



Teen Pregnancy Prevention Replication Study: Summary of the Short-Term Impacts of *iCuídate!*

| RESEARCH BRIEF |

Overview

This research brief highlights early findings from the evaluation of *iCuídate!*, an HIV/AIDS prevention program that uses an approach culturally tailored to Latino youth.

These findings are based on a follow-up survey administered to study participants six months after they enrolled in the study, and designed to examine the impact of *iCuídate!* on adolescent sexual behavior as well as on cognitive and psychological aspects of adolescent functioning that might influence that behavior. The study examined data from three different replications of *iCuídate!*, pooling the data to examine the overall program impact.

Summary of Findings

After 6 months *iCuídate!* had no statistically significant impact on the two primary behavioral outcome measures: sexual activity in the last 90 days and sexual intercourse without birth control in the last 90 days.

The program did demonstrate positive impacts on some intermediate outcomes, namely knowledge about sexual risk and attitudes towards protection,

as well as perceived negotiation skills. There were no program effects on motivation or on intentions to engage in sexual behaviors in the following year.

*Early findings suggest that *iCuídate!* was effective in increasing knowledge about sexual risk, producing more positive attitudes toward protection and increasing negotiation skills. However, after 6 months, there was no difference between youth who participated in *iCuídate!* and those who didn't in the sexual risk behaviors reported.*

More conclusive evidence on the effectiveness of *iCuídate!* will be gathered at the long-term follow-up, 18 months after the program began.

Background

In the United States, pregnancy occurs at a rate of 57.4 per 1,000 adolescent females, and 1 in 4 sexually active adolescent females has a sexually transmitted infection (STI).^{i, ii} Both of these outcomes can negatively affect the well-being and future prospects of youth. Reducing rates of unplanned teen pregnancy and sexually transmitted

infections (STIs) are priorities for the Department of Health and Human Services (DHHS).

The federal Teen Pregnancy Prevention (TPP) Program, administered by the Office of Adolescent Health (OAH), includes funding for interventions that address the issue of teenage pregnancy and STIs by replicating program models that have shown some evidence of effectiveness in reducing these outcomes and related behaviors. However, that evidence usually consists of findings from one study, conducted some time ago, often in a single community. We know little about whether those findings hold up when the program is replicated.

The Teen Pregnancy Prevention (TPP) Replication Study

The purpose of the Teen Pregnancy Prevention (TPP) Replication study, funded and overseen jointly by OAH and the Office of the Assistant Secretary for Planning and Evaluation (ASPE), is to test whether three program models, each previously shown to be effective in a single study, continue to demonstrate effectiveness when implemented with fidelity (that is, adherence to the core components of the program) across different settings and populations.

The study is evaluating three replications of each of three evidence-based program models intended to reduce risky sexual behaviors in teens and, as a consequence, reduce the incidence of teen pregnancy and STIs. The strategy of selecting multiple replications of a program model increases the generalizability of the study findings. In addition, the greater analytic power obtained by pooling the data from all three replications allows us to assess behavioral impacts such as pregnancy, and to examine differences in program impacts for subgroups of interest. Both of these analyses require much larger sample sizes than those that are generally found in single-site studies.

The three program models being tested are the *Safer Sex Intervention (SSI)*, *iCuidate!*, and *Reducing the Risk (RtR)*. Nine grantees that received funding under the TPP Program were selected to participate in rigorous experimental tests of the evidence-based programs they were implementing.

Study Reports

The report that accompanies this research brief is one in a series of reports that will present findings from the TPP Replication Study. Two additional reports present early findings from the evaluations of the other two program models (*SSI* and *RtR*). A subsequent set of three reports will present findings on the implementation of the program models, and a final set of reports will present findings on the longer-term impact of each of the three program models.

This brief and the report it summarizes focus on the short-term impacts of *iCuidate!*.

