	1.00	1.00	1.00
Intervention	1.23 (0.76-1.97)	1.20 (0.69-2.08)	1.47 (0.92-2.34)	1.59 (0.97-2.61)
BASELINE INTENTION TO USE				
No	1.00	1.00	1.00	1.00
Yes	3.38 (2.37-4.81)	2.80 (1.96-4.00)	1.62 (1.08-2.42)	1.66 (1.10-2.49)
AGE				
14		1.00	1.00	1.00
15		1.43 (0.50-4.11)	1.45 (0.58-3.62)	1.45 (0.60-3.48)
16		2.87 (1.03-7.94)	2.08 (0.83-5.22)	2.06 (0.85-5.03)
17		3.91 (1.48-10.34)	2.34 (0.98-5.57)	2.41 (1.00-5.81)
18		5.20 (1.97-13.68)	2.57 (1.10-5.97)	2.69 (1.12-6.51)
19		7.43 (2.50-22.11)	3.11 (1.10-8.81)	3.37 (1.14-9.97)
COVID-19 EFFECT ON MOBILITY				
Not at all			1.00	1.00
Somewhat, a little or a lot			1.30 (0.90-1.88)	1.30 (0.88-1.91)
CURRENTLY USING FP				
No, DK or PNTA			1.00	1.00
Yes			14.92 (9.82-22.67)	14.92 (9.82-22.67)
CITY				
Ouaga				1.00
Bobo				0.72 (0.41-1.26)
GRADE				
4ème				1.00
3ème				0.81 (0.60-1.10)
WEALTH INDEX				
First quintile (Least)				1.00
Second quintile				0.77 (0.51-1.15)
Third quintile				0.86 (0.59-1.26)
Fourth quintile				0.84 (0.51-1.38)
Fifth quintile (Most)				0.63 (0.42-0.94)

All models are adjusted for having an intention to use contraception at baseline and clustering of girls with robust standard errors. Model 1 adjusted for age. Model 2 adjusted for age, COVID-19 effect on mobility, and currently doing something to avoid a pregnancy. Model 3 adjusted for age, COVID-19 effect on mobility, currently doing something to avoid a pregnancy, city, grade, and wealth quintile.

TABLE H2. Impact of (re)solve on Intention to Use Contraception in the Next Three Months Among Ever Sexually Active Girls Only (N=391)

	Unadjusted model OR/95% CI	Adjusted model 1 OR/95% CI	Adjusted model 2 OR/95% CI	Adjusted model 3 OR/95% CI
ARM				
Control	1.00	1.00	1.00	1.00
Intervention	1.32 (0.75-2.33)	1.27 (0.71-2.25)	1.38 (0.83-2.31)	1.43 (0.79-2.59)
BASELINE INTENTION TO USE				
No	1.00	1.00	1.00	1.00
Yes	1.78 (1.21-2.62)	1.74 (1.18-2.56)	1.38 (0.92-2.07)	1.38 (0.92-2.07)
AGE				
14		1.00	1.00	1.00
15		0.15 (0.01-4.35)	0.17 (0.01-1.96)	0.14 (0.01-1.62)
16		0.94 (0.05-19.15)	0.96 (0.14-6.70)	1.05 (0.15-7.53)
17		0.72 (0.03-16.04)	0.74 (0.09-6.10)	0.86 (0.10-7.39)
18		0.70 (0.03-14.59)	0.64 (0.09-4.62)	0.79 (0.10-6.26)
19		0.59 (0.02-15.16)	0.59 (0.07-5.20)	0.77 (0.08-7.51)
COVID-19 EFFECT ON MOBILITY				
Not at all			1.00	1.00
Somewhat, a little or a lot			1.11 (0.71-1.73)	1.17 (0.73-1.87)
CURRENTLY USING FP				
No, don't know, or prefer not to answer			1.00	1.00
Yes			7.66 (4.61-12.75)	8.07 (4.74-13.75)
CITY				
Ouaga				1.00
Bobo				1.25 (0.62-2.50)
GRADE				
4ème				1.00
3ème				0.66 (0.42-1.05)
WEALTH INDEX				
First quintile (Least)				1.00
Second quintile				0.85 (0.48-1.49)
Third quintile				0.80 (0.45-1.45)
Fourth quintile				1.18 (0.54-2.60)
Fifth quintile (Most)				0.80 (0.44-1.46)

All models are adjusted for having an intention to use contraception at baseline and clustering of girls with robust standard errors. Model 1 adjusted for age. Model 2 adjusted for age, COVID-19 effect on mobility, and currently doing something to avoid a pregnancy. Model 3 adjusted for age, COVID-19 effect on mobility, currently doing something to avoid a pregnancy, city, grade, and wealth quintile.

TABLE H3. Impact of (re)solve on Intention to Use Contraception in the Next Three Months Among the Girls Who Had Never Had Sex (N=1,681)

	Unadjusted model OR/95% CI	Adjusted model 1 OR/95% CI	Adjusted model 2 OR/95% CI	Adjusted model 3 OR/95% CI
ARM				
Control	1.00	1.00	1.00	1.00
Intervention	1.72 (0.88-3.38)	1.78 (0.90-3.53)	1.83 (0.92-3.65)	1.80 (0.95-3.42)
BASELINE INTENTION TO USE				
No	1.00	1.00	1.00	1.00
Yes	1.48 (0.72-3.02)	1.41 (0.67-2.97)	1.37 (0.65-2.89)	1.33 (0.65-2.73)
AGE				
14		1.00	1.00	1.00
15		1.57 (0.64-3.85)	1.66 (0.65-4.25)	1.60 (0.67-3.80)
16		1.45 (0.56-3.73)	1.52 (0.56-4.14)	1.35 (0.50-3.66)
17		1.91 (0.67-5.45)	1.93 (0.64-5.81)	1.71 (0.54-5.44)
18		2.19 (0.80-5.98)	2.27 (0.78-6.62)	2.17 (0.67-7.03)
19		3.20 (0.91-11.27)	3.43 (0.94-12.55)	3.23 (0.78-13.42)
COVID-19 EFFECT ON MOBILITY				
Not at all			1.00	1.00
Somewhat, a little or a lot			1.28 (0.78-2.11)	1.27 (0.74-2.17)
CURRENTLY USING FP				
No, don't know, or prefer not to answer			1.00	1.00
Yes			4.77 (1.47-15.41)	4.79 (1.53-15.02)
CITY				
Ouaga				1.00
Bobo				0.34 (0.16-0.71)
GRADE				
4ème				1.00
3ème				1.06 (0.68-1.66)
WEALTH INDEX				
First quintile (Least)				1.00
Second quintile				0.67 (0.39-1.15)
Third quintile				0.76 (0.44-1.29)
Fourth quintile				0.57 (0.32-1.04)
Fifth quintile (Most)				0.48 (0.24-0.95)

