HHS Public Access

Author manuscript

Psychol Sch. Author manuscript; available in PMC 2021 May 11.

Published in final edited form as:

Psychol Sch. 2019 September ; 56(8): 1230–1245. doi:10.1002/pits.22272.

Pilot Study for the Fidelity, Acceptability and Effectiveness of a PBIS Program plus Mental Health Supports in Under-resourced Urban Schools

Ricardo Eiraldi,
University of Pennsylvania Perelman School of Medicine

Barry McCurdy,
Devereux Center for Effective Schools

Billie Schwartz,
Children's Hospital of Philadelphia

Courtney Benjamin Wolk,
University of Pennsylvania Perelman School of Medicine

Manju Abraham,
Children's Hospital of Philadelphia

Abbas F. Jawad,
University of Pennsylvania Perelman School of Medicine

Bonnie K. Nastasi,
Tulane University

Jennifer A. Mautone, PhD
University of Pennsylvania Perelman School of Medicine

Abstract

This paper describes implementation (fidelity, perceived acceptability) and tier 1 and tier 2 outcomes of a school-wide positive behavior interventions and supports approach (PBIS) including mental health supports at tier 2 in two K-8 urban schools. Interventions for tier 2 consisted of three manualized group cognitive behavioral therapy (GCBT) protocols for externalizing behavior problems, depression and anxiety. tier 1 and tier 2 interventions were implemented with fidelity but program feasibility for tier 2 was in question because school personnel needed a great deal of external support in order to implement the interventions. tier 1 interventions were associated with a decrease in office discipline referrals. Students participating in GCBT showed a significant decrease in mental health diagnostic severity at post-treatment. A discussion of perceived and actual implementation barriers and how they were addressed is provided. Implications for practice in low-income urban schools are discussed.

Questions or comments regarding this article should be addressed to Ricardo Eiraldi, Children's Hospital of Philadelphia, Roberts Center for Pediatric Research, 2716 South Street, Room 8/8293, Philadelphia, PA 19146-2305, eiraldi@pennmedicine.upenn.edu.

Keywords

Positive behavior interventions and supports (PBIS); tier 2; Group cognitive behavioral therapy; Under-resourced urban schools

Under-resourced urban schools are in great need of service delivery systems that can improve the overall school climate and the mental health of individual students (Putnam, McCart, Griggs, & Hoon Choi, 2009). A number of comprehensive school-wide prevention approaches have been found to have a positive effect on an array of individual student behavioral, emotional and academic outcomes as well as on school climate. One such approach is school-wide positive behavior interventions and supports (PBIS; Sugai & Horner, 2009). PBIS is compatible with the continuum of mental health supports and the use of evidence-based practices (EBPs) for the most common behavioral health disorders (Putnam et al., 2009). The purpose of this paper is to describe the fidelity, perceived acceptability, and student outcomes of Project ACCESS (Advancing Collaboration for Children's Emotional & School Success). Project ACCESS was implemented in two under-resourced urban schools in a large city in the Northeast U.S. with funding from the Centers for Disease Control and Prevention (CDC).

Organizing Service Delivery System

PBIS is a multi-tiered framework for defining and organizing services (including mental health services; Putnam et al., 2009). tier 1 strategies focus on preventing new cases of problem behaviors by using universal strategies such as effective instructional practices, classroom behavior management, and school-wide discipline. Emphasis is placed on teaching key behavioral expectations and routines to all students. Two key features of PBIS are its scalability and its compatibility with an array of mental health EBPs (Duchnowski & Kutash, 2009; Hunter, 2003; Mendez, 2017). PBIS programs can also incorporate targeted group-based support for students at risk (tier 2) and individualized support for more severe cases (tier 3). There is a body of evidence that tier 1 PBIS is effective at reducing office discipline referrals (ODR) and at improving children's behavior (Bradshaw, Mitchell, & Leaf, 2010; Bradshaw, Reinke, Brown, Bevans, & Leaf, 2008), teacher satisfaction, and overall school climate (Bradshaw, Pas, Goldweber, Rosenberg, & Leaf, 2012; Bradshaw, Waasdorp, & Leaf, 2012). Unfortunately, little empirical work has been conducted on the feasibility, fidelity, acceptability and effectiveness of integrating and implementing mental health interventions into tier 2 in under-resourced urban schools.

Integration of PBIS with Mental Health EBPs

There are a number of characteristics that make PBIS compatible with mental health services. For example, both PBIS and mental health services share a common goal of "improving social and adaptive functioning" of children and "[the] importance of, and need to, increase availability, access, and range of services" (Duchnowski & Kutash, 2009, p. 208). In the mental health field, interventions are delivered according to level of symptom severity or functional impairment. Similarly, PBIS interventions are deployed along a continuum of universal (tier 1), selected (tier 2), and indicated (tier 3) prevention, and

delivered according to problem severity and child's response to previous, less intensive interventions. Also, as in most cutting-edge mental health service systems, PBIS employs EBPs to address children's behavioral functioning. It also uses systematic data collection to identify and deploy specific interventions and assess their effectiveness. Because of these common elements, the multi-tiered PBIS service delivery approach to addressing student needs is an excellent strategy for integrating mental health services into school settings (Kern, George, & Weist, 2016; Mendez, 2017).

Implementing Mental Health Supports in Urban Schools

The application of PBIS in low-income urban schools presents unique challenges. It is very difficult to implement system change in low-income schools for a variety of reasons, including high turnover among teaching and administrative staff and lack of internal capacity for the implementation of EBPs (Guin, 2004). Studies of the effectiveness of mental health interventions have yielded disappointing results in under-resourced urban schools (e.g., Farahmand, Grant, Polo, Duffy, & DuBois, 2011). The causes are likely multifaceted and might include problems with the adequacy of the intervention, the severity of individual student problems, and lack of training for those delivering the interventions (Eiraldi, Benjamin Wolk, Locke, & Beidas, 2015). Schools seldom employ mental health EBPs, but when they do, the interventions are often implemented with low fidelity (Farahmand et al., 2011). School-based clinicians rarely receive adequate training and support on EBP implementation. This greatly contributes to low fidelity (Eiraldi et al., 2015). Also, students in low-income urban schools often present with more severe problems and comorbid conditions than students in non-urban settings (Farahmand et al., 2011). It is possible that program effectiveness might be improved if mental health services were embedded into a continuum of prevention and if interventionists were provided with adequate training and support. Given the likelihood that students have comorbid conditions, programs should be designed that target specific conditions and comorbidities.

