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Factors Influencing Staff Perceptions of Administrator Support for Tier 2 and 3 Interventions: A Multilevel Perspective

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Abstract

Although the number of schools implementing School-Wide Positive Behavioral Interventions and Supports (SWPBIS) is increasing, and there is great demand for evidence-based Tier 2 and 3 interventions for students requiring additional support, little systematic research has examined administrator support for such programming. This article examines staff- and school-level factors associated with staff members' perception of administrator support for SWPBIS and the implementation of Tier 2 and 3 interventions. Using data from 2,717 staff members in 45 elementary schools implementing SWPBIS, multilevel analyses were conducted. Results indicated that the schools' organizational health played an important role in staff members' perceptions of administrator support for SWPBIS and Tier 2 and 3 interventions, whereas the implementation quality of these interventions did not. Furthermore, perceived administrator support for Tier 2 and 3 interventions varied as a function of the staff members' role in the school. Implications for practice and future research are discussed.

Keywords

School-Wide Positive Behavioral Interventions and Supports (SWPBIS), Tier 2 interventions, Tier 3 interventions, organizational factors, evidence-based programs, principal support

School-Wide Positive Behavioral Interventions and Supports (SWPBIS) is a universal model for promoting safe and orderly schools that has gained national attention and is being widely disseminated. This noncurricular prevention strategy aims to alter the school environment by creating improved systems (e.g., discipline, reinforcement, and data management) and procedures (e.g., office referral, reinforcement, training, leadership) to promote positive changes in staff and student behavior. The model applies behavioral, social learning, and organizational behavioral principles (Lewis & Sugai, 1999; Lindsley, 1992) that traditionally have been used with individual students across all school contexts (Durand & Carr, 1992; Meyer & Evans, 1989). Through training in SWPBIS, schools establish schoolwide positive expectations for students and staff, systems for responding to behavioral violations, a leadership team that monitors and manages student discipline problems, and a tiered framework for providing a continuum of positive behavior supports to students in need of more intensive interventions (Sugai & Horner, 2006).

Results from a randomized trial using a waitlist design indicate that SWPBIS was associated with improvements in elementary school students' perceptions of safety at school and an increase in third grade reading performance (Horner et al., 2009). Furthermore, a 5-year longitudinal randomized controlled trial in 37 elementary schools indicated that SWPBIS was associated with significant reductions in suspensions and office referrals (Bradshaw, Mitchell, & Leaf, 2010) and bullying and peer rejection (Waasdorp, Bradshaw, & Leaf, 2011), as well as improvements in staff members' perceptions of the schools' organizational health (Bradshaw, Koth, Bevans, Ialongo, & Leaf, 2008; Bradshaw, Koth, Thornton, & Leaf, 2009). Consistent with the tiered public health model (O'Connell, Boat, & Warner, 2009), it is expected that, in schools implementing high fidelity universal SWPBIS, approximately 20% of students will need additional targeted or intensive positive behavior supports in order to be successful (Walker et al., 1996). However, little is known about factors that may influence administrator support for SWPBIS and for the implementation of the more intensive supports for children not responding adequately to the universal SWPBIS model.

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Motivated by prior research highlighting the importance of administrator support in the coordination and implementation of quality school-based programs (e.g., active participation in program implementation, allocation of resources for program implementation, and acknowledgement of programs' importance to mission of school; Kam, Greenberg, & Walls, 2003), the current article examines factors at multiple levels within a school that are associated with staff members' perceptions of administrator support for the implementation of targeted and intensive positive behavior supports. Applying a multilevel perspective, we aimed to identify teacher and school contextual factors associated with perceptions of administrator support for the continuum of positive behavior supports. Such work may also elucidate potential targets for optimizing implementation quality (Domitrovich et al., 2008), thereby better addressing the needs of students with emotional and behavioral difficulties or disorders.

The Three-Tiered PBIS Model

Upon implementation of a sound infrastructure for primary supports, schools are often eager to establish targeted systems of support for students displaying more intense needs. These students typically account for approximately 10% to 15% of the student body and may need more targeted systems of support to address their behavioral or academic concerns (Walker et al., 1996). Schools often use various interventions and programs to reach this targeted population of students. Referred to as "Tier 2," these interventions may include a small group of students, identified by a teacher, who need more support developing a particular skill (e.g., social skills) or meeting a specific behavioral goal (e.g., less disruptive behavior in class); they often involve the use of short-term behavioral charts (e.g., Check In/Check Out), social skills groups, and academic interventions (Debnam, Pas, & Bradshaw, 2010). Another segment of the student body—approximately 5%, who potentially have diagnosable behavioral or emotional disorders—will likely require more intensive, individualized interventions to be successful (Sugai, Horner, & Gresham, 2002). These "Tier 3" supports typically include more individually focused interventions, like function-based behavior plans, individual counseling sessions, and wraparound services to meet students' specific needs (Hawken, Vincent, & Schumann, 2008).

The level of targeted or intensive support needed for each student is determined through ongoing assessment and monitoring by school staff (Hawken et al., 2008). Schools often use problem-solving teams to identify students who are struggling behaviorally or academically (Crone & Horner, 2003). These teams typically select existing interventions that can meet each student's needs. There are several factors that contribute to the success of this process, such as adequate resources, effective interventions, continuous monitoring, and support or encouragement from the administration (Crockett & Gillespie, 2007). Of particular interest is the impact of administrator support, as there is a growing body of research highlighting its impact on fidelity to school-based prevention programs (Domitrovich et al., 2008).

