Testing Integrative Models to Improve School Safety: Positive Behavior Interventions and Supports and the Olweus Bullying Prevention Program

Report Authors:

Margaret Plettinger Mitchell

Stacee Mosier

Chesterfield County Coordinating Council

Harrison Goodwin

Chesterfield County School District

Susan P. Limber

Matthew Hudson-Flege

Martie Thompson

Clemson University

Jeffrey Sprague

University of Oregon

This resource was prepared by the author(s) using Federal funds provided by the U.S. Department of Justice. Opinions or points of view expressed are those of the author(s) and do not necessarily reflect the official position or policies of the U.S. Department of Justice.

Testing Integrative Models to Improve School Safety: Positive Behavior Interventions and Supports and the Olweus Bullying Prevention Program

Summary Overview

Abstract

Many schools have successfully implemented specific programs to address bullying, such as the Olweus Bullying Prevention Program (OBPP), or broader school behavioral issues, such as School-wide Positive Behavioral Interventions and Supports (SWPBIS), but there have been national calls to integrate school interventions in order to address the shortcomings or limitations of each "stand alone" program. The purpose of this project was to develop an intervention that combined SWPBIS and OBPP strategies into one integrated program, evaluate the effectiveness of the OBPP and the SWPBIS-OBPP integrated intervention using a randomized controlled trial (RCT), evaluate the cost effectiveness of the OBPP and SWPBIS-OBPP integrated intervention, and examine the use of school-based mental health services in elementary, middle, and high school settings. Participants included students in grades 3-12 and school staff members in 16 schools in one school district in the Southeastern United States. Students (n = 4,494) and staff (n = 469) in the two intervention conditions (OBPP and SWPBIS-OBPP) and the control condition completed surveys at baseline (fall 2015) and annually for three years after the launch of interventions (fall 2016, 2017, and 2018) to assess teacher and student experiences with and perceptions of bullying, school safety, and school climate. Teachers in intervention schools also completed surveys twice per year to assess program satisfaction, self-efficacy, and fidelity of program implementation. Results indicate high satisfaction and self-efficacy among teachers in both intervention conditions and good fidelity of implementation. Moreover, compared with participants in the control condition, teachers in both treatment conditions reported greater clarity about school rules and policies, more activity by staff members to address bullying, and higher perceptions that students report bullying

to teachers. Positive program effects also were observed based on student reports. Compared with students in the control condition, those in the intervention conditions reported reductions in bullying victimization, bullying perpetration, and fear of bullying. Examination of program effects by student gender is included. Descriptive school-level data regarding disciplinary incidents, disciplinary actions, student attendance, and teacher attendance are presented by condition, and costs of program implementation are provided. Descriptive findings regarding the nature, utilization, and sustainability of school-based mental health counseling are presented. Implications for policy and practice are highlighted.

Purpose of the Project

Bullying is one of the most serious, widespread behavioral concerns facing schools in the United States today (National Academies of Sciences, Engineering, and Medicine, 2016). At the same time, growing numbers of students are exposed to poverty, neglect, and other risk factors, which have resulted in challenging behavioral issues in many American schools (Musu, Zhang, Wang, Zhang, & Oudekerk, 2019). Although many schools have successfully implemented specific programs to address bullying, such as the Olweus Bullying Prevention Program (OBPP), or broader school behavioral issues, such as School-wide Positive Behavioral Interventions and Supports (SWPBIS), there have been national calls to integrate school interventions in order to address the shortcomings or limitations of each "stand alone" program (Domitrovich, Bradshaw, Greenberg, Embry, Poduska, & Ialongo, 2010; National Academies of Sciences, Engineering, & Medicine, 2016). Both the OBPP and SWPBIS target school, classroom, student, family, and community-level risk and protective factors. Although the OBPP has been evaluated in the U.S. using non-randomized control designs (Bauer, Lozano, & Rivera, 2007) and has been shown to be effective using quasi-experimental designs (Limber, Olweus, Wang, Masiello, & Breivik, 2018; Olweus, Limber, & Breivik, 2019), there has been no randomized control trial (RCT) to evaluate this program in U.S. schools. Thus, we evaluated the effectiveness of the OBPP using an RCT

design. Recognizing that many schools seek to appropriately combine research-based prevention programs (SWPBIS and OBPP) to meet their needs, we also developed and evaluated an integrated SWPBIS/OBPP approach to respond to bullying and school safety issues and tested the effects in the context of the overall RCT.

There were five specific goals for this project:

- Goal 1: To develop a comprehensive, feasible, and effective intervention that combines SWPBIS and OBPP strategies into one integrated program.
- Goal 2: To evaluate the effectiveness of the OBPP.
- Goal 3: To evaluate the effectiveness of an integrated SWPBIS/OBPP intervention.
- Goal 4: To determine the cost effectiveness of the integrated SWPBIS/OBPP program.
- Goal 5: To determine the social validity of school-based mental health professionals' services.

Below are summaries of: (a) the project design and methods, (b) data analysis, and (c) findings for each of the five goals.

Project Design and Methods

Goal 1: To Develop a Comprehensive, Feasible, and Effective Intervention that Combines SWPBIS and OBPP Strategies into One Integrated Program

A snowball process was used to identify key informants who provided input into the design of training and consultation strategies for a blended SWPBIS/OBPP initiative. Key informants ("early adopters" of a combined version of these two models and/or individuals who were highly trained and experienced in both interventions) provided feedback on drafts of materials for the training of SWPBIS/OBPP school leadership teams. Subsequently, an integrated SWPBIS/OBPP training agenda, a PowerPoint presentation, activities, implementation tools, handouts, and a Leadership Team Manual were developed. Leadership Teams at each of the five schools in the SWPBIS/OBPP attendance area

were trained by the project team in a 3-day training event, followed by ongoing (typically monthly) phone consultation by project team members and in-person consultation/booster trainings twice per year. Members of the SWPBIS/OBPP leadership teams trained all staff at their respective schools in the fall of 2015 prior to the launch of the program in January 2016.

To evaluate Goal 1, online surveys were administered to teachers twice per year (spring and fall of 2016, 2017, and 2018) to assess: (a) satisfaction of staff with the program, (b) teacher self-efficacy in addressing student behaviors at school, and (c) fidelity of program implementation. Teacher self-efficacy refers to teachers' judgment of their abilities "to bring about desired outcomes of student engagement and learning, even among those students who may be difficult or unmotivated" (Tschannen-Moran & Hoy, 2001, p. 783). Measures of fidelity of program implementation were also completed by 12 individuals who were the coordinators of the program at each intervention school. See Appendix B for description of measures of satisfaction, self-efficacy, and fidelity.

As illustrated in Table 1, over the course of the project, 743 surveys were completed by teachers in SWPBIS/OBPP schools (out of a possible 1,030 surveys based on the number of teachers employed at the schools), for an overall response rate of 72%. Over the project period, 871 surveys were completed by teachers in OBPP schools, for an overall response rate of 77%.

Table 1. Numbers of Teachers Completing Surveys of Program Satisfaction, Self-efficacy, and Program Fidelity

	Intervention Group	
Survey Date	OBPP Schools	SWPBIS/OBPP Schools
Spring 2016	124	107
Fall 2016	123	119
Spring 2017	161	121
Fall 2017	135	125
Spring 2018	195	150
Fall 2018	133	121

Goals 2 & 3: To Evaluate the Effectiveness of the OBPP (Goal 2) and the Effectiveness of an Integrated SWPBIS/OBPP Intervention (Goal 3)

Leadership Teams at each of the seven schools in the OBPP-only attendance area were trained by the project team and by four local OBPP Certified Trainer-Consultants in a 2-day training. Following this training, OBPP Trainer-Consultants provided ongoing (typically monthly) consultation to school leadership teams, and grant team members provided ongoing (typically monthly) consultation to OBPP Trainer-Consultants. In addition, members of leadership teams participated in in-person consultation/booster trainings twice per year. Members of the OBPP leadership teams trained all staff members at their respective schools in the fall of 2015, prior to the launch of the program in January 2016.

To evaluate Goals 2 and 3, a cluster randomized control trial (RCT) design was used. There were four attendance areas within the Chesterfield County (SC) School District. We combined the smallest attendance areas into one group, resulting in three conditions. Then, we randomly assigned these three groups to either an integrated SWPBIS/OBPP condition, an OBPP-only condition, or a control condition, which received "treatment as usual." School staff and students (grades 3-12) in all three conditions completed online surveys at baseline (Fall 2015) and annually for three years after the launch of interventions (Fall 2016, 2017, and 2018). Although the interventions were implemented in grades K-12, assessments of students were limited to grades 3-12 because of developmental concerns with reading and understanding survey measures. Surveys assessed teacher and student experiences with and perceptions of bullying, school safety, and school climate. See Appendix B and C for description of student and staff measures completed on a yearly basis.

As illustrated in Table 2, over the four years of the project, 2,122 yearly staff surveys were completed across the three treatment conditions representing a participation rate of 76%. Staff surveys were completed by teachers (60%), aides (9%), food service employees (5%), administrators, (5%), custodians (3%), guidance counselors (3%), and other staff (16%).

Table 2. Numbers of Staff Completing Yearly Surveys

Survey Date	Intervention Group		
	OBPP Schools	SWPBIS/OBPP Schools	Control Schools
Baseline (Fall 2015)	202	163	100
Wave 2 (Fall 2016)	215	184	135
Wave 3 (Fall 2017)	212	180	144
Wave 4 (Fall 2018)	242	200	145
Total	871	727	524

Students from grades 3-12 were invited to participate in the evaluation. As illustrated in Table 3, over the four years of the project, 16,333 online student surveys were completed (baseline = 4,494; Y2 = 4,075; Y3 = 3,971; Y4 = 3,781), for an overall response rate of 74%.

Table 3. Numbers of Students Completing Yearly Surveys

Survey Date	Intervention Group		
	OBPP Schools	SWPBIS/OBPP Schools	Control Schools
Baseline (Fall 2015)	1841	1264	1389
Wave 2 (Fall 2016)	1654	814	1334
Wave 3 (Fall 2017)	1736	1156	1079
Wave 4 (Fall 2018)	1653	1188	940
Total	6884	4422	4742

Goal 4: To Determine the Cost Effectiveness of the Integrated SWPBIS-OBPP Program

In order to address this goal, the following objectives were pursued (Scott & Barrett, 2004; Blonigen, et al., 2008):

- Calculate the time savings of teachers and administrative personnel from having reduced (predicted) discipline incidents.
- Calculate improved student outcomes regarding discipline incidents, attendance, academic achievement, and mental health functioning.
- Calculate the costs for staff development and coaching support in treatment schools.

PowerSchool data (the District discipline database) were gathered from 2013/2014 to 2017/2018. Since the project ended March 30, 2019, we chose to not use the last half year of data in the analysis. Project staff also collected all of the staff development cost information, including cost of the OBPP and SWPBIS staff development materials.

Goal 5: To Determine the Social Validity of School-based Mental Health Professionals' Services

Students in all schools had access to school-based mental health (SBMH) services. These services supplemented the interventions and, in all conditions, provided services to students who were referred and whose parents consented to their participation. Four overarching research questions were addressed under Goal 5: (a) To what extent were the school-based mental health resources utilized? (b) What were the reasons for referral? (c) Was there evidence that referred students had significant needs for SBMH services? and (d) Were the school-based mental health services resources sustained over time?

To evaluate the SBMH services, SBMH counselors collected data on each student at baseline (prior to counseling beginning), every 3 months, and at discharge. Data included: (a) a cover sheet on

new clients (including student and parent names, address, and student PowerSchool ID); (b) baseline forms on new clients (including data on referral sources and expected frequency of services), and (c) student follow-up forms (including data on frequency and duration of counseling, percentage of sessions attended). In addition, annual student responses on the Strengths and Difficulties Questionnaire (SDQ) were analyzed for referred students. Parents and school staff who referred students for SBMH services were invited to complete the SDQ, which was administered at baseline (before counseling began), after discharge from counseling or at the end of the school year (whichever came first), and 3-months post-discharge. Unfortunately, despite significant efforts to collect teacher and parent data, these surveys were not returned in sufficient numbers to allow for analyses. Finally, the project team tracked the caseloads of SBMH counselors.

Data Analysis

Goal 1: To Develop a Comprehensive, Feasible, and Effective Intervention that Combines SWPBIS and OBPP Strategies into One Integrated Program

User satisfaction with the program (perceived usefulness, perceived effectiveness, acceptability of materials and content, acceptability of delivery formats, and ease of use) as well as teacher self-efficacy were assessed by collecting data from administrators and teachers at intervention schools each semester. Fidelity of implementation was assessed each semester using fidelity checklists developed for this study. Also, we determined if the project was successful in creating and implementing an integrated program by comparing the SWPBIS/OBPP and the OBPP-only groups on these variables.

