

# Impacts of a Violence Prevention Program for Middle Schools

Findings From the First Year of Implementation

Executive Summary



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**April 2010**

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# Acknowledgments

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This study represents a collaborative effort among participating schools; staff from RTI International (RTI); our colleagues at Pacific Institute for Research and Evaluation (PIRE); researchers at Tanglewood Research, Inc.; and the program developers for Responding in Peaceful and Positive Ways (RiPP), Wendy Bauers Northup and Aleta Meyer, and the program developer for Best Behavior at the University of Oregon, Jeff Sprague. We are especially grateful to the school principals, faculty, and students of the participating schools for their dedication to implementing the programs and for graciously participating in all data collection.

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# **Disclosure of Potential Conflicts of Interest**

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The research team for this evaluation consists of a prime contractor, RTI International (RTI), and two subcontractors, Pacific Institute for Research and Evaluation (PIRE) and Tanglewood Research, Inc. RTI and PIRE formed the evaluation team, while Tanglewood Research oversaw implementation of the two programs. None of these organizations or their key staff members has financial interests that could be affected by findings from the evaluation of the two school-based violence prevention programs considered in this report. No one on the Technical Working Group, convened by the research team to provide advice and guidance, has financial interests that could be affected by findings from the evaluation.



# Executive Summary

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This is the first of two reports that summarize the findings from an impact evaluation of a violence prevention intervention for middle schools. This report discusses findings after 1 year of implementation. A forthcoming report will discuss the findings after 2 years and 3 years of implementation. In 2004, the U.S. Department of Education (ED) contracted with RTI International (RTI) and its subcontractors, Pacific Institute for Research and Evaluation (PIRE) and Tanglewood Research, Inc., to conduct an evaluation of a hybrid intervention model that combines a curriculum-based program, Responding in Peaceful and Positive Ways (RiPP [Meyer and Northup 2002a, 2002b, 2006]), and a whole-school approach, Best Behavior (Sprague and Golly 2005). The combined intervention was administered over the course of 3 successive years. Using a randomized control trial design (with entire schools randomly assigned either to receive the intervention or not), the evaluation assesses the intervention's effects on student violence and victimization and whether these effects vary by levels of student risk. Tanglewood Research, which assisted in the process by which the programs under study were selected, provided implementation oversight along with site-based liaisons and coordinated training and technical assistance for staff in intervention schools. The developers of the two programs that constitute the intervention—Prevention Opportunities and University of Oregon—provided the program materials and conducted staff training.

## Study Background

The Office of Safe and Drug-Free Schools (OSDFS), through the Safe and Drug-Free Schools and Communities Act (SDFSCA, Title IV-A), supports both state and national programs intended to prevent and reduce the levels of drug use and violence in and around schools. State grants from SDFSCA provide funding to approximately 97 percent of all school districts for this purpose. A study conducted in 2000 found that 90 percent of districts that receive SDFSCA funding implemented curricula that target youth violence (Hantman and Crosse 2000). While there is now a lengthy set of school-based drug prevention curricula that have been evaluated using rigorous designs, much less evidence is available concerning effective violence prevention strategies in school settings.

The need for evidence-based violence prevention programs is particularly critical for middle schools, whose students experience the highest rate of school-based violence relative to students in other grades. Data from a recent National Center for Education Statistics report indicate that the rate of victimization for students aged 12 through 14 was 35 incidents per 1,000 students, which was higher than the rate for students aged 15 through 18, which was 23 incidents per 1,000 students (Dinkes, Kemp, and Baum 2009). Similarly, data from the School Survey on Crime and Safety (SSOCS) for the 2005–06 school year reveal that students were more likely to experience a violent event in middle schools (52 per 1,000) than in elementary (25 per 1,000) or secondary (26 per 1,000) schools (Nolle, Guerino, and Dinkes 2007). National Crime Victimization Survey (NCVS) data also indicate that bullying is a significant problem. In 2005, some 36 percent of students in grades 6 and 7, and 29 percent of students in grades 8 and 9, reported having been bullied in the previous 6 months (Dinkes, Cataldi, and Lin-Kelly 2007).

