EVIDENCE-BASED PRACTICE IN CHILD AND ADOLESCENT MENTAL HEALTH
https://doi.org/10.1080/23794925.2019.1631723

Delivering the Incredible Years® Dina Treatment Program in Schools for Early Elementary Students with Self-Regulation Difficulties

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ABSTRACT

The purpose of this paper is to describe the implementation of an evidence-based treatment, the Incredible Years® (IY) Small Group Dina Dinosaur Treatment program, as delivered in elementary schools to address the needs of children in kindergarten through second grade with self-regulation difficulties. Adaptations for school-based delivery of 17 intervention groups across three cohorts and 11 schools from an ongoing randomized controlled trial are described, and implementation data including qualitative feedback from school stakeholders are presented. Results show that, with implementation supports, this adapted model can be delivered in schools with fidelity comparable to the clinic-based model, although several activities were delivered at lower dosage in the low-income urban schools as compared with low-income rural or better resourced schools. Satisfaction among school counselors, teachers, and parents was consistently high. Implementation challenges include logistics such as space and scheduling, program fit with school practices and policies, use of specific treatment strategies such as time-out within the school context, capacity of school personnel to deliver the program, and selection of students and group composition. Lessons learned can inform adaptation and delivery of other evidence-based clinic treatments in school settings.

KEYWORDS

School-based mental health; self-regulation; elementary; implementation; evidence-based treatments

Young children with self-regulation difficulties are unable to manage frustration and other strong emotions, interfering with their ability to follow expectations and rules; inhibit inappropriate, impulsive and aggressive behaviors; solve problems; appropriately express emotions; and organize behavior to achieve goals (Blair & Razza, 2007; Raver et al., 2012). Such dysregulated behaviors create impairment at home and with peers, and markedly increase risk for school suspensions (Bradley, Doolittle, & Bartolotta, 2008), special education referrals (Walker, Ramsey, & Gresham, 2003), and substance use and violence (Dishion & Connell, 2006; Garland, Boettiger, & Howard, 2011). Self-regulation is considered a central process underlying mental health (Gross & Muñoz, 1995), and contributes to impairment in children diagnosed with Attention-Deficit/Hyperactivity Disorder and Oppositional Defiant Disorder (Bunford, Evans, & Wymbs, 2015; Mullin & Hinshaw, 2007), and other mental health disorders (Buckner, Mezzacappa, & Beardslee, 2009).

Schools are an ideal setting to provide interventions for young children at risk for mental health disorders (Stephan, Weist, Kataoka, Adelsheim, & Mills, 2007). They provide great opportunity for helping children learn and generalize social and emotional skills to enhance their academic and cooperative learning. Schools also hold potential for addressing significant gaps in children's mental health service delivery indicated by estimates that only about half of the children needing services receive them (Merikangas, Nakamura, & Kessler, 2009); those from ethnic minority groups are especially likely to be underserved (Foster & Connor, 2005). The vital role of schools was recognized by the Surgeon General (U.S. Department of Health and Human Services, 1999) and President's New Freedom Commission on Mental Health (New Freedom Commission on Mental Health, 2003)

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Revised and resubmitted to the *Evidence-Based Practice in Child and Adolescent Mental Health* on June 3, 2019

nearly two decades ago. There is also ample documentation that schools provide mental health services to more students than clinics (Farmer, Burns, Phillips, Angold, & Costello, 2003; Rones & Hoagwood, 2000) and reduce financial and structural access barriers (Taras & American Academy of Pediatrics Committee on School Health, 2004). And while there has since been growing consensus on the value of school mental health services, models of how to effectively integrate such services into schools are lacking, particularly at the targeted level (Atkins, Hoagwood, Kutash, & Seidman, 2010).

Systematic reviews show that school-based mental health interventions can be effective (Baskin, Slaten, Sorenson, Glover-Russell, & Merson, 2010; Hoagwood et al., 2007), and many evidence-based programs can be implemented in schools (Kratochwill et al., 2008). Yet, clinic-based programs are often implemented in schools unsuccessfully, with poor quality and/or reduced dosage (Atkins, Frazier, Adil, & Talbott, 2003). Challenges include gaining teacher and administrator buy-in, limited school personnel time and resources, and misalignment with school philosophy (Forman, Olin, Hoagwood, Crowe, & Saka, 2009). Langley, Nadeem, Kataoka, Stein, and Jaycox (2010) also noted barriers related to school accountability for academic rather than social-emotional outcomes, logistics (e.g., pulling children from class for program participation, finding space for groups), and limited parent involvement.