Goals 2 & 3: To Evaluate the Effectiveness of the OBPP (Goal 2) and the Effectiveness of an Integrated SWPBIS/OBPP Intervention (Goal 3)

We evaluated the effectiveness of the interventions using longitudinal data collected across four years from both teachers and students. We used a series of mixed models in SPSS 25, and specified

random intercept models in order to account for the nesting of data collection points within students and students within schools. The independent variables were group assignment (control, OBPP-only, SWPBIS/OBPP combined) and time (Baseline, Year 2, Year 3, Year 4). The dependent variables included student-reported measures of bullying (e.g., bullying victimization, bullying perpetration), school climate, and bullying-related attitudes, as well as teacher-reported measures of school safety, school climate, and perceptions of bullying prevalence, youth's willingness to report bullying, presence of clear rules and policies about bullying, and willingness to intervene in incidents of bullying. Program effectiveness was determined by evaluating the Time X Group interaction terms to determine if the OBPP-only and SWPBIS/OBPP integrated groups showed differential positive changes relative to the control group on the various outcome measures over time.

Goal 4: To Determine the Cost Effectiveness of the Integrated SWPBIS-OBPP Program

To address this goal, we calculated: (1) the time savings of teachers and administrative personnel from reduced (predicted) discipline incidents; (2) improved student outcomes regarding discipline incidents, attendance, academic achievement, and mental health functioning; and (3) the costs for staff development and coaching support in treatment schools. We used the model outlined by Blonigen et al., (2008) to calculate the costs of staff development, consultation and mental health support in treatment schools. We collected baseline data on discipline incidents from the two school years prior to intervention and compared discipline rates during the intervention period. We also compared ongoing discipline rates to the control schools. Using the Scott et al., (2004) methodology, we assigned a value of 15 minutes administrator time to process an office referral and 45 minutes to process an in- or out-of-school suspension. We calculated the amount of instructional time lost for the student(s) based on the number of periods (office referral or in school suspension) or days of school missed for disciplinary reasons (out-of-school suspension). Student and teacher absenteeism were tracked at the school level. If substitutes were hired to allow regular staff the time to participate in

training or coaching, the cost analysis recorded this cost in terms of the loss of regular staff time, or the exact cost of paying the substitute. The cost of school-based mental health was calculated from budgetary documents specifying the number of hours of service and divided by the number of students served. Changes in student academic, behavioral or mental health functioning were gathered at intake and exit from SBMH services or every six months. Equipment and materials were purchased inputs and the appropriate measure of costs was the purchase price (PBIS and OBPP books and materials). Some equipment and materials (for example, computer programs used to enter behavioral data) might already be part of existing inventory, but their use might be reassigned to a new program replacing an existing program. In this case, the associated costs should be calculated as part of the new program's total costs, not as net costs.

The primary data sources for this analysis were archival records of teacher and student attendance, actual cost of staff development, and disciplinary record from the PowerSchool database. Because the data were archival, it is not possible to make inferences regarding the reliability of the records, not because individual administrators are under or over reporting (which is possible, of course) but because there is a lack of clear reporting protocols in place in these schools. For example, the PowerSchool database has many sophisticated functions as a database, but there are no operational definitions of the behavior categories or the disciplinary actions (such as suspensions, detentions or conferences). Thus, all differences may reflect actual patterns of behavior, or they may represent the reporting bias of an individual administrator.

Goal 5: To Determine the Social Validity of School-based Mental Health Professionals' Services

We assessed this goal with descriptive data derived from intake forms collected for students who were referred to a school-based mental health counselor as well as student-reported responses on the Strength and Difficulties Questionnaire (SDQ) imbedded in the all-student annual survey.

Findings

Goal 1: To Develop a Comprehensive, Feasible, and Effective Intervention that Combines SWPBIS and OBPP Strategies into one Integrated Program

Staff data. Based on analyses of the Program Satisfaction Scale, findings revealed high levels of teacher satisfaction with the OBPP and SWPBIS/OBPP programs. Similarly, analyses of the Teacher Self-Efficacy Scale indicated that teachers in both intervention conditions had strong beliefs in their ability to make positive changes at school. There was a significant difference in the average Program Satisfaction score between the two intervention groups, $F(1, 1{,}069) = 40.78$, $p < .001$, and there was also a significant difference in the average Teacher Self-Efficacy score between the two intervention groups, $F(1, 1{,}069) = 18.86$, $p < .001$. Table 4 shows the average score for the intervention groups when averaged across the four survey periods, and Figures 1 and 2 illustrate the average score for each measure at each time point. As demonstrated in the table and figures, staff in the OBPP-only intervention group reported slightly higher Program Satisfaction and Teacher Efficacy than school staff in the SWPBIS/OBPP intervention group.

Table 4. Program Satisfaction and Teacher Efficacy Mean Scores by Treatment Condition

	Program Satisfaction Mean (SD)	Teacher Efficacy Mean (SD)
OBPP-Only Schools	3.97 (0.55)	4.08 (0.56)
SWPBIS/OBPP Schools	3.75 (0.56)	3.93 (0.56)

Figure 1. Teacher satisfaction with the interventions

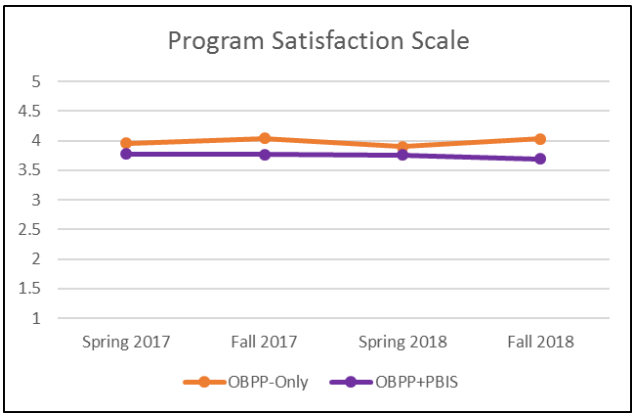
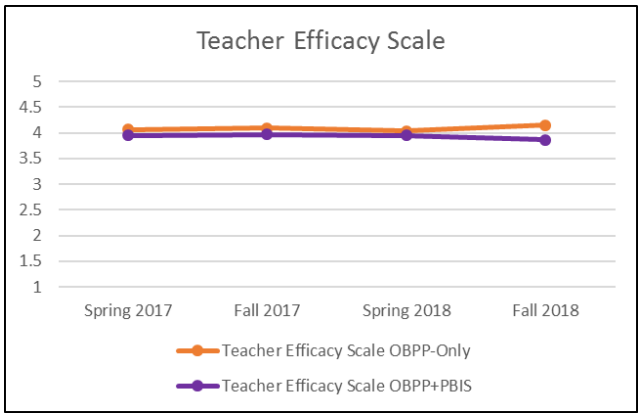


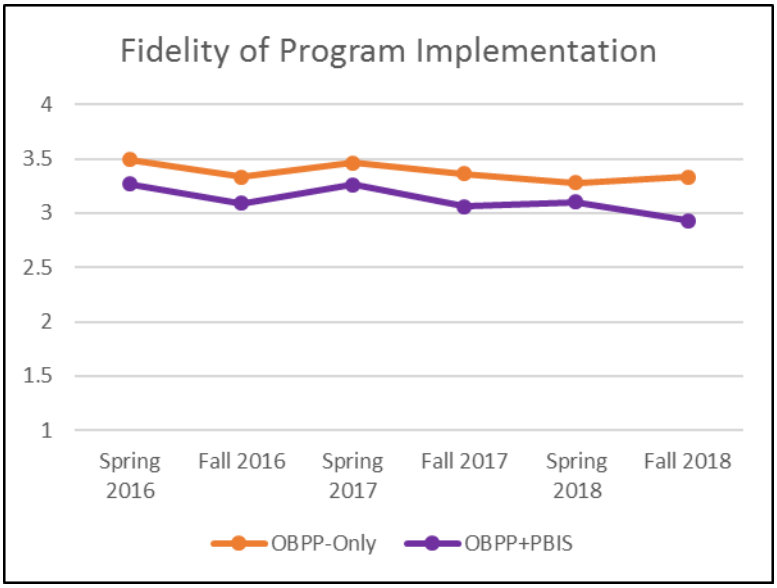
Figure 2. Teacher efficacy with the interventions



As illustrated, scores were slightly higher for the OBPP-only program, as we might expect when comparing a well-established intervention to a newly integrated program. However, the difference in average scores between the two groups was fairly small (less than half a standard deviation), and Program Satisfaction and Teacher Efficacy remained consistently high for both groups of school staff throughout the course of the project (see Figures 1 and 2 below).

The average Program Fidelity score for teachers at both the OBPP-only schools and the SWPBIS-OBPP schools was good (averaging greater than 3.1 on a 4-point scale). The average fidelity scores for teachers at OBPP-only schools across the six survey periods was 3.37 (SD = 0.61), whereas the average Program Fidelity score for teachers at SWPBIS/OBPP schools was 3.12 (SD = 0.72). Figure 3 below illustrates average Program Fidelity scores at each time point for the two treatment conditions.

Figure 3. Teacher assessments of fidelity of program implementation



Goals 2 & 3: To Evaluate the Effectiveness of the OBPP (Goal 2) and the Effectiveness of an Integrated SWPBIS/OBPP Intervention (Goal 3)

As shown in Table 5, significant Time X Group interactions were found for the following staff variables: school planning, perceived school climate, presence of adult involvement in school, perceived student willingness to seek help for bullying victimization, bullying policies, communication of bullying policies, clarity on how to respond to bullying, personally putting a stop to bullying, perceptions that other staff were putting a stop to bullying, comfort with intervening in bullying, and perceptions that other staff were counteracting bullying. Figures 4-7 provide selected model visualizations of these findings.

Table 5. Intervention Effects on Staff Perceptions of Bullying and School Climate

Measure & Descriptive Statistics	Model Statistics		Group Means			
	F	*Sig*	Time	Control Schools	OBPP-only Schools	SWPBIS/OBPP Schools
School Planning [a,c]	10.13	<.001	Baseline	3.29	3.29	3.31
Mean = 3.32			Wave 2	3.20	3.41	3.33
SD = 0.47			Wave 3	3.23	3.40	3.24
Min = 1.00; *Max* = 4.00			Wave 4	3.26	3.45	3.25
School Climate [b,c]	4.66	01	Baseline	1.86	1.66	1.71
Mean = 1.71			Wave 2	1.84	1.57	1.75
SD = 0.55			Wave 3	1.75	1.57	1.76
Min = 1.00; *Max* = 4.00			Wave 4	1.81	1.58	1.82
Adult Involvement in School [c]	3.66	.026	Baseline	4.15	4.36	4.28
Mean = 4.30			Wave 2	4.08	4.41	4.24
SD = 0.73			Wave 3	4.08	4.52	4.27
Min = 1.00; *Max* = 5.00			Wave 4	4.09	4.55	4.24
Perceived Help-Seeking for Bullying [a,b]	7.09	.001	Baseline	2.68	2.69	2.67
Mean = 2.89			Wave 2	2.69	3.07	2.87
SD = 0.87			Wave 3	2.76	3.05	3.07
Min = 1.00; *Max* = 5.00			Wave 4	2.67	3.03	3.11
Bullying Policies [a,b,c]	11.56	<.001	Baseline	3.32	3.04	3.09
Mean = 3.42			Wave 2	3.23	3.69	3.54
SD = 0.76			Wave 3	3.34	3.66	3.52
Min = 1; *Max* = 4			Wave 4	3.28	3.65	3.40
Communication of Bullying Policies [a,c]	13.72	<.001	Baseline	3.32	3.01	3.15
Mean = 3.44			Wave 2	3.31	3.71	3.56
SD = 0.71			Wave 3	3.39	3.68	3.47
Min = 1.00; *Max* = 4.00			Wave 4	3.31	3.36	3.45
Clear how to Respond to Bullying [a,c]	14.86	<.001	Baseline	3.49	3.21	3.29
Mean = 3.55			Wave 2	3.42	3.80	3.63
SD = 0.66			Wave 3	3.46	3.78	3.63
Min = 1; *Max* = 4			Wave 4	3.46	3.77	3.48
Putting a Stop to Bullying [a,c]	4.01	.018	Baseline	4.73	4.65	4.78
Mean = 4.77			Wave 2	4.78	4.84	4.75
SD = 0.66			Wave 3	4.76	4.86	4.77
Min = 1; *Max* = 5			Wave 4	4.66	4.84	4.73
Other Staff Putting a Stop to Bullying [a,c]	7.22	.001	Baseline	4.51	4.40	4.50
Mean = 4.59			Wave 2	4.51	4.75	4.56
SD = 0.79			Wave 3	4.51	4.77	4.67
Min = 1; *Max* = 5			Wave 4	4.39	4.73	4.54

This resource was prepared by the author(s) using Federal funds provided by the U.S. Department of Justice. Opinions or points of view expressed are those of the author(s) and do not necessarily reflect the official position or policies of the U.S. Department of Justice.