What is iCuidate!?

iCuidate! is one of a handful of evidence-based programs, from which TPP grantees could chooseⁱⁱⁱ, that are culturally tailored to address the issue of sexual risk behavior specifically in Hispanic¹ adolescents. *iCuidate!* aims to reduce the risk of STIs and in particular HIV, by affecting behaviors such as sexual intercourse, number of sexual partners, and condom use.

Six 60-minute modules are delivered in English to small groups of 6–10 youth, led by a trained adult facilitator who is bilingual in English and Spanish. Core content and activities are specified in detail, together with the modules in which they should be presented and employed.

The Evaluation of iCuidate!

The evaluation was guided by the following questions:

1. *Did iCuidate!* improve teens' knowledge and understanding of pregnancy risks and prevention, and the transmission and prevention of STIs?
2. *Did iCuidate!* have positive effects on teens' attitudes towards sexual activity, birth control and condom use, and increase their motivation/intention to avoid risky sexual behavior?
3. *Did iCuidate!* increase teens' confidence in their ability to refuse unwanted sex and to negotiate safe sex?
4. *Did iCuidate!* delay sexual initiation and reduce risky sexual activity?

¹ Although the terms Hispanic and Latino are often used interchangeably, since federal data use Hispanic, we use that term when referring to estimates produced in federal data sets and as part of this study.

From the grants awarded in 2010, three grantees were selected that could provide a strong test of the program model. In each of the replication sites, the services provided to youth in the intervention group had to be sufficiently different from the services provided to youth in the control group. In addition, grantees needed to be able to recruit enough youth over two years to participate in the study. All three grantees were required to implement the program with fidelity to the core elements of the model (as defined by the program developer and previously evaluated), and fidelity was assessed, monitored and reported to OAH at regular intervals by program staff.² In each replication site, the program was delivered by grantee staff trained by the program distributor.

Grantees Selected

- **Community Action Partnership of San Luis Obispo County**, a non-profit agency founded in 1965 and based in San Luis Obispo, CA, provides a wide variety of programs and services to residents of San Luis Obispo County and 10 other California counties.
- **La Alianza Española** is a non-profit advocacy and service organization, founded in 1970 and based in Boston, MA, whose core programs address family mental health, public health and workforce education.
- **Touchstone Behavioral Health**, a 30-year-old non-profit organization based in Phoenix, AZ, provides behavioral and mental health prevention and treatment programs and services to youth across Greater Phoenix.

Settings for program delivery varied across replications and included public high schools (traditional, vocational-technical, and charter), middle schools, a summer youth employment program, and a summer youth sports program.

2 Grantees could and did request adaptations or modifications, but these were only approved if they in no way changed the core program elements, both in terms of content and delivery strategies.

Study Design

The study used an experimental design in which students were randomly assigned to a group that received *iCuidate!* or to a group that did not.³ Youth in each of the replication sites were surveyed three times: at baseline, before the intervention began; six months after the baseline survey (short-term follow-up); and 18 months after the baseline survey (longer term follow-up). At all three time-points, a web-based Audio Computer-Assisted Self-Interview (ACASI) system was used to capture and store survey responses.

Research Design

Experimental design:

- Random assignment of individuals within settings

Data collected at:

- Baseline
- 6 months after baseline
- 18 months after baseline

Measures

The surveys collected information from youth on a variety of topics, including questions that allowed us to measure two sets of outcomes: 1) intermediate outcomes, i.e., measures of cognitive and psychological aspects of adolescent functioning that are believed to lead to behavioral outcomes (such as knowledge, attitudes, motivation, skills and intentions); and 2) behavioral outcomes, i.e., measures of sexual activity and sexual risk behavior.