One specific challenge in implementing mental health programs in schools is that many were developed for delivery in clinics (Reddy, Newman, De Thomas, & Chun, 2009), raising questions about adaptations and implementation supports that may be needed to address contextual differences in settings. Clinic-based models often assume parent involvement and can encourage parents to reinforce skills students learn in the program. Program curricula are likely to be based on traditional therapy clock hours, often more generous than time available in schools for students to participate in programs. Clinics serving children with disruptive behavior may also have resources to manage highly dysregulated behaviors (e.g., additional staff, special time-out room) which schools do not. Also, school staff may not have the same level of clinical training as licensed mental health clinicians. Still, schools offer opportunities for staff to prompt, monitor, and praise children's use of targeted skills, and provide access to teachers to reinforce children's skills in the classroom as well as to implement behavior plans. Thus, there is a need to closely examine efforts to adapt evidence-based programs for school settings, including the success of implementation delivery and issues that arise in doing so.

Purpose of the paper

The purpose of this paper is to describe the adaptation and implementation of an evidence-based clinic program, the Incredible Years® Small Group Dina Dinosaur Treatment Program (IY® Dina), in an elementary school setting. This work is based on an ongoing randomized controlled trial, for which outcome data are not yet available. Describing our implementation experience here will support interpretation of forthcoming efficacy results, and may facilitate adaptation and implementation of other clinic-based programs for schools.

The IY® Dina small group program was selected for examination because it has been delivered in schools, albeit without implementation evaluation (Hutchings, Bywater, Daley, & Lane, 2007; Venter et al., 2012), and has been identified as having high potential for adoption (Joseph & Strain, 2003). It also shows "potentially positive" effects as a universal school intervention (U.S. Department of Education, Institute of Education Sciences, What Works Clearinghouse, 2011), and has demonstrated efficacy with clinical samples as a small group program (Larsson et al., 2009; Webster-Stratton & Hammond, 1997; Webster-Stratton, Reid, & Beauchaine, 2011; Webster-Stratton, Reid, & Hammond, 2004).

Other well-defined programs considered promising for emotion regulation and behavior by the What Works Clearinghouse take universal approaches [Caring School Communities (Battistich, 2003); Positive Action (Flay & Allred, 2003)], which are not designed to meet students' mental health needs. Or, they utilize an individualized approach [e.g., First Step to Success which requires 60 hours of a behavior coach's time per child (Walker et al., 2009)], which is likely less cost effective than group programs. Although there are other programs for schools adapted from clinic-

based models that address challenging behaviors in young students [e.g., Teacher–Child Interaction Training; TCIT (Lyon et al., 2009)], our interest was in a group program consistent with "Tier 2" school intervention models for supporting students who do not respond to universal interventions, but may not require individual services like First Step.

We first describe the IY® Dina program originally developed for clinic delivery, followed by our delivery adaptations and implementation supports to maximize feasibility for the school context and program efficacy. We then address the following implementation questions using data from three cohorts of an ongoing randomized controlled trial (RCT) study: 1) To what extent can the adapted program be delivered with fidelity in elementary schools, as conjointly delivered by mental health clinicians and school counselors? 2) How satisfied are school staff with the program and their involvement in it? 3) What are the implementation challenges that may inform delivery of other clinical programs into schools? Given the nature of implementation questions, we did not have specific research hypotheses but report data that may be used to generate hypotheses for future research. We close with lessons learned and implications for translating clinic-based programs to school settings.

Methods

Description of IY® Dina for delivery in clinics

IY® Dina is part of a comprehensive series of preventive and treatment programs for parents, teachers, and children aged 3–8 years (Webster-Stratton & Reid, 2017) with or at risk for conduct problems or ADHD (Webster-Stratton & Reid, 2013). Grounded in relationship and cognitive social learning theory, developmental theory, and active learning methods, IY® Dina is delivered in groups using a collaborative process. Several aspects of the IY® series explicitly target self-regulation difficulties with strategies to inhibit impulsivity, increase persistence and frustration tolerance, use emotion language and calm-down methods, and identify and solve social problems.