Consultation Support

There is an established record for the use of consultation in implementing behavioral health interventions in school settings. Most of the literature in this area focuses on the use of consultation to improve teacher classroom behavior management and effective teaching strategies (e.g., Capella et al., 2012), prevention of student off-task, aggressive and disruptive behaviors (e.g., Becker, Darney, Domitrovich, Perling, and Ialongo, 2013), and promotion of social and emotional learning among students (Bradshaw, Bottiani, Osher, & Sugai, 2014). The training strategy used by the OSEP Technical Assistance Center on Positive Behavioral Interventions and Supports (Sugai, Horner & Lewis, 2009) includes an initial training workshop with members of the school leadership team on the core features of PBIS and the provision of consultation support to ensure implementation fidelity. Consultation support usually focuses on tier 1 and aims to facilitate the implementation of core features of PBIS and establish systems for dealing with student behavior throughout the school. Consultation has also been used for the implementation of tier 2 interventions. For example, Bradshaw and colleagues have used the PBIS*plus* consultation strategy to help teachers deal with student behavior problems in the classroom. Features of this approach

include an initial training workshop followed by consultation on using functional behavioral assessment (FBA) to assess the purpose or 'function' of a student's behavior in relation to his/her environment, and then designing appropriate interventions for dealing with the behavior (Bradshaw et al., 2012).

Very few studies have been conducted to examine the effectiveness of PBIS consultation approaches in the implementation of mental health EBPs at advanced tiers of support. However, there is a growing literature assessing the effectiveness of other consultation approaches to the use of EBPs in community mental health settings. The literature shows that ongoing consultation after an initial training workshop is much more effective for enhancing clinician clinical skills, adherence, and knowledge, and child clinical outcomes than initial training without ongoing consultation (Herschell, 2010). Due to the dearth of research on PBIS consultation approaches, it is not clear whether a PBIS program with mental health supports implemented by existing school personnel with support from consultants would be effective or even feasible in under-resourced urban schools.

Aims of the study.

The overall aims of the pilot study were to: (a) assess implementation outcomes and (b) collect tier 1 and tier 2 outcomes. Research questions were: (a) Will tier 2 interventions be perceived as acceptable?; (b) Will interventions be implemented with fidelity?; (c) Will office discipline referrals (ODRs) decrease during the implementation of tier 1?; and (d) Will Tier 2 interventions result in a decrease in diagnostic severity for children with, or at-risk for, internalizing and externalizing problems? We expected to find that: (a) tier 2 interventions would be acceptable to stakeholders; (b) Interventions would be implemented with acceptable levels of fidelity; (b) tier 1 interventions would be associated with a decrease in ODRs; (c) tier 2 intervention will be acceptable to stakeholders; and (d) tier 2 interventions will lead to a decrease in diagnostic severity for children with, or at-risk for, internalizing and externalizing problems.

Method

Settings

The study took place in two K-8 public schools situated in a large city in the Northeastern U.S. A project development phase (not described in this paper) was conducted during the first year of the project. The implementation and pilot-testing phase of the project was conducted subsequently over three years. We wanted to partner with under-resourced schools that serve low-income, predominantly ethnic minority children with limited access to adequate mental health services. The schools were identified with assistance from the school district. School A served 648 students (75% Latino, 18% African American, 1% White, 1% Asian, 5% Other). School B served 1134 students (65% Latino, 16% African American, 11% Asian, 4% White, 4% Other). One hundred percent of students in both schools were eligible for free or subsidized lunch. All applicable institutional review boards approved the study.

Mental Health Supports at tier 2

We consulted repositories of EBPs (e.g., http://nrepp.samhsa.gov/landing.aspx, http://www.ebbp.org) and meta-analyses of group treatments (e.g., Briesch, Sanetti, & Briesch, 2010) to identify group-based interventions that could be used at tier 2. We examined the literature on mental health promotion in children (e.g., Durlak, Domitrovich, Weissberg, & Gullotta, 2015; Weisz, Sandler, Durlak, & Anton, 2005) and identified programs that emphasize the teaching of anger management, problem solving, social awareness and relationship building.

Interventions we selected for tier 2 included the Coping Power Program (CPP; Lochman, Wells, & Lenhart, 2008) for children with externalizing behavior problems, Friends for Life (FRIENDS; Barrett, 2008) for children with symptoms of anxiety, and Primary and Secondary Control Enhancement Training (PASCET; Connor-Smith, Polo, Jensen Doss, & Weisz, 2004) for children with symptoms of depression. The three EBPs (CPP, FRIENDS, PASCET) use evidence-based teaching and intervention approaches (e.g., demonstration, role plays, exposure, relaxation) for children at risk. These programs were selected because they all are skills-based and address the most common mental health problems identified by stakeholders (parents and teachers).

Program Adaptation to Fit Context

We conducted adaptations to the selected tier 2 interventions in order to improve contextual fit (Kutash et al., 2006). The objective of the adaptations was to make the protocols more engaging and appealing to ethnically diverse children and easier to administer in low-income schools (Schaeffer et al., 2005). Care was taken to make adaptations without altering the main components of the programs (Backer, 2001). We used an iterative process involving the collection of qualitative (focus groups) and quantitative data (acceptability surveys) from parents, children and teachers (Castro, Barrera, & Martinez, 2004). First, we made modifications to the protocols based on focus groups with stakeholders. We then wrote descriptions of the protocols, asked stakeholders to rate them for perceived acceptability, made further revisions, and asked them to rate them again for acceptability.

During this process, we examined whether the protocols were a good fit for the school environment and the child participants (e.g., “Were the activities and the language used to teach concepts appropriate?” “How long should sessions be to appropriately fit into the school day?”). Based on this process, we made changes to the number and length of sessions for each of the protocols in order to fit with the school calendar and class periods. For example, the original FRIENDS protocol has ten 75-minute sessions. We adapted it to twelve 40-minute sessions. We altered the language and way in which certain concepts were taught, introduced real-life, culturally relevant examples to illustrate important concepts, and reduced the number of homework assignments. We reduced the overall number of sessions of CPP to make the protocol more feasible to implement within the academic calendar and added a session to help children deal with conflicts between children of different racial/ethnic groups. We also made sessions more interactive and developed new incentive systems to encourage attendance and participation. Based on this process, we produced intervention protocols that were easy to administer by busy school mental health staff, that were

compatible with the cultural background of children, and that were acceptable to children, parents and teachers.

Procedures for Training tier 1 and tier 2 Implementers

Prior to implementation, a doctoral-level psychologist and a masters-level school psychologist (consultants) conducted two full days of training with members of the school leadership teams on PBIS. Leadership teams were comprised of professional and paraprofessional staff and a parent. The teams developed many of the component practices of PBIS by the end of the two-day training. Leadership team members continued to develop their practices until the consultants approved all components of the universal system and a school-wide implementation date (rollout) was scheduled. Following the initial training, the consultants attended monthly leadership team meetings at each school to assist teams in using data to evaluate their respective tier 1 or universal systems and create an action plan to address concerns with assigned responsibilities and timelines for completion. This level of support was expected to be sufficient for tier 1 based on previous studies (Bradshaw, Pas, Goldweber, Rosenberg, & Leaf, 2012; Bradshaw, Waasdorp, & Leaf, 2012).