All models are adjusted for having an intention to use contraception at baseline and clustering of girls with robust standard errors. Model 1 adjusted for age. Model 2 adjusted for age, COVID-19 effect on mobility, and currently doing something to avoid a pregnancy. Model 3 adjusted for age, COVID-19 effect on mobility, currently doing something to avoid a pregnancy, city, grade, and wealth quintile.
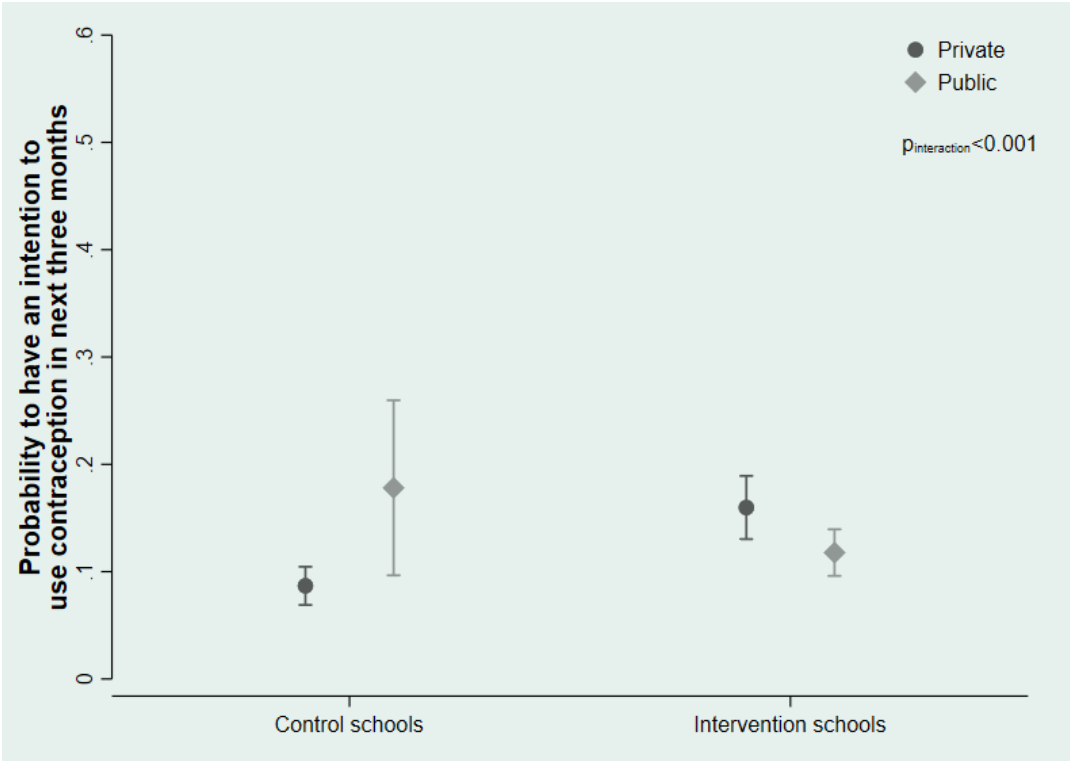
ANNEX I. Interaction Between Intervention and Type of School on Intention to Use Contraception in the Next Three Months at Endline

Interaction Between Intervention and Type of School on Intention to Use Contraception in the Next Three Months at Endline (N=2,072)

ANNEX J. Impact of (re)solve on Intention to Use Contraception in the Next Three Months in Private and Public Schools

TABLE J1. **Impact of (re)solve on Intention to Use Contraception in the Next Three Months in Private Schools (N=1,528)***

	Unadjusted model OR/95% CI	Adjusted model 1 OR/95% CI	Adjusted model 2 OR/95% CI	Adjusted model 3 OR/95% CI
ARM				
Control	1.00	1.00	1.00	1.00
Intervention	1.79 (1.07-3.00)	1.88 (1.08-3.27)	2.13 (1.36-3.35)	2.43 (1.62-3.63)
BASELINE INTENTION TO USE				
No	1.00	1.00	1.00	1.00
Yes	3.25 (2.17-4.88)	2.83 (1.87-4.29)	1.70 (1.14-2.53)	1.77 (1.14-2.75)
AGE				
14		1.00	1.00	1.00
15		1.53 (0.47-4.95)	1.47 (0.52-4.13)	1.40 (0.59-3.33)
16		2.36 (0.66-8.38)	1.88 (0.62-5.72)	1.73 (0.69-4.32)
17		3.23 (0.94-11.15)	2.34 (0.82-6.66)	2.26 (0.91-5.59)
18		4.10 (1.26-13.39)	2.42 (0.93-6.29)	2.33 (0.99-5.44)
19		5.90 (1.59-21.88)	3.03 (0.97-9.51)	2.96 (1.03-8.49)
COVID-19 EFFECT ON MOBILITY				
Not at all			1.00	1.00
Somewhat, a little or a lot			0.97 (0.68-1.38)	0.89 (0.60-1.32)
CURRENTLY USING FP				
No, don't know, prefer not to answer			1.00	1.00
Yes			11.23 (7.78-16.21)	11.26 (7.75-16.35)
CITY				
Ouaga				1.00
Bobo				0.39 (0.24-0.63)
GRADE				
4ème				1.00
3ème				0.90 (0.59-1.37)
WEALTH INDEX				
First quintile (Least)				1.00
Second quintile				0.73 (0.44-1.23)
Third quintile				0.72 (0.46-1.12)
Fourth quintile				0.75 (0.43-1.33)
Fifth quintile (Most)				0.56 (0.35-0.90)

*Twelve clusters per arm.