IY® Dina was developed for delivery in clinics by two skilled mental health clinicians during 2-hour weekly sessions typically held concurrent to a parent training group (Webster-Stratton et al., 2011), usually over 18–22 weeks. Curriculum content spans seven units: learning school rules, how to be successful in school (e.g., raising your hand, checking your work, keeping eyes on the teacher, not talking out), detecting and understanding feelings, problem-solving steps, controlling anger, friendship skills, and how to talk with friends. Group leaders teach this content with methods developmentally appropriate for young children (e.g., video-modeling, sociodramatic play with puppets, role play, singing) and small group activities designed to support skill application and scaffolding of skills through explicit feedback and reinforcement (or "coaching"). A typical session includes a whole group circle time lesson, a small group activity, snack, and coached playtime.

IY® uses a discipline hierarchy that relies on high doses of positive reinforcement with frequent labeled praise for positive behaviors. Group leaders use tangible reinforcers (e.g., hand stamps, stickers, scented markers, fish crackers) and special privileges (e.g., child gets to lead a wiggle break, be a helper, have a special job, wear a cape) for positive behaviors. A token economy system allows children to earn chips for positive behaviors that can be traded for small prizes in every group meeting. Other behavior management systems include individual special challenges and team challenges for which a prize can be earned. These systems are kept separate from punishment strategies; once an incentive is earned, group leaders will not take it away.

To address negative behaviors, group leaders primarily use strategies such as redirection, distraction, and selective ignoring to extinguish unwanted behaviors, accompanied by differential attention and praise given to other children's positive behaviors. Other discipline strategies include logical and natural consequences, and privilege removal. Time-out is used for unsafe behaviors that cannot be ignored such as aggression. IY® conceptualizes time-out as a space where children go to calm down and use coping strategies (e.g., deep breathing, self-talk, positive imagery) to self-regulate. Like other evidence-based treatments including Defiant Children (Barkley, 2013), Parent–Child Interaction Therapy (Eyberg et al., 2001), and Helping the Noncompliant Child (McMahon & Forehand, 2003), IY® uses a series of steps beginning with letting the child know

what the behavior was that earned time-out and options should the child initially refuse to go (e.g., warnings, privilege removal, time-out "on the spot" where the rest of the group is moved to a different part of the room). IY® also explicitly teaches children time-out, using videos and practice prior to implementing it (Webster-Stratton, 2016).

IY® Inc. strongly encourages group leaders to have a background in mental health, child development, and teaching. Prior to delivering the program, group leaders participate in an authorized 3-day training to learn to deliver curriculum content (content leader role) and reinforce and manage children's behavior (process leader role). Training methods include discussion, video and live modeling, and behavioral practice. Group leaders are eligible for program certification after delivering the program to two cohorts and must pass a series of delivery and fidelity reviews by accredited trainers with IY® Inc.

Adaptations and implementation supports for school-based delivery

Delivery adaptations

In consultation with the program developer, we made several adaptations to make IY® Dina more feasible for school-based delivery (Table 1). Our adapted model involved conducting sessions twice a week for 45 minutes each. Thus, one 2-hour, weekly session from the clinic-based model was typically delivered in two school-based sessions. As a result, the 18 lessons in the original curriculum were delivered in approximately 36 sessions over 18–20 weeks. The structure of the 45-minute sessions was comparable to the 2-hour sessions, with two exceptions. Due to time constraints, snack time was eliminated as is coached play. But, because coaching is important for scaffolding children's skill acquisition, we provided "recess coaching," where a group leader coached children on the playground about 30 minutes per week. This supported children's use of skills in a natural context and strengthened the group leader's relationship with the children. And, this added time made the total dosage of our school-based model equal to the clinic-based model. We considered the twice weekly 45-minute small group lessons combined with the weekly 30-minute recess coaching sessions to be the core components of our school-based adaptation of IY® Dina.

Table 1. Comparison of clinic model and adapted model for school-based delivery.

Clinic Model	Adapted Model for School-Based Delivery
• Eighteen 2-hour lessons delivered weekly over 18–20 weeks	• Thirty-six 45-minute sessions delivered twice a week over 6 months • Instead of including coached play during the session, weekly recess coaching (about 30 minutes per student) • Bi-monthly check-in calls for parents • Three parent meetings* • Monthly 1:1 teacher consultation meetings • In-service sessions for teachers on topics related to young children's self-regulation (2 hours total)
• Co-leaders typically are licensed mental health professionals	• Co-leaders are mental health professionals or trainees from research team, paired with a school counselor
• Originally developed for children with ODD and Conduct Disorder	• Students nominated by teachers as having broadly defined self-regulation difficulties • Enrolled students must have an SDQ Total Difficulties score >12, in addition to meeting other inclusion criteria
• Parents bring children to group and pick them up	• Group leaders' contact with parents is typically by phone or through parent meetings

