Findings from the Replication of an Evidence-Based Teen Pregnancy Prevention Program

Evaluation of Aban Aya Youth Development Project in the Mississippi Delta

Final Impact Report for
Youth Opportunities Unlimited, Inc.
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Evaluation Abstract: Delta D.R.E.E.A.M - Aban Aya Youth Development Project

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Intervention Name

Delta D.R.E.E.A.M. (DaRing to Excel through Education, Advocacy, & Modeling):
Aban Aya Youth Development Project

Intervention Description

The Delta D.R.E.E.A.M. Project had three components. The core component is a four-year Aban Aya Youth Development Project (Aban Aya) curriculum identified as an evidenced-based curriculum by the U.S. Department of Health and Human Services' teen pregnancy program evidence review team. There are two optional components to the program—out-of-school activities and mentoring. The project is designed to reduce the rate of pregnancy, sexually transmitted infections (STIs), and other risk behaviors for pre-adolescent and early adolescent boys and girls from grades 5 through 8.

The Aban Aya curriculum consists of 16 to 21 lessons per year from 5th to 8th grades focusing on the reduction of risky behaviors, such as unsafe sexual practices, substance use, and violence. The program provides age-appropriate lessons on cognitive-behavioral skills to build self-esteem and empathy; to manage stress and anxiety; to develop interpersonal relationships and resist peer pressure; and to develop healthy decision-making, problem-solving, conflict-resolution, and goal-setting skills. The lessons are taught in an Afrocentric context within a classroom environment with each lesson lasting 45 to 50 minutes.

The two optional components are school/community activities for youth, parents, or community members and a mentoring program. The school/community component engage parents and community members in helping youth create a safe and healthy environment with adult guidance and support. Local groups of school representatives, parents, community members, and project staff meet quarterly to discuss the curriculum and provide opportunities for youth to interact with parents and members of the community through various extracurricular activities. The mentoring component of the project involves the referral and assignment of youth with socioemotional issues and low academic performance to a high school youth mentor. The high school mentors are trained to spend at least three hours per week with his or her mentee, providing the mentee with an opportunity to play, talk, and work on various areas of interest. Not all participants have a mentor, but there is a target of reaching about 10 percent of the intervention group per year.

The comparison school sites do not receive or participate any component of the Delta D.R.E.E.A.M Project. The comparison schools are not located proximate to the intervention schools. As the students move into the middle schools there is a possibility of two groups being in the same school site, but students identified as comparison subjects are excluded from participation in the Aban Aya lessons, mentoring, and activities provided by Delta D.R.E.E.A.M.

Counterfactual

Business as usual.

Counterfactual Description

The counterfactual schools selected to participate in the Delta D.R.E.E.A.M. Project did not have any formal sex education programs. No other formal sex education programs were identified in the participating schools' communities.

Primary Research Question(s)

(1.) What is the impact of the Aban Aya school-based program on middle school participants on reducing the level of current sexual intercourse after **three years** in the intervention program?

(2.) What is the impact of the Aban Aya school-based program on middle school participants in using safe sex practices after **three years** in the intervention program?

Sample

Twenty-eight schools in the Mississippi Delta region that included at least one 5th-grade classroom in the 2011–2012 or 2012–2013 school years were invited to participate in the Delta D.R.E.E.A.M. Project. Those that indicated an interest were recruited as intervention schools and the schools that did not wish to participate in the intervention were asked to serve as comparison school sites with an opportunity at a later date to become involved in the program. Twenty schools volunteered to participate in the intervention condition; 5 schools served as counterfactual schools. The evaluation followed the youth who were enrolled in the 5th-grade classrooms as they transitioned from elementary to middle or junior high school; ultimately, youth attended 28 schools (21 intervention and 7 comparison schools). In eight school districts the elementary schools were feeder schools to a single middle school, so intervention and comparison youth were not combined in later grades. One school district included both intervention and comparison elementary schools and had two middle schools.

All students enrolled in the 5th grade in these schools were eligible to participate in the program and evaluation. Although the focus of the program is on African American youth, all youth could participate in the program. The total sample included 2,141 youth. There were 1,631 5th-grade students in the intervention schools and 510 5th-grade students in the comparison schools..

Setting

The Delta D.R.E.E.A.M. Project served youth attending public schools in eight counties in the Mississippi Delta region. Programming was provided by Delta D.R.E.E.A.M. Project staff in a non-academic class (for example, health or physical education). All of the schools are located in rural communities with a high African American student population, high poverty rates, high percentages of single-parent families, high teen pregnancy rates, high teen STI rates, and low academic performance.

Research Design

This evaluation is a longitudinal quasi-experimental design.

Method

There were two cohorts of students from the treatment and comparison schools. Consent and assent forms were completed in the fall of 5th grade for two consecutive years (2011–2012 and 2012–2013). Data was collected from web-based online surveys administered in the fall of 5th grade (baseline)

and in the spring of each year for four to all students in the participating grade levels; however, the analytic sample included only students who were enrolled in the fall of 5th grade. The pooled survey data from both cohorts were used to estimate program impacts using an intent-to-treat-analysis. Program fidelity and lesson observation data were used to describe program implementation.

Impact Findings

There was no evidence the program contributed to reduction of recent sexual intercourse for the full sample which completed three years of program participation or for the first cohort which completed four years of program participation.

There was some evidence that the program did contribute to a moderate increase in the use of safe sex practices for the intervention group. There was a significant difference in the used of safe sex practices between the intervention and comparison group for the seventh grade at the 0.05 alpha level. There was no difference between the groups at the eighth grade.

Implementation Findings

The number of lessons delivered varied according to the grade level. There were 21 lessons for 5th grade, 18 lessons for the 6th grade, 16 lessons for the 7th grade, and 15 lessons for the 8th grade. Taking the number of lessons delivered, the number of schools, and the number of sections per school then the total number of lessons delivered each year was: Year 1 = 693 lessons; Year 2 = 1,425 lessons; Year 3 = 1,430 lessons; and Year 4 = 1,181 lessons. Therefore, a total of 4,729 lessons were delivered by 10 health educators over the 4 years of program implementation. Daily attendance records were maintained so that students missing a lesson could make it up when it was offered again. The four year average median attendance rate was 96.02% with a range of 95.8% to 97.9%. The four year average percent of students who completed 75% or more of the lessons was 98.6% with a range of 95.4% to 100%. Overall, the average number of sessions attended by the Cohort 1 participants (4 years) was 69 lessons and by the Cohort 2 participants (3 years) was 54 lessons.

There were no adaptations to the program and each health educator completed program fidelity self-assessment logs which were reviewed regular by the project coordinator and evaluator. Ten percent of the lessons were observed by the evaluator and project coordinator each year. All components for each lesson were delivered.

Schedule/Timeline

Sample enrollment was completed in September 2012 and includes two cohorts (2011–2012 and 2012–2013). The final round of data collection for the full sample, which is after three years , and four years for the first cohort, ended May 2015. A final report, which focuses on data after three years of participation for the full sample and four years for the first cohort, is available to the Office of Adolescent Health in August 2015.

EVALUATION OF ABAN AYA YOUTH DEVELOPMENT PROJECT: FINDINGS FROM THE REPLICATION OF AN EVIDENCE-BASED TEEN PREGNANCY PREVENTION PROGRAM

I. Introduction

A. Study Overview

Mississippi, the poorest U.S. state at 22.6% (U.S. Census, 2011) with 48.2% of its children living at the poverty level, has the nation's highest teen pregnancy rate with reported birth rates of 55 births per 1,000 teens aged 15 to 19—more than 60 percent above the U.S. average (Centers for Disease Control and Prevention, 2013). The state also has one of the nation's highest sexually transmitted infection rates for chlamydia (580.2/100k) and gonorrhea (170.2/100k) infections among teens and young adults. Additionally the counties served by Youth Opportunities Unlimited in the Mississippi Delta have some of the highest teen birth rates (66.4 to 112.6 teen births per 1000 females aged 15-19) in the state (30.0 teen births per 1000 females aged 15-19). The Mississippi Delta is comprised of 18 rural counties located in the northwest portion of the State of Mississippi. In this geographic locale the most impoverished communities within the state are located including the lowest performing school districts in the state with very little resources to address these problems which are systemic and past down from one generation to the next.