Measure & Descriptive Statistics	Model Statistics		Group Means			
	F	*Sig*	Time	Control Schools	OBPP-only Schools	SWPBIS/OBPP Schools
Comfort Intervening in Bullying [a,c] *Mean* = 3.52 *SD* = 0.66 *Min* = 1; *Max* = 4	9.49	<.001	Baseline Wave 2 Wave 3 Wave 4	3.48 3.48 3.53 3.48	3.33 3.61 3.65 3.67	3.44 3.50 3.51 3.46
Other Staff Counteracting Bullying [a] *Mean* = 3.29 *SD* = 1.08 *Min* = 1; *Max* = 5	3.55	.029	Baseline Wave 2 Wave 3 Wave 4	3.08 3.10 3.14 3.11	2.88 3.66 3.52 3.41	3.07 3.45 3.47 3.31

Notes: [a]Significant difference between the OBPP-only and Control groups
[b]Significant difference between the SWPBIS/OBPP and Control groups
[c]Significant difference between the OBPP-only and SWPBIS/OBPP groups

Figure 4. Percentage of staff who believed their school had extremely clear rules or policies about bullying.

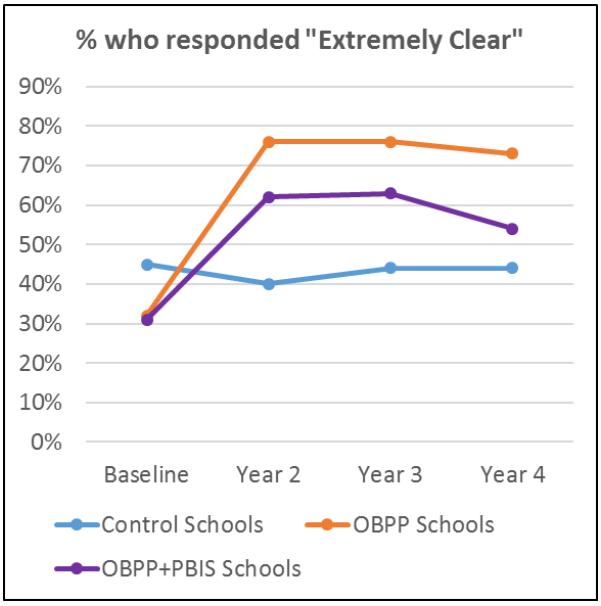
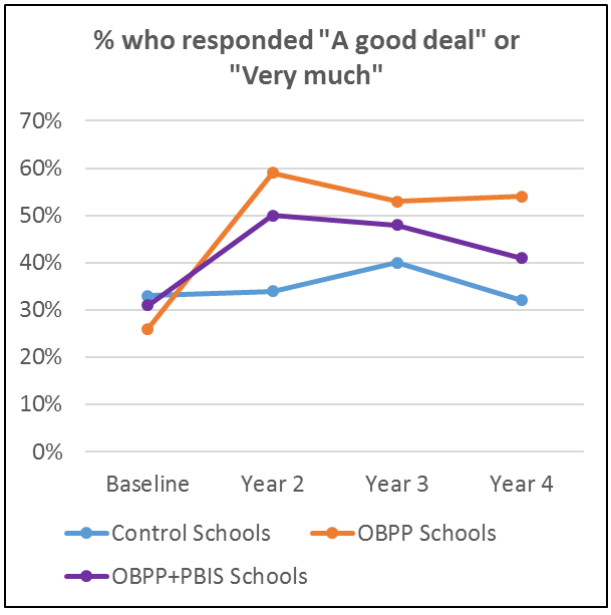


Figure 5. Percentage of staff who believed that other staff had done much to counteract bullying.



This resource was prepared by the author(s) using Federal funds provided by the U.S. Department of Justice. Opinions or points of view expressed are those of the author(s) and do not necessarily reflect the official position or policies of the U.S. Department of Justice.

Figure 6. Percentage of staff who believed students told a teacher when they had been bullied.

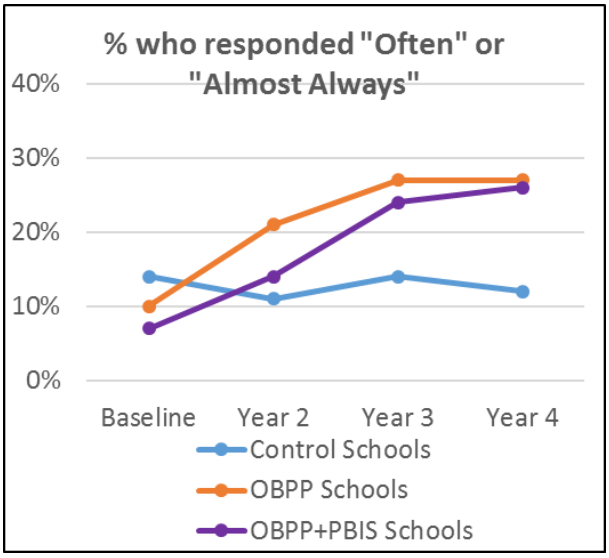
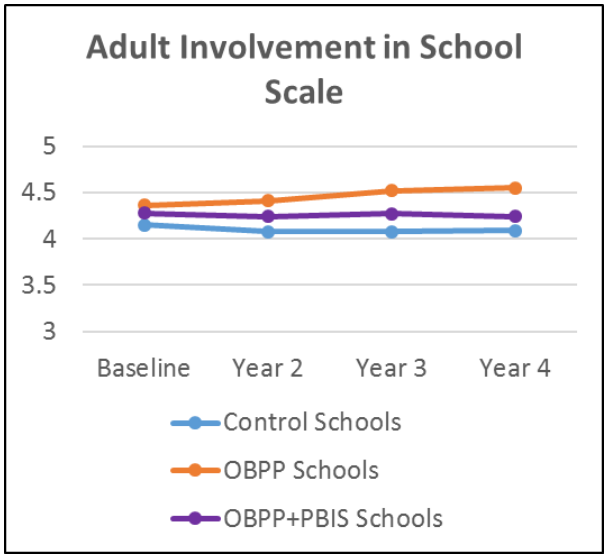


Figure 7. Adult involvement in school.



Posthoc tests revealed that, compared with staff in the control condition, staff in both intervention conditions manifested significant increases on perceptions that their schools had clear policies about bullying and that students in their schools were more likely to tell a teacher when they had been bullied. In addition, staff in the OBPP-only program showed greater improvements than staff in the control condition on school planning, beliefs that bullying policies were clearly communicated to students, clarity about how to respond to bullying, beliefs that they had done a good deal to counteract bullying, and beliefs that other staff had worked hard to counteract bullying.

Student data. Analyses of student surveys revealed significant and positive program effects for several key variables. Of note, both interventions had positive effects on all four bullying variables (i.e., victimization, perpetration, cyberbullying victimization, cyberbullying perpetration). As shown in Table 6, significant Time X Group interactions were found for bullying victimization, bullying perpetration, cyberbullying victimization, cyberbullying perpetration, student involvement, teacher praise, school rule awareness, perceptions of school safety, teacher intervention in bullying, fear of being bullied, and

teacher addressing bullying. For the sample as a whole, there were no significant Time X Group interactions on school climate or adult involvement at school, but model significance varied by gender on seven measures. (See Appendix D.)

Of particular relevance to this project's goal to reduce bullying behaviors, posthoc tests showed that students in both intervention conditions reported significantly greater reductions in bullying victimization relative to students in the control condition. Students in the OBPP-only condition showed significantly greater reductions in bullying perpetration compared to students in the control conditions as well as the students in the SWPBIS/OBPP condition. In terms of cyberbullying, students in the SWPBIS/OBPP schools showed significant reductions relative to the control condition on both victimization and perpetration. Whereas students in the control condition increased in cyberbullying perpetration, students in the OBPP-only condition remained relatively stable over time. Fear of being bullied decreased for both intervention conditions relative to the control condition. Some of the other significant effects were not in the direction hypothesized, including rule awareness and teacher praise. Figures 8-10 present selected visual models.

Table 6. Significant Intervention Effects on Student Perceptions of Bullying and School Climate

	Model Statistics		**Group Means**			
Measure & Descriptive Statistics	***F***	***Sig***	**Time**	**Control Schools**	**OBPP-Only Schools**	**SWPBIS/OBPP Schools**
Bullying Victimization Scale [a,b]	11.14	<.001	Baseline	1.36	1.38	1.42
Mean = 1.36			Wave 2	1.42	1.31	1.36
SD = 0.60			Wave 3	1.44	1.29	1.40
Min = 1.00; *Max* = 5.00			Wave 4	1.38	1.27	1.30
Bullying Perpetration Scale [a,c]	4.62	.010	Baseline	1.13	1.13	1.14
Mean = 1.14			Wave 2	1.21	1.10	1.14
SD = 0.43			Wave 3	1.21	1.09	1.18
Min = 1.00; *Max* = 5.00			Wave 4	1.15	1.09	1.15
Cyberbullying Victimization Scale [b]	3.69	.025	Baseline	1.26	1.23	1.26
Mean = 1.26			Wave 2	1.32	1.22	1.23
SD = 0.65			Wave 3	1.32	1.21	1.23
Min = 1.00; *Max* = 5.00			Wave 4	1.34	1.27	1.22

Measure & Descriptive Statistics	Model Statistics		Group Means			
	F	*Sig*	Time	Control Schools	OBPP-Only Schools	SWPBIS/OBPP Schools
Cyberbullying Perpetration Scale [a,b]	6.86	.001	Baseline	1.18	1.13	1.20
Mean = 1.17			Wave 2	1.23	1.12	1.19
SD = 0.57			Wave 3	1.26	1.12	1.16
Min = 1.00; *Max* = 5.00			Wave 4	1.26	1.15	1.17
Student Involvement [c,i]	3.79	0.023	Baseline	3.70	3.75	3.67
Mean = 3.69			Wave 2	3.68	3.70	3.65
SD = 0.76			Wave 3	3.64	3.71	3.66
Min = 1.00; *Max* = 5.00			Wave 4	3.66	3.68	3.70
Teacher Praise [a,c,i]	5.71	.003	Baseline	3.36	3.43	3.41
Mean = 3.37			Wave 2	3.35	3.36	3.36
SD = 0.98			Wave 3	3.45	3.32	3.40
Min = 1.00; *Max* = 5.00			Wave 4	3.39	3.33	3.34
School Rule Awareness [a,b,c,i]	3.26	.038	Baseline	3.94	4.10	4.00
Mean = 4.00			Wave 2	3.97	4.02	3.97
SD = 0.80			Wave 3	3.94	4.04	4.10
Min = 1.00; *Max* = 5.00			Wave 4	3.96	4.02	3.98
School Safety	3.13	.044	Baseline	3.83	4.01	3.86
Mean = 3.89			Wave 2	3.76	3.99	3.84
SD = 0.93			Wave 3	3.80	4.02	3.91
Min = 1.00; *Max* = 5.00			Wave 4	3.71	3.94	3.86
Teacher Intervention in Bullying [a,c,i]	3.71	.025	Baseline	2.99	3.38	3.15
Mean = 3.25			Wave 2	3.05	3.39	3.24
SD = 1.54			Wave 3	3.13	3.40	3.35
Min = 1; *Max* = 5			Wave 4	3.18	3.41	3.26
Fear of Being Bullied [a,b]	13.43	<.001	Baseline	1.87	2.01	2.02
Mean = 1.92			Wave 2	1.98	1.91	1.91
SD = 1.51			Wave 3	1.92	1.79	1.92
Min = 1; *Max* = 6			Wave 4	2.06	1.81	1.81
Teacher Cutting Down on Bullying [a,b,i]	4.56	.011	Baseline	2.63	2.95	2.86
Mean = 2.91			Wave 2	2.84	3.07	3.00
SD = 1.53			Wave 3	2.72	3.03	2.95
Min = 1; *Max* = 5			Wave 4	2.93	2.99	2.85

Notes: [a]Significant difference between the OBPP-only and Control groups
[b]Significant difference between the SWPBIS/OBPP and Control groups
[c]Significant difference between the OBPP-only and SWPBIS/OBPP groups
[i] Model significance varied by gender, see Appendix D for details.

This resource was prepared by the author(s) using Federal funds provided by the U.S. Department of Justice. Opinions or points of view expressed are those of the author(s) and do not necessarily reflect the official position or policies of the U.S. Department of Justice.