Among the violence prevention strategies for middle schools which have been evaluated through rigorous methods are at least eight curriculum-based programs, including RiPP (Meyer and Northup 2002a, 2002b, 2006), one of the two prevention programs selected for this study. Four evaluations of RiPP have been conducted by the program's developers in schools serving students in

grades 6 through 8. The evaluations found statistically significant decreases in students’ approval of violent behavior, levels of peer provocation, physical aggression, victimization, and discipline violations, although results have not been consistently maintained at follow-up time points (Farrell, Valois, and Meyer 2002; Farrell, Meyer, and White 2001; Farrell, Meyer, et al. 2003; Farrell, Valois, et al. 2003). While evaluations of RiPP and similar curriculum programs have yielded significant results, their effect sizes tended to be modest. A meta-analysis of school-based violence prevention evaluations from a mix of experimental and quasi-experimental designs reported an average effect size of 0.10 (Cohen’s *d*) for classroom-based social skills programs (Wilson and Lipsey 2005).

A few other school-based programs have sought to prevent violence using whole-school strategies that seek to influence the school environment, for example, through clarifying rules for behavior, increasing supervision of the school grounds, or setting up positive behavior reward systems. Some of these programs have been evaluated using middle school–age students, but not with the same methodological rigor to which the curriculum-based programs have been subjected. Included among these is Positive Behavior Support (PBS [Sugai and Horner 1994; Sprague, Sugai, and Walker 1998]), whose components and strategies form the basis for Best Behavior (Sprague and Golly 2005), the second of the prevention programs selected for this evaluation. Two evaluations of PBS conducted with elementary and middle school students found reductions in students’ aggressive social behavior and discipline violations and also found that students had increased knowledge of social skills (Metzler et al. 2001; Sprague et al. 2001). A few other programs combine both curriculum and whole-school approaches, but their evaluations, while yielding promising results, have not been very rigorous. More research is clearly indicated, particularly to determine the effects of programs that use a combination of classroom-based curricula and whole-school approaches to prevent school violence, which experts in the field of violence prevention suggest may help boost impacts. This study will yield information regarding the effects of a combined curriculum and whole-school intervention for middle school students.

The study’s research questions for impacts and implementation in year one are provided in table ES-1.

**Table ES-1. Research questions**

Intervention implementation
<ul style="list-style-type: none"> <li>• Is delivery of the violence prevention program consistent with its design and intended implementation?</li> <li>• With the goal of decreasing disruptive, aggressive, violent, and other delinquent behaviors, what other interventions or prevention programs do the treatment and control schools implement, other than the violence prevention program under study?</li> </ul>
Intervention impacts
<ul style="list-style-type: none"> <li>• Does the degree of violence differ in schools that implement the violence prevention program, relative to schools that do not implement it?</li> <li>• What is the impact of the violence prevention program on students who are at elevated risk for violence and aggression?<sup>1</sup></li> </ul>

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<sup>1</sup> The two programs that make up the intervention are universal programs and, as such, are not designed specifically for students who are already exhibiting serious violent behavior in school. However, the study addressed this research question because the impacts of universal programs on high-risk students are still of interest to practitioners.

## Implementation Findings

The key descriptive findings regarding the first year of implementation of the curriculum portion of the program include the following:

- **The first-year curriculum was delivered in its entirety to a majority of assigned classrooms.** Seventy percent of schools delivered all 16 lessons to all classrooms where the curriculum had been assigned, while another 15 percent of schools delivered all lessons in at least three-fourths of these classrooms.
- **Teachers in the majority of treatment schools followed the curriculum lesson scripts and adhered to the prescribed teaching strategies.** Teachers in 65 percent of the intervention schools were observed to deliver lessons with few or no deviations from the written lesson plan (e.g., adding or modifying activities or changing the activity sequence), according to classroom observations by the evaluation team. In addition, teachers in 55 percent of the intervention schools delivered lessons with few or no deviations from the prescribed teaching strategies (e.g., using role plays or small group discussions). Observations made by the liaisons were comparable for alignment with the teaching techniques (65 percent for liaisons, as compared with 55 percent for the evaluation team) but less so for deviations from the lesson plan (40 percent for liaisons, as compared with 65 percent for the evaluation team).
- **In a majority of schools, students were engaged with the curriculum.** Based on evaluation team observations, students were found to be engaged during the lesson activities, exercises, and discussions in 85 percent of the intervention schools. Observations made by the liaisons were comparable and indicated that students were engaged with the curriculum in 60 percent of the intervention schools.