Therefore, the adoption of the Aban Aya Youth Development Project by Youth Opportunities Unlimited (Y.O.U.) for the target population which is primarily middle school age African American youth was an excellent opportunity to address the issues of high teen pregnancy rates, high STI rates, low academic performance, and many related familial and social issues. The Aban Aya program was approved as an evidence-based program as part of the Health and Human Services Pregnancy Prevention Evidence Review process and thus was eligible to be funded for a Teen Pregnancy Prevention (TTP) Tier 1 replication project. Flay et al. (2004) showed that the Aban Aya Youth Development Project was a theoretically derived social-emotional program that was culturally sensitive and developmentally appropriate for American African boys and girls in grades 5 to 8. The research results showed that it contributed to a significant reduction of risk behavior rates as compared to a control group.

Adolescence is a time of many challenges in which developing a self-identity is among the list of youth development priorities (Eccles, 1999). Thus the Aban Aya Youth Development

Project supports youth during this time to develop cognitively and socially by helping them to become aware of their environment and circumstances which will contribute to life choices and opportunities as they grow toward adulthood. Erickson (1968) showed that early risk behaviors may occur as a response to one's lack of optimism in achieving any significant short term or long term goal as an individual identifies with his or her circumstances. Y.O.U. recognizes the importance of peer and social connectedness and acceptance which promotes conforming to the standards of an adopted social group (e.g., family, gangs, teams, etc.). The Aban Aya program provides early adolescent youth with social and coping skills in choosing safe groups and adults who will be able to reduce risk behaviors (e.g., early sexual initiation, substance use, unprotected sex, etc.) which contribute to theory of possible selves as developed by Markus and Nurius (1986).

B. Primary research question(s)

The Office of Adolescent Health (OAH) funded the replication of the Aban Aya Youth Development Project (Aban Aya) as a component of Y.O.U.'s Delta D.R.E.E.A.M. Project. The implementation of the evidence based program with no major adaptations was designed to address the high pregnancy and STI rates among African American youth in seven counties located in the Mississippi Delta. The first and second cohorts of participants completed the three years of the scope and sequenced lessons and thus provided the basis for answering the primary research questions. The primary research questions addressed in this part of the study are:

1. What is the impact of the Aban Aya school-based program on middle school participants on reducing the level of current sexual intercourse after **three years** in the intervention program?
2. What is the impact of the Aban Aya school-based program on middle school participants in using safe sex practices after **three years** in the intervention program?

C. Secondary research question(s)

The first cohort of participants completed four years of the scope and sequenced lessons (5^{th} to 8^{th} grades). The first cohort was used to answer the secondary research questions. The secondary research questions for this study are:

1. What is the impact of the Aban Aya school-based program on middle school participants on reducing the level of current sexual intercourse after **four years** in the intervention program?
2. What is the impact of the Aban Aya school-based program on middle school participants in using safe sex practices after **four years** in the intervention program?

II. Program and comparison programming

A. Description of program as intended

The Aban Aya Youth Project (Aban Aya) is an Afrocentric curriculum that teaches middle school students (Grade 5-8) about the traditions, values, and history of Ghana. The name of the project reflects the Ghanaian term for "protection and self-determination," that describes a program to reduce rates of risky behavior among African-American youth. This African country symbolizes and captures the traditions and values of many tribes located in Africa. Ethnic identity and culture are key components in the development of any adolescent. Many factors serve as confounding variables and contribute to the at-risk status of African American adolescents including: lack of pride and self-esteem, poverty, poor schooling environments, achievement gaps, exposure to violence, substance use, and living in an ethnic urban or rural enclave (Rodriquez et al., 2010). By providing an opportunity for youth to explore their heritage and link to traditions of courage, pride, and values, the program attempts to supplant the negative impact and belief of individual unimportance and the importance of being part of an antisocial group who focus on early sexual initiation, early pregnancy, substance use, and violence. The students acquired skills that included refusal, negotiation, communication, decision-making, and goal setting.

The program was administered in schools over the span of four years, starting in the fifth grade and ending in eighth grade with no major adaptations. The lessons delivered in a school based setting with each lesson lasting approximately 40–45 minutes. The number of lessons varied from year to year, both in number and in content with the focus on teaching about substance abuse, refusal skills, conflict resolution, goal-setting, healthy relationships, communication, and sex education (Flay et al., 2004).

The Aban Aya classroom lessons were part of comprehensive intervention components linked to a variety of extracurricular empowerment elements. These included parent support programs, school staff support; schoolwide youth support programs, student mentoring, and an overarching community program to build connections between parents, schools, local businesses, and agencies. The parental support program reinforced skills learned in the classroom and worked on child–parent communication. These efforts were part of getting all interested parties involved and working toward the same common goal of helping youth make healthy and safe decisions about their life styles and social network.

The fifth grade curriculum was composed of 21 lessons which provided a foundation for the next three years of lessons. It began with an introduction to the program with ground rules and expectations from the participants, their families, and communities. The lessons provided hands-on activities, role play, videos, and discussion times. During the introductory period students were introduced to Ghanaian values, language, and history. Lessons on decision making, steps and practices in safety skills, handling conflict and understanding what constitutes a healthy relationship were provided at an age appropriate level. Visual aids and a workbook were made available to each student with the encouragement to share their reflections, discussions, and newly acquired knowledge and skills with their parents.

The sixth grade curriculum was composed of 18 lessons and built upon the previous year's lessons especially in the areas of African and African-American cultures and values. The lessons explored how to express anger in a positive way with anger management and coping skills. Students were introduced to the fundamentals of puberty and their personal experiences. Two lessons focus on HIV, AIDS and the sexually transmitted diseases (STI) that impact upon African American communities. Students were encouraged and taught how to review messages being received from media and other sources. Activities helped students to identify potential risky situations and how to counteract against any unsafe situations.

The seventh grade curriculum was composed of 16 lessons with emphasis on healthy relationships, negotiation, sexual identity and intimacy. Students were introduced to the potentially debilitating effect of stereotypes on self-concept, goal-setting, decision-making, and behavior. There was discussion on their feelings about the stereotypes established within a school or community. This was expanded into the importance of identifying feelings about

themselves and others especially when verbal and non-verbal clues are presented. Students learned how to negotiate their feelings, control anger, and establish appropriate responses to any unwanted pressure or situation. A strong emphasis was placed on accepting and respecting an individual's decision regarding a condition or situation. The students learned how to identify qualities of healthy and unhealthy boy-girl relationships and how these relationships affect their personal lives. All of these components helped students to explore unhealthy motives for sexual intimacy and its potential consequences. Students generated solutions to handle the pressures and feelings for sexual involvement recognizing the potential for pregnancy and sexually transmitted infections.

The eighth grade curriculum was composed of 15 lessons with emphasis on goal setting, gangs, substance use, and peer pressure resistance. Students studied some notable African American role models analyzing their personal strengths, behaviors, and qualities that made them outstanding. This exercise provided a path for students to explore who they are and where they are going. The importance of goal setting on self-esteem provides students with an opportunity to ask themselves what educational, personal, and career goals they have set for themselves. The eighth graders recognized they are transitioning into high school and were asked to deliberate on their future. Peer pressure will become more pervasive as the students moves into high school. The students discussed the balance between goal achievement versus short-term social acceptance by being a member of a gang, engaging in substance use, and creating unhealthy relationships. The final lesson had students reflect upon skills they have gained (refusal, negotiation, communication, decision-making, and goal setting), identify examples of positive values and their application to their daily life, and state the connection between the Aban Aya goals, Nguzo Saba (Swahili for Seven Principles) values, and their own personal goals (Segawa et al., 2005).The Seven Principles are unity, self-determination, collective responsibility, economics, purpose, creativity, and faith.

B. Description of counterfactual condition

There were no counterfactual conditions either at the comparison school sites or the intervention schools. Currently, this is the only teenage pregnancy prevention program or youth development program being offered at the participating school sites. The demographic configuration for each of the school sites were similar in race, poverty level, academic performance, and single parent household configuration.