Administrator Support

Administrators are the instructional leaders within the school and establish the goals and climate for the school. Supportive school administrators allocate resources and ensure that staff members have sufficient time and training to provide the necessary support for their students. In fact, a core component of SWPBIS is an administrator who is an active member of the SWPBIS team. Administrators have the capacity to provide motivation, direction, and organization to support high-quality implementation. Not surprisingly, administrator support is critical to staff feeling supported in program implementation (Rohrbach, Graham, & Hansen, 1993). For example, a study of a universal social-emotional learning curriculum (i.e., Promoting Alternative Thinking Strategies; PATHS) found that intervention effects were greatest when both staff perceptions of principal support and PATHS implementation were high (Kam et al., 2003). In contrast, when staff perceptions of principal support for PATHS were low, PATHS implementation quality did not translate into significant intervention effects for students. Similarly, a study of a substance abuse prevention program found that high-implementing teachers reported greater principal support for implementation of the program (Rohrbach et al., 1993). These findings, along with other studies (for a review, see Domitrovich et al., 2008), illustrate the potential impact of high levels of administrator support on the quality of implementation of universal school-based programs, like SWPBIS. Furthermore, the available research suggests that administrator support may be particularly important for more individually targeted and intensive Tier 2 and 3 interventions, given that these programs typically require additional staff training, time, and resources. In schools where there is low perceived administrator support for SWPBIS or Tier 2 and 3 supports, staff may be less motivated to engage in these activities or to make the extra effort and time required to implement the interventions.

Role of Teachers and Student Support Staff

There is also evidence to support the crucial role of teachers in implementing SWPBIS, as well as Tier 2 and 3 interventions. Indeed, teachers are often charged with delivering school-based programs and monitoring program effectiveness. Teachers' sustained presence in the classroom and close working relationship with students put them in the

critical role of making referrals to the problem-solving teams in the school and helping to select appropriate interventions to meet the student's specific concerns (Pas, Bradshaw, Hershfeldt, & Leaf, 2010). Referrals for and implementation of Tier 2 or 3 interventions may be particularly sensitive to administrator support among teachers, for if teachers do not perceive that the administration supports SWPBIS or the interventions, they may be less likely to implement the programs.

It is important to note, however, that some interventions are implemented by other support staff, such as the school psychologist, counselor, or social worker, and that prior research suggests that staff members' perceptions of support often vary by both their role in the school and other demographic characteristics (e.g., age, gender, ethnicity; Bevans, Bradshaw, Miech, & Leaf, 2007). Because of the different roles that general education teachers and other support staff (i.e., special educators, school psychologists) play in the process of identifying and implementing Tier 2 or 3 interventions, it is likely that their perceptions of the administrator's support differ (Bevans et al., 2007; Kruger & Struzziero, 1995). Therefore, additional research is needed to determine which staff characteristics influence perceptions of administrator support and the extent to which those perceptions are influenced by the school context.

School Contextual Factors

The findings summarized above highlight the importance of principal leadership as a factor influencing program implementation, but other school contextual factors also likely play a role (Beets et al., 2008; Domitrovich et al., 2008). For example, organizational health is an important aspect of school climate and has been shown to positively impact the implementation of SWPBIS (Bradshaw et al., 2009), whereas schools with high rates of disruption often struggle to implement prevention programs with high fidelity (Domitrovich et al., 2008; Gottfredson, Jones, & Gore, 2002). More specifically, in large schools with high student mobility rates and poor climate, staff may experience challenges implementing programs and perceive less administrator support for more intensive Tier 2 and 3 support services.

It is also likely that in schools implementing these programs with high fidelity, staff perceive greater administrator support. As noted above, a core component of SWPBIS is an administrator who is an active member of the PBIS team. Prior research indicates that implementation of SWPBIS is associated with a significant improvement in staff perceptions of the principals' support and leadership, including the way administrators interacted with staff and encouraged staff involvement in programming and decision making (Bradshaw et al., 2009). Staff also perceived that administrators' ability to influence or leverage resources to support the school increased as a result of quality SWPBIS implementation (Bradshaw et al., 2008). Therefore, it is likely that these more general improvements in administrative leadership resulting from quality implementation of SWPBIS (and possibly Tier 2 and 3 interventions) will be associated with more favorable perceptions of administrator support.

Overview of the Current Study

There is a growing literature focused on implementation science, much of which is interested in contextual influences and implementers' perceptions on program fidelity (Domitrovich et al., 2008; Rogers, 2002). Within a school context, there is compelling evidence that teachers' beliefs and attitudes about the importance of and support for programs are critical to high-quality implementation (Aarons, 2005; Domitrovich et al., 2008). Teachers' perceptions of administrator support for interventions are also likely associated with the success of these efforts (Kam et al., 2003). Having a better understanding of the influence of staff perceptions of administrator support for implementing universal, targeted, and intensive interventions could be useful in improving fidelity to the tiered PBIS model and, in turn, reduce the negative outcomes associated with students who have emotional and behavioral problems.

The primary aim of this study was to examine staff perceptions of administrator support for SWPBIS (Tier 1) and Tier 2 and 3 interventions in relation to fidelity of implementation of SWPBIS. We first examined the influence of staff-level characteristics, such as age and role, and school-level indicators of disruption (e.g., mobility) and school organizational health on percept of administrator support for SWPBIS. While we expected some variation in perceptions of principal support for SWPBIS based on staff characteristics (Bevans et al., 2007), we were primarily interested in the contextual influences. Based on prior research (Bradshaw et al., 2009), we hypothesized that fidelity of SWPBIS and school organizational health would be positively associated with perceived administrator support for SWPBIS.