The main implementation findings for the whole-school portion of the program (Best Behavior) include the following:

- **Half of the treatment schools had principals who were supportive of the whole-school portion of the program.** Principals at 50 percent of the treatment schools were rated as supportive on three out of four indicators, according to liaisons who helped implement the program.
- **The school management teams, charged with developing and disseminating the school rules and reward systems, met less frequently than stipulated by the program.** Although school management teams are to meet monthly during the school year, the average team met on five occasions during the first year of implementation.
- **By the end of the first year, the majority of treatment schools had instituted behavioral rules and rewards, which are key steps during the first year of Best Behavior.** By the end of the first year, 75 percent of treatment schools had school rules posted in the school, 75 percent had instituted a token reward system for adhering to school rules, and 50 percent had the school rules taught in classrooms.
- **The majority of teachers agreed that the rules were well defined and that they were clear with regard to the behaviors being targeted.** Eighty-four percent of teachers at intervention schools agreed or strongly agreed that school rules were clearly defined, 79 percent agreed or strongly agreed that rules emphasized rewarding desired behaviors, and

69 percent agreed or strongly agreed that rules emphasized consequences for undesired behaviors.

- **The primary treatment contrast between the treatment and control schools was the violence prevention program implemented by the study.** While no control school was implementing Best Behavior, an equal number of control and intervention schools used a discipline tracking system, one of the strategies encouraged by Best Behavior. In addition, an equal number of treatment and control schools implemented peer mediation programs. While no control schools implemented RiPP in the first year, slightly more treatment schools than control schools implemented stand-alone violence prevention curricula, other than RiPP. In addition, slightly more control schools than treatment schools were using security measures such as cameras and law enforcement officers.

## Impact Findings

The main findings regarding intervention impacts after year one are the following:

- **There were no statistically significant differences between intervention and control schools on self-reported student violence or victimization.** On average, 6th-graders in the intervention schools reported engaging in 2.91 violent acts at school in the past 30 days, compared with 6th-graders in control schools, who reported engaging in 2.88 violent acts at school in the past 30 days. On average, 6th-graders in both intervention and control schools reported being victimized 4.97 times in the past 30 days.
- **There were no statistically significant impacts on self-reported violence and victimization between high-risk youth at treatment schools and high-risk youth at control schools.** On average, 6th-graders in the intervention schools who were categorized as being at a high risk for violence reported at follow-up that they had engaged in 5.16 (change from baseline of 0.13) violent acts at school in the past 30 days. This is compared with high-risk 6th-graders in the control schools who reported at follow-up that they had engaged in 4.78 (change from baseline of 0.11) violent acts at school in the past 30 days. In addition, high-risk 6th-graders in the intervention schools reported being victimized an average of 6.28 (change from baseline of 0.47) times at school in the past 30 days. This is compared with high-risk 6th-graders in the control schools who reported being victimized an average of 6.23 (change from baseline of 0.30) times at school in the past 30 days.
- **There were no statistically significant impacts on either secondary or intermediate outcomes.** In addition, after 1 year of exposure to the RiPP and Best Behavior intervention, student measures for secondary outcomes—including student safety concerns, teacher victimization and safety concerns, and student prosocial behaviors—did not differ between students in intervention schools and students in control schools. Also, there were no statistically significant differences on intermediate outcomes—that is, where the program logic model predicts change would be observed before it would be observed on the outcome measures. These include student self-reported coping strategies, student perceptions of behavior expectations, and student attitudes toward aggression.
- **There were no statistically significant impacts for either boys or girls on violence or victimization.** An exploratory subgroup analysis indicated that there were no statistically significant differences between boys in the treatment schools and boys in control schools for either self-reported violence or victimization. Likewise, there were no statistically significant

differences between girls in the treatment schools and girls in control schools on either self-reported violence or victimization. Also, the difference in impacts between boys and girls was not statistically significant for either self-reported violence or victimization.