III. Study design

A. Sample recruitment

In forming the 5th grade cohorts (2011-12 and 2012-13), 26 elementary schools located in 8 school districts within the Y.O.U. service area were contacted to determine if they would be interested in receiving the Delta D.R.E.E.A.M. Project at no cost to the school. Twenty-one (21) of the schools agreed to be participating school sites while five schools agreed to serve as a comparison school site. The recruitment of school sites were performed by the Y.O.U.'s Chief Executive Officer and Project Director. All of the schools invited to participate in Delta D.R.E.E.A.M. had 75% or higher African American student enrollments. Each district superintendent and school principals were presented information about the project, their opportunities and options. All of the schools who accepted the invitation completed a Memorandum of Understanding with Y.O.U.

The fifth graders and their parents received information about the program were asked to complete an active consent form if they were interested in participating in the four year program. The consent form included information about the evaluation process, curriculum content, and options for withdrawal from the program without any penalties. Only students who submitted active consent forms with appropriate signatures were admitted into the program. No child was refused as a participant due to gender, race, or special needs. Overall the participation rate for the pooled intervention schools was 69% of the total 5th grade enrollment and 66% of the total 5th grade enrollment for the comparison schools. Students who began with the program in the 5th grade formed intend to treat cohorts in order to answer the research questions. Any student who joined the project after establishing the baseline data were not included in the final analyses. These students were able to participate in the project, but the data collected was reported to the school as part of the project reach and demographic distribution.

There were two cohorts of students recruited to participate in this study. The first cohort was formed in September 2011 and its participants had the opportunity to complete four years (5th to 8th grades) of the scope and sequenced Aban Aya lessons. The second cohort was formed in September 2012 and its participants had the opportunity to complete three years (5th to 7th grades) of the Aban Aya lessons.

Appendix C shows the distribution of the sample sizes for each data collection point which are compared to the baseline enrollment for retention percentages. There were 1,631 fifth

grades students who enrolled as participants in the intervention group while 510 students enrolled in the comparison group. At the end of the first year there was a retention rate decrease which continued for the next three years.

The comparison students were recruited from schools that did not have any sex education programming and were designated as comparison school sites. Seven schools were recruited as comparison school sites while 21 elementary schools were recruited as intervention school sites. There were no comparison group participants within any of the intervention school sites.

Active consent forms were sent to all fifth graders of schools who agreed to be either an intervention or comparison school. The consent form informed the parents about the pregnancy prevention program, Aban Aya Youth Development Project, and the topics that would be discussed in the classes. Parents were informed that a pre and post questionnaire would be administered to their child each year and they had an opportunity to opt out of the program, the evaluation process, or both. Contact information was provided for further questions. Additionally, parents were informed that their child could drop out of the program anytime without any penalties. Only students who had submitted a signed consent form were permitted to participate in the program as a member of either an intervention or a comparison group.

B. Study design

This study used a longitudinal survey quasi-experimental design (QED). In the first year of the project all schools that had fifth graders within the seven county service area were contacted to determine if they had an interest in implementing the Aban Aya Youth Development Project. Those who indicated an interest were recruited to serve as an intervention school and to learn about the program and its requirements as part of a longitudinal quasi-experimental research study. Those schools that did not opt to participate in the intervention were asked to serve as a comparison school site with an opportunity at a later date to become involved in the program. In order to form effective intervention and comparison groups between analyses, propensity score matching was used which included the covariates of age, gender, and race.

The primary source of data was from pre, post, and follow-up surveys which were administered in the fall and spring of each year to all participants. The student data was coded to track baseline equivalence for each data collection point. For the four year implementation

period, students completed six surveys - the fifth grade and seventh grade baseline and four post questionnaires. The data collected was analyzed for this report.

Other sources of data included the surveys of mentors, mentees, and participant parents to measure satisfaction levels and support of individual students through communication, activities, and referrals. The mentor and mentee surveys were administered annually in the spring while the parent surveys were administered every other year.

C. Data collection

1. Impact evaluation

Demographic, attendance, fidelity, and observation data were collected by the staff members and posted on the RTI website and saved as Excel files in the research records office at the program site. Pre and post questionnaires were administered online to all students. The baseline data was established using the pre-questionnaire in the Fall 2011 school year forming Cohort #1. A second cohort of 5th graders completed the pre-questionnaire in the Fall 2012. At the end of each school year a post questionnaire was administered in order to measure outcomes and to determine the level of satisfaction with the programming. The Data Collection Efforts Table (Appendix A) shows the data collection timelines and type of questionnaires administered each year.

Answering the research questions involved a comparative analysis of sexual behavior at each data collection point between the intervention and comparison groups while maintaining the equivalence of the groups established at baseline. There were five (5) data collection measurement points for Cohort 1 and four (4) data collection measure points for Cohort 2. These included: (1) Baseline - Fall 2011 (Cohort 1) and Fall 2012 (Cohort 2); (2) Spring 2012 (Cohort 1) and Spring 2013(Cohort 2); (3) Spring 2013 (Cohort 1) and Spring 2014 (Cohort 2); (4) Spring 2014 (Cohort 1) and Spring 2015 (Cohort 2); and (5) Spring 2015 (Cohort 1).

The data was collected on-line before the delivery of the first lesson in the fall semester and after the completion of the last lesson in the spring semester. If a student was not present when the questionnaire was administered, the staff returned to the school to make sure that all participating students completed the questionnaire. Since the questionnaire was on-line, the data

could be collected from any location in which there was an internet connection. Staff had access to the questionnaire on line through their laptops or tablets.

If students left the school district and were not located in a participating school, then the participant became part of the attrition analysis. If the student had participated in the program for at least one year, then efforts were made to track the student to complete the questionnaire for the third and fourth years.

2. Implementation evaluation

The total number of sessions delivered per school site depended upon the grade level. The data was captured in the RTI website by recording each student's attendance record by lesson. Average session duration were from 45 to 55 minutes depending upon the school site.

- Year 1 (5th Grade) = 21 lessons @ 55 minutes each = 1,155 minutes
- Year 2 (6th Grade) = 18 lessons @ 55 minutes each = 990 minute
- Year 3 (7th Grade) = 16 lessons @ 55 minutes each = 880 minutes
- Year 4 (8th Grade) = 15 lessons @ 55 minutes each = 825 minutes
- Total (5th to 8th Grade) = 70 lessons @ 55 minutes each = 3,850 minutes

Generally, one lesson was delivered per week per school site. After each lesson, a fidelity self-assessment log was completed by the facilitator (health educator) in which all topics required for the lesson were checked off if they had been delivered. The fidelity self-assessment logs were reviewed by the program coordinator and program evaluator. Additionally, at least 10% of the lessons delivered during the year were observed by an external observer (CEO, Program Coordinator, or Program Evaluator). The Program Coordinator made sure that each facilitator was observed at least 10 times during the year delivering different lessons. Using the External Observation Assessment Tool, facilitators were ranked by an external observer from poor (1) to excellent (5) on ten measures focusing on lesson delivery, timing, poise, and confidence. The results of these observations were posted on the RTI website and shared with each of the facilitators. The Program Coordinator provided pedagogical guidance wherever it was necessary.

Each year before any lessons were delivered, students completed an on-line questionnaire that including demographics, risk behaviors, attitudes, and intentions. After the completion of all of the lessons for the year (April or May), students completed an on-line post questionnaire.

Both intervention and comparison groups completed the on-line questionnaires in the same time period.

The Program Coordinator and the CEO were in constant contact with each school principal and district superintendent. This was important since the leadership in schools changed from year to year. Additionally, the program evaluator provided written and oral reports on the pre/post survey findings for each school site within the district. This was performed annually or upon request of the school leadership.

Many of the schools within the Mississippi Delta are listed as schools needing academic improvement in the areas of reading and mathematics. Therefore, the program had to negotiate space and time to deliver the curriculum to the students. Academics took precedence over supplemental youth development programs such as Delta D.R.E.E.A.M. There was constant communication and collaboration among the schools and Y.O.U. in order to provide a viable and effective program for the middle school children. Schools did not bear any cost for the programming, but realized the importance of the current funding streams if they were to continue implementing an effective and impactful sex education program.

D. Outcomes for impact analyses

Outcomes were collected using an online survey. Outcomes were constructed from a set of performance measure asking about sexual behaviors. As seen in Tables III.1 and III.2, three items were used to construct the outcomes of interest: sexual activity in the past three months and use of safe sex practices in the past three months.

