Effects of School-Wide Positive Behavioral Interventions and Supports and Fidelity of Implementation on Problem Behavior in High Schools

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High school is an important time in the educational career of students. It is also a time when adolescents face many behavioral, academic, and social-emotional challenges. Current statistics about the behavioral, academic, and social-emotional challenges faced by adolescents, and the impact on society through incarceration and dropout, have prompted high schools to direct their attention toward keeping students engaged and reducing high-risk behavioral challenges. The purpose of the study was to examine the effects of School-Wide Positive Behavioral Interventions and Supports (SW-PBIS) on the levels of individual student problem behaviors during a 3-year effectiveness trial without random assignment to condition. Participants were 36,653 students in 12 high schools. Eight schools implemented SW-PBIS, and four schools served as comparison schools. Results of a multilevel latent growth model showed statistically significant decreases in student office discipline referrals in SW-PBIS schools, with increases in comparison schools, when controlling for enrollment and percent of students receiving free or reduced price meals. In addition, as fidelity of implementation increased, office discipline referrals significantly decreased. Results are discussed in terms of effectiveness of a SW-PBIS approach in high schools and considerations to enhance fidelity of implementation.

Keywords: positive behavior support, high schools, school-wide intervention

High schools are the final educational stop before young adults enter the workforce or postsecondary institutions. There are many behavioral, academic, and social-emotional challenges faced by adolescents during these years. According to a survey conducted by the Centers for Disease Control and Prevention (2011), over 32% of adolescents reported that they had been in a physical fight, 20% had been bullied at school and over 7% had attempted suicide.

In addition to these high-risk behaviors among many adolescents, keeping students in high school is an additional problem. Recently reported National Center on Educational Statistics (NCES) data about event dropout rates (i.e., high school students who dropped out of school in a particular academic year), are promising as a lower percentage of enrolled high school students dropped out during the 2009 academic year (3.4%) compared with 1972 (6.1%; Chapman, Laird, & KewalRamani, 2010). Status dropout rates, defined as individuals between the ages of 16–24 without a high school diploma not currently or ever enrolled in high
school, were also reported. In 2008, three million individuals met the criterion for “status dropout” in the United States (Chapman et al., 2010).

Keeping students engaged in high school and avoiding dropout is more important than ever, given increased focus on technological and professional positions and the necessity of education for gainful employment. One key contributor to school disengagement by high school students is the likelihood that when behavioral challenges occur, high school personnel are more likely to handle problematic behaviors through punitive disciplinary measures (Fenning et al., 2012). Suspension and expulsion are the most commonly used in high schools, despite the fact that they are predictive of reduced school connectedness, increased dropout, and entry to the juvenile justice system. Instead of relying on exclusionary responses that are linked to poor outcomes for students, high schools need discipline practices that improve long-term student outcomes for students requiring behavior support (Centers for Disease Control & Prevention, 2011; Losen & Skiba, 2010).

To decrease problem behaviors and school exclusionary practices, it has been recommended that schools focus on an approach that is prevention-oriented in nature (Fenning et al., 2012). One such approach is School-Wide Positive Behavioral Interventions and Supports (SW-PBIS), which is a multitiered system of support, aligned with response to intervention, in which the school focuses on developing a predictable, efficient, and effective school climate; students are taught expected behaviors and provided support for success on a prevention-oriented basis; and data are used to evaluate outcomes and make decisions regarding student needs and school practices (Centers for Disease Control & Prevention, 2011; Losen & Skiba, 2010). Successful implementation of any innovation requires attention to the context where it is being implemented (Fixsen, Naoom, Blase, Friedman, & Wallace, 2005). Although high schools differ from each other, there are some common contextual variables that should be considered when implementing in any high school. SW-PBIS may be more difficult to implement in high schools because of these unique
conditions. For example, high school staff may believe that high school students should already have learned socially appropriate behaviors. Therefore, high school personnel may perceive less of a need to explicitly teach behaviors to their students. However, the direct teaching of expected behaviors may be a necessary element of effective SW-PBIS implementation in high schools as in other settings. Morrissey, Bohanon, and Fenning (2010) provided a case study focused on the processes and outcomes of an urban school that taught and acknowledged behavioral expectations as part of their SW-PBIS effort. The findings from this case study indicated that the overall rate of ODRs decreased after the addition of the systematic teaching and acknowledging of appropriate behaviors during the implementation of SW-PBIS.