All models are adjusted for having an intention to use contraception at baseline and clustering of girls with robust standard errors. Model 1 adjusted for age. Model 2 adjusted for age, COVID-19 effect on mobility, and currently doing something to avoid a pregnancy. Model 3 adjusted for age, COVID-19effect on mobility, currently doing something to avoid a pregnancy, city, grade,and wealth quintile.
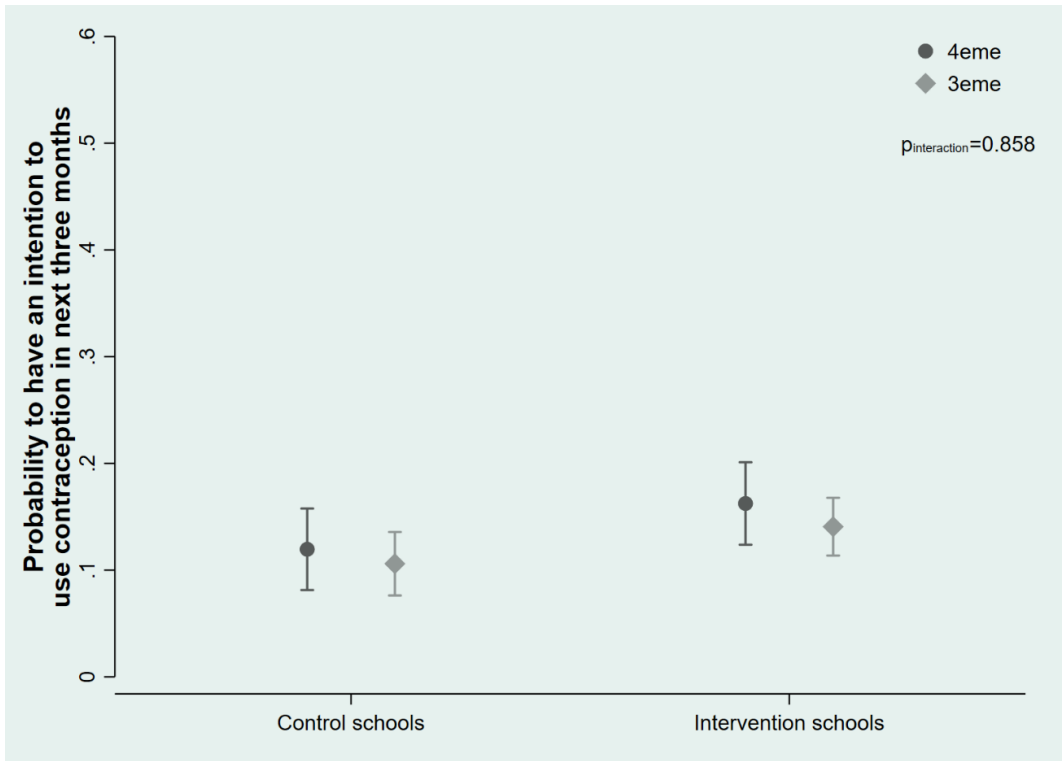
TABLE J2. Impact of (re)solve on Intention to Use Contraception in the Next Three Months in Public Schools (N=544)*

	Unadjusted model OR/95% CI	Adjusted model 1 OR/95% CI	Adjusted model 2 OR/95% CI	Adjusted model 3 OR/95% CI
ARM				
Control	1.00	1.00	1.00	1.00
Intervention	0.41 (0.20-0.83)	0.38 (0.16-0.87)	0.48 (0.20-1.16)	0.49 (0.20-1.17)
BASELINE INTENTION TO USE				
No	1.00	1.00	1.00	1.00
Yes	4.13 (2.01-8.52)	3.04 (1.34-6.89)	1.53 (0.26-8.99)	1.60 (0.23-11.14)
AGE				
14		1.00	1.00	1.00
15		1.32 (0.20-8.59)	1.14 (0.18-7.31)	1.24 (0.18-8.65)
16		3.66 (0.78-17.23)	1.42 (0.23-8.58)	1.56 (0.21-11.48)
17		5.27 (1.87-14.84)	1.01 (0.22-4.52)	1.13 (0.22-5.88)
18		9.83 (2.41-40.02)	2.71 (0.43-17.01)	3.10 (0.42-23.13)
19		20.85 (2.97-146.45)	2.80 (0.15-51.28)	3.03 (0.16-58.83)
COVID-19 EFFECT ON MOBILITY				
Not at all			1.00	1.00
Somewhat, a little or a lot			3.96 (1.55-10.12)	4.01 (1.62-9.95)
CURRENTLY USING FP				
No, don't know, or prefer not to answer			1.00	1.00
Yes			64.97 (23.02-183.39)	64.63 (23.55-177.35)
CITY				
Ouaga				1.00
Bobo				1.42 (0.57-3.54)
GRADE				
4ème				1.00
3ème				0.88 (0.45-1.71)
WEALTH INDEX				
First quintile (Least)				1.00
Second quintile				0.85 (0.48-1.51)
Third quintile				0.79 (0.32-1.98)
Fourth quintile				0.76 (0.21-2.69)
Fifth quintile (Most)				0.68 (0.20-2.24)

*Four clusters per arm. All models are adjusted for having an intention to use contraception at baseline and clustering of girls with robust standard errors. Model 1 adjusted for age. Model 2 adjusted for age, COVID-19 effect on mobility, and currently doing something to avoid a pregnancy. Model 3 adjusted for age, COVID-19 effect on mobility, currently doing something to avoid a pregnancy, city, grade, and wealth quintile.