In this study sexually active was defined as participating in any form of sexual intercourse including vaginal intercourse, anal intercourse, or oral sex (sexual activities involving the stimulation of sex organs by the use of mouth, tongue, teeth, or throat). Safe sex practices were defined as taking steps before and during sex that prevented a person from getting an infection or disease, or from giving one to his or her partner, in addition to avoiding an unwanted pregnancy. Use of safe sex practices could mean abstaining from sexual activity or using effective birth control during sexual activity including condoms, IUD (Mirena or Pragard), birth control pills, the ring (NuvaRing), the patch, the shot (Depo Provera), implant (Implanon), the rhythm method, vasectomy, and tubal ligation.

III.1. Behavioral outcomes used for primary impact analyses research questions

Outcome name	Description of outcome	Timing of measure relative to program
Had Recent Sexual Intercourse	*The variable is a yes/no measure of whether a person has ever had sexual intercourse. The measure is taken directly from the following item on the survey:* • *"Have you ever had sex in past 3 months?"* *The variable is constructed as a dummy variable where respondents who respond yes they have had sex are coded as 1 and all others are coded as 0. Students who responded they had never had sex were logically imputed as 0(no) for this item.*	*At end of each year the program has been delivered for three years.*
Safe Sex	*The variable is a yes/no measure of whether a person has used a protected sex method:* • *In the past 3 months, have you had sexual intercourse without using a condom?* • *In the past 3 months, have you had sexual intercourse without using an effective method of birth control?* *The variable is constructed as a dummy variable where respondents who respond yes they have used some form of protected sex was coded as 1 and coded as 0 for not using any protected method. Students who responded they had never had sex were logically imputed as 0(no) for this item*	*At the end of the 7th grade after completing the third year of the intervention.*

Table III.2. Behavioral outcomes used for secondary impact analyses research questions

Outcome name	Description of outcome	Timing of measure relative to program
Had Recent Sexual Intercourse	*The variable is a yes/no measure of whether a person has ever had sexual intercourse. The measure is taken directly from the following item on the survey:* • *"Have you ever had sex in past 3 months?"* *The variable is constructed as a dummy variable where respondents who respond yes they have had sex are coded as 1 and all others are coded as 0. Students who responded they had never had sex were logically imputed as 0(no) for this item*	*At end of each year the program has been delivered for four years.*
Safe Sex	*The variable is a yes/no measure of whether a person has used a protected sex method:* • *In the past 3 months, have you had sexual intercourse without using a condom?* • *In the past 3 months, have you had sexual intercourse without using an effective method of birth control?* *The variable is constructed as a dummy variable where respondents who respond yes they have used some form of protected sex was coded as 1 and coded as 0 for not using any protected method. Students who responded they had never had sex were logically imputed as 0(no) for this item*	*At the end of the 7th grade and 8th grade after completing the third and fourth year of the intervention*

E. Study sample

From 27 schools with a fifth grade population of 5,288 students, 2,141 students with appropriate and valid active consent forms agreed to participate in the Delta D.R.E.E.A.M. project either as a member of the intervention group or the comparison group. When the students met the criteria for participation, then they completed a pre-questionnaire (baseline) before starting a 5th grade lesson. At the end of the first year when the post-questionnaire was administered, the treatment group had a retention rate of 81.8% and the comparison group had a retention rate of 78.4%. (Appendix C)

In the sixth grade some students transferred to a middle school (6th to 8th grades), while many remained in the same schools as their initial enrollment. At the end of the sixth grade, the pooled retention rate was 86.5% for the intervention group and 83.5% for the comparison group. Reasons for the decline in participants included opting out of participation in the Delta D.R.E.E.A.M. project, moving out of district, and missing identification codes in the questionnaire.

In the seventh grade the total sample size was 1,409 students, a retention rate of 65.8%. The retention rate for the intervention group was 68.7% and for the comparison group it was 56.5%. Only the first cohort completed the eighth grade with a total sample size of 692 students for a retention rate of 62.1% from the baseline. The retention rate for the intervention group was 71.6% and for the comparison group it was 32.0%.

F. Baseline equivalence

Baseline equivalence tables were created to compare intervention and comparison groups for the following variables:

1. Age (in years) with standard deviation and sample size
2. Female (%)
3. Race (n and %): African American and non African American (American Indian, Asian, Black, White, and two or more races

The analysis included a t-test calculation with a p-value between age, female, and race proportions. A multivariate analysis was performed to adjust for the clustered nature of the data based on students within a school. The adjusted p-value is based on Fisher ratio calculation.

Baseline equivalence analyses were performed on the ITT and propensity score matched samples for baseline, post 7th grade, and post 8th grade. Tables III.3.b, III.3.c and III.3.d show the baseline equivalence for the PSM samples. Since there were two cohorts in this study, a pooled equivalence analyses for the 5th grade baseline and 7th grade post data collection points are presented. Table III.3.d. shows the PSM baseline equivalence sample for the Cohort 1 eighth grade sample.

In answering the first research question noted above, Cohort 1 and Cohort 2 were pooled as an analytic sample. Those students who were identified in the baseline (5th grade) were the primary analytic sample. In the answering the second research question, Cohort 1 formed the analytic sample since they completed four years of the program. Only those students who were identified in the baseline (5th grade) were included in the ITT and PSM analytic sample for each year of participation in the program.

Table IV.3a. Summary statistics of key baseline measures for youth completing Delta DREEAM Pre (Baseline) Fifth Grade Questionnaire (ITT)

	Intervention	Comparison	Intervention versus comparison		p-value adjusted for clustering
Baseline measure	Mean or % (standard deviation)	Mean or % (standard deviation)	Mean difference	*p*-value of difference	
Age or grade level	10.57 (0.720)	10.60 (0.673)	0.03	0.404	0.486
Gender (female)	50.86%	57.10%	6.24%	0.0145	0.289
Race/ethnicity					
African American (Black)	92.80%	93.14%	0.34%	0.809	0.803
Sample size	1,631	510	1,121		

Table III.3b. Summary statistics of key baseline measures for youth completing Delta DREEAM Pre (Baseline) Fifth Grade Questionnaire (Propensity Score Matched)

	Intervention	Comparison	Intervention versus comparison		p-value adjusted for clustering
Baseline measure	Mean or % (standard deviation)	Mean or % (standard deviation)	Mean difference	*p*-value of difference	
Age or grade level	10.56 (0.693)	10.60 (0.670)	0.037	0.317	0.512
Gender (female)	56.85%	57.10%	6.24%	0.956	0.850
Race/ethnicity					
African American (Black)	92.47%	93.14%	0.67%	0.678	0.815
Sample size	1,022	510	512		

Table III.3c. Summary statistics of key baseline equivalent measures for youth completing Delta DREEAM In Seventh Grade (Propensity Score Matched)

Baseline measure	Intervention Mean or % (standard deviation)	Comparison Mean or % (standard deviation)	Intervention versus comparison Mean difference	*p*-value of difference	p-value adjusted for clustering
Age or grade level	10.48 (0.720)	10.59 (0.692)	0.11	0.060	0.102
Gender (female)	53.41%	58.54%	5.13%	0.330	0.186
Race/ethnicity					
African American (Black)	96.59%	97.07%	0.48%	0.748	0.944
Sample size	410	205	205		

Table III.3d. Summary statistics of key baseline equivalent measures for youth completing Delta DREEAM In Eighth Grade (Propensity Score Matched)

Baseline measure	Intervention Mean or % (standard deviation)	Comparison Mean or % (standard deviation)	Intervention versus comparison Mean difference	*p*-value of difference	p-value adjusted for clustering
Age or grade level	10.60 (0.755)	10.64 (0.661)	0.04	0.668	0.811
Gender (female)	62.36%	58.75%	3.61%	0.582	0.151
Race/ethnicity					
African American (Black)	95.51%	95.00%	0.51%	0.858	0.346
Sample size	178	80	98		

G. Methods

1. Impact evaluation

Effects of the Aban Aya program were estimated using response rates analyses and a linear probability model. The model included group assignment (intervention versus comparison) and the three covariates (predictors): age, gender, and race. An estimated probability equation was generated to answer the research questions based on the three predictors and assignment to either the intervention group or comparison group.

