

Teen Pregnancy Prevention Replication Study: Summary of the Short-Term Impacts of *Reducing the Risk*

| RESEARCH BRIEF |

Overview

This research brief highlights early findings from the evaluation of *Reducing the Risk*, a sexual health curriculum developed in the early 1990s to help prevent pregnancy and reduce sexually-transmitted infections (STIs) in adolescents. These findings are based on a follow-up survey administered to study participants 12 months after they enrolled in the study, and designed to examine the impact of *Reducing the Risk* 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 *Reducing the Risk*, pooling the data to examine the overall program impact.

Summary of Findings

After 12 months, *Reducing the Risk* 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. In one of the three replication sites, there was a favorable effect on sexual activity in the last 90 days.

The program did demonstrate favorable impacts on some intermediate outcomes, namely knowledge about sexual risk and attitudes towards protection. There were no significant impacts on motivation or on intentions to engage in sexual behaviors in the following year, or on perceived negotiation and refusal skills.

Early findings suggest that Reducing the Risk was effective in increasing knowledge about sexual risk and producing more positive attitudes toward protection. However, after 12 months, there were no overall impacts on reported sexual risk behaviors.

More conclusive evidence on the effectiveness of *Reducing the Risk* will be gathered at the long-term follow-up, 24 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 outcomes 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 generally found in single-site studies.

The three program models being tested are the *Safer Sex Intervention (SSI), ¡Cuídate!,* and *Reducing the Risk*. 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 *¡Cuídate!*). A subsequent set of three reports will present detailed findings on the implementation of all three 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 *Reducing the Risk*.

What is *Reducing the Risk*?

Reducing the Risk is a sexual health curriculum developed in the early 1990s to help prevent pregnancy and STI transmission in adolescents. The curriculum targets four sexual behaviors directly related to this goal: initiation of sexual intercourse, abstinence, use of condoms, and use of contraception. *Reducing the Risk* is intended for use in school classrooms with students of all ethnicities, although program materials suggest it can be delivered in community settings. *Reducing the Risk* consists of 16 modules of 45 minutes each which can be delivered separately or grouped into eight 90 minute sessions, but must be delivered in their specified sequence.

Reducing the Risk is a highly scripted curriculum in which core content and pedagogical strategies are specified in detail, together with the module in which they should be presented and employed.

The Evaluation of *Reducing the Risk*

The evaluation was guided by the following questions:

1. Did *Reducing the Risk* improve teens' knowledge and understanding of pregnancy risks and prevention, and the transmission and prevention of STIs?
2. Did*Reducing the Risk* 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 *Reducing the Risk* increase teens' confidence in their ability to refuse unwanted sex and to negotiate safe sex?
4. Did *Reducing the Risk* delay sexual initiation and reduce risky sexual activity?

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.[1] In each replication site, the program was delivered by grantee and partner staff trained by the program distributor.

Grantees Selected

- ***Better Family Life (BFL)**, a nonprofit community development agency with deep roots in the St. Louis, Missouri, metropolitan area, delivers services to more than 50,000 individuals, annually.*
- ***LifeWorks**, a private nonprofit agency, offers housing, counseling, education, workforce, and youth development programs to more than 6,000 youth and their families in locations across Travis County, Texas.*
- ***San Diego Youth Services (SDYS)**, a nonprofit agency, provides services to help young people who are at risk for not achieving self- sufficiency to more than 13,000 youth and families annually in San Diego County, California.*

In all three sites, the program was delivered in public high schools or middle schools, in 8th, 9th, or 10th grade classes.

Study Design

The study used an experimental design in which classrooms within schools were randomly assigned to receive *Reducing the Risk* or to the regularly scheduled class. Youth in each of the replication sites were surveyed three times: at baseline, before the intervention began; 12 months after the baseline survey (short-term follow-up); and 24 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 classrooms within schools*

Data collected at:

- *Baseline*
- *12 months after baseline*
- *24 months after baseline*

Measures

The surveys collected information from students 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 *Reducing the Risk* on each of the study's outcomes, we compared the outcomes of treatment and control group members.[2] 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 this 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.[3]

1 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.

2 We used a regression framework for the analysis.

3 For the final report, we pre-specify a third outcome: pregnancy.

Limiting the confirmatory outcomes[4] to a small number of behaviors gives us greater confidence in any findings related to them.