Our adapted model paired school counselors with a study team clinician as the two group leaders, reflecting recommendations to create partnerships between school staff and community clinicians as an implementation support for school-based mental health programs (Forman et al., 2009; Langley et al., 2010). The approach of engaging school counselors to conjointly deliver programs with external mental health staff is not utilized often (Weare & Nind, 2011), but has been successful in small group programs in schools with older elementary students (Lochman & Wells, 2003). Moreover, our conjoint delivery model reflects an integrated, inter-agency approach to

supporting school mental health with community resources, an approach recommended to address the President's 2002 New Freedom Commission Goals (Stephan et al., 2007).

School counselors are considered ideal partners given that their roles involve supporting children's social-emotional skills through classroom guidance lessons, small group programs, and 1:1 support (American School Counselor Association, 2005). School counselors are typically more available to provide interventions to students than are other school-based mental health providers (e.g., school psychologists, social workers). Finally, school counselors are encouraged to adopt evidence-based counseling practices (Dimmitt, Carey, & Hatch, 2007), yet they may lack training and experience to do so. Having them trained and engaged as co-leaders also provides potential advantages to clinic-based models, in that school counselors are available to prompt, monitor and reinforce the skills students learn in the program throughout the day, as well as reinforce the program's approach with teachers and parents.

Given the critical importance of caregivers in supporting children's learning in IY® Dina, our model included activities to engage teachers and parents in the program and encourage them to support students' generalization of skills to the classroom and home settings. Group leaders provided 1:1 in-person or phone consultation to teachers with students in the program at least bi-monthly and involved sharing information about the skills students are learning; how teachers can support students to use these skills in the classroom; and brainstorming behavioral goals and strategies to address teachers' concerns. These meetings were scheduled at teachers' convenience. We also provided 2 hours of teacher in-service meetings focused on young children's self-regulation development and how teachers can support this learning, drawing from material provided in the IY® Teacher Classroom Management Program. Typically scheduled after school or during grade-level planning meetings with refreshments provided, attendance at these meetings was specifically requested for teachers who had children enrolled in the program though some schools encouraged other faculty to attend as well. Ideally, IY® Dina materials would be shared with teachers but was not done here to protect against contamination of teachers with students randomized to the control group. These opportunities for supporting teachers and extending their knowledge were additional benefits of study involvement beyond the monetary stipend they received for their participation.

Delivering IY® Dina in clinics involves parents attending the IY® parent program; our adapted model included three parent meetings where information about what students were learning in the program and video of their child's group were shared. Parents discussed chapters in *The Incredible Years: A Trouble-shooting Guide for Parents of Children Aged 2–8 Years* (Webster-Stratton, 2006) which was given to them. Meetings included a brief parent–child activity so parents could practice giving their child positive attention and reinforcement, akin to the weekly home activities for children and parents to complete. Dinner, transportation money, language interpreters, and child care were provided to support attendance. Meetings were typically held in the evening, but some were held during or after school to accommodate parent work schedules. Like the clinic model, parents got consultation calls from a group leader at least bi-monthly.

Implementation supports

In addition to the required 3-day IY® Inc. training, we provided supervision and peer consultation to support group leaders' intervention delivery and skill development: monthly meetings for all school counselors and study clinicians, weekly group supervision, video consultation and written feedback from the program developer twice a month, and individual supervision as needed. Facilitated by the first author (a licensed clinical psychologist), peer consultation meetings involved group leaders setting goals for feedback and sharing video, followed by discussion of their strengths and suggestions to try next time which are practiced via role play. Group leaders who delivered the program at least twice were supported in applying to become certified, which involved video review of sessions by an IY® certified trainer and detailed written feedback.

Another important implementation support is having a strong working relationship with a district liaison, typically an administrator who

supervises the school counselors such as the Student Services Coordinator or Director of Student Resources. We developed and maintain these partnerships through regular and proactive communication, including in-person meetings, and by being responsive to school requests and concerns. This partnership has been critical in identifying appropriate schools to target, ensuring that we obtain support from principals to deliver the program's core components, and problem-solving concerns when they arise.