Analytic Approach

To test the impact of *iCuidate!* on each of the study's outcomes, we compared the outcomes of treatment and control group members⁴. Because of the number of outcomes we examined, it was important to guard against the danger of false findings that can arise from conducting multiple comparisons. To reduce the chances of this happening for the short-term analysis, we specified before any analysis two behavioral outcomes of particular importance: sexual activity (sexual intercourse, oral sex, and/or anal sex) in the last 90 days and sexual intercourse without birth control in the last 90 days.⁵

3 Control group youth received business-as-usual—regular physical education, regular health class, or other regular activities.

4 We used a regression framework for the analysis.

5 For the final report, we have pre-specified a 3rd outcome: pregnancy.

Limiting the confirmatory outcomes⁶ to a small number of behaviors gives us greater confidence in any findings related to them.

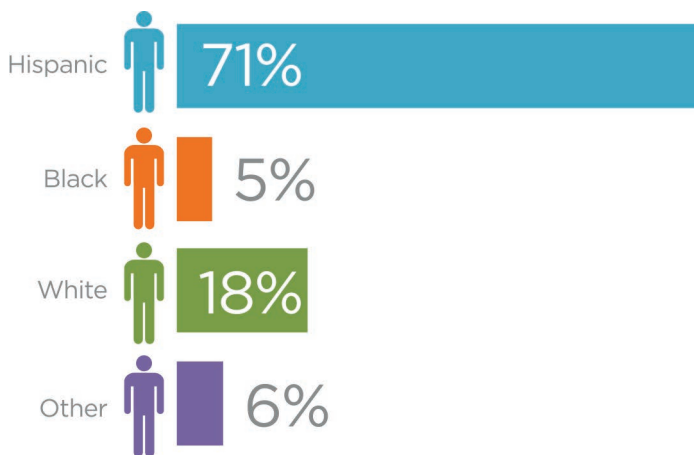
A number of other behaviors, as well as potential intermediate outcomes, were also examined and are reported on here. However, we consider these other behavioral outcomes to be exploratory, meaning they are suggestive rather than definitive, and need additional research to confirm them.⁷

As we noted earlier, pooling the data from all three sites to analyze impacts across all three replications of the model was a critical aspect of our analytic strategy. In addition to the overall impacts, we assessed the extent to which impacts differed among individual sites. We also tested whether impacts varied for subgroups of study participants to understand better what works for whom. Subgroups tested included: gender; age; race/ethnicity; and sexual experience at baseline.

Youth in the Study

Table 1 shows baseline characteristics for the sample as a whole. Females constituted more than half of the study sample. More than 70 percent were Hispanic, 18 percent were White and the remaining 10 percent were divided almost equally between Black and Other race (which includes Asian, American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, Multiracial, or undisclosed race) (Figure 1).

FIGURE 1. RACE/ETHNICITY OF STUDY PARTICIPANTS AT BASELINE



Source: Baseline survey completed prior to random assignment.

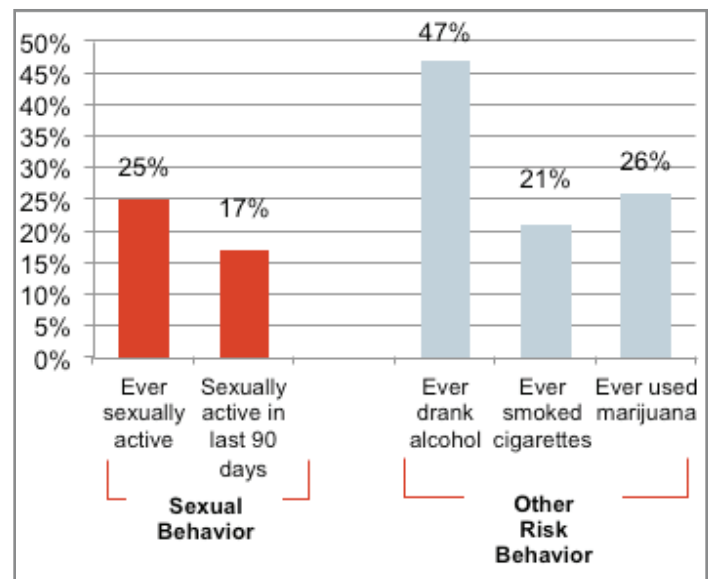
6 Confirmatory outcomes refer to the behavioral outcomes used to assess the effectiveness of the program.
 7 We made formal statistical adjustments for multiple comparisons for the confirmatory outcomes. We did not make adjustments for exploratory outcomes.