Figure 8. Percentage of students who reported being bullied 2-3 times per month or more

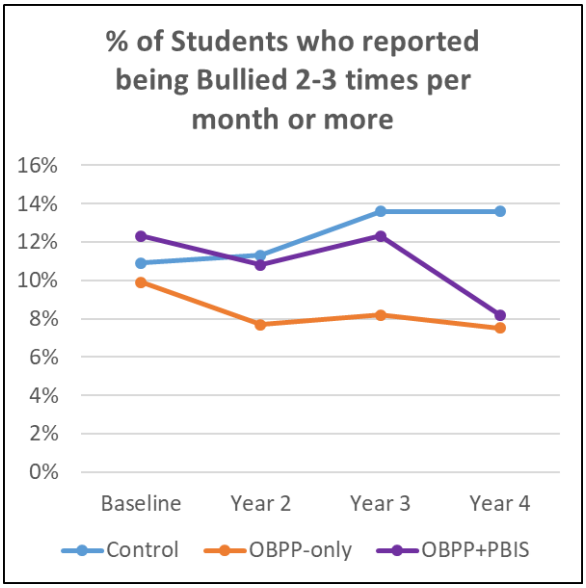


Figure 9. Percentage of students who reported bullying another student(s) 2-3 times per month or more

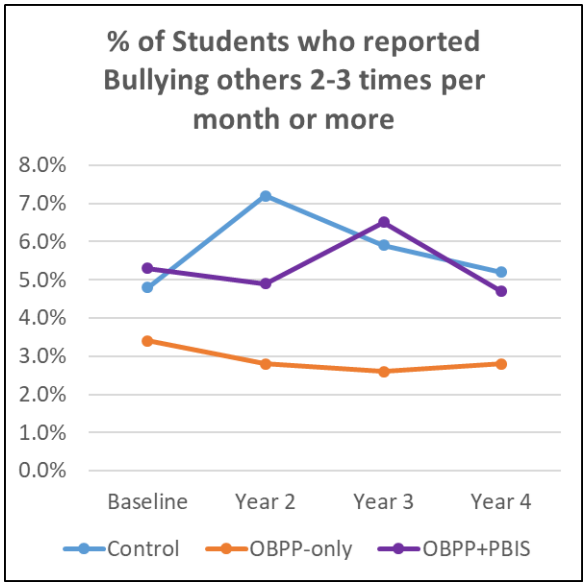
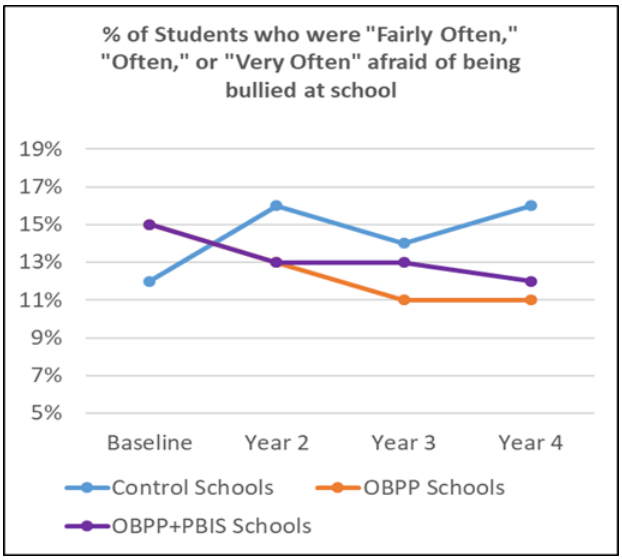


Figure 10. Percentage of students who were afraid of being bullied.



Intervention effects stratified by males and females are provided in Appendix D.

This resource was prepared by the author(s) using Federal funds provided by the U.S. Department of Justice. Opinions or points of view expressed are those of the author(s) and do not necessarily reflect the official position or policies of the U.S. Department of Justice.

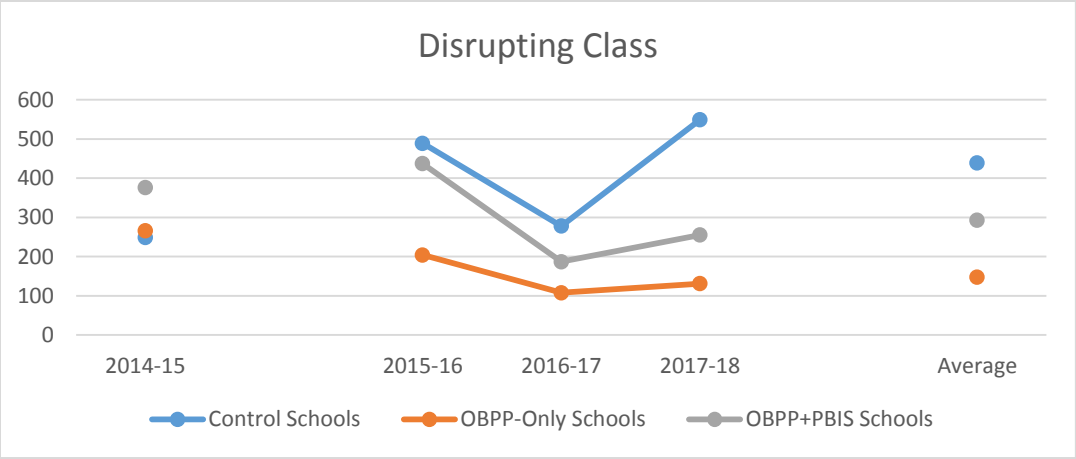
Goal 4: To Determine the Cost effectiveness of the Integrated SWPBIS/OBPP Program

Descriptive statistics for each of the targeted measures are presented below. Because all the data available for analysis can only be summarized at the school level, only descriptive statistics are available for reporting.

Disciplinary incidents. South Carolina schools use PowerSchool to record disciplinary incidents and these data are exported to the South Carolina Department of Education for analysis and upward reporting to the U.S. Department of Education for the Civil Rights Data Collection. Despite the high stakes nature of the behaviors and disciplinary actions, most school districts and schools do not have a standard data entry procedure, which likely results in similar types of behaviors being coded and reported differently within and across schools, referring adults, and students. As such, it is difficult to compare changes in discipline incidents across schools and even over time within the same school, given administrative changes. It is important to note that SWPBIS/OBPP schools received direct training and coaching in discipline data reporting and recording, which could affect the reliability of the data differently than the two conditions that did not receive that advice.

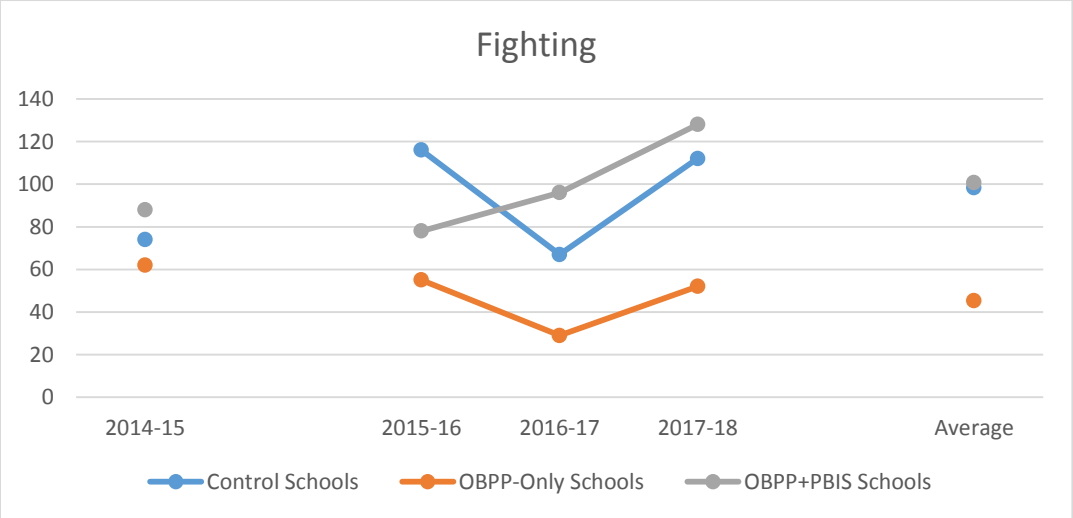
The following figures illustrate changes in disciplinary actions and behaviors by condition. Figure 11 illustrates patterns of "disrupting class," a common occurrence in any school program. The first pattern to observe is the OBPP-only and Control schools were very close in baseline with SWPBIS/OBPP schools showing somewhat higher rates. OBPP-only schools dropped and maintained the drop in rates of "disrupting class"; control and SWPBIS/OBPP schools showed highly variable patterns from year to year with an overall average increase for Control schools and a decrease for SWPBIS/OBPP schools.

Figure 11. Incidences of disrupting class by condition



For fighting (Figure 12), we see the three conditions relatively close in overall reports at baseline, with a decrease in the OBPP condition through intervention and increases in fighting for Control and SWPBIS/OBPP schools.

Figure 12. Incidences of fighting by condition

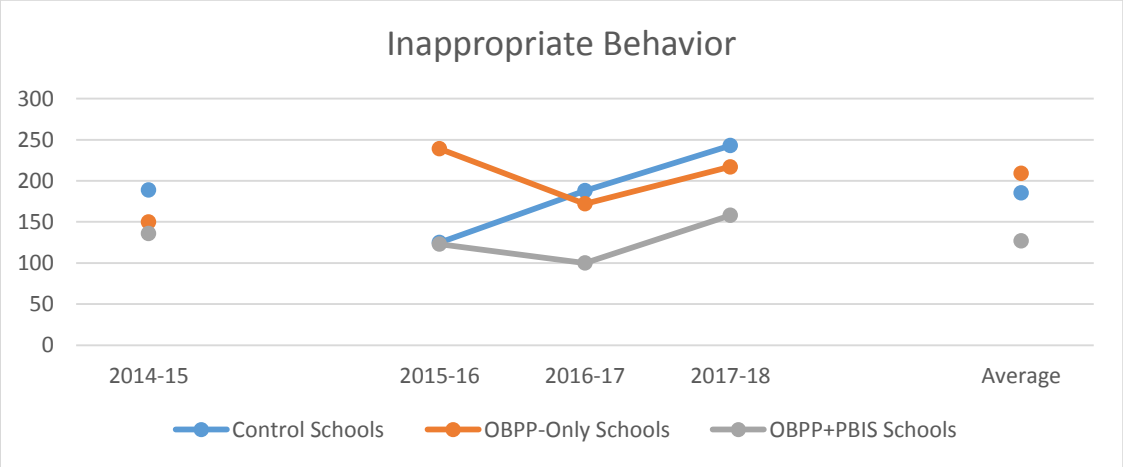


Inappropriate behavior is typically a high frequency disciplinary problem in schools. Here we see the Control schools with a slightly higher rates at baseline, followed by a drop in 2015 and an increasing trend over the study period, resulting in an average drop overall. It is important to note the trend here

This resource was prepared by the author(s) using Federal funds provided by the U.S. Department of Justice. Opinions or points of view expressed are those of the author(s) and do not necessarily reflect the official position or policies of the U.S. Department of Justice.

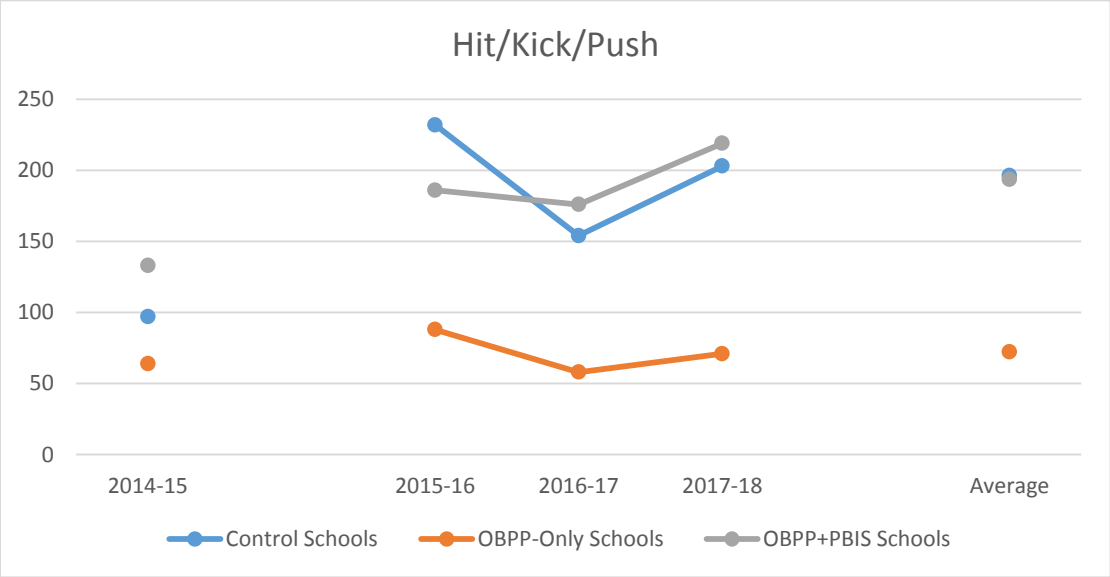
rather than the three-year average. Similarly, inappropriate behavior increased for OBPP-only schools and showed a decrease in the SWPBIS/OBPP schools (see Figure 13).