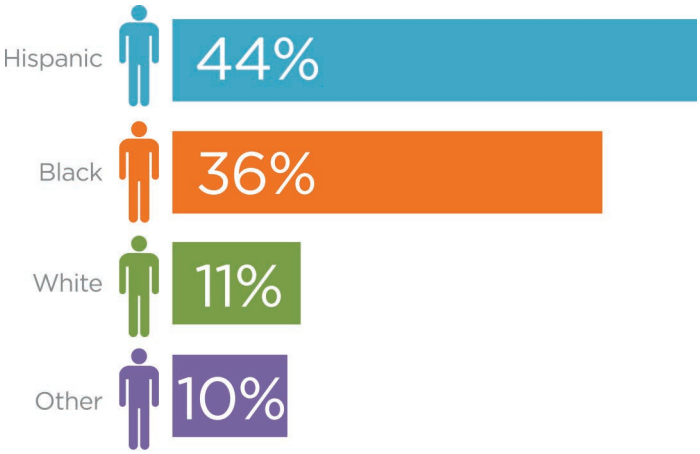
A number of other behaviors, as well as potential intermediate outcomes, were also examined and are reported here. However, we consider these other behavioral outcomes to be exploratory, meaning they are suggestive rather than definitive, and need additional research to confirm them.[5]

As we noted earlier, pooling the data from the 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. All of these analyses were also exploratory. 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. The student sample was almost equally male and female. Over 40 percent were Hispanic, more than a third were Black, and the remainder were almost evenly divided between White and Other (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.

There were significant differences among sites in the racial and ethnic composition of the sample. The overwhelming majority of students in BFL were Black, and almost none were Hispanic. In the other two sites, Hispanic youth constituted approximately two-thirds of the sample.

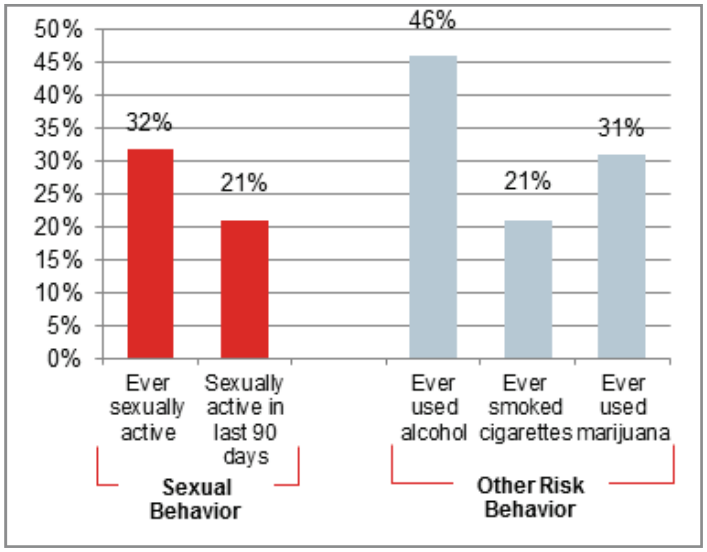
At baseline, youth in the study sample were 14.5 years old, on average. However, there was considerable variation across the replication sites; in SDYS, students were, on average, a year younger than students in BFL and even younger than students in LifeWorks.

Almost one-third of the sample had ever been sexually active; a smaller percentage (21%) were sexually active in the 90 days before the survey. Almost half had ever used alcohol; smaller percentages had ever smoked cigarettes (21%) or used marijuana (31%) (Figure 2).

4 Confirmatory outcomes refer to the behavioral outcomes used to assess the effectiveness of the program.

5 We made formal statistical adjustments for multiple comparisons for the confirmatory outcomes. We did not make adjustments for exploratory outcomes.

FIGURE 2. ENGAGEMENT IN RISK BEHAVIORS AT BASELINE



Source: Baseline survey completed prior to random assignment.

Significantly smaller proportions of youth in SDYS had engaged in any of these risk behaviors before entering the study. Less than 12 percent had ever been sexually active; even fewer (7%) had been sexually active in the 90 days before the survey. One-third had ever used alcohol; even smaller percentages had ever smoked cigarettes (14%) or used marijuana (18%).

Impact Findings After 12 Months

Did Reducing the Risk have an impact on intermediate (non-behavioral) outcomes?