In addition, structural variables specific to high schools may present barriers to SW-PBIS implementation. For example, the sheer size of high schools, the number of administrators and faculty compared with elementary and middle school settings, the organization of the faculty into departments, the content focus that high school teachers may bring to the table (e.g., English, Science) and the developmental stage of adolescents are some of the high school contextual variables that may make implementation of system level behavior supports such as SW-PBIS challenging (Bohanon, Flannery, Malloy, & Fenning, 2009).

The contextual variables of high schools need to be considered throughout professional development and implementation of practices. Flannery, Frank, Doren, Kato, and Fenning (2013) examined the implementation of universal SW-PBIS components in eight of the same high schools included in the current study, which in total served over 15,525 students across a 3-year time period. In this study, technical assistance was provided to the high schools, with a focus on supporting the school teams in implementing standard SW-PBIS components intended for all school environments, as well as specific attention to the common high school contextual variables that might be unique to high schools and, therefore, impact implementation. SW-PBIS implementation components, as measured by the School-Wide Evaluation Tool (SET; Sugai, Lewis-Palmer, Todd, & Horner, 2001), indicated positive growth in SW-PBIS implementation as measured over time, but statistically significant gains in SW-PBIS components did not occur until the second year of implementation.

In summary, the evidence base for SW-PBIS in high schools is still in the early stages. Attention to the high school context within the SW-PBIS framework supports the potential for positive outcomes among students in high schools that implement SW-PBIS. The purpose of the current study was to examine the effects of SW-PBIS on the levels of individual student problem behaviors during a 3-year effectiveness trial without random assignment to condition. A secondary research question was the extent to which the level of fidelity of implementation of SW-PBIS produced changes in problem behavior.

**Method**

**Settings and Participants**

The sample included 36,653 students in 12 high schools, with half of the schools in one state in the U.S. Pacific Northwest and half in one state in the U.S. Midwest. The schools ranged in enrollment from 751 to 2,942 students, with an average student enrollment of 1,770 ($SD = 673.72$). The average percentage of students receiving free or reduced-price lunch (FRL) was 27% (range 7%–43%; $SD = 15%$). The percentage of minority students across all sites ranged from 13% to 52% ($M = 30.65%$; $SD = 13.89%$). The average high school event dropout rate was 1.84 (range .7–4.4; $SD = 1.12$). Ten school districts were represented in this study, with one district having three schools in the study. Of the schools reporting the number of full-time classroom teachers in National Center of Educational Statistics database (NCES; http://nces.ed.gov/ccd/schoolsearch), the average was 138.11 ($n = 9$; range 38–238; $SD = 70.89$). See Table 1 for descriptive statistics for intervention and comparison schools during the baseline year, as well as school-level referrals throughout the study. To assess any differences between the groups at baseline, Mann–Whitney $U$ tests (nonparametric tests, due to the small number of schools) were conducted, and no statistically significant differences were found, including school-level ODR rates ($p = .37$).
Measures

Problem behavior. The number of ODRs received by each student per year was used to measure levels of individual student problem behavior. All ODR data were collected by each school’s staff and entered into their school’s database. Researchers obtained the data from the school after each school year. Although the validity of ODRs as a direct measure of complex student behavior has been debated (Kern & Manz, 2004; Nelson, Gonzales, Epstein, & Benner, 2003; Rusby, Taylor, & Foster, 2007), when collected in a standardized manner, ODRs are considered to be valid indicators of the rates of problem behavior, delinquency, punitive discipline procedures, and perceived school safety (Irvin, Tobin, Sprague, Sugai, & Vincent, 2004; Morrison, Peterson, O’Farrell, & Redding, 2004). Individual counts of ODRs have been shown to correlate strongly with standardized behavior rating scales and outcomes of screening measures for behavior disorders (McIntosh, Campbell, Carter, & Zumbo, 2009; Walker, Cheney, Stage, & Blum, 2005).