As the implementation results document, the programs being evaluated as part of the study were not fully implemented with complete fidelity in the first year. This has the potential to limit the ability to find statistically significant differences between treatment and control schools.

## **The Intervention**

Two research-based programs were selected through an open competition and advice from a panel of experts in the field of violence prevention: the RiPP program (Meyer and Northup 2002a, 2002b, 2006) was chosen as the curriculum-based component of the intervention, and the Best Behavior program (Sprague and Golly 2005) (a formalized version of schoolwide PBS [Sugai and Horner 1994; Sprague, Sugai, and Walker 1998]) was selected as the whole-school component. These two approaches are considered complementary in that they target both individual- and school-level change mechanisms.

While both RiPP and Best Behavior are implemented by school staff, in this study technical assistance was made available throughout the implementation period by on-site implementation liaisons trained and hired by the implementation subcontractor, Tanglewood Research. Liaisons (e.g., former school teachers or administrators) were expected to facilitate, coach, and monitor the progress and delivery of both programs.

### **The Curriculum: RiPP Program**

RiPP (Meyer and Northup 2002a, 2002b, 2006) is a universal, social-cognitive violence prevention program that focuses on the reduction of situational and relationship violence. The goal of the curriculum is to promote effective social-cognitive problem-solving skills; motivation and self-efficacy for using those skills; and school norms that support those attitudes and skills while reducing the appeal and perceived utility of violent behaviors and related attitudes. By targeting these attitudes and skills, the program is designed to increase social competence and thereby reduce violent behavior.

The RiPP curriculum consists of 16 lessons (each lasting 50 minutes) per year in grades 6 through 8. Each lesson builds on the previous lessons in a cumulative fashion. Similarly, each grade-level curriculum expands on the concepts taught in the previous year. In year one of program implementation, all students in the 6th through 8th grades received lessons designed for use in 6th grade (RiPP-6) because all students were required to receive the foundational lessons before the more advanced RiPP materials.

The lessons in the first-year RiPP program introduce the problem-solving model. The lessons comprise a variety of activities and strategies, including team building, social-cognitive problem solving, repetition and mental rehearsal, small group work, role playing, rehearsal of specific social skills for preventing violence, and didactic learning. Most lessons contain between four and six of these activities and are estimated to take between 5 and 15 minutes per activity. Each activity is scripted and tied to a specific objective. Most lessons make use of the student workbook as part of the activities.

## **The Whole-School Intervention: Best Behavior Program**

Best Behavior (Sprague and Golly 2005) provides a standardized staff development program that is designed to develop and administer effective school rules and discipline policies at both schoolwide and classroom levels to decrease school violence and antisocial behavior. The complete Best Behavior program is designed to be implemented on an approximately 3-year timeline, as individual school capacity dictates. The program is implemented by a school management team made up of teachers and administrators. Best Behavior involves intervention strategies at the school and classroom levels, including the following:

- review and refinement of school discipline policies;
- use of positive reinforcement and recognition for prosocial behaviors, both schoolwide and in individual classrooms;
- clarification and teaching of behavioral expectations for student behaviors; and
- systematic collection and review of patterns of discipline referrals to guide decisionmaking and planning.

The Best Behavior management team is expected to create a systematic approach to developing schoolwide positive behavior supports. This approach includes four broad sets of activities, the first three of which should be implemented beginning in the first year. First, the team is to conduct a schoolwide needs assessment to identify reasonable goals. Needs assessments are to be repeated annually. Second, the team is to define rules and expectations, with general rules (e.g., be safe, be respectful, be responsible) supported with expectations for all settings within the school environment. Rules and expectations are to be taught on a regular basis by all teachers and staff. Third, the team is to develop and support a positive behavior reinforcement system in which students are to be given token rewards for obeying rules and meeting expectations. Finally, in the second year of program implementation, the team is to develop a data-based decisionmaking process for identifying and addressing the needs of high-risk students. During annual training, Best Behavior prompts each school to develop its own specific strategies for achieving goals and objectives for each year. Also, Best Behavior was adapted to reinforce and complement the RiPP curriculum.