The racial and ethnic composition of the Community Action Partnership sample was significantly different from the sample in the other two sites. Just over half were Hispanic and there were significantly more White students and students who classified themselves as Other race/ethnicity.

When they entered the study, youth in the sample were 14.4 years old, on average. However, there was considerable variation across the replication sites; in Touchstone, where the program was implemented only in 8th grade classrooms, the average age of students was about 13 years—more than one year less than the average for the combined sample.

One-quarter of the sample had ever been sexually active; a smaller percentage (17%) were sexually active in the 90 days before the survey. Almost half had ever used alcohol; one-quarter had ever used marijuana and just over one-fifth had ever smoked cigarettes (Figure 2).

FIGURE 2. ENGAGEMENT IN RISK BEHAVIORS AT BASELINE



Source: Baseline survey completed prior to random assignment.

Not surprisingly, on all measures of risk behavior, the younger Touchstone sample looked dramatically different from youth in the other two sites: much smaller proportions had engaged in any of the risk behaviors. Just 7 percent of youth in Touchstone had ever been sexually active and an even smaller group (4%) had been sexually active in the 90 days prior to the baseline survey.

The proportions of Touchstone youth who had engaged in other risk behaviors were similarly lower: less than 30 percent had ever used alcohol; 12 percent had ever smoked cigarettes; and 13 percent had ever used marijuana.

Impact Findings after 6 Months

Did iCuídate! have an impact on intermediate (non-behavioral) outcomes?

Yes, the program had a positive impact on the knowledge, attitudes, and skills of youth (see Table 2). Compared with control group students, treatment group students knew significantly more about pregnancy risk and STI transmission and prevention.

***iCuídate!* increased knowledge of sexual risk**

Compared with control students, students who received iCuídate! had significantly greater knowledge of:

- *Pregnancy Risk*
- *STI Risk*

iCuídate! had large and statistically significant impacts on students' attitudes toward using birth control or condoms: that is, students in the treatment group had more positive (and protective) attitudes.

***iCuídate!* improved attitudes toward protection**

iCuídate! students reported significantly greater support for the use of birth control and condoms than did students in the control group.

iCuídate! had no statistically significant impacts on student attitudes toward risky sexual behavior. Even at baseline, the majority of students in both the treatment and control groups rejected the view that risky behaviors were acceptable.

iCuídate! had no impact on students' motivation to delay childbearing or on intentions to engage in sexual behaviors in the following year. Students in both the treatment and control groups were highly motivated to delay childbearing at baseline and at the short-term follow-up. Similarly, at both time points, almost all youth indicated a belief in the importance of delaying childbearing until personal goals have been achieved.

The program had a statistically significant impact on one of two measures of perceived skills: perceived condom negotiation skills. Program participants were more likely to report that they could successfully negotiate condom use with a partner. The program did not have an impact on perceived refusal skills (i.e., the ability to say "no" to unwanted sex).

***iCuídate!* improved skills**

Compared with control students, students who received iCuídate! reported stronger perceived ability to negotiate condom use with a partner.

Did iCuídate! have impacts on sexual behavior?

No, despite program impacts on youth knowledge, attitudes and skills, *iCuídate!* had no statistically significant impacts on the primary behavioral outcomes of interest (sexually active in the last 90 days and sexual intercourse without birth control in the last 90 days, highlighted in Table 3). The program did not have statistically significant impacts on other related sexual risk behaviors.

Were there site-level differences in the impact of iCuídate! on behavioral outcomes?