For tier 2, school counselors participated in an initial training workshop and follow-up consultation. The initial training was conducted by research team members who were trained by the developers of each of the selected EBPs. The training structure consisted of a one-and-a-half-day workshop for each program (CPP, FRIENDS, PASCET) that included discussion of the theoretical background (identification of symptoms, prevalence rates, treatment efficacy), the development of each program (theoretical rationale, key components, efficacy/effectiveness findings), and a detailed review of the intervention sessions (content, structure, process, implementation challenges). Training included both didactics and active learning activities such as role-plays, behavior rehearsals, and demonstration of techniques (Beidas & Kendall, 2010; Kolb, 1984).

Following the initial training, the PI and two postdoctoral fellows in clinical child or community psychology conducted weekly consultation with all school counselors. The consultation strategy for school counselors was developed based on adult learning characteristics (e.g., propensity to learn from experience, capacity to reflect on their performance and apply knowledge, self-motivation; Knowles, 1980; Merriam, 2004; Rakovshik & McManus, 2010). The purpose of these meetings was to assist school counselors in (a) reviewing relevant data to assign students to tier 2 groups; (b) examining student progress in the group; (c) discussing implementation of the previous session (what went right, what went wrong); (d) problem-solving implementation barriers; and (e) preparing for the next session as spelled out in the manual. Counselors were provided one 45-minute consultation session for each intervention session they were preparing to implement.

It was initially expected that school counselors would conduct tier 2 groups by themselves. However, after initial piloting of the interventions, counselors were paired with graduate students from the research team because counselors were having difficulty conducting groups without direct support. For example, counselors had difficulty getting students to the setting where groups were to be held, were not able to deliver program content and at the

same time manage the ticket system that was used to encourage participation and minimize disruption, and managed to deliver only a fraction of the session content, which negatively impacted fidelity. Once groups were conducted using the co-therapy format, these problems were solved.

Program Implementation

The rollout of tier 1 for both schools occurred in September after one year of program development and adaptation. tier 1 interventions were implemented first. Tier 2 interventions were implemented in January of the same year after tier 1 interventions were fully in place. In the first year of implementation, teachers or school counselors made child referrals for tier 2 participation. Subsequent referrals were based on data from SWIS (PBISApps, 2018). A school counselor and graduate students from the research team implemented tier 2 EBPs using a co-therapy approach, as noted above. Each GCBT protocol was implemented in twelve 45-minute sessions. Students were grouped according to developmental level; students in grades 4–6 and grades 7 and 8 were assigned to a younger and an older group, respectively. Typically, three to five students were assigned to each group. Students who were absent for a session received an individual make-up session. The group sessions were conducted in the school setting during the lunch period.

Participants

Twenty-nine parents, 26 school staff, and 23 students were asked to complete program acceptability surveys during the course of program adaptations to ensure the contextual fit of tier 2 interventions (see Table 1). All students attending the schools participated in the tier 1 interventions. One hundred and fourteen students (63% male) participated in one of the three tier 2 GCBT interventions over a span of three years. This represents approximately 8.2% of the combined student population of the schools in grades 4–8. There were no differences between the groups regarding gender and ethnic composition. Fourteen groups were conducted with younger students and 15 groups were conducted with older students across both schools. Four masters-level school counselors (100% female) and 4 graduate students in psychology (50% female) conducted the tier 2 groups.

Measures

Tier 2 Intervention Acceptability.—Parents, children and school staff completed the *Abbreviated Acceptability Rating Profile* (AARP; Tarnowski & Simonian, 1992) to indicate their perception of the acceptability of the tier 2 group interventions. Participants completed the AARP after reading a brief description of the main components of each intervention. The AARP is comprised of 8 items (e.g., “This program is effective in reducing my child’s anxiety/behavior problems”) rated on a 6-point scale (1= *Strongly Disagree* to 6= *Strongly Agree*).

Tier 1 Fidelity.—The *School-wide Evaluation Tool* (SET; Horner et al., 2004) was used by tier 1 consultants to measure implementation fidelity. The SET is a 28-item observational and interview-based instrument used to assess the degree to which schools are implementing a universal support system. The items are organized into seven subscales that measure the critical features of PBIS (Horner et al., 2004). A cut-off score of 80% on Teaching

Expectations and the overall mean score indicate successful implementation of PBIS (Horner et al., 2004). For training purposes, the data collectors were required to achieve an inter-observer agreement of 80% prior to conducting the interviews and observations. The SET was administered at the end of each of the three years of implementation.

Tier 1 Student Outcomes.—We measured changes in office discipline referrals (ODRs) using the *School-Wide Information System* (SWIS), a web-based data collection system to assist in intervention planning and evaluation (PBISApps, 2018) that is commonly used in PBIS studies. Total number of ODRs per school per year was recorded for each of the three years of program implementation.

Tier 2 Fidelity.—Tier 2 group sessions were video recorded to assess content fidelity (i.e., the ability of counselors to deliver the content of each session as specified in the manual). To measure content fidelity, one of two independent coders (ICs) rated all video-recorded sessions available (63.7% of total sessions for CPP, 46.3% FRIENDS and 79.8% PASCET) using a session-specific *Fidelity Checklist (FC)* developed for this study. The fidelity measure listed program components for each session. A “yes” or “no” response was used to indicate whether a content area was covered in session. Adding up all the “yes” responses and dividing by the total number of items yielded the average fidelity for a session. The interrater reliability between the two raters was $k = .43$ ($p < .001$) for CPP, $k = .63$ ($p < .001$) for FRIENDS, and $k = .63$ ($p < .001$) for PASCET. The kappa statistics across the groups indicated a moderate degree of agreement between the two raters (Viera & Garrett, 2005).

Tier 2 Student Outcomes.—Parents were interviewed at baseline and post-treatment in English (N = 52, 65%) or in Spanish (N = 28, 35%) via the *NIMH Diagnostic Interview Schedule for Children, Computer Version, 4th Edition* (NIMH C-DISC-IV) for 18 disorders including externalizing/disruptive behavior disorders, anxiety disorders, and mood disorders. The NIMH C-DISC-IV (Shaffer, Fisher, Lucas, Dulcan, & Schwab-Stone, 2000) is a highly structured diagnostic interview with good psychometric properties that is commonly used in epidemiologic and clinical studies. There are no significant differences between the English and Spanish versions of the instrument with regard to content or psychometric properties (Bravo et al., 2001). The structured nature of the interview does not allow for subjective interpretation; therefore, eliminating the need for inter-rater reliability checks (Shaffer et al., 2000). “Intermediate” level diagnoses indicate that a student is at-risk for a particular disorder, and “positive” diagnoses indicate that the student meets diagnostic criteria.

In addition to the C-DISC-IV results, the study utilized an Interference Thermometer (IT; Silverman & Albano, 1996), from the parent to determine the degree to which each disorder endorsed at the *positive* or *intermediate* level interfered with the child’s functioning. The IT has a 9-point scale (0 = none; 8 = a lot) with higher scores indicating more severity. It is used to determine primary and secondary diagnoses. The IT was originally developed for children with anxiety disorders but was modified for this study to include children who present with externalizing behavior problems and symptoms of depression.