Fidelity of implementation. Fidelity of implementation of SW-PBIS was assessed using the School-Wide Evaluation Tool (SET; Sugai et al., 2001). The SET is an external evaluation tool that measures the implementation of SW-PBIS and results in a score of the percentage of critical features that are implemented to criterion. The SET consists of 28 items (scored on a 3-point scale with 0 = not implemented, 1 = partial implementation, and 2 = full implementation) that are distributed into seven subscales measuring whether schools have implemented the essential features of SW-PBIS: (a) defined behavioral expectations, (b) taught behavioral expectations, (c) established ongoing system for rewarding behavioral expectations, (d) achieved consensus on system for responding to behavioral violations, (e) engaged in ongoing behavioral monitoring and decision making, (f) maintained effective management practices, and (g) secured district-level support for ongoing implementation. Each implementation rating is criterion referenced with regard to the specific practice in question. For a more in-depth description of the SET, please see Horner et al. (2004).

The SET administration includes a school visit, brief interviews with administration, school staff and students, records reviews, and observations. Studies of its psychometric properties show excellent internal consistency ($\alpha = .96$), interrater (99%), and test-retest (.97) reliability, moderate to strong concurrent validity with other measures of SW-PBIS fidelity of implementation ($r = .75$), and sensitivity to SW-PBIS training (Horner et al., 2004). The interrater agreement was performed on 76% of the SET administrations during this study and the reliability was 88.93% ($SD = 7.5\%$). The SET was administered in each year of the study (Year 1 [baseline], Year 2, and Year 3) in both the implementation and comparator sites.

Table 1
Sample Descriptive Statistics (Baseline Year)

<table>
<thead>
<tr>
<th></th>
<th>Mean (SD)</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Intervention schools</td>
</tr>
<tr>
<td></td>
<td>($n = 8$)</td>
</tr>
<tr>
<td>Enrollment</td>
<td>1886.50 (771.69)</td>
</tr>
<tr>
<td>Percent non-White students</td>
<td>32% (15)</td>
</tr>
<tr>
<td>Percent free/reduced meals</td>
<td>34% (14)</td>
</tr>
<tr>
<td>Academic achievement (% meeting or exceeding standards)</td>
<td>65% (4)</td>
</tr>
<tr>
<td>School-wide evaluation tool baseline score</td>
<td>47% (25)</td>
</tr>
<tr>
<td>Dropout rate</td>
<td>2.24 (1.17)</td>
</tr>
<tr>
<td>Full time classroom teachers</td>
<td>110 (53.02)</td>
</tr>
<tr>
<td>ODRs (school-level rate per 100 students per day): Year 1 (baseline)</td>
<td>1.72 (1.82)</td>
</tr>
<tr>
<td>ODRs (school-level rate per 100 students per day): Year 2</td>
<td>1.87 (2.31)</td>
</tr>
<tr>
<td>ODRs (school-level rate per 100 students per day): Year 3</td>
<td>1.02 (0.48)</td>
</tr>
</tbody>
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Procedure

This study had three primary steps: (a) recruitment of six sites from two states (four implementation sites and two comparator sites); (b) structured professional development in Year 1 (before implementation with students) and training each subsequent year with universal SW-PBIS content specifically tailored for high schools; and (c) delivery of monthly technical assistance by project staff based on the school’s action plan. Each of these steps is described below.

Recruitment. After institutional research board approval at the two partner universities, the project used a multistep process for selecting the implementation and comparator schools (see Figure 1). First, the research project lead investigator from each state contacted the SW-PBIS coordinators within their state, explained the expectations of the project and obtained recommendations of high schools that they thought would be interested in participating and had the following components in place: (a) an administrative interest in implementing SW-PBIS in their high schools, (b) a team of individuals to support implementation of SW-PBIS, and (c) a coach or school psychologist trained in multilayered supports available to support the team. Second, National Center on Educational Statistics (NCES) demographic data were gathered about each of the nominated high schools that were within a 2-hr driving time from the respective universities. Data from NCES included enrollment, number of teachers, percentage of FRL, ethnicity, school type, and locale. Schools were removed as potential sites if they (a) enrolled fewer than 500 students, (b) were not a building serving students in Grades 9–12.