ANNEX K. Interaction Between Intervention and Grade on Intention to Use Contraception in the Next Three Months at Endline

FIGURE K1. Interaction Between Intervention and Grade on Intention to Use Contraception in the Next Three Months at Endline (N=2,072)

ANNEX L. Impact of (re)solve on Intention to Use Contraception in the Next Three Months in Grades 3ème and 4ème

TABLE L1. Impact of (re)solve on Intention to Use Contraception in the Next Three Months in 3ème Grade (N=1,124)

	Unadjusted model OR/95% CI	Adjusted model 1 OR/95% CI	Adjusted model 2 OR/95% CI	Adjusted model 3 OR/95% CI
ARM				
Control	1.00	1.00	1.00	1.00
Intervention	1.34 (0.77-2.31)	1.41 (0.77-2.58)	1.58 (0.97-2.55)	1.61 (1.01-2.57)
BASELINE INTENTION TO USE				
No	1.00	1.00	1.00	1.00
Yes	3.52 (2.31-5.36)	3.01 (1.99-4.56)	1.85 (1.17-2.93)	1.90 (1.19-3.03)
AGE				
14		1.00	1.00	1.00
15		1.00 (0.21-4.77)	0.70 (0.16-3.12)	0.71 (0.19-2.59)
16		1.82 (0.45-7.31)	1.02 (0.29-3.60)	1.00 (0.33-3.02)
17		2.58 (0.57-11.54)	1.21 (0.38-3.90)	1.24 (0.47-3.25)
18		3.85 (0.82-18.00)	1.47 (0.39-5.48)	1.46 (0.47-4.56)
19		5.97 (1.29-27.58)	2.09 (0.55-7.90)	2.14 (0.68-6.81)
COVID-19 EFFECT ON MOBILITY				
Not at all			1.00	1.00
Somewhat, a little or a lot			1.38 (0.89-2.15)	1.34 (0.83-2.14)
CURRENTLY USING FP				
No, don't know, or prefer not to answer			1.00	1.00
Yes			10.61 (6.74-16.69)	10.53 (6.64-16.70)
CITY				
Ouaga				1.00
Bobo				0.62 (0.37-1.05)
WEALTH INDEX				
First quintile (Least)				1.00
Second quintile				0.84 (0.44-1.59)
Third quintile				0.85 (0.49-1.47)
Fourth quintile				1.11 (0.56-2.20)
Fifth quintile (Most)				0.66 (0.37-1.17)

All models are adjusted for having an intention to use contraception at baseline and clustering of girls with robust standard errors. Model 1 adjusted for age. Model 2 adjusted for age, COVID-19 effect on mobility, and currently doing something to avoid a pregnancy. Model 3 adjusted for age, COVID-19 effect on mobility, currently doing something to avoid a pregnancy, city, and wealth quintile.

TABLE L2. Impact of (re)solve on Intention to Use Contraception in the Next Three Months in 4ème Grade (N=948)

	Unadjusted model OR/95% CI	Adjusted model 1 OR/95% CI	Adjusted model 2 OR/95% CI	Adjusted model 3 OR/95% CI
ARM				
Control	1.00	1.00	1.00	1.00
Intervention	1.21 (0.65-2.24)	1.25 (0.64-2.45)	1.77 (0.89-3.51)	1.85 (0.90-3.78)
BASELINE INTENTION TO USE				
No	1.00	1.00	1.00	1.00
Yes	3.41 (2.08-5.59)	2.70 (1.62-4.51)	1.37 (0.63-2.95)	1.41 (0.67-2.96)
AGE				
14		1.00	1.00	1.00
15		1.57 (0.40-6.22)	2.08 (0.50-8.61)	2.19 (0.57-8.31)
16		3.39 (0.98-11.70)	2.91 (0.71-11.88)	2.74 (0.70-10.74)
17		5.18 (1.38-19.40)	3.75 (0.75-18.80)	3.57 (0.74-17.24)
18		6.04 (1.76-20.68)	3.72 (0.92-15.14)	3.72 (0.91-15.16)
19		5.37 (0.93-30.87)	1.81 (0.30-11.00)	1.45 (0.24-8.73)
COVID-19 EFFECT ON MOBILITY				
Not at all			1.00	1.00
Somewhat, a little or a lot			1.22 (0.69-2.16)	1.21 (0.68-2.16)
CURRENTLY USING FP				
No, don't know, or prefer not to answer			1.00	1.00
Yes			31.40 (16.52-59.68)	33.75 (17.89-63.65)
CITY				
Ouaga				1.00
Bobo				0.55 (0.25-1.18)
WEALTH INDEX				
First quintile (Least)				1.00
Second quintile				0.62 (0.24-1.63)
Third quintile				0.78 (0.43-1.40)
Fourth quintile				0.39 (0.18-0.82)
Fifth quintile (Most)				0.48 (0.23-1.02)

All models are adjusted for having an intention to use contraception at baseline and clustering of girls with robust standard errors. Model 1 adjusted for age. Model 2 adjusted for age, COVID-19 effect on mobility, and currently doing something to avoid a pregnancy. Model 3 adjusted for age, COVID-19 effect on mobility, currently doing something to avoid a pregnancy, city, and wealth quintile.