Group Assignment

School counselors and project staff conducted in-service training with teaching faculty on how to recognize children who might have problems with externalizing behavior, anxiety or depression and how to refer children to the groups. Teachers identified children for possible participation in the study. Children who had exhibited behavioral or emotional problems in the classroom were referred following the school district's Comprehensive Student Assistance Process (CSAP) in which the referral is discussed by the school counselors and other members of the CSAP team. If the CSAP team agreed that the children met inclusion criteria, they were referred to study staff for an eligibility evaluation. School staff contacted the parents to provide a brief overview of the study and to obtain verbal consent for research staff to contact them in order to provide a more thorough description of the study to the parents and to obtain written consent. Parents gave informed consent and children gave assent. Children who met primary *positive* or *intermediate* diagnostic criteria for an externalizing disorder based on the NIMH C-DISC IV and IT scale were assigned to CPP. Children who met primary *positive* or *intermediate* diagnostic criteria for an anxiety disorder were assigned to FRIENDS. Those who met primary *positive* or *intermediate* diagnostic criteria for a depressive disorder were assigned to PASCET.

Students who did not improve after participation in one of the groups were referred back to the CSAP, which in turn referred them to community providers for mental health services.

Data Analyses

Descriptive statistics were used to examine program acceptability, fidelity and ODR data. Fidelity for tier 2 was evaluated using kappa coefficients. T-tests and chi-squared tests were used to compare data for the two schools. The data analysis strategy focused on assessing whether the three group interventions were effective at decreasing level of diagnostic severity for all disorders combined. We examined the effectiveness of each of the GCBT programs for each targeted disorder (i.e., ODD for CPP, anxiety for FRIENDS, mood difficulties for PASCET), in a previous publication (Eiraldi et al., 2018). Each student had at least one out of 18 possible events (diagnosis). Each event was classified as positive (full clinical diagnosis), intermediate (at-risk) or negative (no diagnosis) at pre- and post-intervention as measured by the NIMH C-DISC-IV. We were interested in describing overall improvement, no change, or worsening of diagnostic severity level from pre- to post-. Improvement was defined as a change in diagnostic status at pre- from *positive* to *intermediate, positive* to *negative,* and *intermediate* to *negative* at post- for each participant. We created percent of events by adding the number of event(s) for each participant divided by 18 possible events, for positive (Pre % Positive, Post % Positive) and for intermediate (Pre % Intermediate, Post % Intermediate). Pre- to post- changes in diagnostic severity level were examined using the Wilcoxon rank sign test for paired observations.

Results

Stakeholder Perceived Acceptability.

Stakeholders filled out the acceptability questionnaires (Tarnowski & Simonian, 1992) after reading a description of the three CBT programs for children at risk for externalizing or

internalizing disorders. We wanted to obtain perceived acceptability data for key components of each protocol as opposed to getting a single global score. We were interested in knowing whether stakeholders would object to a particular component of the protocol (e.g., practice skills in challenging situations). The data on Table 2 reflects perceived acceptability for the final iteration of the tier 2 interventions used in the study. The alpha coefficient for forms completed by children, parents and teachers for this sample ranged from .83 to .91 for Coping Power, .71 to .89 for PASCET, and .89 to .92 for Friends for Life. Children, parents and teachers rated all components of CPP, FRIENDS and PASCET as acceptable. All of the mean acceptability scores were between the *Agree* and *Strongly Agree* range. Acceptability scores did not differ between the two schools.

Fidelity.—Figure 1 illustrates the dual criterion SET scores (i.e., Teaching Expectations and Mean Score) for both project schools at each year of implementation of tier 1. As shown in Figure 1, the dual criteria were achieved for both schools during years 2 and 3.

A total of 29 tier 2 intervention groups were implemented across both schools. Of the 29 intervention groups, 13 were CPP, 9 were FRIENDS, and 7 were PASCET. Average content fidelity across cohorts was 88% for CPP, 87% for FRIENDS and 94% for PASCET.

Office Discipline Referrals (ODRs).—The effects of universal interventions on children's behavior throughout the school was measured via the number of ODRs per student for years 1–3. The results show the trend of aggregated data (see Figure 2). The average number of ODRs per student per year decreased for both schools. For School A, there was a continuous decrease in ODRs per student from a high point at Year 1. For School B, the reduction was not continuous; ODRs decreased from a high point at Year 1 to Year 2. In Year 3, however, ODRs increased slightly over Year 2 (but remained below the number of ODRs per student at Year 1).

Pre- to- post- Changes in Diagnostic Severity Level.—Participants enrolled in tier 2 groups included 57 students in CPP, 32 students in FRIENDS, and 25 students in PASCET. Of these, data from 38 (67%) students from CPP, 19 (59%) students from FRIENDS, and 23 (92%) students from PASCET, were evaluable (i.e., had complete pre-and-post data). Eighty-three percent of participants in CPP, 85% in FRIENDS and 82% in PASCET, received the entire 12-session content. Table 3 shows mean (SD) at pre- and at post- and the difference from pre- to post- in diagnostic severity level for all diagnoses combined (i.e., events). The mean (SD) of the improvement in % Positive events were 1%, 2% and 4% for CPP, PASCET and Friends, respectively. None of the changes were statistically significant. However, there was statistically significant improvement for intermediate events of 4% (7.38) for CPP, 5.6% (5.24) for PASCET and 5% (12.07) for FRIENDS, respectively.

Discussion

The study sought to describe a PBIS program with mental health supports at tier 2, assess implementation feasibility and acceptability of the program, and collect pilot data on school and student outcomes. Results of the study largely supported the hypotheses. Tier 1 and tier 2 interventions were implemented with acceptable levels of fidelity. Although we could not

establish a direct causal relationship, the number of ODRs declined in both schools during the implementation of tier 1. The three tier 2 GCBT programs appeared effective at reducing overall diagnostic severity level for all disorders combined for students who had diagnoses at the *intermediate* (at-risk) level but not for students who had diagnoses at the *positive* level. A more definitive assessment of clinical effectiveness of the three EBPs was not possible given the absence of control groups. Nevertheless, these findings are consistent with the intended purpose of tier 2 interventions (Sugai & Horner, 2009), which is to provide support to students who are at-risk (i.e., intermediate diagnoses) for mental health disorders. The findings suggest that EBPs implemented in urban schools might reduce the risk continuum for mental health problems, particularly for less severe problems. All three tier 2 interventions were rated as acceptable by stakeholders. Tier 2 implementers needed a great deal of support in order to implement interventions. Tier 1 implementers were able to implement interventions with the same level of support provided in previous PBIS studies.

The results of this study and national survey data suggest that school-wide behavioral health programs must include components that address risks for internalizing disorders. Interestingly, teachers were able to identify many students with externalizing problems and referred them to the study. However, some teachers had difficulty detecting signs of internalizing problems among students despite the fact that they had received an in-service training on “red flags” for identifying students at risk for depression or anxiety. It might be difficult for teachers to recognize internalizing problems if the child does not also have a comorbid externalizing behavior problem, especially when a student is doing well academically (Alegria et al., 2012). An alternative approach would be to conduct a more ‘hands-on’ training where teachers are presented with certain behavioral descriptors and asked to select and discuss why they would refer certain students based on the behavioral descriptors.