## **Evaluation Design**

Designed as a group-randomized control experiment, the study was conducted in 40 middle schools serving grades 6 through 8. Twenty schools were randomly assigned to receive the combined intervention, and 20 schools were randomly assigned to serve as control schools (with no intervention beyond that which schools were already implementing). In year one, the intervention was delivered schoolwide by school staff trained annually by the program developers. School staff also received technical assistance and were monitored throughout implementation by trained site liaisons under the guidance of Tanglewood Research.

## **Participating Schools**

Following recruitment of 13 districts and 40 schools, random assignment to condition was conducted within district, among pair-matched sets of schools based on the percentage of students

receiving free or reduced-price lunches.<sup>2</sup> The sites were geographically dispersed and represented a range of district enrollment sizes. A majority of the districts were located in large urban or suburban areas with only three sites in rural districts. All participating schools were middle schools that included only grades 6 through 8. The average enrollment in these schools is 871 and ranges between 462 and 1,404 students. Minority students compose 65 percent of the student body, on average, and range between 15 percent and 100 percent. The average percentage of students receiving free or reduced-price lunches is 56 percent and ranges between 16 percent and 97 percent. There were no statistical differences between the intervention and control groups on these characteristics.

## Student Sample

The impact analysis for the main findings uses a cross-sectional sample in each school. The first-year analysis used data collected from a census of the entering 6th-grade class in fall 2006 (baseline) and from those who remained in the study schools as 6th-graders or were new in spring 2007 (first follow-up). The research team obtained written parental consent from 6th-grade students at baseline and from new students at the first follow-up. These data were used to answer questions about the effects of the intervention across the general student population after 1 year of program implementation. Over 70 percent of enrolled students received parental consent and completed a survey at baseline, and 77 percent completed a survey at the first follow-up. A total of 7,351 students provided survey data for this analysis. More than one-half of the students in the sample were either Hispanic or Black. About one-half of the students in the sample were male, and more than one-half lived in single-adult households. A two-tailed *t*-test, obtained from multilevel regression models using the school as the unit of analysis, indicated that none of the mean demographic characteristics was statistically different between students attending intervention schools and those attending control schools.

To address the research question regarding how the program impacts students at high risk for violent behaviors, we identified a subset of students at high risk for violent and aggressive behaviors, based on student responses to the fall 2006 baseline survey. Unlike the remainder of the students in the full sample, this sample was to be followed longitudinally; the research team attempted to survey the students in the high-risk subgroup even if they left one of the study schools and were attending another school in the same district during spring 2007. If a student went to a different district, the student was not followed. Over 90 percent of the students identified as high risk at baseline completed a survey at the first follow-up ( $N = 1,938$ ).

## Teacher Sample

Secondary outcome data were collected from teachers through an annual survey conducted in spring. This survey was administered to a random sample of 24 teachers (stratified by grade) at each of the 40 middle schools participating in the study; a new sample was selected each year. Eligible teachers included all full-time classroom teachers and could include RiPP teachers in intervention schools. Ninety-six percent ( $N = 917$ ) of the sampled teachers completed a survey.

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<sup>2</sup> In the two school districts with three recruited schools, the schools first were rank ordered on the percentage of free or reduced-price lunches, from lowest to highest. The first two schools within each district formed a pair. The third school from each district formed the last pair, across districts. Schools were then randomly assigned within each pair to treatment or control conditions.

## Data Collection and Outcome Measures

Data for the study's outcome measures to estimate intervention impacts were collected through student surveys in both treatment and control schools. Student surveys provided data to address the main impact research questions regarding school violence. Baseline data collection for students occurred in fall 2006, prior to the introduction of the intervention; follow-up student data collection occurred in spring 2007. Teacher data were collected through a survey administered to a random sample of teachers at each school in spring 2007 to assess other program impacts besides main outcomes. In addition to outcome data, the study team collected implementation data through the teacher survey, class records, annual school prevention coordinator and teacher interviews, and classroom observations.

The primary outcomes are student violence and student victimization, both measured through student surveys. For each of these two outcomes, two additional sub-indices were created to better understand any differences between intervention and control schools with regard to specific types of violence and aggression.