No, there were no statistically significant differences in impact between the individual replication sites.

Were there subgroup differences in the impact of ;Cuídate! on behavioral outcomes?

Although there were no statistically significant differences between the *iCuídate!* and control groups, overall, on sexual behavior or sexual risk, some impacts varied by subgroup and, for some subgroups, the program appeared to have a detrimental effect.

There was variation in program impact on sexual intercourse in the last 90 days, depending on sexual experience at baseline. For youth who were sexually experienced before the study began, the program appears to have had a significant and unintended effect in which treatment group members were significantly more likely to report having had sexual intercourse in the last 90 days than were their control group counterparts.

The impact of *iCuídate!* on engaging in oral sex without a condom in the last 90 days varied by the respondent's race/ethnicity. A significant and unfavorable program effect was observed for White youth: treatment group members who were White were more likely to report having had oral sex without a condom in the last 90 days than were their control group counterparts. There were no effects on sexual risk behavior for Hispanic or Black participants.⁸

Discussion

This study was designed to address important research and policy questions about the effectiveness of evidence-based teen pregnancy prevention programs, and what happens when they are taken to scale, replicated with different populations, and in different settings. The *iCuídate!* program achieved impacts on some potential intermediate outcomes, such as knowledge, attitudes, and skills. Nevertheless, these early results do not provide evidence that *iCuídate!* reduced the sexual risk behaviors that represent the primary targets of this and all other TPP programs.

⁸ Our analysis was sensitive to the possible impact of including youth other than Hispanic youth and examined the impact of the program on Hispanic youth separately. In almost all cases, findings for the Hispanic sample largely paralleled those of the full sample.

We were unable to replicate the behavioral impact findings reported in the initial study of the program^{iv}, namely reduced sexual intercourse in the prior 90 days.⁹ The youth in the TPP Replication study were younger and less sexually active than were youth in the original study. At baseline, the average age in the TPP Replication Study was five months younger than the average age in the original study. Only half as many youth in the overall TPP Replication Study sample had ever been sexually active before the study began, compared to youth in the original study.¹⁰

Conclusion

The TPP Replication Study full report provides important information on the effectiveness of the *iCuídate!* program model. Despite some positive changes in knowledge, attitudes toward birth control and condoms, and perceived condom negotiation skills, results from the interim survey six-months after the baseline did not provide evidence that *iCuídate!* reduced sexual risk-taking behaviors. However, the findings represent interim outcomes for the *iCuídate!* model and are not intended to provide comprehensive evidence about the most important behavioral outcomes—those that reflect the goals of the TPP initiative. A final assessment of the program's effectiveness will accompany the findings from the longer-term follow-up survey, conducted 18 months after the program began.

⁹ The timing of the current study's first follow-up survey at six months post-baseline corresponds to one of the follow-up surveys conducted for the original study of *iCuídate!*'s effectiveness. The original study collected data three months, six months, and 12 months after the program ended. However, since the analysis for the original study combined outcomes from all three data points, there is a limit to our ability to make comparisons with the original study.

¹⁰ In one of the three replication sites, the proportion of youth who had ever been sexually active at baseline was almost exactly the same as in the original study. Nevertheless, there were no significant differences in the behavioral impacts in this site compared with the other sites.