This pilot study is among the very few evaluations of PBIS in under-resourced schools to include mental health EBPs at the tier 2 level. Tier 2 served about 8.2% of the student population in grades 4–8. This is lower than the expected 15% level in most PBIS programs (Sugai & Horner; 2009).

The findings suggest that with external support, PBIS might be employed as a vehicle for addressing mental health problems in under-resourced urban schools, particularly by supplementing universal school-wide interventions with targeted, evidence-based interventions for students at-risk. However, school counselors needed a high level of support, which, as provided in the present study for tier 2 (i.e., co-therapy with graduate student trainees), is probably not feasible, given limited resources for professional development and limited staff availability in under-resourced schools. Nevertheless, school counselors with little training in PBIS procedures or prior exposure to EBPs, might be successfully trained to implement tier 2 mental health EBPs with fidelity. Implementation fidelity for all three mental health group interventions was above 85%, which is notable for any PBIS program implemented in urban school settings (Putnam et al., 2009).

Addressing Implementation Barriers

Our research team encountered several challenges during the implementation phase of the study. One such challenge was the high turnover among staff (Putnam et al., 2009). Staff turnover begins at the district level and has a ripple effect on how the partner schools operate (e.g., new principals, new policies, new prevention programming) and, as a result, on the implementation of the project. During the three-year span of program implementation, three different school superintendents headed the school district. One superintendent introduced major changes that affected reporting structure above the principal level and created new initiatives that affected prevention programming throughout the district. Lack of continuity at the district level made it very difficult to implement a program that needed the school district's support and oversight in order to operate. Some of these obstacles were overcome with the assistance of committed secondary level administrators who thought that this was an important initiative. Navigating the changes at the district and school level required (re-)securing commitment from school administrators at all levels, ongoing communication, and providing intensive support and training to school staff.

Teacher effectiveness also became a challenge. In one of our schools, several teachers evidenced poor classroom management strategies leading to classroom environments that were chronically disruptive. These teachers were less experienced than their more effective counterparts, some of whom were coming into the field as a second career through an alternative route of certification. To address the concern, we offered training and coaching in class-wide management strategies, but only a few of the candidates accepted the offer.

Another challenge was securing and maintaining active participation by parents. Because obtaining parent participation in a project of this kind is usually difficult (e.g., Brener, Dittus, & Hayes, 2001) we attempted a number of strategies to get parents actively involved. We involved parents in the actual development of the project. Parents were included on the school leadership teams, and the parents of children assigned to CPP, FRIENDS, and PASCET were invited by counselors to participate in three sessions designed to help parents reinforce what the children were learning in session. Unfortunately, very few parents participated in those sessions.

As predicted, school counselors involved in tier 2 group sessions for CPP, FRIENDS and PASCET needed a high-level of support. School counselors required an initial training workshop for each of the programs, plus ongoing consultation and co-therapy. Early in the implementation process, we found that without direct assistance during the therapy session, counselors were not able to keep students engaged and deliver most of the content in the manual. However, once we paired counselors with a graduate student (co-therapist), they were able to keep students on-task and deliver the material without much difficulty. It is possible that the consultation portion of the training was not potent enough to prepare counselors to conduct sessions independently. Future studies are needed to determine the effectiveness of various levels of consultation support for the implementation of EBPs at tier 2.

Limitations and Future Directions

Data for this study were collected from under-resourced urban schools. They do not necessarily apply to schools with more resources or schools located in non-urban settings. The absence of a treatment-as-usual condition placed limits on the interpretation of pre- to post-treatment reductions in diagnostic severity level for students in tier 2 groups. The use of self-report measures completed by the students themselves at pre- and- post- would have strengthened the study. Additionally, the study includes a small sample size for tier 2 groups, which reduces power. While this study is strengthened by its inclusion of multiple stakeholders (i.e., parents, students, and teachers), community mental health providers, who are often involved in providing mental health services in urban schools, were not included in the study. Future studies that incorporate the perspectives of these additional stakeholders are needed. Future studies should also measure fidelity to the tier 2 intervention system using measures such as the Tiered Fidelity Inventory (TFI; Algozine et al., 2014) or Benchmarks of Quality for Advanced Tiers (BAT; Anderson et al., 2012). Finally, contextual factors, such as organizational and system level barriers and facilitators, were not directly assessed and represent an important area for future research.

Implications for Practice

The results of this pilot study suggest that PBIS might be used successfully as a vehicle for organizing a continuum of prevention to serve increasing demand for mental health services in low-income communities (Putnam et al., 2009). School-based mental health clinicians involved in PBIS are advised to consult repositories (e.g., http://nrepp.samhsa.gov/landing.aspx, http://www.ebbp.org) for help in identifying group mental health EBPs for tier 2 interventions. Some of the EBPs may have to be adapted to better fit the particular school context. Given the complex presentation and comorbidity profiles of many students in need of tier 3 interventions (individualized support) in under-served schools, a modular, transdiagnostic approach to therapy (e.g., Chorpita & Wiesz, 2009) might be more efficient than using treatment manuals for individual disorders (Garland, Hough, McCabe, Yeh, Wood, & Aarons, 2001). Given the prevalence of internalizing problems in schools, programs are strongly advised to create the conditions for identifying children with internalizing concerns (i.e., anxiety, depression) by conducting ‘hands-on’ in-service training with teachers on how to identify children who might be showing signs of internalizing problems. Helping teachers to recognize certain “red flags” for depression and anxiety and how to connect these students with school-based services would go a long way toward improving access to services for children who might not otherwise get any support. School behavioral health staff on the PBIS leadership team should be charged with linking tier 1 with advanced tiers of support, identifying students who could benefit from group and individualized interventions, and ensuring that all aspects of linking PBIS with mental health services are done with integrity. Instruments specifically developed to guide the program development process (Anello et al., 2016) and measure implementation fidelity (Splett et al., 2017) of PBIS with mental health supports are available. All interventions must be implemented with fidelity, given the close relationship between fidelity and child outcomes (Durlak & DuPre, 2008). To that end, schools are advised to develop partnerships with university-affiliated programs or programs that specialize in providing technical assistance

to schools to provide training and ongoing support for the implementation of mental health EBPs. Author Note

Acknowledgments

This research study was funded by the Centers for Disease Control and Prevention (Eiraldi, PI; 5 R18 MN000003).

References

Alegria M, Lin JY, Green JG, Sampson NA, Gruber MJ, & Kessler RC (2012). Role of referrals in mental health service disparities for racial and ethnic minority youth. Journal of the American Academy of Child and Adolescent Psychiatry, 51, 703–711. [PubMed: 22721593]

Algozzine RF, Barrett S, Eber L, et al. PBIS Tiered Fidelity Inventory. In. Eugene, OR: OSEP Technical Assistance Center on Positive Behavioral Interventions and Supports; 2014.