A second set of indices was created to examine possible secondary effects from the intervention (e.g., spillover effects), beyond the primary effects. These were: (1) student safety concerns; (2) teacher safety concerns; (3) teacher victimization; and (4) student prosocial behaviors. Finally, a third set of indices was created to examine possible intermediate effects from the intervention. The theoretical model for the combined intervention predicts that changes in these areas would precede changes on the primary outcomes and included: (1) student perceptions of behavior expectations; (2) student attitudes toward violence; and (3) student self-reported coping strategies.

## Analytic Approach for Estimating Program Impacts

The study team evaluated program impacts using multiple regression models that predicted each outcome's measure (e.g., aggression, victimization) as a function of condition (treatment vs. control) and relevant covariates (e.g., demographic characteristics, school characteristics) using a mixed-effects regression model based on multilevel equations. Primary outcomes include self-reported counts of violent behavior and victimization occurring in the past 30 days.

The full student sample and gender subgroup analyses used a matched nested cross-sectional model (matched analysis). Under this model, students are nested in schools; schools are nested in pairs *and* in experimental condition; and pairs are crossed with experimental condition (i.e., each pair is represented at each level of condition). The covariate models for students in the full sample predicted the average response at follow-up, adjusting for the following covariates: baseline school mean of the response, school size, and individual demographic variables (gender, race/ethnicity, and number of parents in the household). For the gender subgroup analyses, the adjusted models included a gender-by-condition interaction effect.

The statistical models employed to assess program outcomes among high-risk youth are different from those employed to assess program outcomes on the general population of students. For the high-risk youth, the interest is in whether or not the RiPP and Best Behavior intervention led to individual change across time. To address this question, nested cohort models using difference-in-difference estimation were developed to assess changes on self-reported measures of aggression and victimization among high-risk youth in treatment schools relative to changes among high-risk youth in control schools. These models use data collected on the same sample of students at each measurement occasion. The repeated measures models for the high-risk sample contained

the student's treatment condition (intervention vs. control), data collection wave, wave-by-condition interaction effect, gender, race/ethnicity, number of parents in household, and school size. Estimated program impacts reflect the net difference of the within-group change from pretest to first follow-up for treatment versus controls.

To examine teacher outcomes, we employed multivariate models where teachers are nested within schools and schools are nested within matched pairs randomized to experimental condition. Hierarchical linear models account for the correlation of teachers within schools and for schools within matched pairs assigned to condition. The models predicted the average response at follow-up, adjusting for school size.

The results are presented in terms of event rates (ERs) and event rate ratios (ERRs). ERs indicate incidence density; this refers to the number of events among a particular group for a given period of time. For the measures of violent behavior and victimization in this study, all items assessed occurrences in the past 30 days. Accordingly, an ER of 2.5 among students in intervention schools indicates that students in these schools reported an average of 2.5 incidences in the past 30 days. ERRs *compare* the incidence density among a group of interest (intervention schools) to a group used as a reference (control schools). Where ERRs are greater than 1.00, the indicated group reports a higher frequency of occurrences than the reference group; where ERRs are less than 1.00, the indicated group reports a lower frequency of occurrences than the reference group. An ERR of 2.00 would indicate that, on average, students in the intervention schools reported twice as many incidents in the past 30 days as students in the control schools; similarly, an ERR of 0.50 would indicate that, on average, students in control schools reported twice as many incidents in the past 30 days as students in intervention schools.

After 1 year of program implementation, there were no significant differences between the students in intervention and control schools on violence and victimization, both overall and for specific types of violence and victimization. These data are reported in table ES-2. In addition, there were no statistically significant program impacts among the subpopulation of high-risk youth, as measured by student violence and victimization (table ES-3).