The covariates are listed in Table IV.1. The covariates were used to establish propensity score matching and as predictors in the analysis of the findings which was included in the linear probability model. In this study analyses were performed with adjustments to the data set as a

primary approach to answering the research questions to obtain baseline equivalence between the intervention and comparison groups. The analyses were complete case analyses so there were no cases with missing.

Table IV.1: Covariates Included in Impact Analyses

Covariate	Description
Male	Individuals who are male are coded 1 while females are coded 0 and serve as the reference category.
Lakota (AI)	Individuals who are African American (Black) are coded 1 while non-Black individuals ae coded 0 and serve as the reference category.
Sexually Active	Baseline measure of whether an individual was sexually active. Individuals who said yes were coded as 1 while those who reported never engaging in sex were coded as 0.
Age	The age ranges from 11to 14 years of age.
Recent Sexual Activity	Baseline measure of sexual activity in the past three months. If the response was rest, then it was coded as 1. If the response was no, then it was coded as 0.
Use of Safe Sex Practices	Baseline measure of whether the individuals had abstained or used a safe sex practice when they were sexually active in the past 3 months. Individuals who had abstained or always used a safe sex practice when sexually active were coded as 1. Individuals who were sexually active and reported that they had sex in the past 3 months without using a safe sex practice were coded as 0.

Given that there are two outcomes examined for the primary research questions, we implemented a multiple comparison adjustment using the Bonferroni methods, so a p-value needs to be less than 0.025 to be statistically significant.

Additionally, two sensitivity analyses were conducted to determine the findings were robust. The response rates sensitivity analyses showed that at baseline and the two follow-up data collection points the differences in rates between the intervention and comparison groups were not statistically significant in the ITT sample and the propensity score matched sample. The logistic regression sensitivity analyses showed similar results, no significant differences in the estimated probabilities at baseline and the two follow-up data collection points for the primary and secondary questions. More details on the sensitivity analyses can be found in Appendix E.

The logistic regression approach was used to perform sensitivity analyses of the impact of the findings between the ITT samples and the PSM samples for two reasons. First, logistic regression provided an effective and reliable way to obtain the estimated probability of

belonging to a specific population (e.g., high risk early adolescents) and to estimate odds ratio of adolescents' characteristics on their behavioral risk (Peng, Lee, & Ingersoll, 2002; Peng, Manz, & Keck, 2001; Scott, Mason, & Chapman, 1999). Secondly, logistic regression was a procedure by which estimates of the net effects of a set of explanatory variables on the dependent variable could be obtained (Morgan and Teachman, 1988). (Appendix E)

Statistical considerations were given in the intent-to-treat (ITT) framework and analysis of data in order to answer the primary and secondary research questions based on the quasi-experimental design in which there was equivalence in demographic distribution between the intervention and comparison groups. The pivotal property of this study was the selection of the intervention and comparison schools sites. It is noted that the groups were not selected randomly and that randomization alone was not sufficient to provide an unbiased comparison of program delivery. An important factor to answering the research question was honest and accurate response rates by the intervention and comparison group participants. This provided an unbiased assessment of treatment effects, or at least any missing data may be ignored. A sufficient condition to provide an unbiased analysis was to obtain complete data on all participants at the various data collection points during the four years of the study. This was achieved by an intent-to-treat framework wherein all participants were followed until the end of the eighth grade or until the participant opted out of the program, moved out of the school district or service area. The properties of this strategy were contrasted with those of an efficacy subset analysis in which data were excluded from the analysis on the basis of information obtained after the establishment of baseline measures. Such exclusions and their pursuant effects contributed to type I error probabilities.

With decreasing sample retention rates for each data collection point, propensity score matching (PSM) was used to establish improved equivalence and reduce bias between the intervention and comparison groups. The covariates of gender, age, and race were used to create a propensity score for the alignment and matching of intervention subjects responses with the comparison subjects. The optimal matching algorithm was used to minimize the overall sum of pair-wise distances between intervention subjects and matched comparison subjects (Guo & Fraser, 2010; Bertsekas, 1991; Rosenbaum & Rubin, 1985).

Benchmark analysis of the data included a comparison of the proportions between the intervention and comparison groups at each data collection point for any significant differences between the rates. The proportion comparisons were tested using the Student t-test at an alpha level of 0.05. Sensitivity analyses were performed to compare the proportional differences of responses between the intervention and comparison groups for the ITT and PSM samples.

2. Implementation evaluation

Daily attendance records were collected by each of the health educators and transferred to the centralized data base maintained by a research associate. Attendance records by each participant were captured on the RTI website in order to show attendance rates by school, lesson, and year. The program strived for a 75% attendance rate by each student.

All the topics outlined and required for each lesson were covered by the health educators. Lesson self-assessment logs were completed by each health educator to measure the fidelity of implementation of each lesson delivered. All of the lessons delivered during the year were reported and reviewed for completeness during the year to the program coordinator and evaluator. Fidelity logs recorded on paper were summarized on a spreadsheet and transferred to a managed information system. The assessment for measuring fidelity involved a self-report by the health educators on the components completed each session with comments regarding any pedagogical challenges, minor adaptations or suggestions for improving the lessons. In the early phase of implementation there were two health educators per school site with the lead health educator being responsible for submitting a completed self-assessment log to the program coordinator within the week. The fidelity self-assessment logs were reviewed by the program coordinator and evaluator for completeness and any negative trends requiring action for correction, training, or support.

Observation logs were completed by the program coordinator and evaluator for a sample of at least 10% of classroom lessons delivered during the year. Since there was a large amount of lessons delivered each year, the number of observations were performed based on school sites and health educator. Observation logs contained a rating scale using the YPQA format and a qualitative comment section for lesson delivery improvement. If other possible teen pregnancy prevention programming were available or offered to the participants, they were identified by the program coordinator and CEO.

Meetings with the school educators, principals and superintendents regarding the implementation of the program were performed annually. Written and oral evaluation reports were presented to each district leadership team and at community meetings.

IV. Study findings

A. Implementation study findings

1. Adherence

The number of lessons delivered varied according to the grade level. There were 21 lessons for 5th grade, 18 lessons for the 6th grade, 16 lessons for the 7th grade, and 15 lessons for the 8th grade. Taking the number of lessons delivered, the number of schools, and the number of sections per school the total number of lessons delivered each year was: Year 1 = 693 lessons; Year 2 = 1,425 lessons; Year 3 = 1,430 lessons; and Year 4 = 1,181 lessons. Therefore, a total of 4,729 lessons were delivered by 10 health educators over the 4 years of program implementation. Daily attendance records were maintained so that students missing a lesson could make it up when it was offered again. The four year average median attendance rate was 96.02% with a range of 95.8% to 97.9%. The four year average percent of students who completed 75% or more of the lessons was 98.6% with a range of 95.4% to 100%. Overall, the average number of sessions attended by the Cohort 1 participants (4 years) was 69 lesson and by the Cohort 2 participants (3 years) was 54 lessons.

Depending upon the session, the number of topics covered in a lesson varied from 3 to 6. There were a minimum of 108 observations per year in which the program coordinator and evaluator documented the number of topics covered per lesson. The minimum number of topics observed in a lesson was 3, while the maximum number of topics observed in a lesson was 6. In all the sessions observed, the health educators were able to cover 100% of the topics required for a lesson.

The program had 10 health educators who were trained to deliver the program. Over the four year implementation period, there were only four new replacement health educators and they were trained to teach the program when training opportunities occurred during the year.

2. Quality

At least 10% of the lessons delivered by each facilitator were observed by the program administrator or evaluator. Using the *External Observation Assessment Tool*, facilitators were ranked by an external observer (evaluator) from poor (1) to excellent (5) on ten measures

focusing on delivery, rapport, timing, poise, and confidence. The mean rating for all the observations in the first year of implementation was 4.70; in the second year of implementation the mean rating was 4.60; in the third year of implementation it was 4.72; and in the fourth year of implementation it was 4.95. Additionally, the observer provided qualitative comments or suggestions for improvement in the implementation of a specific lesson. The direct observation scores and comments were shared with the health educators.