References

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TABLE 1: BASELINE CHARACTERISTICS OF THE ANALYTIC SAMPLE

Outcome	Range ^a	N	Treatment Mean ^b	Control Mean	Group Difference ^c	P Value
Demographic Characteristics						
Age	11-20	2022	14.39	14.37	0.02	0.629
Grade	6-13	2022	9.19	9.13	0.05*	0.015
Gender - Female (%) ^d		2022	52.98	52.98	0.00	1.000
Race/Ethnicity^e (%)^d						
Hispanic		2022	71.40	70.10	1.30	0.506
Black		2022	3.73	5.83	-2.10*	0.027
White		2022	17.96	18.49	-0.53	0.749
Other		2022	6.91	5.58	1.32	0.231
Family structure and relationships (%)^d						
Lives with biological parents		1945	94.30	90.71	3.60**	0.003
Feels very close to and cared for by father		1800	44.45	46.06	-1.61	0.499
Feels very close to and cared for by mother		1930	59.13	60.29	-1.16	0.611
Risk behavior (%)^d						
Ever smoked cigarettes		1975	18.64	18.41	0.23	0.897
Ever drank alcohol		1976	46.06	48.08	-2.03	0.355
Ever used marijuana		1974	25.32	25.90	-0.58	0.763
Knowledge^f						
Knowledge of pregnancy risk	0-100	1994	48.37	47.98	0.39	0.831
Knowledge of STI risk	0-100	1995	38.61	39.36	-0.75	0.556
Attitudes^g						
Attitudes toward protection	1-4	1988	3.07	3.06	0.00	0.830
Intentions (%)^d						
Intentions to have sexual intercourse in the next 12 months		1946	31.91	27.50	4.41*	0.023
Intentions to have oral sex in the next 12 months		1939	25.10	22.76	2.34	0.205
Intentions to use a condom if they were to have sexual intercourse		1944	92.99	94.72	-1.73	0.132
Intentions to use birth control if they were to have sexual intercourse		1923	92.07	91.99	0.08	0.953
Sexual Behavior (%)^d						
Ever sexually active ^h		1969	25.22	21.99	3.23	0.074
Currently sexually active (in last 90 days) ^h		1959	17.38	14.69	2.69	0.095
Sexual intercourse in the last 90 days		1962	14.49	12.37	2.12	0.164
Oral sex in the last 90 days		1959	12.66	10.34	2.32	0.107
Anal sex in the last 90 days ^h		1143	4.25	3.42	0.84	0.484

Outcome	Range ^a	N	Treatment Mean ^b	Control Mean	Group Difference ^c	P Value
Sexual Risk (%)^d						
Sexual intercourse without birth control in the last 90 days		1962	4.38	3.48	0.90	0.328
Sexual intercourse without a condom in the last 90 days		1962	8.33	6.44	1.89	0.112
Oral sex without a condom in the last 90 days		1959	11.31	9.17	2.14	0.119
Anal sex without a condom in the last 90 days ^h		1143	2.77	2.05	0.72	0.464

Note: The baseline treatment-control difference was estimated using the baseline measure as the dependent variable and the treatment group indicator and the terms for the randomization blocks as independent variables.

a For continuous variables, we present the range. All other variables are dichotomous.

b The treatment mean was calculated as the sum of the control group mean and the model estimated treatment-control difference (group difference).

c The Group Difference is the treatment-control (T-C) difference. For outcomes reported as percentages, the group difference is expressed in percentage points. For scale outcomes, the group difference is expressed in the original metric of the outcome variable. Due to rounding, reported group differences may differ from differences between reported means for the treatment and control groups.

d For dichotomous variables, we present the percentage of respondents who responded affirmatively.

e Racial/ethnic categories include: Hispanic, Black non-Hispanic, White non-Hispanic, and other race non-Hispanic, where other is defined as Asian, American Indian or Alaska native, native Hawaiian or other Pacific Islander, Multiracial, or undisclosed.

f Knowledge variables are composite scale scores representing the percentage of items answered correctly.

g Attitude variable is a composite scale score with higher scores indicating more positive attitudes.

h Sexual activity is defined differently across grantees. In two sites, sexual activity refers to sexual intercourse, oral sex, and anal sex. Youth were not asked about anal sex in one site.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE 2: SIX-MONTH IMPACTS OF *iCUÍDATE!* ON INTERMEDIATE OUTCOMES