Next, we investigated the influence of staff- and school-level factors on percept of administrator support for Tier 2 and 3 interventions. We hypothesized that school support staff would perceive greater administrator support for Tier 2 and 3 interventions, given that they are often closely involved in the selection and implementation of these interventions (Kruger & Struzziero, 1995). We also expected that school-level contextual factors (e.g., student enrollment, student mobility), which are commonly linked with school climate (Gottfredson, Gottfredson, Payne, & Gottfredson, 2005), would be negatively associated with administrator support for Tier 2 and 3 interventions, whereas organizational health and fidelity of SWPBIS and targeted interventions would be positively associated with administrator support for Tier 2 and 3 interventions. The

current study fills an important gap in the extant research by examining the association between school contextual factors and implementation fidelity. The information gained will help determine how to best support the work of school staff in their implementation of Tier 2 and 3 interventions and, in turn, better address the needs of students at risk for developing emotional or behavioral problems.

Method

Participants

Data for the present study come from 45 Maryland public elementary schools enrolled in a trial aimed at determining the impact of Tier 2 support services provided to schools implementing SWPBIS. All schools were previously trained and were actively implementing SWPBIS ($M = 2.9$ years, $SD = 1.72$, range = 1–7 years) but expressed a desire to implement more targeted and intensive services for students. These data were collected at baseline from 2,717 staff members in the 45 schools.

Measures

Organizational Health Inventory. All school staff members were asked to complete a survey measuring the school's organizational health (Organizational Health Inventory [OHI]; Hoy & Tarter, 1997). The OHI includes 31 items that assess staff perceptions about the school's emphasis on achievement, friendliness and affiliation among staff members, leadership approach of the administrator, and the ability of the administrator to advocate for resources on behalf of the students and staff. Staff responded to all items on a 4-point scale from *rarely occurs* to *very frequently occurs*. An average OHI score was calculated across all 31 items for each staff member with a Cronbach's alpha (α) of .94. Previous research has demonstrated the reliability and validity of the OHI (Bevans et al., 2007; Hoy & Tarter, 1997). Consistent with procedures outlined by Hoy and Tarter (1997), these scores were then averaged and aggregated to generate one OHI score per school.

Principal support for SWPBIS. This scale was created based on the work of Kam et al. (2003) to assess staff perceptions of the types of resources and support provided by administrators to the PBIS effort at their school. The scale consisted of three items (i.e., principal allocates time and resources to support the school-wide PBIS program; principal is personally involved with the development and implementation of PBIS-related activities and programs; and principal promotes PBIS with school staff; $\alpha = .85$). Staff responded to items on a 4-point scale from *rarely occurs* to *very frequently occurs*, with higher scores indicating greater perceived support.

Principal support for Tier 2 and 3 interventions. This scale was created to assess staff perceptions of the resources available and allocated to support students requiring targeted and intensive interventions. Based on the work of Kam et al. (2003), the Tier 2 and 3 Supports subscale includes six items (e.g., principal allocates time and resources to implement individual intervention plans; principal supports my use of behavioral interventions for "yellow and red zone" students; $\alpha = .87$). Staff received training in the "*yellow and red zone*" terminology and were informed that these services referred to Tier 2 and Tier 3 supports, respectively. Items were rated on a scale of 1 to 4, from *rarely occurs* to *very frequently occurs*, with higher scores indicating greater perceived principal support.

Fidelity of SWPBIS. The School-Wide Evaluation Tool (SET; Sugai, Lewis-Palmer, Todd, & Horner, 2001) was administered by project staff during the baseline assessment to all schools. The SET consists of seven subscales that assess the degree to which schools implement the key features of SWPBIS (Horner et al., 2004). Each item of the SET is scored on a 3-point scale (0 = *not implemented*, 1 = *partially implemented*, and 2 = *fully implemented*). An overall summary score was computed by averaging all seven key features (referred to as the Overall SET score) and ranges from 0% to 100% ($\alpha = .72$). Previous studies have documented the reliability and validity of the SET (Bradshaw et al., 2008; Horner et al., 2004; Vincent, Spaulding, & Tobin, 2010).

Implementation of Tier 2 and Tier 3 interventions. The Individual Student Systems Evaluation Tool (I-SSET, Version 1.2; Lewis-Palmer, Todd, Horner, Sugai, & Sampson, 2005) was used to document the types of Tier 2 and Tier 3 support services available beyond the universal SWPBIS model. The I-SSET comprised 23 items organized into three subscales and was completed by project staff. The Foundations subscale measures the basic processes and procedures in place for individual student systems. It collects information regarding the school's team-based planning process, student identification, and monitoring and evaluation of student progress. The Targeted Intervention subscale includes specific questions about the three most commonly used academic and behavioral interventions in the school. Finally, the Intensive Individualized Interventions subscale measures the quality of the school's team members involved in functional behavioral assessments (FBAs). Each I-SSET item is scored on a 3-point scale (from 0 = *not implemented* to 2 = *fully implemented*). An Overall I-SSET score was created by averaging the three subscale scores and is represented by a single score (0% to 100%), wherein a higher score indicates stronger support systems ($\alpha = .72$). The mean I-SSET score was 80.1% ($SD = 11.3$, range = 50.4 to 96.7). Prior research on the I-SSET indicates it has adequate psychometric properties (Debnam et al., 2010).