An indicator of staff-participant interactions was rated as health educators having rapport and communication with participants during the observation sessions. In the first year, 88.1% of the observed staff members were rated as having excellent interaction with the participants. In the second year excellent ratings were observed in 74.0% of the sessions; in the third year, 72.0% of the sessions were rated excellent; and in the fourth 92.6% of the sessions were rated excellent. Average ratings were received in 7.14% of the first year sessions; 22.0% of the second year sessions; 28.0% of the third year sessions; and 7.4% of the fourth year sessions.

An indicator of youth engagement was rated as the level of participation by the participants in the discussions and activities during the observation of the sessions. In 74.8% of the sessions observed, the participants were rated as having excellent engagement in the sessions, while in 23.5% of the observed sessions the engagement between staff member and participants were above average. In 1.7% of the sessions observed, the level of youth engagement was rated below average.

3. Counterfactual

There are no other sex education programs at the elementary and middle schools participating in the program, either as an intervention or comparison school site. The Delta D.R.E.E.A.M. Program was the only youth development program focusing on sexual and reproductive health with a culturally-based emphasis in the targeted schools.

4. Context

Only the intervention group received the Aban Aya lessons over the four year period from the facilitators, who not only delivered the lessons. Students had the opportunity to participate in after school activities sponsored by Delta D.R.E.E.A.M program. Some of the students who were assigned a mentor for the year. These students were referred by the school to receive individual support to address personal problems, educational support, or other situations.

All of the participating school districts and schools were very supportive of Delta D.R.E.E.A.M and the Aban Aya program. They provided office and classroom spaces for the

program within the respective school premises. All of the schools signed a memorandum of understanding and were very supportive of the program. The presence of the program within the elementary and middle schools has been very positive and there a desire for the program to continue has been expressed by all of the school partners.

B. Impact study findings

Primary Research Questions

After completing three years of the Aban Aya program 19.8% of the intervention group and 8.3% of the comparison group reported having sexual intercourse in the past three months. There was a statistically significant difference with multiple comparisons adjustments between the group proportions ($p < 0.0002$). Using the linear probability estimates, an African American female, age 12, in the intervention group had a probability of 38.9% in engaging in sexual intercourse in the past three months, while a girl with the same characteristics in the comparison group had a probability of 18.4% in engaging in sexual in the past three months ($p < 0.001$).

IV.2 Post-intervention estimated effects using data from Delta DREEAM Post 7th Grade Questionnaires to address the primary research questions – Propensity Score Matched

Outcome measure	Intervention Mean or % (standard deviation)	Comparison Mean or % (standard deviation)	Intervention compared to comparison Mean difference (p-value)
Recent Sexual Intercourse – 7th Grade	0.1976 (0.399)	0.0829 (0.276)	0.1147 (0.00024)
Safe Sex Practices– 7th Grade (Post)	0.9878 (0.110)	0.9902 (0.0985)	-0.0024 (0.7885)

At the end of seventh grade, 98.8% of the intervention group and 99.0% of the comparison group reported using safe sex practices in the past three months. With multiple comparison adjustments, the difference between the intervention and comparison groups' proportions was not statistically significant at the alpha 0.025 level ($p < 0.7885$). Using the linear probability estimates, an African American female, age 12, in the intervention group had a probability of 64.9% using safe sex practices in the past three months, while the same boy in the

comparison group had a probability of 69.9% in engaging in sexual in the past three months ($p < 0.227$).

Secondary Research Questions

After completing four years of the Aban Aya program 12.5% of the intervention group and 11.4% of the comparison group reported having sexual intercourse in the past three months. There was no statistically significant difference between the group proportions ($p < 0.791$). Using the linear probability estimates, an African American male, age 12, in the intervention group had a probability of 87.7% in engaging in sexual intercourse in the past three months, while the same boy in the comparison group had a probability of 86.3% in engaging in sexual in the past three months ($p < 0.757$).

IV.2 Post-intervention estimated effects using data from Delta DREEAM Post 8th Grade Questionnaires to address the secondary research questions – Propensity Score Matched

Outcome measure	Intervention Mean or % (standard deviation)	Comparison Mean or % (standard deviation)	Intervention compared to comparison Mean difference (p-value)
Recent Sexual Intercourse – 8th Grade	0.125 (0.331)	0.114 (0.319)	0.011 (0.079)
Safe Sex Practices– 8th Grade	0.977 (0.149)	0.954 (0.209)	-0.0023 (0.312)

At the end of eighth grade, 97.7% of the intervention group and 95.5% of the comparison group reported using safe sex practices in the past three months. The difference between the intervention and comparison groups' proportions was not statistically significant at the alpha 0.05 level ($p < 0.312$). Using the linear probability estimates, an African American male, age 12, in the intervention group had a probability of 50.7% using safe sex practices in the past three months, while the same boy in the comparison group had a probability of 31.8% in engaging in sexual in the past three months ($p < 0.0518$)

Logistic regression analyses were performed to test the sensitivity and accuracy of the benchmark approach to the analysis of the data. Using the logistic regression models for

dichotomous outcomes, probability estimates for the outcomes were performed and found to be consistent with findings. A summary of the sensitivity analysis are reported in Appendix E.

V. Conclusion

Flay et al. (2004) performed a cluster randomized trial of the Aban Aya Youth Project with 1,153 fifth to eighth grade students in twelve high risk metropolitan schools in Chicago. Four of the schools were randomly chosen for a control group that implemented a general health curriculum focused on nutrition, physical activity, and general health care. The research team found a significant decrease in recent sexual behavior and an increased use of protected sex (condoms) for the boys. There were no significant effects for the girls noted in the Flay et al. study. Data were collected from surveys administered to study participants in the fall and spring of fifth grade and then annually in the spring of the sixth, seventh, and eighth grades.

Based on the data gathered from this quasi experimental study there were no significant impacts in reducing recent sexual behavior and in increasing the use of safe sex practices for both the boys and girls at all grade levels. Both the intervention and comparison groups reported an increase in the rate of recent sexual intercourse as they moved from the seventh grade to eighth grade. The use of safe sex practices showed a small decline from the beginning of the seventh grade to the end of the eighth grade.

The current study was not consistent with Flay et al. in showing a significant reduction in the rate of recent sexual activity by the participants. Both studies had a target population of African American youth with characteristics of some engagement in risk behaviors, low academic performance, and low economic status. While the two studies employed different study designs, the sample sizes and program delivery in schools were similar. The major differences noted were location, rural versus urban, and having access to a variety of community resources.

Flay et al. focused on condom use by the boys, but there was no data that measured the use of other forms of contraception by the girls. This study considered all safe sex practices including condom use, contraceptive methods, and abstinence. Data collected regarding the use of safe sex practices did not commence until the seventh grade. Thus, responses to the research questions regarding safe sex practices were limited to one year of data collection for the students

participating in the program for three years (5th to 7th grades), and limited to two years of data collection for the students participating in the program for four years (5th to 8th grades).

Limitations to this study were the selection of comparison school sites. Schools were invited to participate in the intervention and if they were not interested then they were asked to serve as comparison schools. As a result of the self-selection as a comparison school site, there was evidence of non-equivalence of the sample demographics between the intervention and comparison schools. Therefore, propensity score matching was performed in order to obtained equivalence between the two groups. Establishing matched groups reduced the reported recent sexual intercourse rate for the intervention group, but the rate remained higher than comparison group over the three and four years of data collection.

In response to the primary research question there was a significant difference between the comparison and intervention groups in reporting engagement in sexual intercourse in the past 3 months. The intervention group had a reported a higher rate than the comparison group (19.8% versus 8.3%). When the students were asked about their use of safe sex practices in the past 3 months, the comparison group reported a higher rate than the intervention group (99.0% versus 98.8%). The difference between the two groups were not statistically significant.

In response to the secondary research question there was no significant difference between the comparison and intervention group in reporting having sexual intercourse in the past 3 months. The intervention group report a higher rate (12.5%) than the comparison group (11.4%). There was no significant difference between the comparison group and intervention group in reporting the use of safe sex practices in the past 3 months. The intervention group had a higher rate (97.7%) than the comparison group at 95.4%.