**Table ES-2. Main program impacts on self-reported violence and victimization—Year one**

Self-reported student outcome	Model-adjusted follow-up event rates (SE)		Estimated impact <sup>1</sup> (95% CI)	Wald Chi-Square <i>p</i> -value
	Intervention group	Control group		
Violence <sup>2</sup> (All items)	2.91 (1.03)	2.88 (1.03)	1.01 (0.93, 1.10)	0.79
Without a weapon	2.79 (1.03)	2.76 (1.03)	1.01 (0.93, 1.10)	0.74
With a weapon	0.10 (1.09)	0.11 (1.09)	0.95 (0.78, 1.15)	0.58
Victimization <sup>3</sup> (All items)	4.97 (1.02)	4.97 (1.02)	1.00 (0.95, 1.06)	0.99
Overt	2.88 (1.02)	2.86 (1.02)	1.00 (0.94, 1.07)	0.90
Relational	2.07 (1.02)	2.11 (1.02)	0.98 (0.93, 1.03)	0.45
Sample size (Schools)	20	20		
Sample size <sup>3</sup> (7,351 students clustered within schools)	3,619	3,732		

<sup>1</sup> Program impact estimated as a model-adjusted event rate ratio (ERR) for intervention versus controls at follow-up, with 95 percent confidence limits. Impact estimates of 1.00 indicate no difference between intervention and control groups.

<sup>2</sup> Based on count data.

<sup>3</sup> Student sample sizes used in the analysis vary due to item nonresponse at follow-up, covariate nonresponse, or both. Missing data ranged from 1 percent to 4 percent.

NOTE: Generalized linear mixed models (SAS PROC GLIMMIX, Poisson distribution with log link function) were used to evaluate the program impact while accounting for the clustering of students within schools. Covariates in the model included the baseline school mean of the response variable, race/ethnicity, gender, number of parents in household, and school size. CI = confidence interval. SE = standard error.

SOURCE: Student survey, fall 2006 (baseline) and spring 2007 (first follow-up).

**Table ES-3. Main program impacts on self-reported violence and victimization—Year one: High-risk subgroup (Via repeated measures)**

Student self-reported outcome <sup>1</sup>	Model-adjusted baseline event rates <sup>2</sup> (SE)		Model-adjusted follow-up event rates <sup>2</sup> (SE)		Estimated impact (95% CI) <sup>3</sup>	Wald Chi-Square <i>p</i> -value
	Intervention group	Control group	Intervention group	Control group		
Violence (All items)	5.03 (1.03)	4.67 (1.03)	5.16 (1.03)	4.78 (1.03)	1.00 (0.92, 1.10)	0.95
Without a weapon	4.76 (1.03)	4.40 (1.02)	4.89 (1.03)	4.51 (1.03)	1.00 (0.92, 1.09)	0.95
With a weapon	0.26 (1.10)	0.26 (1.10)	0.26 (1.11)	0.26 (1.10)	0.99 (0.97, 1.33)	0.99
Victimization (All items)	5.81 (1.03)	5.93 (1.03)	6.28 (1.03)	6.23 (1.03)	1.03 (0.97, 1.10)	0.34
Overt	3.52 (1.02)	3.60 (1.02)	3.86 (1.02)	3.81 (1.02)	1.03 (0.96, 1.11)	0.35
Relational	2.28 (1.02)	2.32 (1.02)	2.42 (1.02)	2.41 (1.02)	1.02 (0.95, 1.09)	0.60
Sample size: Schools	20	20	20	20		
Sample size: <sup>4</sup> Students within 40 schools	1,005	1,148	897	1,016		

<sup>1</sup> Based on count data.

<sup>2</sup> Group-by-time specific event rates.

<sup>3</sup> Program impact (with 95 percent confidence limits) estimated via difference-in-difference models comparing change across time in the intervention versus control groups. Ratios of impact estimates of 1.00 indicate no interaction between time and program group (i.e., no program impact).

<sup>4</sup> Student sample sizes used in the analysis vary due to item nonresponse at baseline, follow-up, or covariate nonresponse. Missing data ranged from 4 percent to 5 percent, with 240 missing at follow-up.

NOTE: Generalized linear mixed models (SAS PROC GLIMMIX, Poisson distribution with log link function) were used to evaluate the program impact while accounting for the clustering of students within schools. Covariates in the model included gender, race/ethnicity, number of parents in household, and school size. CI = confidence interval. SE = standard error.

SOURCE: Student survey, fall 2006 (baseline) and spring 2007 (first follow-up).