Intervention sample and school context

As part of an ongoing RCT study, we enrolled and randomized 172 students, of whom 86 participated in IY® Dina across 17 intervention groups.[1] Written parent permission was obtained with support from school counselors for 57% of students nominated by their teachers as needing intervention, and 63% met full inclusion criteria including elevated social behavioral difficulties [≥12 on the Strengths and Difficulties Questionnaire (Goodman, 1997)], which provides a clear risk threshold often used for inclusion of students needing intervention in research studies. Also, students in this sample demonstrated self-regulation difficulties on the widely used Emotion Regulation Checklist (Shields & Cicchetti, 1997). The average sample score for the Negativity/Lability scale was 2.39 which is considerably higher (worse) than a normative preschool sample (M = 1.42; Danisman, Iman, Demircan, & Yaya, 2016). Also, the average Emotion Regulation total score was 2.69, which is lower (worse) than the average for 7- and 10-year olds in a large geographically representative sample (M = 3.32; Blair et al., 2015). Students with autism spectrum disorder, full-time placement in special education classrooms, significant intellectual deficits and non-proficiency in English based upon school staff report were not included, as the intervention was not designed for such students.

Our intervention sample is racially-ethnically diverse (56% Black, 23% White, 14% Latinx, and 7% Multiracial). Most students received free or reduced lunch (73%) and were male (67%). Per parent report, 24% had been diagnosed with a mental health disorder; 65% of these with ADHD. Drawn from four districts in the Southeastern U.S., 6 of our 11 schools (64%) were from an urban school district, with high representations of ethnic minority and low-income students (78–100% free or reduced lunch). Four schools were from rural communities, with considerable socio-demographic diversity (28–79% free or reduced lunch); the other school was from a well-resourced district in a university community.

Each of our 17 groups (Cohort 1: 4 groups, Cohort 2: 8 groups, Cohort 3: 5 groups) were comprised of 3–6 first and second graders from multiple classrooms in the same school; most groups had 5 or 6 students. Groups were also comprised of students from both grade levels with two exceptions where we had a group of all first graders and another group of all second graders. The program was delivered by six research clinicians, who were all White females with masters' degrees and backgrounds in counseling psychology, school psychology (including two doctoral-level trainees), and social work. Their school counselor co-leaders were nine White females, four Black females, and one Black male. Four doctoral students in clinical psychology and school psychology also helped deliver the program as part of their practica, serving as a third co-leader who primarily provided additional behavior management support.

Procedures and measures

Fidelity

Fidelity data were collected using three types of measures.

Intervention dosage. For implementation of the small group lessons, recess coaching, parent meetings, and teacher consultation meetings, study clinicians documented the occurrence of these activities using a web-based data entry system designed by the study team. For small group lessons, study clinicians recorded when they delivered each session, resulting in a total number of sessions needed for each intervention group to cover the content in the 18 IY® Dina lessons. In

[1]There were 87 students randomized to the intervention group. One student did not participate in the intervention due to parent preference related to receipt of other services, and these data are not reported here.

addition, study clinicians indicated whether the student was present or not for each session. Because the number of total sessions varied by intervention group, student dosage was calculated by the percent of sessions attended. Similarly, clinicians recorded the days on which they provided recess coaching to each student, yielding a total number of recess coaching sessions per student. Clinicians recorded when they met with a teacher and the duration of each meeting using the following categorical scale: 1 = 0–5 minutes, 2 = 6–10 minutes, 3 = 11–15 minutes, 4 = 16–20 minutes, 5 = 21–25 minutes, 6 = 26–30 minutes, 7 = 31–35 minutes, 8 = 36–40 minutes, 9 = 41–45 minutes, 10 = 46–50 minutes, 11 = 51–55 minutes, 12 = 56–60 minutes, and 13 = Over 60 minutes. This scale was utilized because of reliability concerns in recording exact number of minutes.

For the teacher in-service and parent meetings, dosage information was collected using attendance sign-in sheets to calculate the number of teachers at each meeting and the percent of meetings attended by parents, respectively.

Program adherence. Study clinicians completed session adherence checklists of specific activities expected for each lesson that was created by the program developer and are part of the standard program implementation. Items reflect expectations for intervention delivery in clinic settings. Adherence checklist items were reviewed by the first two authors in collaboration with the program developer, and it was determined that few items were not applicable (e.g., greet parents upon arrival) to our school-based model. Program adherence was calculated as the percentage of activities completed and was calculated for all items on the checklist (clinic-based model) as well as excluding the not applicable items (school-based model).

Delivery quality. To evaluate delivery quality, 61 videos of group sessions were rated by a certified IY® trainer not involved with program implementation using a measure of session quality created by the developer. Videos were selected randomly (i.e., two full lessons per intervention group, resulting in 3–4 videos per group). Five of the measure's 92 items produce a score for overall session quality. Items were rated on a 5-point scale (1 = not at all, 3 = sometimes, 5 = frequently/extremely well).