This study of the Aban Aya project in the Mississippi Delta was designed in an environment in which the participants are members of a population that resides in a rural area that has a high percentage of African American families living at the poverty level, a high teen pregnancy rate and a high sexually transmitted infection (STI) rate. Although the intervention and comparison groups were selected from this target population, the study had to address the differences in sexual behaviors that consistently increased throughout the program implementation phases. Muthen & Muthen (2000) have pointed out conventional group data

analysis methods may overlook program effects for distinctive subgroups in the population. What appears to be an early indication of how effective the intervention may be on a selected population required a causal effect analyses. There are many confounding variables that have to be considered in order to ascertain the effectiveness of the Aban Aya Youth Development Project on reducing recent sexual intercourse and increasing the use of safe sex practices. Further analyses are needed to determine whether the interventions enhanced student connectedness with their parents, heritage, and attachment to the school and community.

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Appendix A: Data Collection Efforts

There were two cohorts of students recruited in the Fall of 2011 and 2012. Before the students could complete the baseline questionnaire on-line students had to submit a signed parent consent form. Since there were 28 schools involved in the questionnaire administration process, staff members were trained by the evaluator on how to administer the questionnaire for each school site. Incentives were given to comparison school sites, while the intervention students received various incentives throughout the year.

The baseline or pre-questionnaires were administered in September, while the post questionnaires were administered in May after the completion of the intervention. The website on-line questionnaire was designed to minimize any missing responses. Students were required to answer all the questionnaires on a page before they could advance to the next page. The questionnaire administrators were always present in the school computer laboratory and provided any assistance when requested.

Table A.1. Data collection efforts used in the impact analysis of Delta DREEAM: Aban Aya Youth Project and timing

Data collection effort	Cohort 1	Cohort 2
Start date of programming	*10/01/11*	*10/01/12*
Baseline survey	*09/01–09/30/11*	*09/01–09/30/12*
Post Survey – 5th Grade	*05/01–05/30/12*	*05/01–05/31/13*
Post Survey – 6th Grade	*05/01–05/30/13*	*05/01–05/30/14*
Pre Survey – 7th Grade	*09/01–09/30/13*	*09/01–09/30/14*
Post Survey – 7th Grade	*05/01–05/30/14*	*05/01–05/30/15*
Post Survey – 8th Grade	*05/01–05/30/15*	

Appendix B: Implementation Evaluation Data Collection

Table B.1. Data used to address implementation research questions

Implementation element	Types of data used to assess whether the element of the intervention was implemented as intended	Frequency/sampling of data collection	Party responsible for data collection
Adherence			
How often were sessions offered? How many were offered?	*5th Grade = 21 lessons at 55 min* *6th Grade =18 lessons at 55 min* *7th Grade = 16 lessons at 55 min* *8th Grade =15 lessons at 55 min*	*All sessions delivered are captured in MIS and RTI. A lesson is taught each week for each school site during the school year from October to May.*	*Program staff*
What and how much was received?	*Daily attendance records show that for attendance rate for all the school sites is 96.01% (2012-13)*	*Student attendance at all sessions is captured in MIS and RTI.*	*Program staff*
What content was delivered to youth?	*All the topics outlined and required for each lesson are covered by the facilitators. Lesson fidelity self-assessment logs and observations document the number of topics covered.*	*All of the lessons delivered during the year are reported and reviewed for completeness during the year using Fidelity Self-Assessment Logs. Fidelity logs are recorded on paper, summarized on a spreadsheet and transferred to the RTI web site. The topics covered were documented in 10% of the lessons delivered which were observed by the program coordinator and evaluator.*	*Evaluation staff* *Program facilitators* *Program Coordinator*
Who delivered material to youth?	*There are 10 health educators (facilitators) who have been trained to deliver the lessons and the program activities. The facilitators are African American with a minimum of a bachelor's degree with experiences in teaching, counseling, or coaching.*	*Data on all staff members are available to Program Coordinator and was maintained by Y.O.U. CEO.*	*Executive Director* *Program Coordinator* *Program Staff*

Implementation element	Types of data used to assess whether the element of the intervention was implemented as intended	Frequency/sampling of data collection	Party responsible for data collection
Quality			
Quality of staff-participant interactions	*Observation logs developed by the evaluator are completed by the evaluator and program coordinator at the time of observation.*	*Convenience sample of 10% of classroom sessions were selected for observation. For example in 2012-13 there were 831 lessons delivered and the number of observations was 102 observations or 12.3% of all lessons delivered.*	*Evaluation staff* *Program Coordinator*
Quality of youth engagement with program	*Observations logs contain a rate scale using the YPQA format and a qualitative comment section for lesson delivery improvement.*	*10% of a convenient sample of all sessions delivered at different school sites were selected for observation by the evaluator and program coordinator.*	*Evaluation staff* *Program Coordinator*
Counterfactual			
Experiences of comparison condition	*The intervention and comparison groups complete eight questionnaires over a four-year period for Cohort 1 and six questionnaires over a three-year period for Cohort 2.*	*Only the intervention group receives the Delta DREEAM program. The comparison group is not involved in any teen pregnancy prevention program.*	*Evaluation staff*
Context			
Other TPP programming available or offered to study participants (both intervention and comparison)	*Program coordinator, evaluator, and Executive Director interview principals and superintendents regarding the implementation of the program within their respective schools or district. Written and oral evaluation reports are presented to each district leadership team.*	*Annually*	*Evaluation staff* *Program Coordinator* *Executive Director*
External events affecting implementation	*The school is supportive of the program and provides space and time for the implementation of the program during the school day. Scheduling of lessons are arranged to be aligned with school schedules and events.*	*Program implementation requirements are reviewed by the school district, principal, and executive director each semester.*	*Program staff* *Program Coordinator* *Executive Director*

Implementation element	Types of data used to assess whether the element of the intervention was implemented as intended	Frequency/sampling of data collection	Party responsible for data collection
Substantial unplanned adaptation(s)	*Major adaptations were approved in year one (pilot year). There have been no additional adaptations have been made since the initial approval.*	*Fidelity logs are reviewed for minor and major adaptions as they are submitted to the program coordinator.*	*Program staff* *Program Coordinator* *Evaluation staff*

Appendix C: Study Sample

Table C.1a. Cluster and youth sample sizes by intervention status

	Time period	Total sample size	Intervention sample size	Comparison sample size	Total response rate	Intervention response rate	Comparison response rate
Number of Clusters							
1. At beginning of study		*27*	*21*	*6*			
2. Contributed at least one youth at baseline	*Baseline*	*27*	*21*	*6*	*100%*	*100%*	*100%*
3. Contributed at least one youth at follow-up	*Post 5th Grade*	*27*	*21*	*6*	*100%*	*100%*	*100%*
4. Contributed at least one youth at follow-up	*Post 6th Grade*	*18*	*15*	*3*	*66.7%*	*71.4%*	*50%*
5. Contributed at least one youth at follow-up	*Post 7th Grade*	*13*	*10*	*3*	*48.2%*	*47.6%*	*50%*
6. Contributed at least one youth at follow-up	*Post 8th Grade*	*13*	*10*	*3*	*48.2%*	*47.6%*	*50%*
Number of Youth							
7. In non-attriting clusters/sites at time of assignment		*2,141*	*1,631*	*510*			
8. Who consented		*2,141*	*1,631*	*510*	*100%*	*100%*	*100%*
9. Contributed a baseline survey		*2,141*	*1,631*	*510*	*100%*	*100%*	*100%*
10. Contributed a follow-up survey	*Post 5th Grade*	*1,696*	*1,279*	*417*	*79.2%*	*78.4%*	*81.8%*
11, Contributed a follow-up survey	*Post 6th Grade*	*1,836*	*1,410*	*426*	*85.8%*	*86.5%*	*83.5%*
12. Contributed a follow-up survey	*Post 7th Grade*	*1,409*	*1,121*	*288*	*65.8%*	*68.7%*	*56.5%*
13. Contributed a follow-up survey *(Cohort #1 Only)*	*Post 8th Grade*	*692*	*606*	*86*	*62.1%*	*71.6%*	*32.0%*