Demographic characteristics. Teachers self-reported their age, ethnicity/race, gender, and role on a staff information form. Teachers reported their age in one of five categories (e.g., 21–30, 31–40). The other variables were dichotomized such that 1= *White, male*, and *special education* or *support staff*. School-level data on student enrollment and student mobility were obtained for that school year from the Maryland State Department of Education.

Procedure

Forty-five voluntary schools were recruited from school districts in central and southern Maryland. Eligible schools needed to be currently implementing school-wide PBIS with high fidelity (as evidenced by an 80% or higher on the prior year's SET) and to have had a need to improve the quality of Tier 2 and 3 interventions and supports available for students. Eligible schools were identified by the school district PBIS coordinator to participate in a recruitment session, led by the research team, in collaboration with the state and district staff. Demographic characteristics and data for the OHI, the principal support for SWPBIS, and the principal support for Tier 2 and 3 intervention scales were collected in the fall from all staff members via an individually addressed survey packet. The surveys were mailed to the schools in bulk and then distributed to staff mailboxes. Staff members provided written consent and were given a prestamped envelope to mail the survey materials directly to the researchers, via U.S. mail, to ensure confidentiality. Each survey packet also included a small incentive (e.g., ballpoint pen) for participants. Staff participation was voluntary and resulted in a 76.1% response rate.

The SET and I-SSET were administered by project staff during a single scheduled visit to the school in October-November of the first year of the project. Trained external assessors conducted brief interviews with a school administrator (approximately 30 minutes) and the student support team (SST) leader (approximately 20 minutes) regarding the types of Tier 2 and 3 programs and supports available for students. The assessors briefly interviewed randomly chosen staff members and students from each grade level to gain information about the school-wide PBIS procedures, policies, and standards. The assessor also reviewed intervention planning materials to determine the quality of systems' foundations (e.g., procedures for referring students to the SST), targeted interventions (e.g., written intervention instructions), and intensive individualized interventions (e.g., qualifications and experience of members of SST) occurring within the school. Additional detail regarding the training and administration of the SET and I-SSET can be found elsewhere (Debnam et al., 2010).

Analyses

Three two-level models were conducted in HLM 6.01 (Raudenbush, Bryk, Cheong, & Congdon, 2004) to examine main (i.e., the effects of staff- and school-level variables) and cross-level effects (Raudenbush & Bryk, 2002) on perceptions of administrator support for SWPBIS and Tier 2 and 3 interventions. A total of three models were fit. The first model examined predictors of administrator support for SWPBIS. The second model examined predictors of administrator support for Tier 2 and 3 interventions. The third and final model again examined administrator support for Tier 2 and 3 interventions as the outcome but also included perceptions of SWPBIS as a covariate. For all three models, we examined respondent demographics (gender, age, and ethnicity) and role in the school (i.e., general educator vs. support staff/special educator) at the staff level. At the school level, we examined organizational health (i.e., the average of each teacher's items on the OHI, aggregated to the school level), indicators of school disorder (mobility rate and enrollment), and implementation of SWPBIS and Tier 2 and 3 interventions, via the SET and I-SSET, respectively.

We performed collinearity diagnostics in SPSS 16.0 to explore for potential collinearity concerns among the staff and school covariates. Inspection of the VIF and tolerance suggested that collinearity among the variables was not a concern (Tabachnick & Fidell, 2001). In addition, the HLM models were built one variable and one level at a time to ensure that changes in the direction of effects did not occur; this approach is also recommended for detecting collinearity (Raudenbush & Bryk, 2002). Variables at the staff-level were tested for randomly varying slopes. For those which were randomly varying, exploratory cross-level interactions between implementation and overall organizational health were modeled. In the third model, which predicted perceptions of Tier 2 and 3 interventions and included support for SWPBIS as a school-level predictor, support for SWPBIS was also modeled in cross-level interactions.

Results

School and Staff Characteristics

Staff members were predominately female (90.9%) and White (73.8%). Of the 2,717 staff members, 28.9% were aged 20 to 30, 23.3% were 31 to 40, 21.2% were 41 to 50, 19.9% were 51 to 60, and 5.2% were over the age of 60. Participating schools were diverse with a mean student enrollment of 461.07 (SD = 142.54) and a student mobility rate of 32.6% (SD = 24.24). The average SET score was 92.5% (SD = 6.58), thereby indicating high SWPBIS implementation. Average scores on the OHI (M = 3.05, SD = .19),

Table 1. Correlations Among Study Variables.

School-Level Factors	Mobility	OHI	Enrollment	I-SSET	SWPBIS	Tier 2 and 3
Overall SET	–.064	.480*	.075	.176	.417*	.428*
Student Mobility	—	.156	–.395*	.000	.098	.193
Overall OHI		—	–.138	–.086	.793*	.843*
School Enrollment			—	–.034	–.066	–.182
Overall I-SSET				—	.063	.057
Support for SWPBIS					—	.857*
Support for Tier 2 and 3						—
Staff-Level Factors	**Ethnicity**	**Role**	**Gender**			
Age	–.050*	–.294*	–.057*			
Ethnicity	—	.075*	–.034			
Role		—	–.061*			

Note: OHI = Organizational Health Inventory; 0 = not White, 1 = White; role: 0 = general educator, 1 = special education or support staff; gender: 0 = female, 1 = male.
*$p < .05$.

administrator support for SWPBIS ($M = 3.43$, $SD = .28$), and administrator support for Tier 2 and 3 interventions ($M = 3.18$, $SD = .24$) scales reflected favorable views from staff members. However, the mean I-SSET score was 80.1% ($SD = 11.32$), indicating more room for improvement regarding Tier 2 and 3 interventions.