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

Reducing the Risk increased knowledge about sexual risk

Compared with control students, students who received Reducing the Risk had significantly greater knowledge of:

- *Pregnancy Risk*
- *STI Risk*

Reducing the Risk had 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. The program had no statistically significant impacts on student attitudes toward risky behavior. Even at baseline, almost all students in both the treatment and control groups rejected the view that risky behaviors were acceptable. *Reducing the Risk* 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 students indicated a belief in the importance of delaying childbearing until personal goals have been achieved.

Reducing the Risk improved attitudes toward protection

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

The program had no statistically significant impact on measures of perceived skills: perceived condom negotiation skills or perceived refusal skills.

Did Reducing the Risk have impacts on sexual behavior?

No, despite program impacts on youth knowledge and attitudes, *Reducing the Risk* had no statistically significant impacts on the primary behavioral outcomes of interest (sexual activity in the last 90 days and sexual intercourse without birth control in the last 90 days, highlighted in Table 3), across the three sites. The program had no statistically significant impacts for the pooled sample on other related sexual risk behaviors.

Were there site differences in the impact of Reducing the Risk on behavioral outcomes?

Yes. Although there were no statistically significant differences between the treatment and control groups on sexual behavior or risky sexual behavior when data were pooled across sites, site-level analyses revealed a significant difference between sites. There was a positive effect on the behavior of students in the BFL sample: significantly fewer program participants (33%) engaged in sexual intercourse in the 90 days prior to the survey compared to youth in the control group (39%).

Were there subgroup differences in the impact of Reducing the Risk on behavioral outcomes?

No, there were no significant differences by gender, age, race/ethnicity, or sexual experience at baseline in the impact of *Reducing the Risk* on sexual behavior or sexual risk.

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. *Reducing the Risk* achieved impacts on some potential intermediate outcomes, such as knowledge and attitudes towards protection. Nevertheless, these early results do not provide evidence that the program had an overall impact across study sites on the sexual risk behaviors that represent the primary targets of this and all other TPP programs. In the BFL site there was a positive effect on sexual activity with fewer youth participating in the intervention group having had sexual intercourse in the last 90 days compared with youth in the control group. Supporting the assertion that this is not a chance finding is a pattern of small, though not statistically significant, impacts in the desired direction on other behavioral outcomes in this site.

The original study of *Reducing the Risk*[iii] found no behavioral impacts at a comparable time-point, six months after the intervention ended (approximately 9 months after baseline). [6]

The original study detected favorable behavioral effects 18 months after the intervention ended, which is comparable to the longer-term follow-up for the TPP Replication Study (24 months after the baseline survey).

Conclusion

Reducing the Risk was effective in increasing knowledge about pregnancy and STI risk and producing more positive attitudes toward protection in the short-term. However, after 12 months, there were no overall impacts on reported sexual behaviors, when data were pooled across the three replication sites. The findings presented in this brief represent interim data on *Reducing the Risk* and are not intended to be the last word about its impacts on the most important behavioral outcomes. Because so many of the study participants were not yet sexually active, even after 12 months, the short-term follow-up analyses may have not been able to detect the true impact of the intervention. A final assessment of the program's effectiveness should await the findings from the longer-term follow-up survey, conducted 24 months after the program began.

6 In the original study of *Reducing the Risk*, outcome data were collected 6 and 18 months after the program ended (with null findings at the first point and positive impacts at the second). Since the intervention itself characteristically spans an entire semester, the first of these measurement points occurred about 9 months after the program began. The short-term findings from the Replication Study reported in this brief might reasonably be compared with the 6-month findings in the original study.