Appendix D: Implementation Evaluation Methods

Table D.1. Methods used to address implementation research questions

Implementation Element	Methods used to operationalize each implementation element
Adherence	
(1) How many and how often were sessions offered: e.g. number of sessions delivered, average duration, average frequency	*The total number of Aban Aya sessions offered is a sum of the session offered captured in the MIS log..* *Average session frequency of Aban Aya sessions (by cohort) is calculated as the sum of the total number of sessions offered each week divided by the total number of active classes (per cohort). Statistics will be reported for each of the possible sessions by year. Both numerator and denominator are captured by the MIS log.*
(2) What and how much was received: e.g. average number (percent) of sessions attended, percentage of sample that did not attend at all (no-shows)	*Average number of Aban Aya sessions attended per participant will be calculated as the sum of the total number of sessions attended by each participant divided by the total number of participants assigned to the Ateyapi Program conditions. (Note: A participant may attend a maximum of 15 to 21 sessions depending on the grade level.)* *Percentage of participants who attended at least 75% of Ateyapi Program sessions will be calculated as the number of participants who attended at least 11 of the 15 sessions or 16 of the 21 sessions divided by the number of observations.*
(3) What content was delivered to youth: e.g. total number of topics covered, proportion of material that was ultimately discussed in sessions	*The percentage of topics covered for each session will be calculated as the number of topics covered divided by the total number of topics in that session.* *The percentage of sessions in which 100% of topics were covered will be calculated as the number of session for which 100% of topics covered divided by the total number of sessions for which topic coverage was calculated.*
(4) Who delivered material to youth: e.g. # and type of staff delivering the program to participants, position requirements or qualifications, % of staff trained and receiving ongoing support	*Using the facilitator position description and personnel records, the percentage of facilitators who met each criteria in the position description will be calculated as the number of facilitators who met the criterion divided by the total number of facilitators.* *The percentage of facilitators trained in the Ateyapi Program curriculum will be calculated as the number of facilitators who completed training divided by the total number of facilitators sent to training.*
Quality	
Quality of staff-participant interactions	*The overall quality of staff-participant interactions was calculated as the average score of relevant questions from the External Observation Assessment Tool. These items uses a scale of poor (1) to excellent (5).*
Quality of youth engagement with program	*The overall quality of youth engagement was calculated as the average score of the relevant questions from the External Observation Assessment Tool. These items uses a scale of 1 (little participation) to 5 (active participation).*

Counterfactual	
Experiences of counterfactual	*Percentage of participants who report in the post questionnaire if they have participated in any TPP program in addition to the Aban Aya sessions. The percentage is calculated by dividing the number of students who report past year TTP program experience by the total number of students who complete the questionnaire.*
Context	
Other TPP programming available or offered to study participants (both intervention and comparison groups)	*Percentage of participants self-reporting past-year exposure to reproductive health education will be calculated as the total number of participants who report past-year exposure to reproductive health education divided by the total number of participants who completed the questionnaire.* *Percentage of participants of self-reporting past-year experiences with other TPP programs will be calculated as the total number of participants who report past-year experiences with other TPP programs divided by he total number of participants who complete the questionnaire.*
External events affecting implementation (for instance school turnover, budget cuts, etc.)	*A list of external events that did or may have affected program implementation will be described in the final report.*
Substantial unplanned adaptation(s)	*A list of any substantial unplanned adaptations to the program, for which adaptation requests were made to OAH, will be described in the final report.*

Appendix E: Sensitivity Analyses

Response Rate Analyses

The sensitivity analyses compared the proportional differences of responses between the intervention and comparison groups for each data collection point. The Student t-test was used to test the significance of the differences at the alpha 0.05 level. Tables E.1 and E.3 analyzed the original data set while Tables E.2 and E.3 analyzed the matched data sets.

Table E.1. Sensitivity of impact analyses using data from Delta DREEAM Questionnaires to address the primary and secondary research questions – ITT Sample

	Benchmark approach (Pooled)		Student t-test 7th Grade (Pooled)		Student t-test 8th Grade (Cohort 1)	
	Diff.	*p*-value	Diff.	*p*-value	Diff.	*p*-value
Intervention compared with Comparison						
Recent Sexual Intercourse	0.2904	0.0001	0.0745	0.0021	0.0436	0.2870
Use of Safe Sex	0.0139	0.0765	0.0143	0.1968	0.0239	0.1760

Source: Delta DREEAM Questionnaire for Cohorts #1 and #2 (pooled), Baseline Questionnaire administered from 9/01 to 9/30 each year. *Follow-up surveys administered each year from 5/01 to 5/31.*

Notes: Safe sex measure was collected for one year only in the 7th grade and for two years for students in the 8th grade. Data was not collected when participants were in the 5th and 6th grades.

Table E.2. Sensitivity of impact analyses using matched data from Delta DREEAM Questionnaire to address the primary and secondary research questions – Propensity Score Matched Sample

	Benchmark approach (Pooled)		Student t-test 7th Grade (Pooled)		Student t-test 8th Grade (Cohort 1)	
	Diff.	*p*-value	Diff.	*p*-value	Diff.	*p*-value
Intervention compared with Comparison						
Recent Sexual Intercourse	0.1143	0.0001	0.1147	0.0002	0.0114	0.0791
Use of Safe Sex	0.0067	0.2202	0.0024	0.7885	0.0227	0.3117

Notes: Propensity score matching was performed to generate a matched data set for each data collection point.

Logistic Regression Models

A logistic regression model was used to predict the probability of the dichotomous outcomes for research questions on recent sexual intercourse and the use of safe sex practices [13, 14]. The predictors for the model were age (continuous), gender (male = 1 and female = 0), race (African American = 1 and not African American = 0), group assignment (intervention = 1 & comparison = 0), recent sexual intercourse (Yes = 1 and No = 0), and safe sex (Yes = 1 and No = 0). The logistic model was applied to fit the data from each data collection point (three years and four years of program participation).

The logistic regression model was defined as:

$$logit\ [\Pr(Y = 1|X = C)] = \beta_0 + \beta_1 * Age + \beta_2 * Gender + \beta_3 * Race + \beta_4 * Group + \beta_5 * Sexually\ Active + \beta_6 * Recent\ Sex + \beta_7 * Safe\ Sex$$

Where C = the covariates (predictors) as defined above.

The estimated probability was defined as:

$$\hat{p} = \frac{e^{\beta_0+\beta_1*Age+\beta_2*Gender+\beta_3*Race+\beta_4*Grou \quad \beta_5*Sexually\ Active+\ \beta_6*\ Recent\ Sex+\ \beta_7*\ Safe\ Sex}}{1 + e^{\beta_0+\beta_1*Age+\beta_2*Gender+\beta_3*Race+\beta_4*Group+\ \beta_5*Sexually\ Active+\ \beta_6*\ Recent\ Sex+\ \beta_7*\ Safe\ Sex}}$$

The sensitivity analyses of the logistic regression equation models generated for each data collection point was tested by calculating the estimated probability for two examples – intervention and comparison. The probability was based on two African American males, age 13, who were sexually active, did not have recent sexual intercourse and did not used safe sex methods in the past 3 months. One male was assigned to the intervention group and the other male was assigned to the comparison group. The difference of estimated probabilities between the two groups were tested using the z-scores. Tables E.3 and E.4 show that there were no significant differences noted between the groups and between the ITT samples and Propensity Scoring Matched samples.

Table E.3. Sensitivity of impact analyses using data from Ateyapi Program Questionnaires to address the primary & secondary research questions – ITT Sample

	Benchmark approach		z-test 7th Grade		z-test 8th Grade	
	Diff.	*p*-value	Diff.	*p*-value	Diff.	*p*-value
Intervention compared with Comparison						
Recent Sexual Intercourse	0.0186	0.347	0.1578	0.085	0.0240	0.648
Use of Safe Sex	0.5789	0.000	0.0415	0.175	0.0344	0.527

Table E.4. Sensitivity of impact analyses using data from Ateyapi Program Questionnaires to address the primary & secondary research questions – Propensity Score Matched Sample

	Benchmark approach		z-test 7th Grade		z-test 8th Grade	
	Diff.	*p*-value	Diff.	*p*-value	Diff.	*p*-value
Intervention compared with Comparison						
Recent Sexual Intercourse	0.0063	0.638	0.0098	0.792	0.0227	0.552
Use of Safe Sex	0.5617	0.000	0.0439	0.128	0.0909	0.087