Correlational Analyses

We conducted a series of correlational analyses between the subscales and demographic characteristics, and the strongest associations emerged between the organizational health variables and the administrator support variables (see Table 1). Interestingly, none of the school demographic characteristics were associated with organizational health or the two administrator support variables.

Influences on Administrator Support for SWPBIS

Our first set of multilevel analyses examined influences on administrator support of SWPBIS (see Model 1 in Table 2). The results indicated that none of the individual, staff-level predictors (i.e., age, gender, ethnicity, or role) were significantly associated with staff perceptions of administrator support of SWPBIS (support for SWPBIS). At the school level, the school's organizational health (overall OHI) was positively associated with individual staff perceptions of support for SWPBIS (unstandardized coefficient [Coeff] = 1.16, $p < .01$). Specifically, each 1-point increase on the school-level OHI was associated with a 1.16-point increase in support for SWPBIS. Neither the school demographics (i.e., student mobility and school enrollment), the fidelity of SWPBIS (i.e., overall SET), nor the Tier 2 and 3 interventions (i.e., overall I-SSET) were significantly associated with support for SWPBIS.

When staff-level covariates were tested for randomly varying slopes, only age and gender had randomly varying slopes and were modeled with cross-level interactions with the school-level OHI, the SET, and the I-SSET scores. There was a significant interaction between staff age and school-level OHI, such that in schools low in organizational health, staff perceptions of support for SWPBIS were highest among older staff, whereas in schools with high organizational health, younger staff had more favorable perceptions of support for SWPBIS. There was also a significant interaction between staff gender and overall I-SSET score, such that in schools with low I-SSET scores, perceptions of administrator support for SWPBIS were higher for males than females. The opposite was true in schools with high overall I-SSET scores, such that perceptions of support for SWPBIS were higher for females than males. No other cross-level interactions were significant.

Influences on Perceptions of Administrator Support for Tier 2 and 3 Interventions

Our next set of multilevel analyses examined influences on perceived administrator support for Tier 2 and 3 interventions (see Model 2 in Table 2). At the staff level, the participant's role was significantly associated with staff perceptions of Tier 2 and 3 supports (Coeff = –.08, $p = .01$), such that general educators had less favorable perceptions of Tier 2 and 3 supports than did special educators and support staff (e.g., school psychologists). No other staff-level predictors (i.e., age, gender, or ethnicity) were significantly associated with administrator support for Tier 2 and 3 interventions. At the school level, higher overall OHI scores were positively associated with Tier 2 and 3 supports (Coeff = 1.13, $p < .01$). School demographics (i.e., student mobility and school enrollment), overall SET, and I-SSET scores were not significantly associated with Tier 2 and 3 supports. When

Table 2. Estimates of Fixed and Random Effects in a Two-Level Model of Spring Staff Ratings of Administrator Support for SWPBIS and Tier 2 and 3 Interventions.

	Model 1		Model 2		Model 3	
	SWPBIS Supports		Tier 2 and 3 Supports		Tier 2 and 3 Supports	
Predictor Variables	Coefficient	*SE*	Coefficient	*SE*	Coefficient	*SE*
Intercept	2.946	.381	2.799	.321	2.930	.274
Staff Level						
Age	−.283	.292	.012	.015	.010	.015
Ethnicity	−.055	.044	−.045	.034	−.055	.033
Role	−.024	.036	−.080*	.035	−.084*	.035
Gender	1.148	1.00	1.137	.658	1.474*	.584
School Level						
Overall SET	.002	.005	.002	.003	.002	.003
Student mobility	−.000	.001	.000	.000	−.000	.000
Overall OHI	1.159*	.151	1.126*	.125	.647*	.172
School enrollment	.021	.019	.004	.014	.003	.011
Overall I-SSET	.004	.002	.003	.002	.002	.002
Support for SWPBIS	n/a		n/a		.420*	.112
Random effects						
Age × Overall SET	.004	.003	n/a		n/a	
Age × Overall OHI	−.297*	.097	n/a		n/a	
Age × Overall I-SSET	−.000	.001	n/a		n/a	
Gender × Overall SET	−.001	.012	−.006	.008	−.009	.007
Gender × Overall OHI	−.354	.441	−.687*	.304	−1.000*	.446
Gender × Overall I-SSET	−.013*	.005	−.006	.005	−.006	.005
Gender × Support for SWPBIS	n/a		n/a		.310	.278
Proportion of variance explained						
Proportion of tau explained	.02		.01		.01	
Proportion of sigma-squared explained	.35		.34		.34	
Pseudo R^2	.47		.73		.85	

Note: Ethnicity: 0 = not White, 1 = White; role: 0 = general educator, 1 = special education and support staff; gender: 0 = female, 1 = male. Age did not have a randomly varying slope in Models 2 and 3. Administrator support for SWPBIS was only used as a predictor in Model 3. *SE* = standard error. The ICC (intraclass correlation coefficient) from the unconditional model was .15 for SWPBIS Support and .11 for Tier 2 and 3 supports.
*$p < .05$.

staff-level covariates were tested for randomly varying slopes, only gender had a significantly varying slope. Therefore, we modeled a cross-level interaction between gender and the overall OHI, SET, and I-SSET scores.