Figure 13. Incidents of inappropriate behavior by condition



Finally, an analysis of hit/kick/push shows a relatively equal rate in baseline, followed by increases in the Control and PBIS/OBPP schools (see Figure 14).

Figure 14. Incidents of hitting/kicking/pushing by condition.

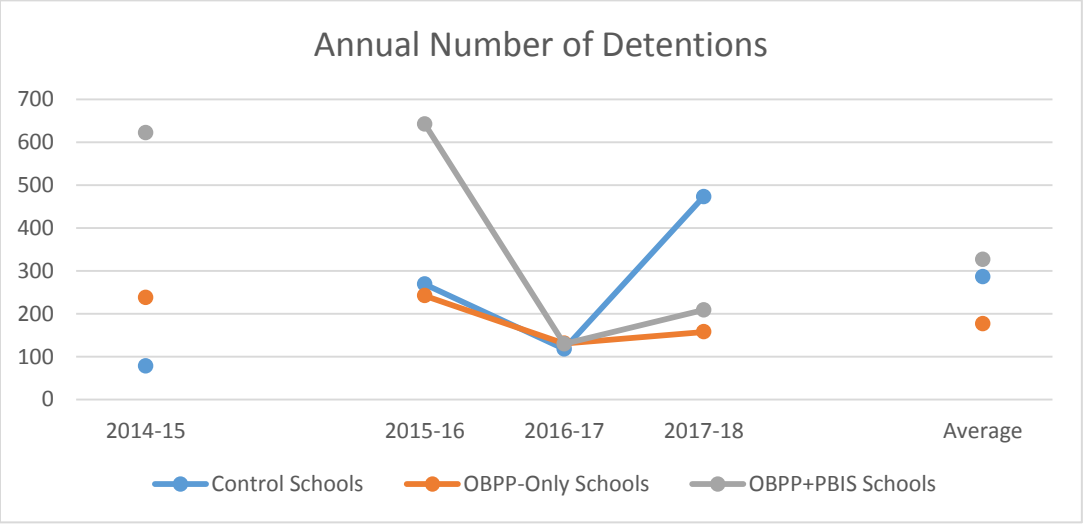


This resource was prepared by the author(s) using Federal funds provided by the U.S. Department of Justice. Opinions or points of view expressed are those of the author(s) and do not necessarily reflect the official position or policies of the U.S. Department of Justice.

Disciplinary actions. Reducing the use of exclusionary discipline has been a major topic in the field for many years, and attention to the issue was heightened after the initial 2010 Civil Rights Data Collection data showed substantial differences in suspension rates for students of racial/ethnic minority status, students with disabilities, and males (U.S. Department of Education Office for Civil Rights, 2012). The negative effects of disciplinary exclusion are well documented and yet administrators receive scant guidance on implementing alternatives to these traditional practices.

The figures below illustrate the patterns found from baseline throughout treatment. Detentions, or in-school removal from class, showed large differences in baseline, with SWPBIS/OBPP schools the highest followed by OBPP-only and Control schools. During the intervention, dramatic reductions in detentions occurred in the SWPBIS-OBPP schools, while OBPP schools remained low, and Control schools showed high variability with an overall increase in the use of this consequence.

Figure 15. Annual detentions by treatment condition

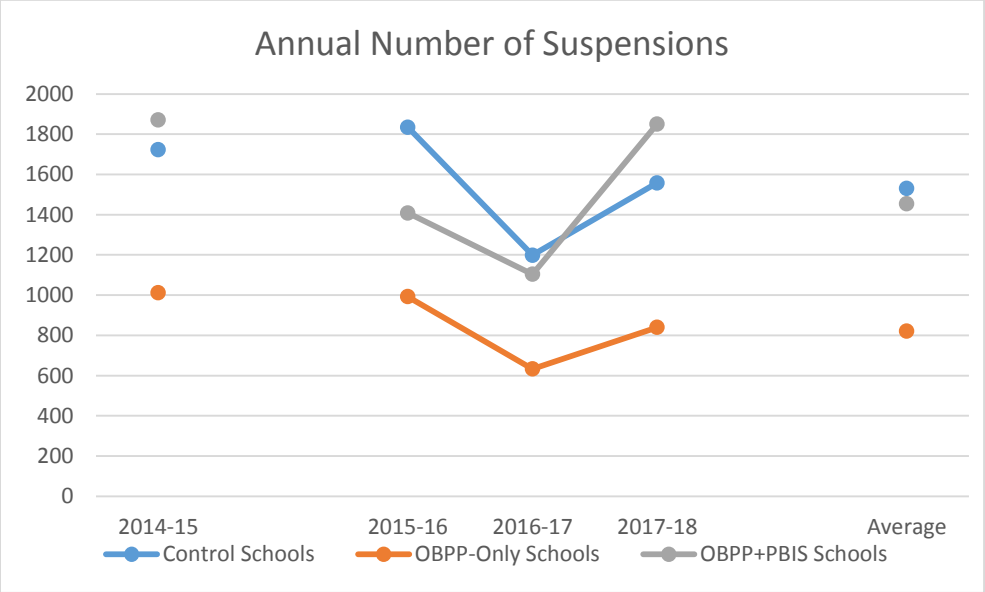


Out-of-school suspension is considered the most serious consequence for behavior, excepting expulsion, which is usually reserved as a consequence for illegal behaviors such as weapon carrying or drug possession. In the following figure we see SWPBIS-OBPP schools and Control schools using a higher

This resource was prepared by the author(s) using Federal funds provided by the U.S. Department of Justice. Opinions or points of view expressed are those of the author(s) and do not necessarily reflect the official position or policies of the U.S. Department of Justice.

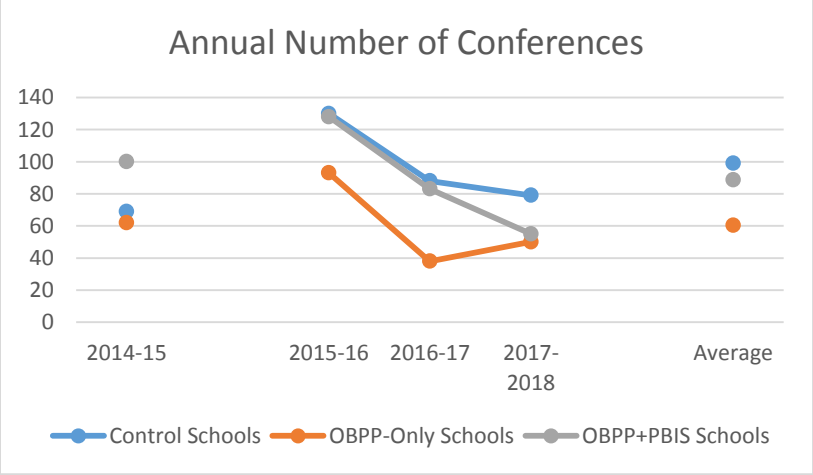
rate of suspensions than OBPP-only schools at baseline. All groups showed a reduction in the use of suspension, with considerable variability across individual school years.

Figure 16. Annual numbers of suspensions by treatment condition



A field in PowerSchool is called "conferences" and may be considered a less restrictive method aimed at improving student behavior. We see an interesting pattern here, with a substantial increase in use in the 2015-2016 school year for each condition, followed by a decline in use the following two years, with little change over the life of the study.

Figure 17. Annual number of conferences by treatment condition.



This resource was prepared by the author(s) using Federal funds provided by the U.S. Department of Justice. Opinions or points of view expressed are those of the author(s) and do not necessarily reflect the official position or policies of the U.S. Department of Justice.

Student attendance. Student attendance is reported to and summarized by the South Carolina Department of Education and is publicly available on their website. An Average Daily Membership (ADM) score is calculated by dividing the number of students who attended by the number of school days available. It is possible to infer that school attendance would be correlated with improved school climate. Reducing the fear of bullying or other negative school experiences may result in reduced chance of missing school to avoid these experiences. It is difficult to infer that these changes alone can impact the ADM score, so we present the data descriptively to see trends in attendance from the 2014-2015 school year as a baseline, and then 2015-2016 to 2018-2019 as the intervention years. The charts below show the trends for all schools by condition.

Elementary Schools represented the largest group at the school level, and attendance trends were mixed. The table below shows the Control schools dropping on average pre to post, OBPP schools remaining level, and SWPBIS/OBPP schools showing a small increase in ADM.

Table 7. Average daily membership scores by treatment condition

	Control	OBPP	PBIS-OBPP
Pre	475.1	325.13	359.99
Post	463.7	323.5	363.54

Figure 18. ADM scores for participating elementary schools

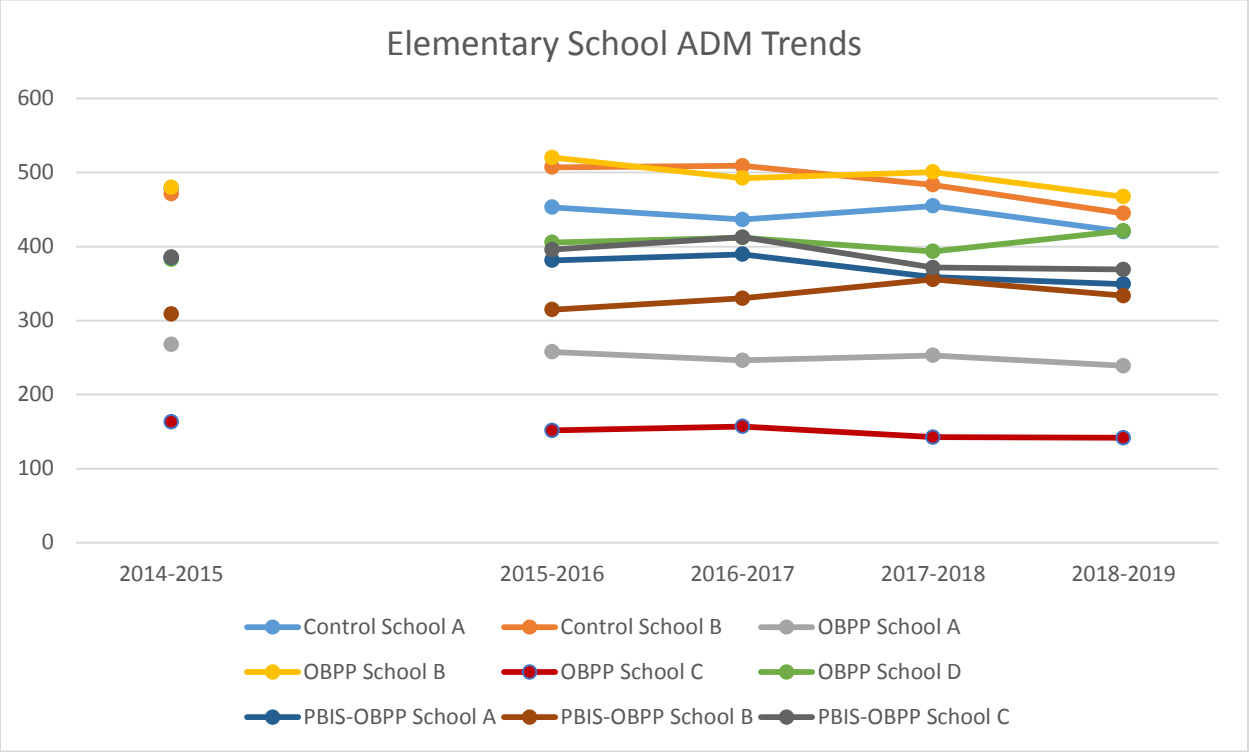


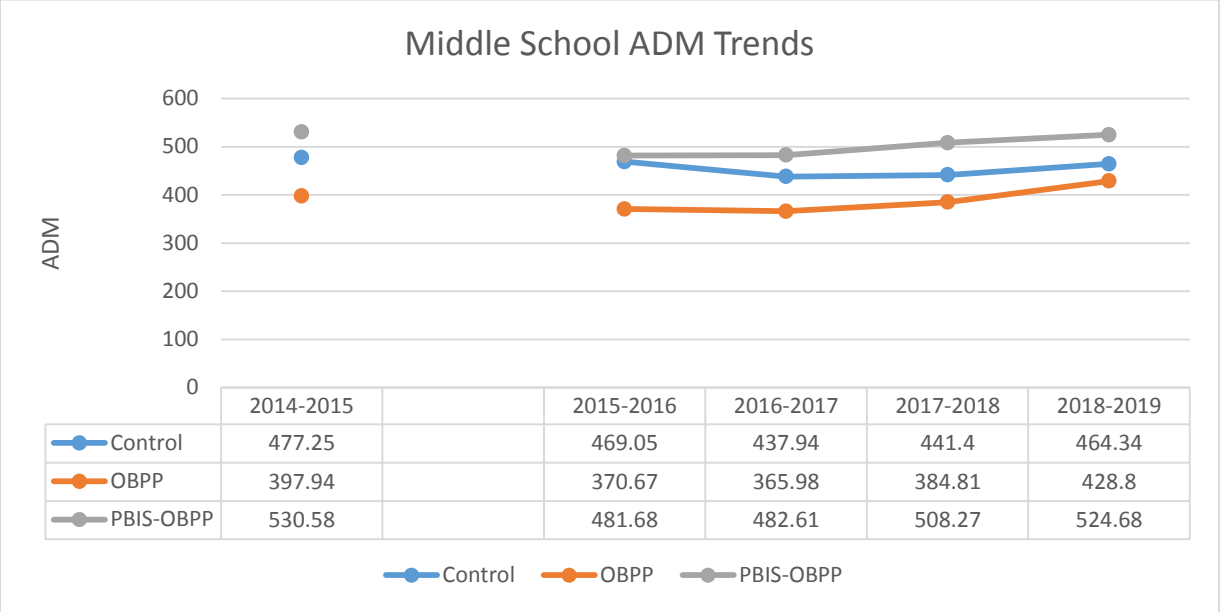
Table 8. ADM scores for participating elementary schools

	Control	OBPP	PBIS-OBPP
Pre	477.3	397.9	530.6
Post	453.2	387.6	499.3

There was only one middle school in each condition. All conditions showed overall decreases in ADM, with OBPP, Control, and SWPBIS/OBPP decreasing in order. The line graphs suggest an upward trend for all schools over the life of the study.