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**Figure 1.** Implementation process.
and/or (c) the locale was “rural.” This process resulted in 18 potential schools in the two states. Third, a member of the research team contacted potential site administrators to determine the level of interest in meeting about participating in the project. Upon contact, two schools elected not to participate: one school saw no need for SW-PBIS as they didn’t see behavior as a concern, and the second school was already involved in a SW-PBIS initiative with another group. For the schools expressing interest in participation, a meeting was held with each building administrator and often a district administrator, coach, or the school psychologist. At this meeting, the project was described, and the district personnel shared information about current work related to SW-PBIS and any current initiatives that might interfere with focusing on SW-PBIS as an initiative. Principals were asked to provide basic information about their school related to the implementation of multiliter systems (e.g., the structure and meetings of the universal team, the administrative support for the effort, presence of building or district coach). Two schools withdrew at this point: one did not have a coach who could provide support and the other was already partnering with another group on SW-PBIS.

From the pool of 14 remaining schools, the cross-university team identified 12 schools that met the following criteria from the Implementation Site Selection Scoring Guide: (a) a team exists that is representative, has a designated leader, and focuses on school-wide behavior and/or academics; (b) administrator philosophically supports SW-PBIS principles, attends team meetings and/or is accessible to the team facilitator; and (c) universal data are gathered in at least one area and available for review by the team.

Considerations in assignment of schools to treatment or comparison conditions were: (a) proportionate distribution of schools in each condition across states (e.g., equal number of treatment schools in each state); and (b) school characteristics such as FRL, minority, and enrollment across all schools. As there were only two comparators per state, there was not a 1:1 match, but comparator schools were selected that had similar demographics (e.g., size, proportion of student body by race/ethnicity) to the selected implementation sites. After consents and memoranda of understanding were received from the districts, a SET was conducted in each school, and project staff worked to collect initial school (e.g., days per year, enrollment) and student data (e.g., ODRs, Achievement, Attendance) from the previous year. The extant data collection process took several months for the district to prepare and share with researchers and, therefore, data were not available for assignment decisions.

Training. The Leadership Team from each of the implementation sites received approximately 16 hr of initial training. Training content was organized in modules and specifically oriented toward implementation of SW-PBIS in the high schools with the use of high school examples, strategies to remove potential high school specific barriers, and exploration of unique aspects of the high school context. In particular, the training highlighted the system variables that may impact implementation in a high school, such as school size (e.g., staff, students, amount of data), structure and organization (e.g., departmentalization, typical use of meetings, administrative team, distribution of data systems across multiple individuals), and developmental level of students (e.g., desire to be autonomous, value on being part of decision making, continued need for teaching of appropriate behaviors). The team training included content on: Impact of the High School Context on Features of SW-PBIS; Strategies to Support Buy-In; Development of Infrastructure: Leadership Team, Communication, and Decision Making; Using Data for Decision Making: Developing and Teaching Expectations; Developing Acknowledgment and Consequence Systems. At least 50% of the team members from each school participated in the training and in the majority of instances, an administrator was also present. Each team then developed training for their overall faculty based on the areas the team identified as priorities in their buildings.

During subsequent years, an additional 18 hr of team training was provided. This training focused on specific areas of interest identified by the teams as important and included sharing of strategies by each of the teams. The content of these sessions focused on a range of topics deemed important by the school teams and administrators, such as accessing and using existing high school data systems for formative decision making, developing consequence systems that address student function, meaningfully involv-
ing students in implementation, establishing buy-in from staff, fostering healthy teaming, and planning for sustainability. Cross site forums were held involving all implementation high schools sharing resources and engaging in problem solving around challenges of SW-PBIS implementation and finding creative strategies to address barriers in a positive manner.

Technical assistance. Each site was assigned a staff from the university project team to provide technical assistance (e.g., coaching, modeling, training, referral to resources) to the universal (school-based) team and internal facilitator/leader throughout implementation. The technical assistance person worked with the school teams to establish an annual action plan. To assist in the development of the action plans, sites utilized variety of data including fidelity data (e.g., SET) and extant student-level data. The action plan was based on the priorities of each site and guided the type of external technical assistance provided. The action plan was reviewed and updated each quarter by the team facilitator and the external technical assistance person assigned to that school. Though the areas of focus differed across sites due to the individualized needs of each setting, typical items included on the action plan were tasks related to the development of clearer norms and procedures for the team, how to involve students in SW-PBIS development and implementation, communication strategies for both staff and students, review and clarification of current practices related to student expectations and consequences for inappropriate behavior, school-level disciplinary data and patterns in the most common types of disciplinary problems, and development of acknowledgment systems for staff and students.