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	13-20	2689	14.50	14.56	-0.07	0.204
Grade	8-12	2689	9.25	9.27	-0.02	0.626
Gender – Female (%)[d]		2689	.	49.10	.	1.000
Race/Ethnicity[e] (%)[d]						
Hispanic		2689	46.09	47.12	-1.04	0.518
Black		2689	33.10	32.96	0.14	0.903
White		2689	11.34	10.73	0.61	0.616
Other		2689	9.54	9.18	0.36	0.792
Family structure and relationships (%)[d]						
Lives with biological parents		2613	93.06	92.24	0.82	0.478
Feels very close to and cared for by father		2368	45.46	46.74	-1.27	0.564
Feels very close to and cared for by mother		2592	63.38	65.98	-2.61	0.171
Risk behavior (%)[d]						
Ever smoked cigarettes		2631	21.01	20.63	0.38	0.826
Ever drank alcohol		2634	45.73	45.05	0.69	0.743
Ever used marijuana		2632	31.23	30.00	1.23	0.521
Knowledge[f]						
Knowledge of pregnancy risk	0-100	2653	51.84	50.61	1.22	0.452
Knowledge of STI risk	0-100	2655	44.42	43.46	0.96	0.411
Attitudes[g]						
Attitudes toward protection	1-4	2652	3.04	3.04	0.00	0.907
Intentions (%)[d]						
Intentions to have sexual intercourse in the next 12 months		2588	41.14	39.16	1.98	0.312
Intentions to have oral sex in the next 12 months		2581	30.00	30.09	-0.08	0.965
Intentions to use a condom if they were to have sexual intercourse		2592	94.59	94.17	0.42	0.650
Intentions to use birth control if they were to have sexual intercourse		2558	89.41	90.79	-1.38	0.259
Sexual Behavior (%)[d]						
Ever sexually active[h]		2602	30.57	31.32	-0.75	0.683
Currently sexually active (in last 90 days)[h]		2590	18.37	20.79	-2.42	0.175
Sexual intercourse in the last 90 days		2590	16.53	17.99	-1.46	0.409
Oral sex in the last 90 days		2582	12.12	14.56	-2.44	0.114

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		2590	5.36	6.71	-1.35	0.254
Sexual intercourse without a condom in the last 90 days		2590	8.04	9.85	-1.80	0.189
Oral sex without a condom in the last 90 days		2582	10.40	11.77	-1.37	0.348

Note: The baseline treatment-control difference was estimated in a two-level multi-level model with random intercept terms for classes and where the dependent variable was the baseline measure, and the only independent variables included in the model were the treatment group indicator and terms for the randomization blocks.

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

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

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

TABLE 2: 12-MONTH IMPACTS OF *REDUCING THE RISK* 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	2689	65.55	61.55	4.01***		0.000
Knowledge of STI risk	0-100	2689	60.47	56.21	4.26***		0.000
Attitudes[e]							
Attitudes toward protection	1-4	2688	3.18	3.13	0.05***	0.13	0.000
Attitudes toward risky behavior	0-100	2675	5.32	4.53	0.80		0.161
Motivation[e]							
Motivation to delay childbearing	1-4	2683	3.68	3.68	-0.01	-0.01	0.741
Intentions (to engage in the following behaviors in the next 12 months) (%)[f]							
Sexual intercourse		2660	52.67	50.69	1.97		0.280
Oral sex		2654	42.41	43.27	-0.86		0.632
Use a condom if they were to have sexual intercourse		2667	91.21	92.11	-0.90		0.403
Use birth control if they were to have sexual intercourse		2662	90.39	89.67	0.72		0.537

Outcome	Range[a]	N	Treatment Mean[b]	Control Mean	Group Difference[c]	SES[d]	P Value
Skills[e]							
Perceived refusal skills	1-4	2681	3.12	3.08	0.04	0.06	0.132
Perceived condom negotiation skills	1-4	2685	3.53	3.50	0.03	0.06	0.177

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: 12-MONTH IMPACTS OF *REDUCING THE RISK* ON SEXUAL BEHAVIOR

Outcome	N	Treatment %[a]	Control %	Group Difference[b]	P Value
Sexual Behavior					
Currently sexually active (in last 90 days)[c]	**2665**	**28.02**	**28.14**	**-0.11**	**0.946**
Sexual intercourse in the last 90 days	2667	23.66	24.37	-0.72	0.671
Oral sex in the last 90 days	2661	19.24	19.50	-0.26	0.871
Sexual Risk					
Sexual intercourse without birth control in the last 90 days	**2667**	**8.73**	**8.99**	**-0.25**	**0.815**
Sexual intercourse without a condom in the last 90 days	2667	13.57	15.38	-1.81	0.178
Oral sex without a condom in the last 90 days	2661	16.20	17.33	-1.13	0.444

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 one site, sexual activity refers to sexual intercourse, oral sex and/or anal sex. Youth were not asked about anal sex in two of the sites. Impacts for anal sex are not reported here.

** 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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