Outcome	Range ^a	N	Treatment Mean ^b	Control Mean	Group Difference ^c	SES ^d	P Value
Knowledge^e							
Knowledge of pregnancy risk	0-100	2022	67.07	60.95	6.12***		0.000
Knowledge of STI risk	0-100	2022	63.67	53.01	10.66***		0.000
Attitudes^e							
Attitudes toward protection	1-4	2022	3.24	3.14	0.10***	0.24	0.000
Attitudes toward risky behavior	0-100	2011	3.12	3.33	-0.21		0.692
Motivation^e							
Motivation to delay childbearing	1-4	2015	3.69	3.69	0.00	-0.01	0.907
Intentions (to engage in the following behaviors in the next 12 months) (%)^f							
Sexual intercourse		2003	40.38	39.07	1.31		0.470
Oral sex		1997	37.16	36.60	0.56		0.762
Use a condom if they were to have sexual intercourse		2005	92.89	92.74	0.15		0.898
Use birth control if they were to have sexual intercourse		1996	93.23	92.42	0.80		0.491

Outcome	Range ^a	N	Treatment Mean ^b	Control Mean	Group Difference ^c	SES ^d	P Value
Skills^e							
Perceived refusal skills	1-4	2015	3.19	3.13	0.06	0.08	0.062
Perceived condom negotiation skills	1-4	2016	3.53	3.46	0.07**	0.14	0.002

a For continuous variables, we present the range. All other variables are dichotomous.

b The treatment group mean is regression-adjusted, calculated as the sum of the control group mean and the regression adjusted impact estimate (group difference).

c The Group Difference is the treatment-control (T-C) difference. For outcomes reported as percentages, the group difference is expressed in percentage points. For scale outcomes, the group difference is expressed in the original metric of the outcome variable. Due to rounding, reported group differences may differ from differences between reported means for the treatment and control groups.

d The "SES" is the standardized effect size of the difference. For outcomes that are not dichotomous or measured on a 0 to 100 scale, the SES is the "Group Difference" divided by the pooled standard deviation of the treatment and control groups.

e Composite scale scores.

f Dichotomous variables, reported as percentage of respondents who responded affirmatively.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE 3: SIX-MONTH IMPACTS OF *iCUÍDATE!* ON SEXUAL BEHAVIOR

Outcome	N	Treatment % ^a	Control %	Group Difference ^b	P Value
Sexual Behavior					
Currently sexually active (in last 90 days)^c	2011	18.79	17.83	0.96	0.516
Sexual intercourse in the last 90 days	2012	15.48	14.09	1.39	0.312
Oral sex in the last 90 days	2009	14.69	13.13	1.56	0.266
Anal sex in the last 90 days ^d	1173	2.48	2.87	-0.39	0.704
Sexual Risk					
Sexual intercourse without birth control in the last 90 days	2012	5.77	4.86	0.90	0.383
Sexual intercourse without a condom in the last 90 days	2012	9.81	8.10	1.70	0.157
Oral sex without a condom in the last 90 days	2009	1.46	1.99	-0.53	0.211
Anal sex without a condom in the last 90 days ^d	1173	5.77	4.86	0.90	0.525

Note: Confirmatory outcomes are bolded. All outcomes are dichotomous, reported as the percentage of respondents who responded affirmatively.

a The treatment group percent is regression-adjusted, calculated as the sum of the control group percent and the regression adjusted impact estimate (group difference).

b The Group Difference is the treatment-control (T-C) difference expressed in percentage points. Due to rounding, reported group differences may differ from differences between reported percentages for the treatment and control groups.

c Sexual activity is defined differently across grantees. In two sites, sexual activity refers to sexual intercourse, oral sex and/or anal sex. Youth were not asked about anal sex in one of the sites.

d Items asking about anal sex were not included in the survey administered to participants in one site.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ (For the two confirmatory outcomes statistical significance at $p < 0.05$, $p < 0.01$, and $p < 0.001$ implies statistical significance at those levels after applying a Benjamini-Hochberg adjustment for multiple comparisons).

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