In the third and final model, administrator support for SWPBIS was added as a school-level predictor (i.e., the perceptions were averaged and aggregated to the school level) of the Tier 2 and 3 supports (see Model 3 in Table 2). Given the CCC randomly varying slope of gender in Models 2 and 3, we also included a cross-level interaction between school-level perceptions of support for SWPBIS and gender. After adding the SWPBIS variable, the effect of OHI (overall OHI) remained significant but appeared to have decreased in magnitude (Coeff = 0.65 as compared to 1.13, $p < .01$). School-level perception of administrator support for SWPBIS was also positively associated with administrator support for Tier 2 and 3 interventions (Coeff = 0.42, $p < .01$). The effect of role remained relatively unchanged in both of these models. With the addition of the support for SWPBIS in the model, the previously marginally significant interaction between gender and overall OHI reached significance ($p < .05$). Schools low in organizational health (overall OHI) had less favorable perceptions of the administrator's support for Tier 2 and 3 interventions.

Discussion

Influences on Administrator Support

The current study examined staff- and school-level factors associated with staff members' perceptions of administrator support for SWPBIS and Tier 2 and 3 interventions. The implementation and support for these interventions is an important part of identifying appropriate interventions for students

displaying emotional and behavioral problems. As hypothesized, we found that the school's organizational health generally played an important role in perceived administrator support for SWPBIS. Specifically, staff in schools with higher levels of organizational health reported higher levels of administrator support for SWPBIS. It appears that when staff have more positive perceptions of their school environment, they also have better perceptions of their administrator; the higher perceptions of the school environment may strengthen their perceptions of support from the administrator.

Whereas prior research suggested that staff demographics would be associated with perceptions of administrator support for SWPBIS (Bevans et al., 2007), our results did not indicate a significant relationship. Furthermore, general education teachers and support staff did not differ in their perceptions of administrator support for SWPBIS. This finding suggests that there was general consensus in the perceptions of administrator support for SWPBIS, which may be a consequence of the schools' overall relatively high level of implementation of and perceived support for the model. Together these findings suggest that school climate may be a stronger predictor of staff perceptions than individual demographic characteristics.

Interestingly, fidelity of SWPBIS and Tier 2 and 3 interventions were not related to the administrator support. This finding may suggest that other school factors are related to how well interventions are carried out. Given the variety of school staff involved in SWPBIS and Tier 2 and 3 intervention selection and implementation, staff may believe that administrators are not a vital part of the process. Staff may not fully recognize the role of the administrator in ensuring the successful implementation of SWPBIS and Tier 2 and 3 interventions. The results did, however, suggest some cross-level interaction effects when predicting support for SWPBIS. For example, in schools with lower I-SSET scores, male teachers reported more favorable perceptions of administrator support for SWPBIS than did females. In contrast, their ratings of SWPBIS support appeared lower than females in schools with high I-SSET scores. In addition, the climate of a school plays an important role in how younger teachers perceive the administrative support for SWPBIS, as compared to their older counterparts.

As hypothesized, staff role was significantly associated with perceptions of Tier 2 and 3 supports. Specifically, general educators perceived less administrator support for Tier 2 and 3 interventions than did support staff. Given the importance of support staff in developing and implementing Tier 2 and 3 interventions, they may be more aware of the support provided by administrators. General educators are often less connected to the process of identifying Tier 2 and 3 supports, unless they have referred a student in their class to the SST and, as a result, may be less aware of administrator support for these interventions. Also, a more positive school organizational climate was associated with higher ratings of administrator support for Tier 2 and 3 interventions. This finding is consistent with prior research documenting the positive impact of SWPBIS on organizational health, including the General Administrator Leadership subscale (Bradshaw et al., 2009); it appears these climate improvements may also have led to an increase in perceived administrator support for SWPBIS. Furthermore, organizational health was associated with administrator support for Tier 2 and 3 interventions, even after controlling for administrator support for SWPBIS. Again, it appears that staff perceptions of the school environment play a role in their perceptions of administrator support. This finding suggests that a high level of organizational health is needed in order for staff to feel support by the school administration.

Contrary to our hypothesis, the school-level indicators of disorder (i.e., mobility and enrollment) were not significantly related to perceptions of support for SWPBIS or Tier 2 or 3 interventions. This finding is encouraging, as it indicates that administrators in schools that are often seen as less orderly are still able to communicate their support for targeted and intensive interventions. Similar to the findings for SWPBIS, male and female teachers differed in their perceptions of administrator support for Tier 2 and 3 interventions based on the school's organizational health, when controlling for school-level perceptions of support for SWPBIS (i.e., in Model 3). Whereas both male and female teachers tended to perceive higher administrator support for Tier 2 and 3 in schools high in organizational health, males tended to have more favorable perceptions of administrator support when compared to females.

Limitations

It is important to note that we examined staff perceptions of administrator support for SWPBIS and Tier 2 and 3 supports, rather than objective assessments of administrator support. Future studies may consider having outside assessors conducting observations or interviews to obtain a multidimensional and multi-informant measurement of administrator support. Staff participation was voluntary and although the staff self-report surveys were completed in a confidential manner, it is possible that some staff may have felt pressure to respond in a socially desirable way. Additional information on other staff characteristics may further inform these findings. For example, staff traits and psychological characteristics such as pessimism, efficacy, burnout, or distress/depression may also play a role in how staff perceive administrators. Staff members' more general attitudes about, prior experience with, or overall involvement in SWPBIS and Tier 2 and 3 interventions may also influence the way in which they perceive the administrators' support. Future research could also extend this line of inquiry by examining characteristics of administrators that are associated with staff perceptions of administrator support of SWPBIS and Tier 2 and 3 interventions.