Anderson CM, Childs K, Kincaid D, Horner RH, George H, Todd AW, …Spaulding SA (2012). Benchmarks for Advanced Tiers. Unpublished instrument, Educational andCommunity Supports, University of Oregon & University of South Florida.

Anello V, Weist M, Eber L, Barrett S, Cashman J, Rosser M, & Bazyk S. (2016). Readiness for Positive Behavioral Interventions and Supports and School Mental Health Interconnection: Preliminary Development of a Stakeholder Survey. Journal of Emotional and Behavioral Disorders, 1–14.

Backer TE (2001). Finding the balance: Program fidelity and adaptation in substance abuse prevention: A state-of-the-art review. Rockville, MD: Department of Health and Human Services, Substance Abuse and Mental Health Services Administration.

Barrett P. (2008). Friends for Life: Group Leaders' Manual for Children. Sydney, Australia: Pathways Health and Research Centre, Australia.

Becker KD, Darney D, Domitrovich C, Keperling JP, & Ialongo NS (2013). Supporting universal prevention programs: a two-phased coaching model. Clinical Child and Family Psychology Review, 16(2), 213–228. [PubMed: 23660973]

Beidas RS, & Kendall PC (2010). Training Therapists in Evidence-Based Practice: A Critical Review of Studies From a Systems-Contextual Perspective. Clinical Psychology Science and Practice, 17, 1–30. [PubMed: 20877441]

Bradshaw CP, Mitchell MM, & Leaf PJ (2010). Examining the effects of school-wide positive behavioral interventions and supports on student outcomes. Journal of Positive Behavior Interventions, 12(3), 133–148.

Bradshaw CP, Reinke WM, Brown LD, Bevans KB, & Leaf PJ (2008). Implementation of school-wide Positive Behavioral Interventions and Supports (PBIS) in elementary schools: Observations from a randomized trial. Education & Treatment of Children, 31(1), 1–26.

Bradshaw CP, Bottiani JH, Osher D, & Sugai G. (2014). The integration of positive behavioral interventions and supports and social emotional learning. In West MD, Lever NA, Bradshaw CP, & Sarno JO (Eds), Handbook of School Mental Health: Research, Training, Practice, and Policy – Second Edition (pp. 101–118). New York: Springer.

Bradshaw CP, Waasdorp TE, & Leaf PJ (2012). Effects of school-wide positive behavioral interventions and supports on child behavior problems. Pediatrics, 130, e1136–1145.

Bradshaw CP, Pas ET, Goldweber A, Rosenberg MS, & Leaf PJ (2012). Integrating school-wide positive behavioral interventions and supports with tier 2 coaching to student support teams: The PBISplus model. Advances in School Mental Health Promotion, 5, 177–193.

Bravo M, Ribera J, Rubio-Stipec M, Canino G, Shrout P, Ramirez R, … Martinez Taboas A. (2001). Test-retest reliability of the Spanish version of the Diagnostic Interview Schedule for Children (DISC-IV). Journal of Abnormal Child Psychology, 29(5), 433–444. [PubMed: 11695544]

Brener ND, Dittus PJ, & Hayes G. (2001). Family and community involvement in schools: Results from the School Health Policies and Programs Study 2000. The Journal of School Health, 71, 340–344. [PubMed: 11586877]

Briesch AM, Sanetti LMH, & Briesch JM (2010). Reducing the prevalence of anxiety in children and adolescents: An evaluation of the evidence base for the FRIENDS for Life program. School Mental Health, 2, 155–165.

Cappella E. , Hamre BK, Kim HY, Henry DB, Frazier SL, Atkins MS, & Schoenwald SK (2012). Teacher consultation and coaching within mental health practice: Classroom and child effects in urban elementary schools. Journal of Consulting and Clinical Psychology, 80(4), 597–610. [PubMed: 22428941]

Castro FG, Barrera M Jr., & Martinez CR Jr. (2004). The cultural adaptation of prevention interventions: Resolving tensions between fidelity and fit. Prevention Science, 5(1), 41–45. [PubMed: 15058911]

Chorpita BF, and Weisz JR (2009). MATCH-ADTC: Modular Approach to Therapyfor Children with Anxiety, Depression, Trauma, or Conduct Problems. Satellite Beach, FL: Practice Wise, LLC.

Connor-Smith J, Polo A, Jensen Doss A, & Weisz JR (2004). Leader's Manual: Act and Adapt Video-Guided PASCET Program for Prevention and Treatment of Youth Depression. University of California. Los Angeles, CA.

Duchnowski AJ, & Kutash K. (2009). Integrating PBS, mental health services, and family driven care. In Sailor W, Dunlap G, Sugai G, & Horner R. (Eds.), Handbook of positive behavior support (pp. 203–231). New York: Springer.

Durlak JA, Domitrovich CE, Weissberg RP, & Gullotta TP (2015). Handbook of Social and Emotional Learning: Research and Practice. New York, NY: The Guilford Press.

Durlak JA, & DuPre EP (2008). Implementation matters: A review of research on the influence of implementation on program outcomes and the factors affecting implementation. American Journal of Community Psychology, 41, 327–350. [PubMed: 18322790]

Eiraldi R, Benjamin Wolk C, Locke J, & Beidas R. (2015). Clearing hurdles: the challenges of implementation of mental health evidence-based practices in under-resourced schools. Advances in School Mental Health Promotion, 8, 124–145. [PubMed: 26336512]

Eiraldi R, Mautone JA, Khanna MS, Power TJ, Orapallo A, Cacia J, Schwartz BS,McCurdy B, Keiffer J, Paidipati C, Kanine R, Abraham M, Tulio S, Swift L, Bressler SN, Cabello B, & Jawad AF (2018). Group CBT for Externalizing Disorders in Urban schools: Effect of Training Strategy on Treatment Fidelity and Patient Outcomes. Behavior Therapy, 49(4), 538–550. [PubMed: 29937256]

Farahmand FK, Grant KE, Polo AJ, Duffy SN, & DuBois DL (2011). School-based mental health and behavioral programs for low-income, urban youth: A systematic and meta-analytic review. Clinical Psychology Science and Practice, 18, 372–390.

Garland AF, Hough RL, McCabe KM, Yeh M, Wood PA, & Aarons GA (2001). Prevalence of psychiatric disorders in youths across five sectors of care. Journal of the American Academy of Child and Adolescent Psychiatry, 40, 409–418. [PubMed: 11314566]

Guin K. (2004). Chronic teacher turnover in urban elementary schools. Education Policy Analysis Archives, 12, 1–30.

Herschell AD, Kolko DJ, Baumann BL, & Davis AC (2010). The role of therapist training in the implementation of psychosocial treatments: a review and critique with recommendations. Clinical Psychology Review, 30(4), 448–466. [PubMed: 20304542]

Horner RH, Todd AW, Lewis-Palmer T, Irvin LK, Sugai G, & Boland JB (2004). The School-Wide Evaluation Tool (SET): A research instrument for assessing school-wide positive behavior support. Journal of Positive Behavior Interventions, 6, 3–12.