This resource was prepared by the author(s) using Federal funds provided by the U.S. Department of Justice. Opinions or points of view expressed are those of the author(s) and do not necessarily reflect the official position or policies of the U.S. Department of Justice.

Figure 19. ADM scores for participating middle schools



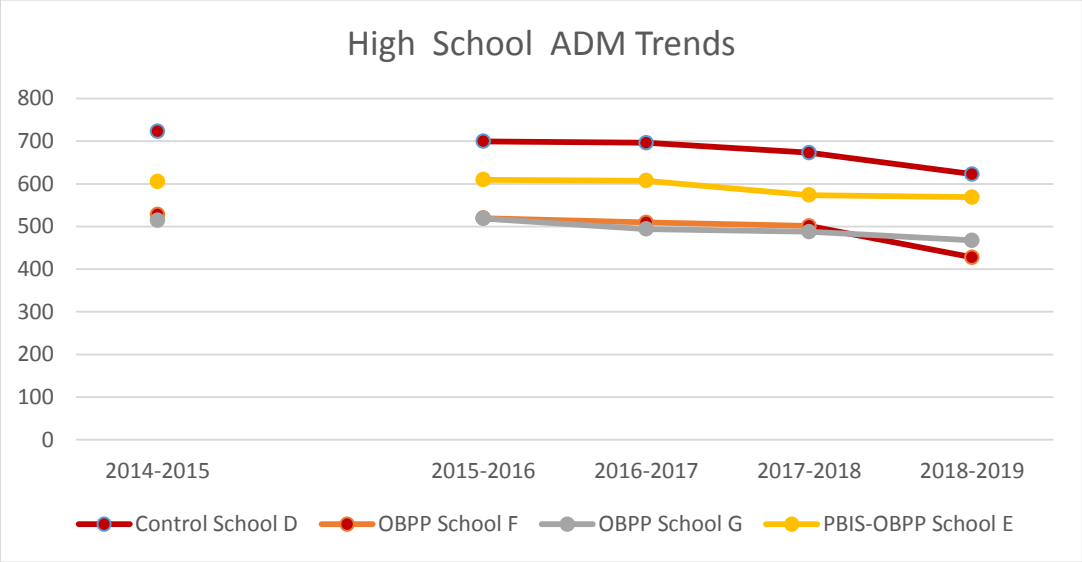
There were four high schools in the study, with two in the OBPP only condition. All schools showed a decrease over time with the Control high school highest, followed by OBPP and then SWPBIS/OBPP with the least decrease.

Table 9. ADM scores for participating high schools

	Control	OBPP	PBIS-OBPP
Pre	723.2	521.27	605.2
Post	673.1	490.75	589.9

This resource was prepared by the author(s) using Federal funds provided by the U.S. Department of Justice. Opinions or points of view expressed are those of the author(s) and do not necessarily reflect the official position or policies of the U.S. Department of Justice.

Figure 20. ADM scores for participating high schools

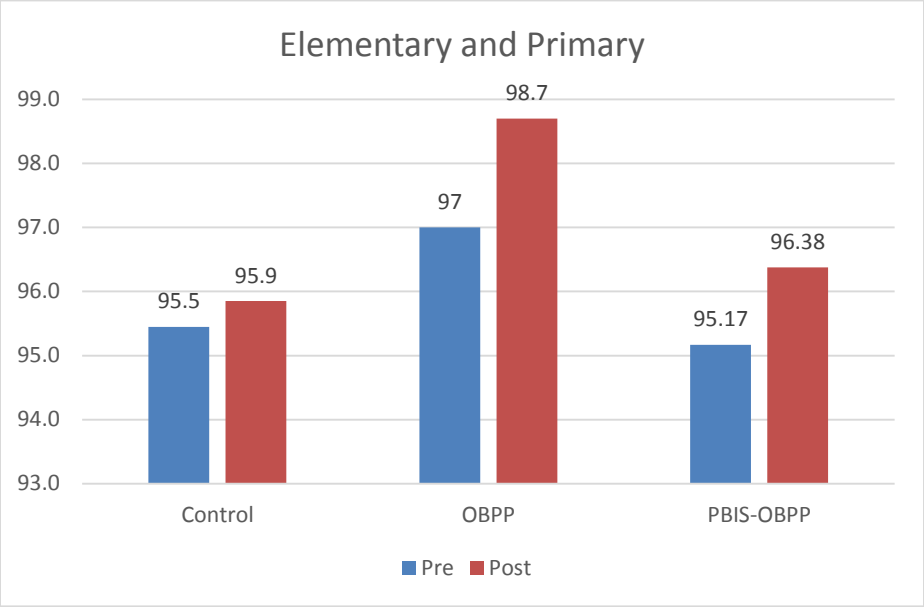


Teacher attendance. One theory regarding improvements in school climate and reduced bullying behavior is that the level of stress and concern experienced by teachers would be less, resulting in better attendance. While it cannot be inferred that the improvements related to SWPBIS or OBPP are solely the cause of improved teacher attendance, it may be inferred that is an important factor.

The figures below show changes in teacher attendance by school level and condition. The baseline/pre data represent average teacher attendance in the two years prior to intervention, followed by average teacher attendance during the intervention period.

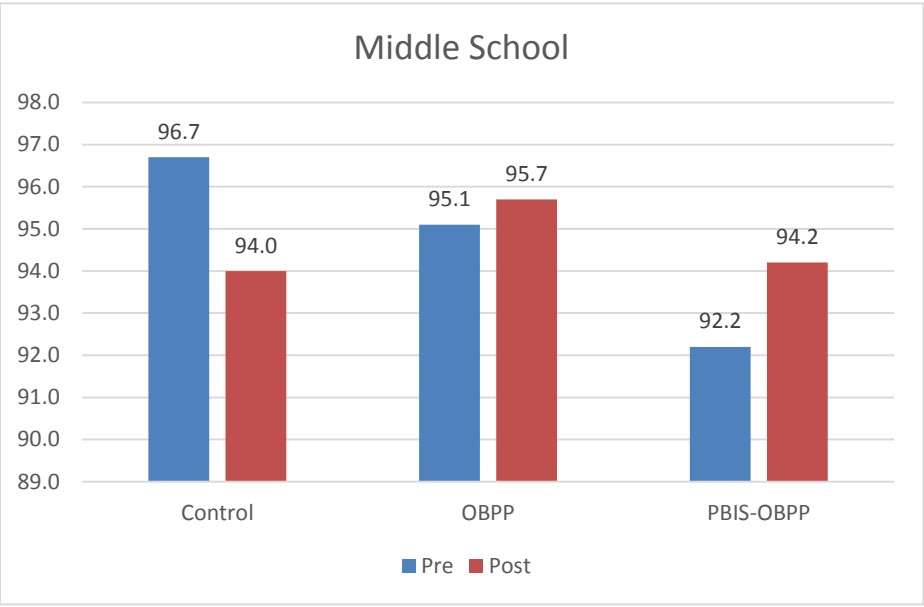
This resource was prepared by the author(s) using Federal funds provided by the U.S. Department of Justice. Opinions or points of view expressed are those of the author(s) and do not necessarily reflect the official position or policies of the U.S. Department of Justice.

Figure 21. Changes in teacher attendance in elementary and primary schools by treatment condition



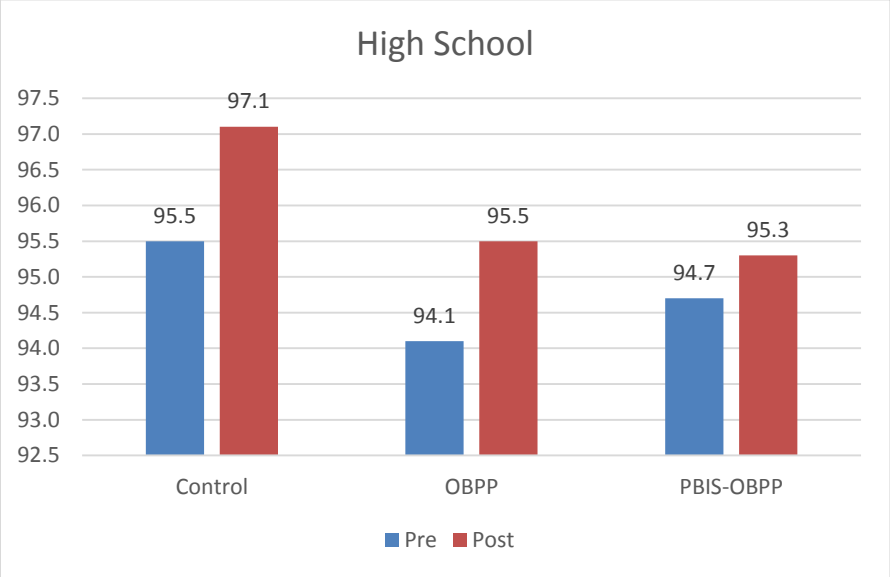
Elementary and primary schools in all conditions showed improved attendance from baseline to treatment years. Control schools improved by .4 percent, OBPP only schools by 2.7%, and SWPBIS-OBPP schools improved by 1.21%.

Figure 22. Changes in teacher attendance in middle schools by treatment condition



Both SWPBIS-OBPP and OBPP Only schools showed improvement in teacher attendance at the middle schools. Control schools dropped by 2.7%, OBPP schools improved by .7% and PBIS-OBPP schools improved by 2%.

Figure 23. Changes in teacher attendance in high schools by treatment condition



All high schools showed improved teacher attendance. The control high school improved by 1.6%, OBPP only improved by 1.4%, and SWPBIS-OBPP improved by .6%.

Cost of staff development. Costs of staff development included substitute teacher costs and costs of materials for interventions.

Substitute teacher costs. OBPP-only and SWPBIS/OBPP provided the same number of staff development days. Follow-up consultation was also provided at roughly the same frequency and intensity but was not formally tracked as a cost. Table 10 below provides a summary of these costs. It should be assumed that the control schools incurred no related staff development costs.

This resource was prepared by the author(s) using Federal funds provided by the U.S. Department of Justice. Opinions or points of view expressed are those of the author(s) and do not necessarily reflect the official position or policies of the U.S. Department of Justice.

TABLE 10. Substitute Teacher Costs for OBPP and SWPBIS/OBPP

DATE	SUBSTITUTES	RETIREMENT	FICA	WC	TOTALS
6/30/2015	$253.00	$0.00	$19.36	$1.95	$274.31
9/30/2015	$6,629.00	$376.47	$507.07	$53.75	$7,566.29
9/30/2016	$1,752.75	$142.58	$134.13	$13.58	$2,043.04
10/14/2016	$123.00	$10.98	$9.41	$0.95	$144.34
11/15/2017	$534.00	$68.60	$40.87	$4.14	$647.61
TOTALS	**$9,291.75**	**$598.63**	**$710.84**	**$74.37**	**$10,675.59**

Cost of materials for OBPP-only and SWPBIS/OBPP. Table 11 below provides costs of equipment and materials.