The current study included elementary schools implementing SWPBIS with high levels of fidelity; therefore, additional research is needed on middle and high schools and schools with differing levels of SWPBIS and Tier 2 and 3 implementation in order to determine the generalizability of these findings. It is also worth noting that the scores on the SET and I-SSET as well as the administrator support scales were relatively high, which may have somewhat limited the variability of the scores and our ability to detect significant effects. Although a relatively small proportion of the staff were male (9.1%), the results indicated gender differences in staff perceptions of administrator support, which varied as a function of the school's organizational health. Although we are cautious in our interpretation of this finding, given the relatively small proportion of males, these findings suggest that staff gender is an important factor to consider in future research.

Because these data are cross-sectional, it is difficult to determine the direction of these associations. Based on prior research (Bradshaw et al., 2009), we anticipate a transactional process, whereby schools with higher organizational health and greater administrator support at baseline would be able to implement the universal and Tier 2 and 3 interventions with greater ease and fidelity, and this in turn would result in improvements in the schools' organizational context and perceived administrator support for the programs. Future research should examine these associations longitudinally, within the context of the randomized controlled trial design.

Implications

The current study is a first step in enhancing our understanding of potential factors that influence staff perceptions of administrators' support of SWPBIS and Tier 2 and 3 interventions. There are several important implications of this study for promoting administrator support for SWPBIS and Tier 2 and Tier 3 programs and the broader field of implementation science. For example, it appears that good organizational health is a crucial element of staff perceptions of administrator support for SWPBIS and Tier 2 and 3 interventions. The role of the staff member (i.e., teacher or support staff) also appears to be an important factor associated with perceptions of administrator support for Tier 2 and 3 interventions but not for SWPBIS. Therefore, administrators may want to target general educators and conduct activities to raise awareness of their priorities regarding Tier 2 and 3 interventions. Administrators may need to directly communicate their support for SWPBIS and Tier 2 and 3 interventions to younger, and potentially less experienced, teachers. This may take the form of events to orient new teachers to these initiatives. Similarly, younger teachers seemed particularly sensitive to the school's organizational health and may benefit most from programs like SWPBIS, which have been shown to optimize school health (Bradshaw et al., 2009).

The lack of an association between implementation quality, as measured by the SET and I-SSET, and perceptions of administrator support for SWPBIS or Tier 2 and 3 interventions suggests that staff may not base their assessment of the administrators' support of the interventions on how well they are carried out in the school. School administrators may need to do more than just ensure quality implementation to promote the staff perception that they have "bought into" an intervention and make it a priority. However, as noted above, the implementation of Tier 2 and 3 interventions does appear to play a role in how male versus female teachers perceive the administrator encouragement for positive behavior supports. More research is needed to understand the exact role of gender in perceptions of administrator support. Taken together, these findings provide further support for the role of administrators in optimizing the implementation of SWPBIS and Tier 2 and 3 interventions and direct our attention to school contextual factors in the implementation process. From an implementation science perspective, an important next step is to examine the extent to which administrator support for program implementation translates into improved outcomes for students. Such work would further demonstrate the importance of administrator support, not only on implementation quality, but also on the student outcomes achieved through school-based preventive interventions.

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The authors declared no potential conflicts of interests with respect to the authorship and/or publication of this article.

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References

Aarons, G. A. (2005). Measuring provider attitudes toward evidence-based practice: Consideration of organizational context and individual differences. *Child and Adolescent Psychiatric Clinics of North America, 14*(2), 255-271.

Beets, M. W., Flay, B. R., Vuchinich, S., Acock, A. C., Li, K. K., & Allred, C. (2008). School climate and teachers' beliefs and attitudes associated with implementation of the positive action program: A diffusion of innovations model. *Prevention Science, 9*, 264-275.

Bevans, K., Bradshaw, C., Miech, R., & Leaf, P. (2007). Staff- and school-level predictors of school organizational health: A multilevel analysis. *Journal of School Health, 77*, 294-302.

Bradshaw, C. P., Koth, C. W., Bevans, K. B., Ialongo, N., & Leaf, P. J. (2008). The impact of school-wide Positive Behavioral Interventions and Supports (PBIS) on the organizational health of elementary schools. *School Psychology Quarterly, 23*, 462-473.

Bradshaw, C. P., Koth, C. W., Thornton, L. A., & Leaf, P. J. (2009). Altering school climate through school-wide Positive Behavioral Interventions and Supports: Findings from a group-randomized effectiveness trial. *Prevention Science, 10*, 100-115.

Bradshaw, C. P., Mitchell, M. M., & Leaf, P. J. (2010). Examining the effects of schoolwide positive behavioral interventions and supports on student outcomes: Results from a randomized controlled effectiveness trial in elementary schools [Reports - Evaluative]. *Journal of Positive Behavior Interventions, 12*, 133-148.

Crockett, J. B., & Gillespie, D. N. (2007). Getting ready for RTI: A principal's guide to response to intervention [Reports - Descriptive]. *ERS Spectrum, 25*(4), 1-9.

Crone, D. A., & Horner, R. H. (2003). *Building positive behavior support systems in schools: Functional behavioral assessment*. New York: Guilford.

Debnam, K., Pas, E., & Bradshaw, C. (2010). *Secondary and tertiary support systems in schools implementing school-wide positive behavioral interventions and supports: A preliminary descriptive analysis*. Manuscript submitted for review.

Domitrovich, C. E., Bradshaw, C. P., Poduska, J., Hoagwood, K., Buckley, J., Olin, S., & Ialongo, N. S. (2008). Maximizing the implementation quality of evidence-based preventive interventions in schools: A conceptual framework. *Advances in School Mental Health Promotion: Training and Practice, Research and Policy, 1*(3), 6-28.