ANNEX M. Impact of (re)solve on Intention to Use Contraception in the Next Three Months Among Girls Who Went to a Facility, Did Not Go, or Almost Went to a Facility

TABLE M1. Impact of (re)solve on Intention to Use Contraception in the Next Three Months, Restricted to Girls Who Went to a Health Facility in the Intervention Group (N=1,379)

	Unadjusted model OR/95% CI	Adjusted model 1 OR/95% CI	Adjusted model 2 OR/95% CI	Adjusted model 3 OR/95% CI
ARM				
Control	1.00	1.00	1.00	1.00
Intervention	1.90 (1.12-3.21)	1.75 (0.98-3.10)	1.91 (1.08-3.37)	2.02 (1.08-3.77)
BASELINE INTENTION TO USE				
No	1.00	1.00	1.00	1.00
Yes	3.79 (2.51-5.73)	3.10 (2.10-4.57)	1.96 (1.21-3.17)	2.01 (1.24-3.25)
AGE				
14		1.00	1.00	1.00
15		2.18 (0.29-16.24)	1.53 (0.29-8.12)	1.56 (0.30-8.17)
16		5.04 (0.81-31.44)	2.30 (0.44-11.98)	2.26 (0.44-11.64)
17		6.54 (1.09-39.17)	2.27 (0.45-11.51)	2.24 (0.45-11.19)
18		8.65 (1.45-51.54)	2.37 (0.47-11.92)	2.39 (0.47-12.14)
19		10.93 (1.64-72.96)	2.85 (0.46-17.53)	2.87 (0.46-17.72)
COVID-19 EFFECT ON MOBILITY				
Not at all			1.00	1.00
Somewhat, a little or a lot			1.06 (0.66-1.71)	1.05 (0.64-1.72)
CURRENTLY USING FP				
No, don't know, or prefer not to answer			1.00	1.00
Yes			18.33 (11.32-29.67)	18.27 (11.24-29.71)
CITY				
Ouaga				1.00
Bobo				0.79 (0.38-1.63)
GRADE				
4ème				1.00
3ème				0.90 (0.63-1.27)
WEALTH INDEX				
First quintile (Least)				1.00
Second quintile				0.92 (0.60-1.39)
Third quintile				0.90 (0.52-1.54)
Fourth quintile				0.59 (0.30-1.15)
Fifth quintile (Most)				0.72 (0.49-1.08)

All models are adjusted for having an intention to use contraception at baseline and clustering of girls with robust standard errors. Model 1 adjusted for age. Model 2 adjusted for age, COVID-19 effect on mobility, and currently doing something to avoid a pregnancy. Model 3 adjusted for age, COVID-19 effect on mobility, currently doing something to avoid a pregnancy, city, grade, and wealth quintile.

TABLE M2. Impact of (re)solve on Having an Intention to Use Contraception in the Next Three Months, Restricted to Girls Who Did Not Go to a Health Facility in the Intervention Group (N=1,747)

	Unadjusted model OR/95% CI	Adjusted model 1 OR/95% CI	Adjusted model 2 OR/95% CI	Adjusted model 3 OR/95% CI
ARM				
Control	1.00	1.00	1.00	1.00
Intervention	0.91 (0.54-1.55)	0.89 (0.48-1.62)	1.17 (0.73-1.90)	1.30 (0.79-2.14)
BASELINE INTENTION TO USE				
No	1.00	1.00	1.00	1.00
Yes	3.31 (2.33-4.70)	2.67 (1.87-3.82)	1.52 (0.96-2.42)	1.59 (0.98-2.57)
AGE				
14		1.00	1.00	1.00
15		1.27 (0.33-4.91)	1.36 (0.46-3.97)	1.33 (0.50-3.58)
16		3.13 (0.91-10.82)	2.58 (0.93-7.16)	2.49 (0.95-6.52)
17		4.17 (1.34-12.94)	2.60 (0.95-7.13)	2.59 (0.96-7.01)
18		5.33 (1.77-16.06)	2.83 (1.15-7.00)	2.87 (1.14-7.24)
19		8.33 (2.48-27.96)	3.77 (1.20-11.85)	4.04 (1.28-12.76)
COVID-19 EFFECT ON MOBILITY				
Not at all			1.00	1.00
Somewhat, a little or a lot			1.34 (0.87-2.08)	1.36 (0.86-2.15)
CURRENTLY USING FP				
No, don't know, or prefer not to answer			1.00	1.00
Yes			13.50 (8.15-22.38)	13.68 (8.18-22.89)
CITY				
Ouaga				1.00
Bobo				0.66 (0.33-1.32)
GRADE				
4ème				1.00
3ème				0.80 (0.57-1.12)
WEALTH INDEX				
First quintile (Least)				1.00
Second quintile				0.79 (0.54-1.17)
Third quintile				0.93 (0.59-1.48)
Fourth quintile				1.03 (0.59-1.82)
Fifth quintile (Most)				0.53 (0.32-0.87)

All models are adjusted for having an intention to use contraception at baseline and clustering of girls with robust standard errors. Model 1 adjusted for age. Model 2 adjusted for age, COVID-19 effect on mobility, and currently doing something to avoid a pregnancy. Model 3 adjusted for age, COVID-19 effect on mobility, currently doing something to avoid a pregnancy, city, grade, and wealth quintile.

TABLE M3. Impact of (re)solve on Having an Intention to Use Contraception in the Next Three Months, Restricted to Girls Who Were Classified as "Near Misses"* in the Intervention Group (N=1,419)**

	Unadjusted model OR/95% CI	Adjusted model 1 OR/95% CI	Adjusted model 2 OR/95% CI	Adjusted model 3 OR/95% CI
ARM				
Control	1.00	1.00	1.00	1.00
Intervention	1.23 (0.73-2.07)	1.20 (0.67-2.16)	1.45 (0.88-2.40)	1.52 (0.92-2.51)
BASELINE INTENTION TO USE				
No	1.00	1.00	1.00	1.00
Yes	3.27 (2.29-4.68)	2.61 (1.83-3.71)	1.47 (0.92-2.35)	1.50 (0.91-2.45)
AGE				
14		1.00	1.00	1.00
15		3.32 (0.12-93.60)	2.61 (0.21-32.50)	2.56 (0.23-28.22)
16		9.64 (0.51-181.35)	5.56 (0.50-61.98)	5.49 (0.56-54.15)
17		13.07 (0.84-202.56)	5.09 (0.50-51.74)	5.28 (0.57-48.84)
18		17.57 (1.01-305.68)	6.08 (0.55-67.54)	6.42 (0.63-65.07)
19		27.84 (1.51-512.40)	8.49 (0.68-105.27)	9.37 (0.82-107.13)
COVID-19 EFFECT ON MOBILITY				
Not at all			1.00	1.00
Somewhat, a little or a lot			1.24 (0.76-2.05)	1.24 (0.75-2.06)
CURRENTLY USING FP				
No, don't know, or prefer not to answer			1.00	1.00
Yes			13.58 (7.81-23.64)	13.39 (7.67-23.38)
CITY				
Ouaga				1.00
Bobo				0.79 (0.40-1.53)
GRADE				
4ème				1.00
3ème				0.79 (0.53-1.17)
WEALTH INDEX				
First quintile (Least)				1.00
Second quintile				1.06 (0.70-1.62)
Third quintile				1.05 (0.59-1.88)
Fourth quintile				1.08 (0.55-2.09)
Fifth quintile (Most)				0.77 (0.43-1.40)