The external technical assistance provider met about once per month with the SW-PBIS leadership team at each site and from this meeting the amount and type (e.g., phone, face to face) of technical assistance needed was determined. The amount of technical assistance to the facilitator of the team and the full team ranged from 20 to 65.5 hr ($M = 33.84; SD = 16.46$) per year. The assistance was provided by project staff through a variety of mechanisms, such as attending team meetings, phone calls or e-mails to the internal high school team facilitator, attending school-wide events, the delivery of a cross-site forum, and providing examples or resources from other schools. Table 2 provides information about the types of actions the teams focused on during the implementation period.

Design and Data Analysis

The study was a prepost intervention-comparison cluster trial, with three waves of measurement (Year 1 [baseline], Year 2, and Year 3). A cohort-sequential design was used, in which all students were included in analyses at each year and maximum likelihood estimation was used to account for the planned missing ODR data. Because grade cohort was not a statistically significant predictor of the outcome, it was not included in final models (Hox, 2010). Two similar analyses were conducted. To assess the effects of SW-PBIS condition (i.e., intervention vs. comparison) on problem behavior, the analysis was a multilevel latent growth model, with intervention condition predicting baseline scores (level) and change over time (slope) in individual student ODRs. Because ODRs are a count variable with a negative skew (i.e., many students had 0 ODRs each year), Poisson regression was used. Standard errors were adjusted to account for the nested data structure (i.e., students within schools, with intervention at the school level). In addition, school-level enrollment and the percent of students receiving FRL were added as covariates, centered at the grand mean, to control for the effects of these variables on both ODRs and fidelity of implementation (Domitrovich et al., 2008). To assess the effects of fidelity of implementation, SET scores during each year were substituted as time-varying covariates in place of condition. All analyses were conducted using Mplus 6.11 (Muthén & Muthén, 1998–2010).

Due to a corrupted school ODR data spreadsheet, ODR data were missing for one comparison school in 1 year. These missing data represented 1.4% of the dependent variables. Missing data were handled using the maximum likelihood estimator in Mplus because it produces less biased parameters than listwise or casewise deletion (Baraldi & Enders, 2010).

Results

Figure 2 shows the school-level rates of ODRs per 100 students per day for intervention and comparison schools for each year of the
study. As seen, the mean rate was considerably higher for intervention schools at Year 1 (baseline), but the mean rate was reduced to that of comparison schools in Year 3. In terms of effect sizes (Cohen’s $d$; Cohen, 1988), there was a medium difference at baseline ($d = 0.57$), which decreased to a negligible difference at Year 3 ($d = 0.03$). Figure 3 shows the model assessing the effects of SW-PBIS on problem behavior. After controlling for FRL and enrollment, there was a statistically significant association between SW-PBIS and level (i.e., inter-
cept) of problem behavior ($b = 1.34$, $p < .001$), indicating statistically significantly higher levels of problem behavior (individual student counts of ODRs, as opposed to the school levels of ODRs presented in Table 1) in the implementation schools, particularly at baseline. However, there was a statistically significant effect of SW-PBIS on slope (i.e., change) for problem behavior ($b = -0.61$, $p < .001$), showing that student problem behavior in the implementation schools significantly decreased over time.

It was also of interest to assess the relation between SW-PBIS fidelity of implementation and change in problem behavior. Figure 4 shows the model assessing the effects of implementation fidelity on problem behavior. After controlling for FRL and enrollment, there was no statistically significant effect of baseline fidelity of implementation on baseline problem behavior ($b = 1.29$, $p = .52$). However, there was a statistically significant effect of implementation fidelity on problem behavior in Year...
2 (b = -3.05, p = .03) and Year 3 (b = -3.18, p < .01), showing that as SET scores increased, individual student problem behavior decreased.