Hunter L. (2003). School psychology: a public health framework: III. Managing disruptive behavior in schools: the value of a public health and evidence-based perspective. Journal of School Psychology, 41(1), 39–59.

Kern L, George MP, & Weist MD (2016). Supporting students with emotional and behavior problems: Prevention and intervention strategies. Baltimore: Pul H. Brookes Publishing Co.

Kolb DA (1984). Experiential learning: Experience as the source of learning and development. Englewood Cliffs, NJ: Prentice-Hall.

Knowles MS (1980). The modern practice of self-education: From pedadogy to andragogy - 2nd. edition New York: Cambridge University Press.

Kutash K, Duchnowski AJ, & Lynn N. (2006). School-based mental health: An empirical guide for decision-makers. Tampa, FL: University of South Florida, The Louis de la Parte Florida Mental Health Institute, Department of Child & Family Studies, Research and Training Center for Children's Mental Health.

Lochman JE, Wells K, & Lenhart L. (2008). Coping Power Child Group Program: Facilitator Guide. New York: Oxford University Press.

PBISApps (2018). SWIS user's manual (version 5.3). Retrieved from https://www.pbisapps.org/Resources/SWIS%20Publications/SWIS%20User%20Manual.pdf

Putnam R, McCart A, Griggs P, & Hoon Choi J. (2009). Implementation of school-wide positive behavior support in urban settings. In Sailor W, Dunlap G, Sugai G. & Horner R. (Eds.), Handbook of Positive Behavior Support (pp. 443–463). New York, NY: Springer.

Mendez LMR (2017). Targetted interventions for students: Process and content Congnitive behavioral therapy in schools: A tiered approach to youth mental mental health services. New York: Routledge.

Merriam S. (2004). The changing landscape of adult learning theory. In Comings J, Garner B. & Smith C. (Eds.), Review of adult learning and literacy: Connecting research, policy and practice (pp. 199–220). Mahwah, NJ: Lawrence Erlbaum Associates.

Rakovshik SG, & McManus F. (2010). Establishing evidence-based training in cognitive behavioral therapy: A review of current empirical findings and theoretical guidance. Clinical Psychology Review, 30, 496–516. doi: 10.1016/j.cpr.2010.03.004 [PubMed: 20488599]

Schaeffer CM, Bruns E, Weist M, Stephan SH, Goldstein J, & Simpson Y. (2005). Overcoming challenges to using evidence-based interventions in schools. Journal of Youth and Adolescence, 34(1), 15–22.

Shaffer D, Fisher P, Lucas CP, Dulcan MK, & Schwab-Stone ME (2000). NIMH Diagnostic Interview Schedule for Children Version IV (NIMH DISC-IV): description, differences from previous versions, and reliability of some common diagnoses. Journal of the American Academy of Child and Adolescent Psychiatry, 39(1), 28–38. [PubMed: 10638065]

Silverman WK, & Albano AM (1996). The Anxiety Disorders Interview Schedule for DSM-IV-Child and Parent Versions. San Antonio, TX: Graywind Publication, A Division of The Psychological Corporation.

Splett JW, Perales K, Halliday-Boykins CA, Gilchrest CE, Gibson N, & Weist MD (2017). Best practices for teaming and collaboration in the Interconnected Systems Framework. Journal of Applied School Psychology, 1–22.

Sugai G, & Horner R. (2009). Defining and describing school wide positive behavior support. In Sailor W, Dunlap G, Sugai G. & Horner R. (Eds.), Handbook of Positive Behavior Support (pp. 307–326). New York: Springer.

Sugai G, Horner RH, & Lewis T. (2009). School-wide positive behavior support: Implementers' blueprint and self-assessment: University of Oregon, OSEP Technical Assistance Center on Positive Behavioral Interventions and Supports.

Tarnowski KJ, & Simonian SJ (1992). Assessing treatment acceptance: the Abbreviated Acceptability Rating Profile. Journal of Behavior Therapy & Experimental Psychiatry, 23(2), 101–106. [PubMed: 1460097]

Viera AJ, & Garrett JM (2005). Understanding interobserver agreement: The kappa statistic. Family Medicine, 37, 360–363. [PubMed: 15883903]

Weisz JR, Sandler IN, Durlak JA, & Anton BS (2005). Promoting and protecting youth mental health through evidence-based prevention and treatment. American Psychologist, 60, 628–648.