*Girls that had an intention to go to health center (but didn't follow through because of COVID-19, time constraints, lack of support) **One cluster had no events and was dropped from analysis.

All models are adjusted for having an intention to use contraception at baseline and clustering of girls with robust standard errors. Model 1 adjusted for age. Model 2 adjusted for age, COVID-19 effect on mobility, and currently doing something to avoid a pregnancy. Model 3 adjusted for age, COVID-19 effect on mobility, currently doing something to avoid a pregnancy, city, grade, and wealth quintile.

ANNEX N. Interaction Between Intervention and Different Attitudinal and Belief Statements

FIGURE N1. Interaction Between Intervention and Reported Confidence in Ability to Get and Use Contraceptive on Intention to Use Contraception in the Next Three Months at Endline (N=2,066)
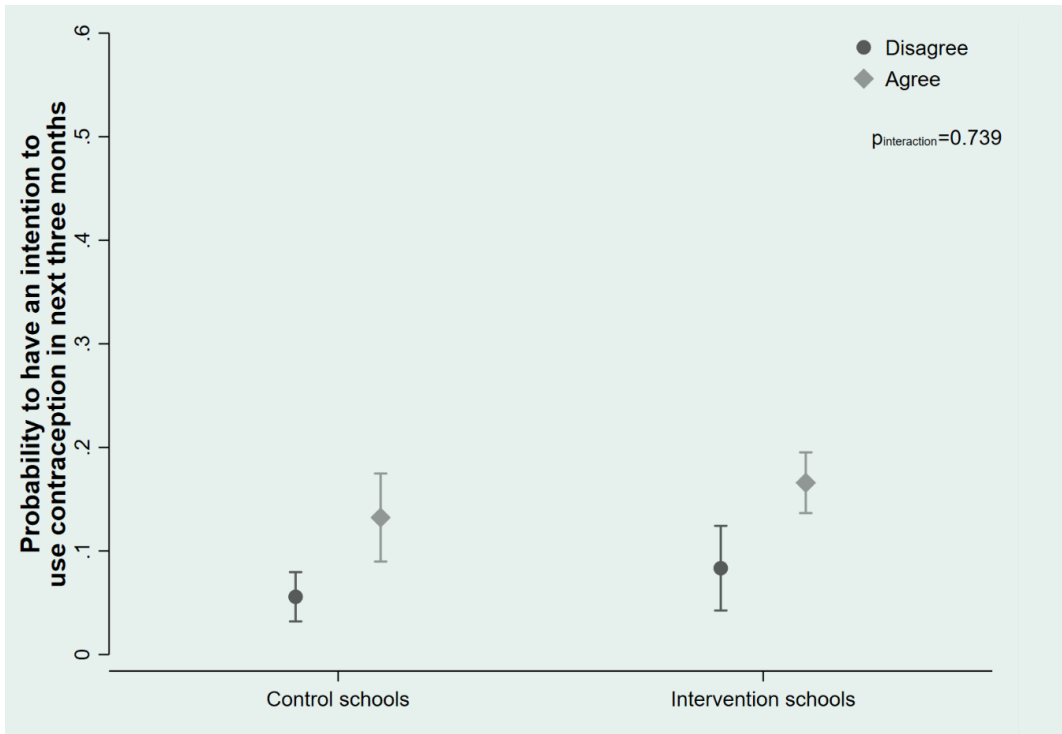