Durand, V. M., & Carr, E. G. (1992). An analysis of maintenance following functional communication training. *Journal of Applied Behavior Analysis, 25*, 777-794.

Gottfredson, G. D., Gottfredson, D. C., Payne, A. A., & Gottfredson, N. C. (2005). School climate predictors of school disorder: Results from a national study of delinquency prevention in schools [Reports - Research]. *Journal of Research in Crime and Delinquency, 42*, 412-444.

Gottfredson, G. D., Jones, E. M., & Gore, T. W. (2002). Implementation and evaluation of a cognitive-behavioral intervention to prevent problem behavior in a disorganized school. *Prevention Science, 3*, 43-56.

Hawken, L. S., Vincent, C. G., & Schumann, J. (2008). Response to intervention for social behavior: Challenges and opportunities. *Journal of Emotional and Behavioral Disorders, 16*, 213-225.

Horner, R., Todd, A., Lewis-Palmer, T., Irvin, L., Sugai, G., & Boland, J. (2004). The school-wide evaluation tool (SET): A research instrument for assessing school-wide positive behavior behavior support. *Journal of Positive Behavior Interventions, 6*, 3-12.

Horner, R. H., Sugai, G., Smolkowski, K., Eber, L., Nakasato, J., Todd, A. W., & Esperanza, J. (2009). A randomized, wait-list controlled effectiveness trial assessing school-wide Positive Behavior Support in elementary schools. *Journal of Positive Behavior Interventions, 11*, 133-144.

Hoy, W. K., & Tarter, C. J. (1997). *The road to open and healthy schools: A handbook for change, elementary edition.* Thousand Oaks, CA: Corwin Press.

Kam, C. M., Greenberg, M. T., & Walls, C. T. (2003). Examining the role of implementation quality in school-based prevention using the PATHS curriculum (Promoting Alternative Thinking Skills Curriculum). *Prevention Science, 4*, 55-63.

Kruger, L. J., & Struzziero, J. (1995). The relationship between organizational support and satisfaction with teacher assistance teams [Reports - Research]. *Remedial and Special Education, 16*, 203-211.

Lewis-Palmer, T., Todd, A. W., Horner, R. H., Sugai, G., & Sampson, N. K. (2005). *Individual student systems evaluation tool* (Version 1.2). Eugene: Educational and Community Supports, University of Oregon.

Lewis, T., & Sugai, G. (1999). Effective behavior support: A systems approach to proactive schoolwide management. *Focus on Exceptional Children, 31*(6), 1-24.

Lindsley, O. R. (1992). Why aren't effective teaching tools widely adopted? *Journal of Applied Behavior Analysis, 25*, 21-26.

Meyer, L. H., & Evans, I. M. (1989). *Non-aversive intervention for behavior problems: A manual for home and community*. Baltimore: Brookes.

O'Connell, M. E., Boat, T., & Warner, K. E. (2009). *Preventing mental, emotional, and behavioral disorders among young people*. Washington, DC: The National Academies Press.

Pas, E. T., Bradshaw, C. P., Hershfeldt, P. A., & Leaf, P. J. (2010). A multilevel exploration of the influence of teacher efficacy and burnout on response to student problem behavior and school-based service use [Reports - Evaluative]. *School Psychology Quarterly, 25*, 13-27.

Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods* (2nd ed.). Thousand Oaks, CA: Sage.

Raudenbush, S. W., Bryk, A. S., Cheong, Y. K., & Congdon, R. T., Jr. (2004). *HLM 6: Hierarchical linear and nonlinear modeling*. Lincolnwood, IL: Scientific Software International.

Rogers, E. M. (2002). Diffusion of preventive innovations. *Addictive Behaviors, 27*, 989-993.

Rohrbach, L. A., Graham, J. W., & Hansen, W. B. (1993). Diffusion of a school-based substance abuse prevention program: Predictors of program implementation. *Preventive Medicine, 22*, 237-260.

Sugai, G., Horner, R., & Gresham, F. (2002). Behaviorally effective school environments. In M. Shinn, W. Walker, & G. Stoner (Eds.), *Intervnentions for academic and behavior problems II* (pp. 315-350). Bethesda, MD: NASP Publications.

Sugai, G., & Horner, R. R. (2006). A promising approach for expanding and sustaining school-wide positive behavior support [Reports - Descriptive]. *School Psychology Review, 35*, 245-259.

Sugai, G., Lewis-Palmer, T., Todd, A., & Horner, R. H. (2001). *School-wide evaluation tool*. Eugene: University of Oregon.

Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics, Fourth Edition.* Needham Heights, MA: Allyn & Bacon.

Vincent, C., Spaulding, S., & Tobin, T. J. (2010). A reexamination of the psychometric properties of the School-Wide Evaluation Tool (SET). *Journal of Positive Behavior Interventions, 12*, 161-179.

Waasdorp, T. E., Bradshaw, C. P., & Leaf, P. J. (2011). *The impact of School-wide Positive Behavior Interventions and Supports (SWPBIS) on bullying and peer rejections: A randomized controlled effectiveness trial*. Manuscript submitted for review.

Walker, H., Horner, R. H., Sugai, G., Bullis, M., Sprague, J., Bricker, D., & Kaufman, M. J. (1996). Integrated approaches to preventing antisocial behavior patterns among school-age children and youth. *Journal of Emotional and Behavioral Disorders, 4*, 194-209.