Discussion

This study examined the effects of implementing SW-PBIS on levels of individual student problem behavior in high schools. Results of a multilevel latent growth model showed that although rates of problem behavior were higher in intervention schools during the baseline year, there was a statistically significant decrease in problem behavior for students in schools implementing SW-PBIS over the course of the study, whereas there was a steady increase in problem behavior in comparison schools. Follow-up analyses examining the effect of SW-PBIS implementation fidelity showed a statistically significant inverse relation between strength of SW-PBIS implementation fidelity and student problem behavior. These analyses show that not only did SW-PBIS significantly reduce problem behavior for students in high schools, but the degree of reduction was significantly related to the degree to which the critical features of SW-PBIS, as measured by the SET, were delivered. Although this study was not experimental in nature, it is one of the first known studies to include comparator schools in the evaluation of the effects of SW-PBIS at the high school level. These findings are somewhat limited, as the rate of baseline ODRs were considerably at the outset of the study. Yet the finding of decreased ODRs over time in the implementation high schools and a concomitant increase in ODRs within the comparison schools is noteworthy. As seen in our implementation schools, initial baseline rates of behavior may be expected to spike once school teams focus on their data and systematically attend to observing, recording, and organizing behavioral infractions in the building. Technical assistance efforts employed throughout the study included assisting the implementation high schools with systematically defining, organizing, and displaying ODRs in a way that was useful for system-level universal decision making by the team (e.g., action planning, setting behavioral priorities in their building, evaluating the results of their behavior practices).

Data systems in high schools have historically been established for required state reporting functions rather than serving a formative assessment function to assist with universal sys-
tem level efforts, such as SW-PBIS. For example, teams were often challenged by not having regular access to data that could be manipulated in a user-friendly way. Unlike academic efforts, in which curriculum-based measurement tools are readily available as formative assessment measures (Shinn, 2013), the access to user-friendly school-wide behavioral databases for decision making was a barrier for teams from the outset of the study. High school teams required a great deal of assistance to organize their data and strategies that allowed them to analyze and summarize the variety of data high schools are required to collect (e.g., attendance, tardy, truancy data, credit accrual). Future work with high schools should address how to support high school systems with establishing behavioral databases supportive of universal behavioral supports.

ODRs have a number of weaknesses, such as a focus on externalized records of behavior (Morrison, Furlong, & Morrison, 1994), but they are collected in virtually every high school and are useful in assessing the school climate and behavioral needs of the building. The reductions of ODRs in this study, though not experimentally tied to SW-PBIS, are an important metric because discipline referrals to the office are associated with other unwanted outcomes, such as school dropout and entry to the juvenile justice system (Losen & Skiba, 2010; Wald & Losen, 2003). More work is certainly needed to document the impact of SW-PBIS using a broader array of data that is feasible in a user-friendly way. Unlike academic efforts, teams were often challenged by not having regular access to data that could be manipulated in a user-friendly way.

Another important finding was that fidelity of SW-PBIS implementation, as based on the SET findings, mattered in terms of desired outcomes for students, specifically through reductions in ODR rates. Schools that had higher SET scores experienced greater reductions in ODRs than schools with weaker implementation, suggesting that high schools that more closely align with SW-PBIS components have better outcomes. Therefore, working with high schools in adhering to the major SW-PBIS systems, data, and practices might pay dividends in terms of student outcomes. Focusing on system-level and foundational practices, such as achieving large-scale staff and student buy-in, sustaining administrative support, facilitating healthy teaming, aligning SW-PBIS with other multitiered systems of supports/initiatives, and establishing system-level data practices were critical steps prior to the implementation of practices. Given that system-level and foundational factors take time, we found that encouraging school teams to celebrate their structural planning efforts was very important. School teams needed to feel that they were “making progress” in system-level structures, which is hard work in the absence of any implementation efforts and actual outcomes with students. Achieving adequate fidelity of implementation is often challenging, particularly when taking the necessary time to establish a solid foundation of buy-in, data systems, and teaming and then applying system-level supports within high schools that, by their very nature, have a number of challenging contextual variables described earlier (Bohanon et al., 2006; Bohanon et al., 2009).