TABLE 11. OBPP and SWPBIS/OBPP Equipment and Materials Costs

ITEM	AMOUNT
KICKOFF EVENTS	$8,683.00
HAZELDEN SUPPLIES	$31,417.70
VOYAGER SUPPLIES	$7,529.80
FURNITURE PURCHASES FOR SBMH	$8,088.24
TOTALS	**$55,718.74**

As previously noted, in order to address cost-benefit, we aimed to calculate:

- The time savings (if any) of teachers and administrative personnel from reduced (predicted) discipline incidents;
- Improved student outcomes regarding discipline incidents, attendance, academic achievement, and mental health functioning; and,
- The costs for staff development and coaching support in treatment schools.

What we see in the data are high variability in the counts of disciplinary incidents and actions from year to year and school to school. Some of the results may be considered in line with components of the interventions such as reduced classroom disruption (SWPBIS/OBPP) or reduced fighting (OBPP, or SWPBIS/OBPP). Attendance is probably more straightforward and the current analysis cannot consider other variables that may effect ADM rates such as illness, weather, or even changes in local economic or health conditions.

It is not possible to make causal inferences about the relationship between these outcomes and the component of the individual interventions. It may be more valid to consider the "benefit" of systematic changes in student and teacher climate surveys as they would potentially be a more stable data source.

Goal 5: To determine the social validity of school-based mental health professionals' services.

During the first full year of the program (2015-2016), there were 295 referrals, with 187 students ultimately receiving services. In year 2 (2016-2017), there were 268 referrals, with 159 new students receiving services. In year 3, (2017-2018), there were 247 referrals, with 121 new students receiving services. Between new referrals and students who continued receiving counseling services from the prior year, there were a total of 233 students receiving school based mental health counseling services during the 2017-2018 school year. This represented 3.7% of the total student population of the school district, including students from every single school in the district. Among the most common reasons for referrals were psycho-emotional problems (38%), behavioral problems (26%), adjustment or loss (11%), family stress (7%), academic problems (6%), and trauma (4%).

During the first year of the program (2015-2016), there were 123 students referred to school-based mental health counseling who also completed student surveys administered for addressing Goals 2 and 3. Based on SDQ data collected from students, we determined that students who were referred to mental health counseling had significantly higher scores on the SDQ difficulties scale, $F(1, 4{,}501) = 16.47$, $p < .001$, than students who were not referred to counseling services (referred students' mean

SDQ score = 13.84, non-referred students' mean SDQ score = 11.28, total standard deviation = 2.64). A mean difference of approximately a standard deviation in SDQ difficulties scores indicates that school staff was identifying students for mental health counseling referral who exhibited greater needs than their peers who were not referred. Furthermore, the average score for the SDQ difficulties scales completed by referred students' parents at baseline was 17.4 (SD = 6.8). According to interpretation guidelines for the SDQ (Mental Health National Outcomes, n.d.), scores greater than 17 on parent-reported surveys indicate that "there is substantial risk of clinically significant problems."

With regard to the sustainability of SBMH services over time, by the end of grant Year 3 (December, 2017), all of the nine SBMH counselors had caseloads large enough to sustain the services in all 16 schools. The Chesterfield County School District is committed to providing services to all students, regardless of payer source/insurance. To that end, the FY2018-2019 School District budget was expanded so that an additional $30,000 was added to support SBMH services. In addition, the FY2019-2020 budget supports the Superintendent's verbal commitment that these services are an ongoing priority for the School Board.

Implications for Criminal Justice Policy and Practice in the United States

Findings from this project will provide important information for policy makers, educators, school-based mental health professionals, and researchers. First, consistent with calls to integrate prevention efforts and recognizing that many U.S. schools are seeking to implement both SWPBIS and OBPP as complementary efforts, the development of an integrated SWPBIS/OBPP model that is feasible and effective will be a welcome resource. Findings from this research indicated that teachers had high levels of satisfaction with the OBPP and SWPBIS/OBPP programs and strong beliefs in their ability to make positive changes at school. Moreover, teachers in both conditions implemented the programs with good fidelity. It is not surprising that scores were slightly higher for the well-established OBPP-only

program schools (compared with the newly integrated program). However, it is important to note that the difference in average scores between the two groups was fairly small and program satisfaction, teacher efficacy, and fidelity of implementation remained consistently high for both groups of school staff throughout the course of the project. The integrated model highlights areas of connection and overlap between the two evidence-based efforts, thus reducing areas of confusion and redundancy, as well as reducing training time (and related costs) for schools interested in implementing both interventions. The RCT demonstrated that the integrated model was effective relative to the control condition based on teacher and/or student reports with regard to: reductions in bullying victimization, reductions in cyberbullying victimization and perpetration, increased clarity of policies about bullying, increases in teacher perceptions that bullied students would report being bullied, and improved aspects of the school climate (e.g., reducing students' fears about bullying).

Our ability to assess the cost-effectiveness of the SWPBIS/OBPP intervention was constrained by the nature of the archival, school-level data available and concerns regarding its reliability. High variability in counts of disciplinary incidents, disciplinary actions and student and teacher attendance were observed from year to year and from school to school. Although some findings appeared encouraging (e.g., dramatic reductions in student detentions in the SWPBIS/OBPP schools), it is not possible to make inferences about the relationship between these outcomes and the presence or components of the intervention. It is critical that schools move to make discipline recording and reporting much more systematic and reliable if we are to fully understand how interventions impact these critical outcomes.

Additionally, this project provides important findings for policy makers, educators and researchers on the effectiveness of the OBPP. Although previous quasi-experimental studies have shown positive effects of the OBPP in the U.S., findings from this RCT (based on both student and teacher reports) showed that the OBPP was effective in reducing bullying victimization and bullying

perpetration, decreasing student fears about bullying, increasing clarity of policies about bullying, increasing clarity about staff responses to bullying, and increasing teacher perceptions that bullied students would report their experiences to them. With regard to the effectiveness of both interventions, additional research is needed to clarify sub-group differences (e.g., grade-level, race/ethnicity) in program effects and to examine the relationship between fidelity of implementation and program outcomes.

Finally, as school-based mental health professionals are increasingly viewed as critical resources who can complement prevention and intervention programs such as SWPBIS and OBPP, this project provides useful information for policy makers and educators about the use and sustainability of these services. Based on evaluations of SDQ scores of students who were referred for SBMH counseling (compared with their non-referred peers), results suggest that school staff did, in fact, identify students for mental health counseling who had significant mental health needs. The most common counseling needs were psycho-emotional in nature, followed by behavioral, challenges with adjustment or loss, and family stress. It is hoped that our findings provide support to policy makers and educators to increase the availability mental health professionals in schools.

Appendix A

References

Bauer, N. S., Lozano, P., & Rivara, F. P. (2007). The Effectiveness of the Olweus Bullying Prevention Program in public middle schools: A controlled trial. *Journal of Adolescent Health, 40*(3), 266-274.

Blonigen, B. A., Harbaugh, W. T., Singell, L. D., Horner, R. H., Irvin, L. K., & Smolkowski, K. S. (2008). Application of economic analysis to school-wide positive behavior support (SWPBS) programs. *Journal of Positive Behavior Interventions*, *10*(1), 5-19.

Boulder Valley School District. (2015). *Climate survey results*. Retrieved from http://bvsd.org/high/Documents/Arapahoe%20Campus%20Student%20Climate%209-12.pdf.

California Department of Education (2013). *California school climate survey*. Retrieved from: https://calschls.org

Domitrovich, C. E., Bradshaw, C. P., Greenberg, M. T., Embry, D., Poduska, J. M., & Ialongo, N. S. (2010). Integrated models of school-based prevention: Logic and theory. *Psychology in the Schools, 47*(1), 71-88.

Furlong, M. J., Greif, J. L., Bates, M. P., Whipple, A. D., Jimenez, T. C., & Morrison, R. (2005). Development of the California school climate and safety survey-short form. *Psychology in the Schools*, *42*(2), 137-149.

Goodman, R. (1997). The Strengths and Difficulties Questionnaire: a research note. *Journal of child psychology and psychiatry*, *38*(5), 581-586.

Kowalski, R. M., & Limber, S. P. (2007). Electronic bullying among middle school students. *Journal of adolescent health*, *41*(6), S22-S30

Limber, S. P., Olweus, D., Wang, W., Masiello, M., & Breivik, K. (2018). Evaluation of the Olweus Bullying Prevention Program: A large scale study of US students in grades 3–11. *Journal of school psychology*, *69*, 56-72.

Mental Health National Outcomes and Casemix Collection: Overview of Clinician-Rated and Consumer Self-Report Measures (n.d.). V1.50, Mental Health & Suicide Prevention Branch, Department of Health and Ageing. Retrieved from: https://depts.washington.edu/dbpeds/Screening%20Tools/Strengths_and_Difficulties_Questionnaire.pdf

Musu, L., Zhang, A., Wang, K., Zhang, J., and Oudekerk, B.A. (2019). *Indicators of School Crime and Safety: 2018* (NCES 2019-047/NCJ 252571). National Center for Education Statistics, U.S. Department of Education, and Bureau of Justice Statistics, Office of Justice Programs, U.S. Department of Justice. Washington, DC.

National Academies of Sciences, Engineering, and Medicine. (2016). *Preventing Bullying Through Science, Policy, and Practice*. Washington, DC: The National Academies Press.

Olweus, D. (2007). *Olweus Bullying Questionnaire*. Center City, MN: Hazelden Publishing.

Olweus, D., Limber, S. P., & Breivik, K. (2019). Addressing specific forms of bullying: A large-scale evaluation of the Olweus Bullying Prevention Program. *International Journal of Bullying Prevention*, 1.

Rusby, J. C., Taylor, T. K., & Marquez, B. (2004). Promoting positive social development in family childcare settings. *Early Education and Development, 15,* 1-22.

Scott, T. M., & Barrett, S. B. (2004). Using staff and student time engaged in disciplinary procedures to evaluate the impact of school-wide PBS. *Journal of Positive Behavior Interventions*, *6*(1), 21-27.

Sprague, J., Colvin, G., & Irvin, L. (1995). The Oregon school safety survey. Eugene: University of Oregon.

Sprague, J. R., Biglan, A., & Rusby, J. G. J., & Vincent, C. (2017) Implementing school wide PBIS in middle schools: results of a randomized trial. *Journal of Health Science and Education*, *1*, 1-10.

Tschannen-Moran, M., & Hoy, A. W. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and teacher education*, *17*(7), 783-805.

U. S. Department of Education Office for Civil Rights (2012). The transformed civil rights data collection. Retrieved from: https://ocrdata.ed.gov/Downloads/CMOCRTheTransformedCRDCFINAL3-15-12Accessible-1.pdf

Appendix B. Descriptions of Staff Measures

Staff Measures of Satisfaction, Self-Efficacy, and Fidelity, Completed Twice Per Year						
Construct	**# of items**	**Sample Item**	**Response Options**	**Scoring**	**Source**	**Alpha**
Staff Program Satisfaction Scale	18	"I clearly understand the program."	5-point Likert-type scale, ranging from "strongly disagree" to "strongly agree"	Average across items. Higher scores indicated greater satisfaction.	Rusby, Taylor & Marquez (2004)	.912
Teacher Self-Efficacy Scale	15	"How much can you do to get youth to believe they can do well?	5-point Likert-type scale, ranging from "nothing" to "a great deal"	Average across items. Higher scores indicated higher self-efficacy.	Ohio State Teacher Efficacy Scale, revised; Tschannen-Moran & Hoy (2001)	.944
Program Fidelity of OBPP implementation (teacher version)	13	"Have you explained and discussed the anti-bullying rules with students during your class meetings?"	4 options: "not yet started," "minimal progress," "substantial progress," "achieved/completed"	Average across items. Higher scores indicated higher fidelity.	New measure	.889
Program Fidelity of OBPP implementation (OBPP coordinator version)	48	"Are class meetings held with students at least once a week for elementary/middle school and every other week for high school students?"	4 options: "not yet started," "minimal progress," "substantial progress," "achieved/completed"	Average across items. Higher scores indicated higher fidelity.	New measure	n/a

Staff Measures of Satisfaction, Self-Efficacy, and Fidelity, Completed Twice Per Year						
Construct	**# of items**	**Sample Item**	**Response Options**	**Scoring**	**Source**	**Alpha**
Program Fidelity of SWPBIS/OBPP implementation (teacher version)	15	"Have you delivered consistent corrective consequences for students who do not comply with the behavior expectations (be safe, respectful and responsible) and/or those who bully others?"	4 options: "not yet started," "minimal progress," "substantial progress," "achieved/completed"	Average across items. Higher scores indicated higher fidelity.	New measure	.934
Program Fidelity of SWPBIS/OBPP implementation (coordinator version)	61	"Does your Leadership Team meet at least monthly?"	4 options: "not yet started," "minimal progress," "substantial progress," "achieved/completed"	Average across items. Higher scores indicated higher fidelity.	New measure	n/a
Staff Measures Completed Once Per Year						
Construct	**# of items**	**Sample Item**	**Response Options**	**Scoring**	**Source**	**Alpha**
School Planning	16	"Please indicate the extent to which these factors exist in your school and neighborhood…positive school climate for learning"	4-point Likert-type options, ranging from "not at all" to "extensively"	Average across items. Higher scores indicated higher levels of planning.	Sprague et al. (1995)	.894
School Climate	27	"This school is a supportive and inviting place for students to learn."	4-point Likert-type options, ranging from "strongly agree" to "strongly disagree"	Likert scale of 1-4, with higher scores indicating more positive school climate.	California Department of Education (2013)	.978