FIGURE N2. Interaction between Intervention and Responding that Modern Contraception Can be Used by Girls on Intention to Use Contraception in the Next Three Months at Endline (N=2,064)
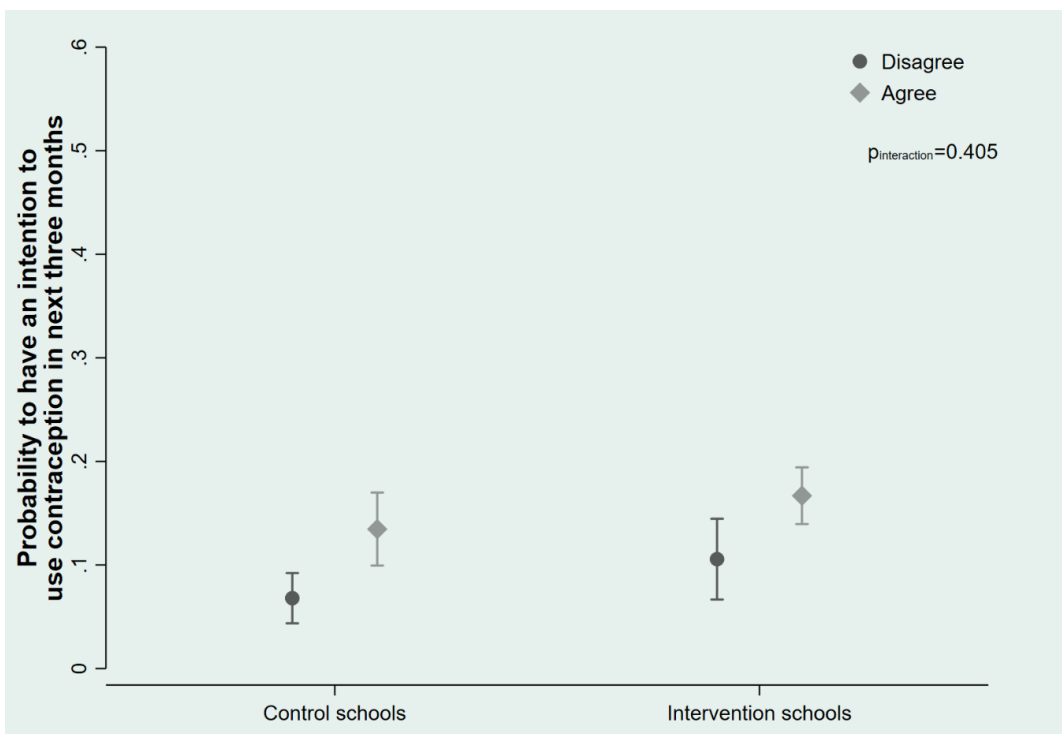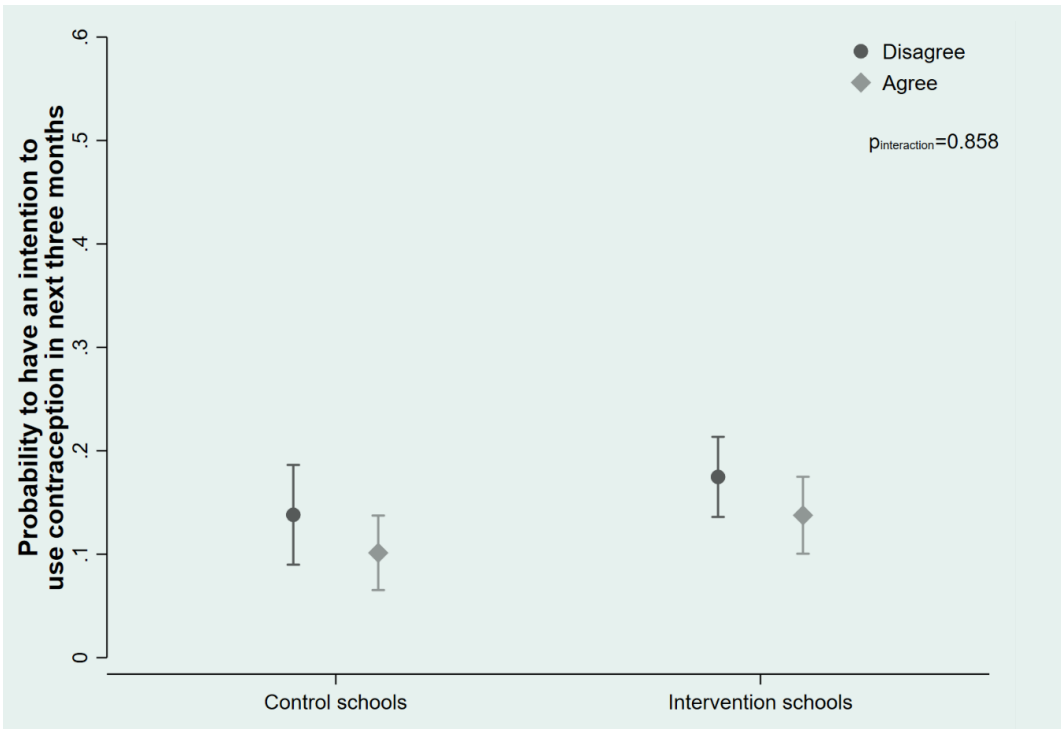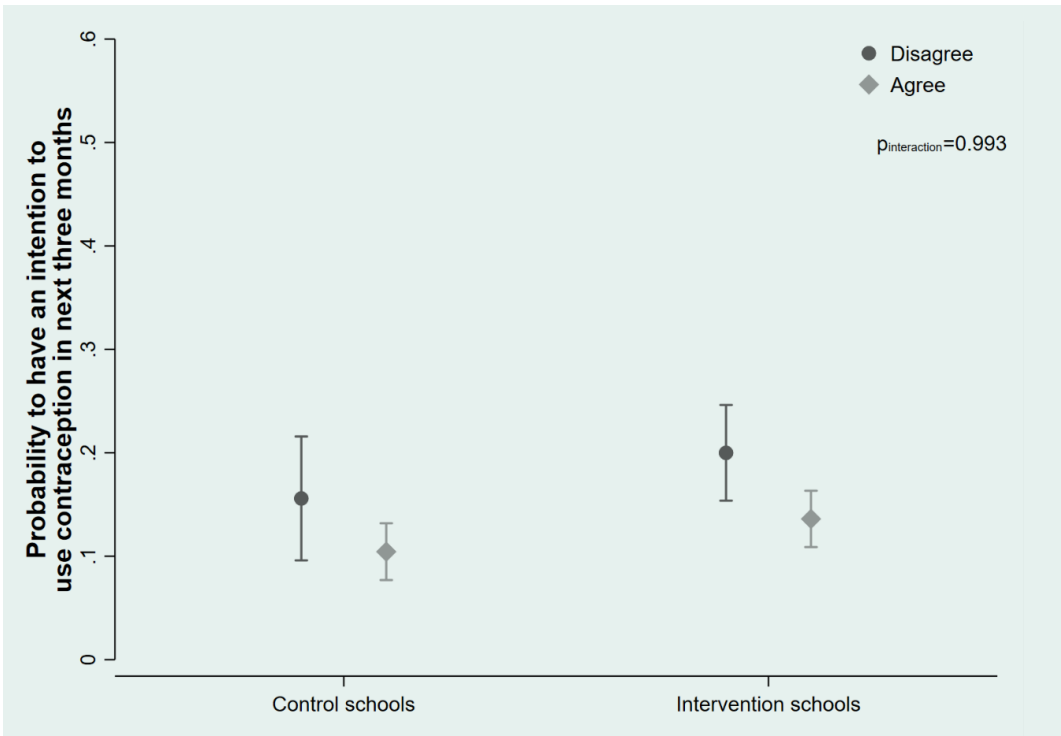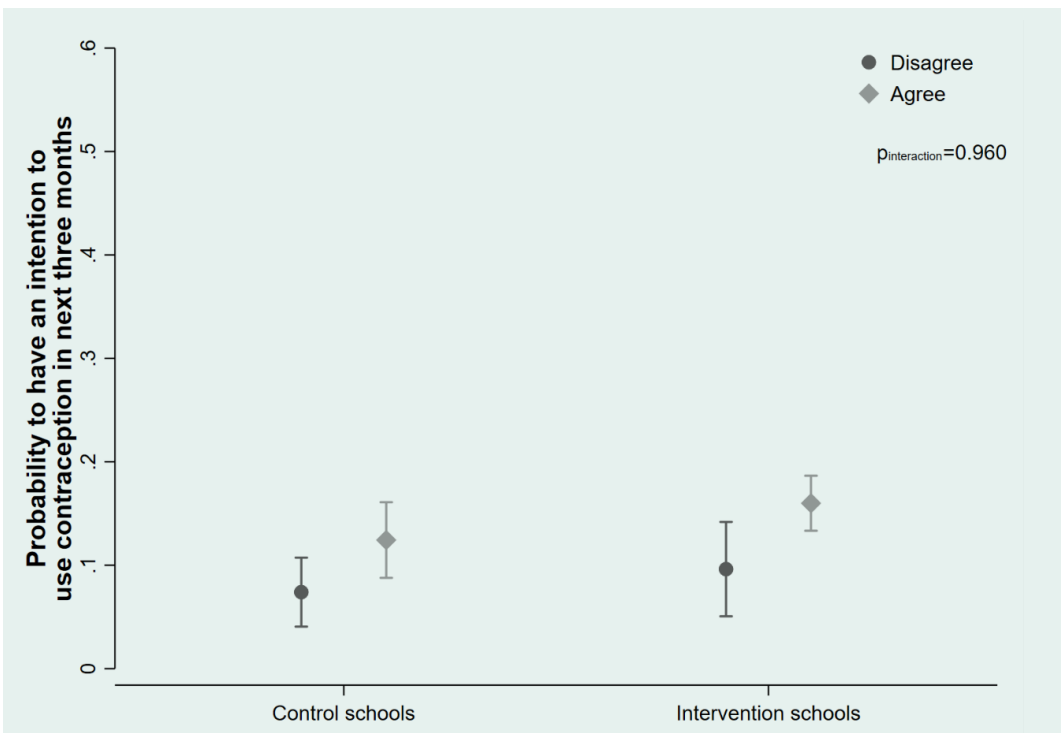
FIGURE N3. Interaction Between Intervention and Feeling Confident I Could Use Contraception Secretly on Intention to Use Contraception in the Next Three Months at Endline (N=2,062)
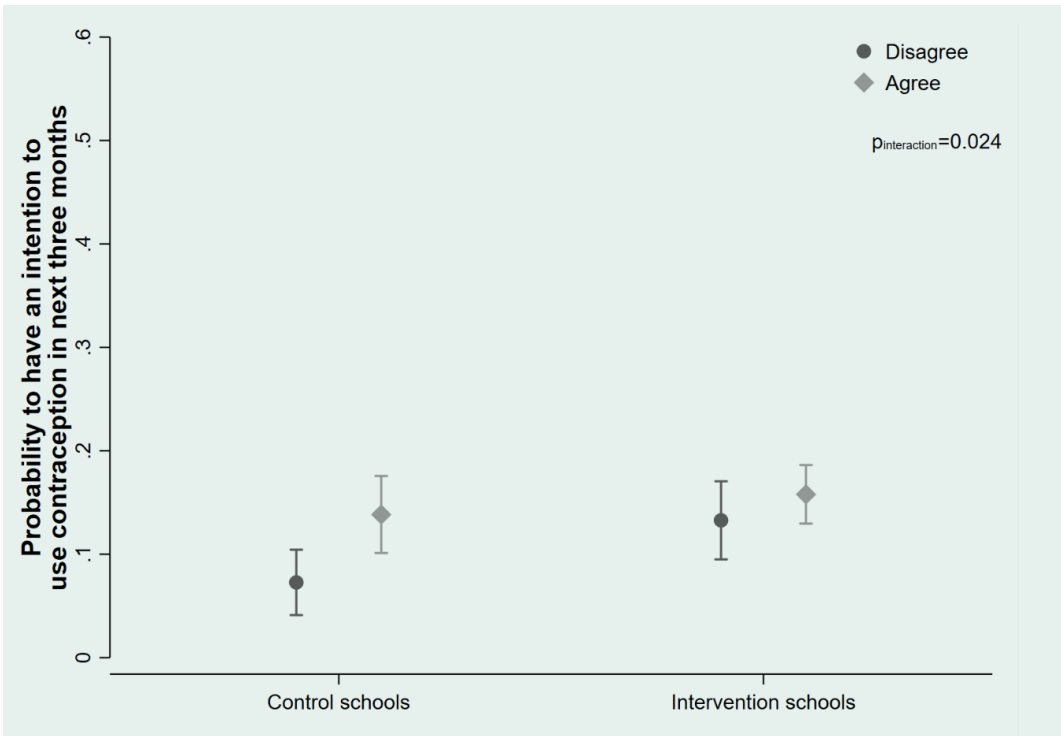
FIGURE N4. Interaction Between Intervention and Feeling That All Modern Contraceptives Have Negative Side Effects That Make Me Not Want to Use Them on Intention to Use Contraception in the Next Three Months at Endline (N=2,033)

FIGURE N5. Interaction Between Intervention and Feeling That Modern Contraception Causes Infertility on Intention to Use Contraception in the Next Three Months at Endline (N=2,055)

FIGURE N6. Interaction Between Intervention and Feeling That if I am Having Sex and Want to Avoid Pregnancy Modern Contraception Is Best Option on Intention to Use Contraception in the Next Three Months at Endline (N=2,062)