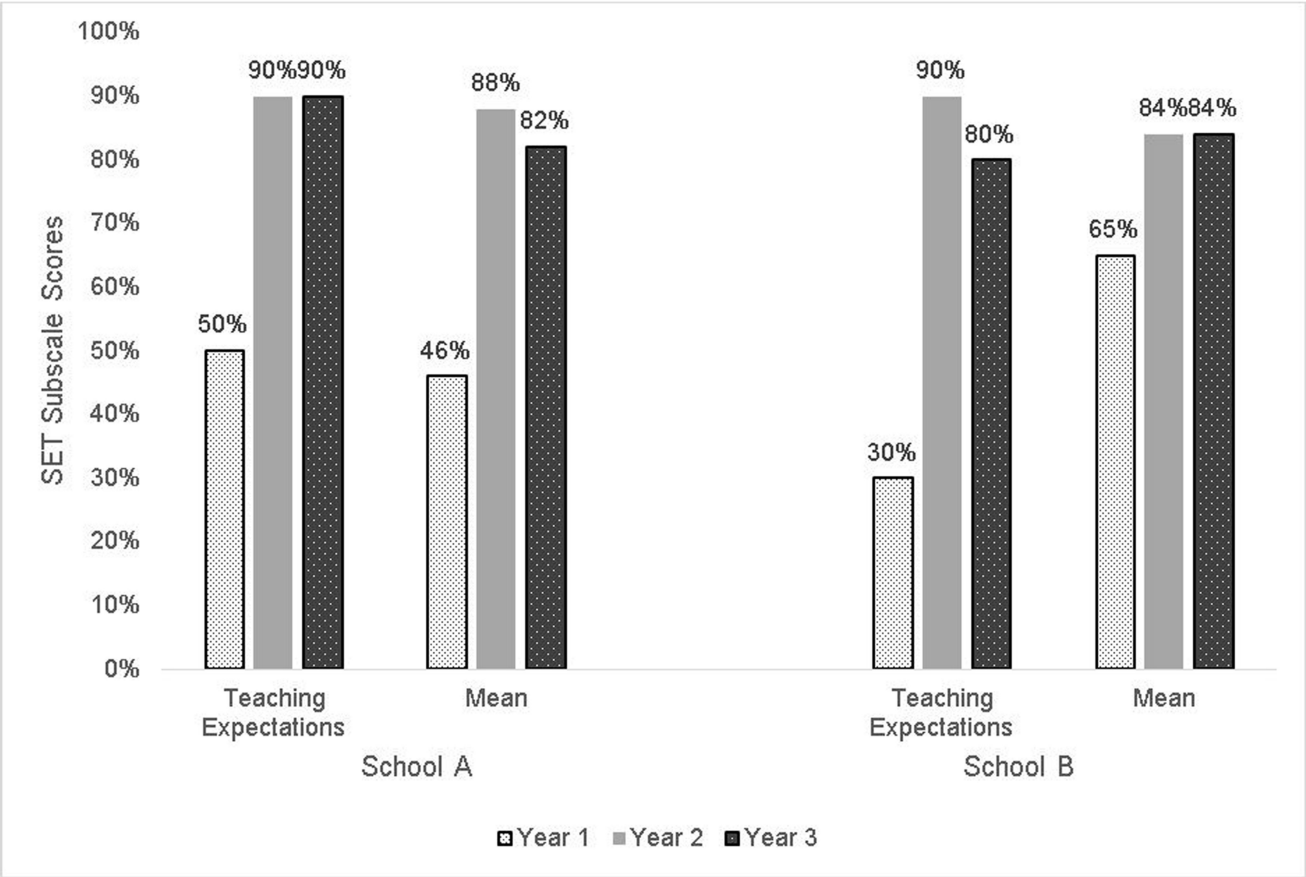

Figure 1.
SET subscale scores for Teaching Expectations and SET Mean for Schools A and B.

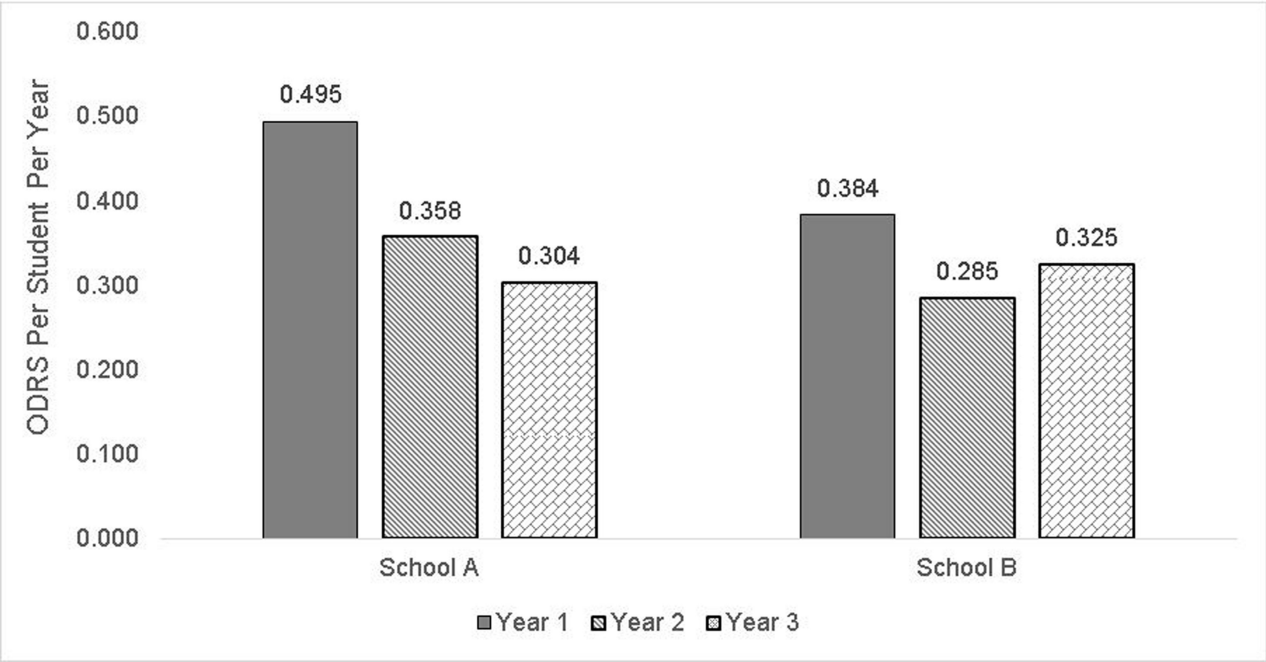

Figure 2.
Number of ODRs per student per year for School A and School B.

Table 1

Participant gender, race and ethnicity by respondent and data source.

Data Type	Children	Parents	School Staff	Total
Acceptability Surveys	23	29	26	78
School A	7	8	9	
School B	16	21	17	
Male	12 (52%)	3 (10%)	4 (15%)	
Female	11 (48%)	26 (90%)	22 (85%)	
African American	4 (17%)	7 (24%)	6 (23%)	
White	4 (17%)	5 (18%)	18 (70%)	
Multi-race/Other race	15 (66%)	17 (58%)	2 (7%)	
Latino ethnicity	17 (75%)	20 (69%)	2 (6%)	
Participants in Tier 2 Interventions				114
School A	42 (37%)			
School B	72 (63%)			
Male	70 (61%)			
Female	44 (39%)			
African American	19 (17%)			
White	18 (16%)			
Multi-race/Other race	76 (67%)			
Latino ethnicity	92 (81%)			

Table 2

Mean acceptability scores by program and informant.

	Rater		
Program	**Child (n = 23)**	**Parent (n = 29)**	**School Staff (n = 26)**
Coping Power			
Anger Management	5.49 (.43)	5.24 (1.1)	5.29 (.58)
Improving Relationships	4.43 (.61)	5.39 (.87)	5.32 (.54)
PASCET			
Change Behaviors/ Manage Moods	5.46 (.41)	5.50 (.74)	5.22 (.68)
Changing Negative Thinking	5.45 (.34)	5.48 (.72)	5.18 (.78)
Friends for Life			
Education/Skill Building	5.64 (.37)	5.47 (.71)	5.20 (.73)
Problem Solving	5.59 (.38)	5.42 (.78)	5.09 (.96)
Practice in Challenging Situations	5.63 (.36)	5.52 (.63)	5.01 (.95)

Note: Scores range from 1 (Strongly Disagree) to 6 (Strongly Agree).

Table 3

Pre- to post- changes in diagnostic severity on the C-DISC-IV for all disorders combined.

Tier 2 Program	*N*	Outcome	pre	post	Diff	*P* value	Wilcoxon *P* value
Coping Power	38	Positive	9.50 (8.56)	8.63 (10.06)	1.02 (10.72)	0.6160	0.2760
		Intermediate	9.50 (6.82)	5.41 (5.08)	4.09 (7.38)	0.0016	0.0012
FRIENDS	23	Positive	11.59(9.31)	7.73 (9.13)	3.86 (9.39)	0.0611	0.0880
		Intermediate	12.32(11.96)	7.25 (8.77)	5.07 (12.07)	0.0562	0.0294
PASCET	19	Positive	5.26 (7.28)	3.22 (5.01)	2.05 (5.920	0.1484	0.1992
		Intermediate	11.11 (6.14)	5.56 (3.70)	5.56 (5.24)	0.0003	0.0004

Note: C-DISC-IV = Diagnostic Interview Schedule for Children, Computer Version, Fourth Edition; PASCET = Primary and Secondary Control Enhancement Training; FRIENDS = Friends for Life