Staff Measures Completed Once Per Year						
Construct	**# of items**	**Sample Item**	**Response Options**	**Scoring**	**Source**	**Alpha**
Adult Involvement in school	11	"How many adults at your school really care about every student?"	5-point Likert-type options, ranging from "almost none" to "nearly all adults"	Average across items, with higher scores indicating greater presence of adult involvement in school.	California Department of Education (2013)	.968
Bullying victimization help-seeking	3	"How often do you think students tell a teacher when they have been bullied?"	5-point Likert-type options, ranging from "almost never" to "almost always"	Average across items, with higher scores indicating greater perceived student willingness to seek help for bullying victimization	New measure	.745
Observed frequency of types of bullying	9	"Since the beginning of the semester, how often have you observed the following types of bullying…a student bullied another with mean names or comments about his/her race or color."	5-point Likert-type options, ranging from "never" to "several times a week"	Average across items, with higher scores representing greater observed frequency of different types of bullying.	New measure	.917
Bullying policies	1	"Do you believe your school has clear rules or policies about bullying among students?"	4-point Likert-type options, ranging from "extremely unclear" to "extremely clear"	Average across items, with higher scores indicating greater clarity of rules.	New item	n/a
Communication of bullying policies	4	"Do you believe that your school's rules and policies about bullying have been clearly communicated to students?	4-point Likert-type options, ranging from "definitely not clearly communicated" to "extremely clearly communicated"	Average across items, with higher scores representing greater perceived clarity of communication of school bullying policies.	New measure	.956

Staff Measures Completed Once Per Year						
Construct	**# of items**	**Sample Item**	**Response Options**	**Scoring**	**Source**	**Alpha**
Clear how to respond to bullying	1	"Are you clear about what you should do to respond to bullying that you observe or hear about at your school?"	4-point Likert-type options, ranging from" definitely not clear" to "extremely clear"	Higher scores indicating greater clarity.	New item	n/a
Putting a stop to bullying	1	"If you observe bullying or are aware of bullying, how often do you try to put a stop to it?"	5-point Likert-type responses, ranging from "almost never" to "almost always"	Higher score indicating greater likelihood of stopping bullying.	New item	n/a
Other staff putting a stop to bullying	1	"How often do other staff members try to put a stop to it when they observe bullying or are aware of bullying?"	5-point Likert-type responses, ranging from "almost never" to "almost always"	Higher score indicating greater likelihood of stopping bullying.	New item	n/a
Comfort intervening in bullying	1	"How comfortable are you intervening in bullying incidents that you observe at your school?"	4-point Likert-type responses, ranging from "definitely not comfortable" to "extremely comfortable"	Higher score indicates greater comfort.	New item	n/a
Counteracting bullying	1	"How much do you think you have done to counteract bullying in the past couple of months?"	5-point Likert-type responses, ranging from "little or nothing" to "very much"	Higher score indicates more actions to counteract bullying.	New item	n/a
Other staff counteracting bullying	1	"How much do you think other staff have done to counteract bullying in the past couple of months?	5-point Likert-type responses, ranging from "little or nothing" to "very much"	Higher score indicates more actions to counteract bullying.	New item	n/a

Appendix C. Description of Student Measures

Construct/Measure Name	# of items	Sample Item	Response Options	Scoring	Source	Alpha
Bullying victimization	10	"I was called mean names, was made fun of, or teased in a hurtful way"	5 options, ranging from "It has not happened to me in the past couple of months" to "Several times a week"	Average across items. Scores range from 1-5, with higher scores indicating greater frequency of bullying victimization.	Olweus (2007)	.871
Bullying perpetration	10	"I called another student(s) mean names and made fun of or teased him or her in a hurtful way."	5 options, ranging from "It has not happened in the past couple of months" to "Several times a week"	Average across items. Scores range from 1-5, with higher scores indicating greater frequency of bullying perpetration.	Olweus (2007)	.898
Cyberbullying victimization	6	"I was bullied through instant messaging or chat."	5 options, ranging from "It has not happened in the past couple of months" to "Several times a week"	Average across items. Scores range from 1-5, with higher scores indicating greater frequency of bullying perpetration.	Kowalski & Limber (2007)	.911
Cyberbullying perpetration	6	I bullied someone else through instant messaging or chat."	5 options, ranging from "It has not happened in the past couple of months" to "Several times a week"	Average across items. Scores range from 1-5, with higher scores indicating greater frequency of bullying perpetration.	Kowalski & Limber (2007)	.946
Student involvement	4	"There are lots of chances for students in my school to talk with a teacher one-on-one."	5 Likert-type responses, ranging from "strongly disagree" to "strongly agree"	Average across items. Scores range from 1-5, with higher scores indicating greater involvement.	Sprague et al. (2017)	0.652
Teacher praise received	3	"My teacher(s) notices when I am doing a good job and lets me know about it."	5 Likert-type responses, ranging from "strongly disagree" to "strongly agree"	Average across items. Scores range from 1-5, with higher scores indicating greater teacher praise received.	Sprague et al. (2017)	0.772
Rule awareness	5	"In my school, there are clear rules about what students can and cannot do."	5 Likert-type responses, ranging from "strongly disagree" to "strongly agree"	Average across items. Scores range from 1-5, with higher scores indicating greater rule awareness.	Sprague et al. (2017)	.809

Construct/Measure Name	# of items	Sample Item	Response Options	Scoring	Source	Alpha
School safety	7	"At school, how safe do you feel in…the hallways?"	5 Likert-type responses, ranging from "not at all safe" to "very safe"	Average across items. Scores range from 1-5, with higher scores indicating greater perception of school safety.	Sprague et al. (2017)	.912
School climate	5	"You can really trust most of the people at my school."	5 Likert-type responses, ranging from "strongly disagree" to "strongly agree"	Average across items. Scores range from 1-5, with higher scores indicating a more positive school climate.	Furlong et al. (2005)	.781
Fitting in	8	"I feel welcomed at school."	5 Likert-type responses, ranging from "strongly disagree" to "strongly agree"	Average across items. Scores range from 1-5, with higher scores indicating greater perception of fitting in.	Boulder Valley School District (2015)	.881
Adults Involvement at School	11	"I have an adult at school I trust."	5 Likert-type responses, ranging from "strongly disagree" to "strongly agree"	Average across items. Scores range from 1-5, with higher scores indicating greater perception of positive adult involvement in school.	Boulder Valley School District (2015)	.920
School Rules	3	"At school, there are clear rules for student behavior."	5 Likert-type responses, ranging from "strongly disagree" to "strongly agree"	Average across items. Scores range from 1-5, with higher scores indicating greater perception of clear, consistent school rules.	Boulder Valley School District (2015)	.784
Strengths and Difficulties Questionnaire (SDQ)	25	"I try to be nice to other people. I care about their feelings."	3-point Likert-type scale, ranging from "not true" to "somewhat true, to "certainly true"	6 subscales: 1. *Hyperactivity* 2. *Emotional Symptoms* 3. *Conduct Problems* 4. *Peer Problems* 5. *Prosocial* 6. *Total Difficulties:* sum of hyperactivity, emotional symptoms, conduct problems, peer problems Items in each subscale are summed, with a total score for each subscale of 0-10.	Goodman 1997	1- .556 2- .774 3- .568 4- .432 5- .769 6- .803

Construct/Measure Name	# of items	Sample Item	Response Options	Scoring	Source	Alpha
Teacher intervention in bullying	1	"How often do the teachers or other adults at school try to put a stop to it when a student is being bullied at school?"	5 options, ranging from "almost never" to "almost always"	Scores range from 1-5, with higher scores indicating greater teacher actions to address bullying.	Olweus (2007)	n/a
Student intervention in bullying	1	"How often do other students try to put a stop to it when a student is being bullied at school?"	5 options, ranging from "almost never" to "almost always"	Scores range from 1-5, with higher scores indicating greater student interventions to stop bullying.	Olweus (2007)	n/a
Joining in bullying a student you don't like	1	"Do you think you could join in bullying a student whom you do not like?"	6 options, ranging from "Yes" to "definitely no"	Scores range from 1-6, with higher scores indicating likelihood of joining in bullying.	Olweus (2007)	n/a
Fear of being bullied	1	"How often are you afraid of being bullied?"	6 options, ranging from "never" to "very often"	Scores range from 1-6, with higher scores indicating greater fear of bullying.	Olweus (2007)	n/a
How much teacher has done to cut down on bullying	1	"Overall, how much do you think you class or homeroom teacher has done to cut down on bullying in your classroom in the past couple of months?"	5 options, ranging from "Little or nothing" to "much"	Scores range from 1-5, with higher scores indicating greater teacher actions to address bullying.	Olweus (2007)	n/a

Appendix D. Student Survey Models where Significance Varied by Gender

	Girls						Boys					
	Model Statistics		Group Means				Model Statistics		Group Means			
Measure	***F***	***Sig***	**Time**	**Control**	**OBPP**	**SWPBIS/OBPP**	***F***	***Sig***	**Time**	**Control**	**OBPP**	**SWPBIS/OBPP**
Student Involvement [c]	0.03	.970	Baseline	-	-	-	4.58	.010	Baseline	3.70	3.77	3.66
			Wave 2	-	-	-			Wave 2	3.63	3.70	3.55
			Wave 3	-	-	-			Wave 3	3.62	3.72	3.65
			Wave 4	-	-	-			Wave 4	3.65	3.62	3.66
Teacher Praise [a,b]	8.11	<.001	Baseline	3.37	3.42	3.41	2.45	.079	Baseline	-	-	-
			Wave 2	3.39	3.36	3.38			Wave 2	-	-	-
			Wave 3	3.37	3.30	3.38			Wave 3	-	-	-
			Wave 4	3.51	3.36	3.33			Wave 4	-	-	-
School Rule Awareness [a]	3.57	.028	Baseline	3.98	4.13	4.05	2.7	.067	Baseline	-	-	-
			Wave 2	4.07	4.11	4.05			Wave 2	-	-	-
			Wave 3	3.99	4.11	4.15			Wave 3	-	-	-
			Wave 4	4.07	4.12	4.07			Wave 4	-	-	-
School Climate [a,b]	6.00	.003	Baseline	3.16	3.31	3.21	0.17	.840	Baseline	-	-	-
			Wave 2	3.21	3.27	3.12			Wave 2	-	-	-
			Wave 3	3.23	3.28	3.12			Wave 3	-	-	-
			Wave 4	3.43	3.39	3.26			Wave 4	-	-	-
Adult Involvement at School [a,b]	8.41	<.001	Baseline	3.73	3.88	3.81	0.79	.450	Baseline	-	-	-
			Wave 2	3.78	3.89	3.79			Wave 2	-	-	-
			Wave 3	3.77	3.89	3.80			Wave 3	-	-	-
			Wave 4	3.96	3.91	3.82			Wave 4	-	-	-
Teacher Intervention in Bullying [a,c]	1.82	.163	Baseline	-	-	-	5.03	.007	Baseline	2.90	3.40	3.02
			Wave 2	-	-	-			Wave 2	2.96	3.34	3.16
			Wave 3	-	-	-			Wave 3	3.07	3.39	3.37
			Wave 4	-	-	-			Wave 4	3.06	3.38	3.26

This resource was prepared by the author(s) using Federal funds provided by the U.S. Department of Justice. Opinions or points of view expressed are those of the author(s) and do not necessarily reflect the official position or policies of the U.S. Department of Justice.

	Girls						Boys					
	Model Statistics		Group Means				Model Statistics		Group Means			
Measure	***F***	***Sig***	**Time**	**Control**	**OBPP**	**SWPBIS/OBPP**	***F***	***Sig***	**Time**	**Control**	**OBPP**	**SWPBIS/OBPP**
Teacher Cutting Down on Bullying [a,b]	5.10	.006	Baseline	2.67	2.93	2.86	1.36	.256	Baseline	-	-	-
			Wave 2	2.88	3.12	3.07			Wave 2	-	-	-
			Wave 3	2.78	3.08	2.93			Wave 3	-	-	-
			Wave 4	3.05	3.03	2.82			Wave 4	-	-	-

Notes: Group means are included only when the differences are statistically significant.

[a]Significant difference between the OBPP-only and Control groups

[b]Significant difference between the SWPBIS/OBPP and Control groups

[c]Significant difference between the OBPP-only and SWPBIS/OBPP groups