The unique characteristics of high schools were attended to during formal professional development efforts and throughout ongoing technical assistance. Although adhering to the standard components such as the direct teaching and acknowledging of behavior is important to achieving implementation fidelity of SW-PBIS at any level, high schools required a somewhat different focus or format compared with elementary and middle schools. For example, the developmental age of the students was addressed through schools identifying meaningful strategies for involving them. For example, some schools included students in the production of videos that were used as teaching tools rather than relying only on more traditionally delivered teacher-led lesson plans, which is common among implementation of SW-PBIS in lower grades. It was also important to consider the developmental level of adolescents when considering ways to acknowledge them. For example, publicly announcing students’ names on a loud speaker for appropriate behavior may not be rewarding to most high school students. Finding other ways to acknowledge students and staff, such as close parking spaces, prom tickets, restaurant gift cards, passes to the front of the lunch line, and so forth were more highly regarded by students in the participating high schools. For more examples on practical high school strategies see the monograph developed by the SW-PBIS Technical Assistance Center.
The current findings suggest that adapting standard practices and systems to the high school context is important to achieve fidelity of implementation and sustain it over time. This study documents positive findings for high schools similar to randomized controlled trials for SW-PBIS at the elementary level (Horner et al., 2010). The implementation efforts in the current study integrated professional development and technical assistance common to “standard” implementation of SW-PBIS with the understanding of the impact that high school culture and structural variables may have on the implementation of initiatives.

The structural variables found in high schools may account for the longer time needed before reductions in ODRs were realized, as has been articulated in case study research with similar populations (Bohanon et al., 2006). In the first year of this study, ODRs were actually higher in the implementation schools in relation to the comparison schools and then decreased markedly over time. Given the larger size of high schools, the needed buy-in and support of many more faculty, administrators, students, and community members in high schools relative to other educational environments, it might be the case that these structural features contribute to the necessity of longer implementation before positive student level results are seen. As has been articulated, school psychologists and other consultants who provide technical assistance to high schools should plan for ways to support teams in the foundational period in which important structures are established, including the following: (a) developing effective teaming structures, (b) finding strategies to work with high school staff members who might not believe that behaviors need to be taught to high school students, (c) aligning and integrating SW-PBIS practices with other initiatives, and (d) establishing and systematizing formative data collection systems that utilize ODRs and other relevant sources of data, such as credits accrued, attendance, tardy and truancy data.

Limitations

A number of important limitations may have led to the obtained results. First, the small number of schools in the study limited the variance at the school level. Although the large number of students in the sample led to adequate statistical power, results of future studies with more schools could be interpreted with more confidence. Second, the assignment of schools to condition was not random, although there were efforts to select similar intervention and comparison schools. Because assignment was not random, causal attributions cannot be made. Third, most schools in the study, including comparison schools, were implementing at least some critical features of SW-PBIS during the baseline year. As mentioned earlier, another limitation was the omission of ODRs as a selection criterion during the school recruitment process. It is recommended that researchers collect ODR rates as part of the site selection process. Using these data in assignment to condition may result in a stronger test of the intervention and more generalizable outcomes. Given the reality of the need for technical assistance in organizing data that can be readily accessed and meaningfully used by school teams to make decisions, this component could be considered a required step for “readiness” of SW-PBIS implementation at the high school level. Finally, it should be noted that the use of ODRs to measure student problem behavior may be less precise and prone to lower reliability than more objective measures (such as direct observation), potentially because of individual variations in their use among school personnel, varying tolerance levels for minor problem behaviors, or bias. In addition, ODRs are limited to external records of behavior and a number of system variables and do not capture more internalizing and more subtle types of behavior (McIntosh et al., 2009; Morrison et al., 1994).

Future Research

Future research should investigate the effects of SW-PBIS with more high schools and for longer periods of time than 2 years of intervention. It is possible that effects from SW-PBIS training may take longer to have an effect than in elementary schools. Full implementation of SW-PBIS is known to take a number of years. This period of implementation is commonly 3 to 4 years in elementary and middle schools (Sugai, Horner, & McIntosh, 2008), but it has been estimated to be closer to 5 to 8 years in high schools (Bohanon et al., 2006; Flannery, Sugai, & Anderson, 2009). Another important component that needs to be examined is...
whether SW-PBIS in high schools impacts ethnic disproportionality in discipline, which has been well-documented over many years, particularly for African American males, as well as other variables associated with exclusionary discipline, such as school dropout and entry to the juvenile justice system among ethnic minority youth (Skiba et al., 2011; Wald & Losen, 2003). In addition, future studies can examine the effects of SW-PBIS on other outcomes in high schools, such as academic achievement, credit accrual, and graduation rates.

References


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