Intervention satisfaction

Satisfaction data were collected from parents, teachers, and counselors using three measures.

Parent satisfaction. Parents completed a paper-pencil questionnaire where they rated their satisfaction with the program on three items on a 7-point scale (1 = extremely unhelpful, 2 = unhelpful, 3 = somewhat unhelpful, 4 = neutral, 5 = somewhat helpful, 6 = helpful, 7 = extremely helpful). In addition, parents completed open-ended questions to indicate what they found was most helpful about participating in the program for them and for their child, along with any suggestions they had about the program. Items on this questionnaire were adapted from the IY® Small Group Dina Parent Satisfaction Questionnaire.

Teacher satisfaction. Teachers rated their satisfaction with various aspects of the intervention related to participation for their student and for themselves, using the 7-point scale described above. Teachers also completed open-ended questions on what they found most helpful about participating in the program, plus any suggestions they had about the program.

Counselor satisfaction. Counselors completed a 39-item questionnaire adapted from the Incredible Years® Parent and Teacher Satisfaction Questionnaires, containing 22 items focused on the ease of use and helpfulness of the group methods and format based on a 7-point scale (1 = extremely difficult to use/unhelpful, 4 = neutral, 7 = extremely easy/extremely helpful). Counselors also rated the helpfulness of the following intervention supports: training and consultation, 3 items; co-leader support, 5 items; and teacher in-service and consultation, 4 items, using the same 7-point scale. In addition, counselors completed five open-ended questions to indicate what they liked about participating in the program, how their participation impacted their professional development and practice, and suggestions for improving the program.

Data analysis plan

Analyses for quantitative data were primarily descriptive such as means, standard deviations, ranges, and frequency counts conducted using SPSS version 25. While recognizing limited power for detecting school-level variability in our data, given differences in our implementation experience across schools, we also explored group differences by type of school (low-income urban n = 5, low-income rural n = 2, better resourced n = 3) using ANOVA with Hochberg post-hoc testing. Qualitative theme analysis was conducted by the first and fourth authors. Using content analysis guidance in Saldaña (2015), this involved examining the open-ended responses, grouping them into similar content areas, and drawing themes from these groupings.

Results

Fidelity

Intervention dosage

Table 2 provides an overall summary of intervention dosage results relative to intervention delivery. On average, it took 35 sessions for a group to complete all 18 IY® Dina lessons (range = 32–40), with 36 expected given our group structure. Across 17 groups and 11 schools, we had 88% average student attendance (range = 16–100%). Six of 86 students (7%) attended less than 70% of the sessions, which was most commonly associated with a high number of absences from school or moving out of the school where the intervention program was provided. Students completed an average of 47% of the homework assigned during group, although this was highly variable (SD = 32%, range = 0–100%). We also delivered an average of 13.2 recess coaching sessions per student (range = 2–20). The sessions most often covered skills for making friends (53% of sessions), followed by solving problems (46%) and following recess rules (40%).

Table 2. Summary of intervention dosage results relative to intervention delivery.

		Intervention Dosage		
Intervention Component	Implementation*	Mean	SD	Range
Child group attendance	36 groups per child	88%	18%	0–100%
Child recess coaching sessions	Weekly sessions	13.22	3.73	2–20
Teacher consultation sessions	Monthly sessions	6.78	2.64	2–16
Parent meeting attendance	3 meetings per child	54%	39%	0–100%

*Implementation occurred over an 18–20 week period.

For the 1:1 teacher consultation sessions facilitated by study clinicians, there was an average of 6.78 contacts per year for each teacher (range = 2–16), about one per month lasting 6–10 minutes each on average. Almost 80% of teachers involved in the study attended at least one in-service meeting, with an average attendance rate of 63% (mean of 1.6 of 2.4 sessions offered). In addition, 15 additional teachers attended who were not involved in the study, as this was offered as a universal support to schools. Finally, parent meeting attendance (2–3 meetings, depending on year of the study) was 54%, with 74% attending at least one meeting and more than 50% attending two meetings. Parents also received an average of 3.5 individual phone calls.

Regarding variation in implementation that may be related to type of school, there was a trend [F(2,85) = 2.37, p = .10] towards differences in student group attendance, such that students in low-income urban schools (free and reduced lunch rates >70%) had lower attendance (84%) as compared to the low-income rural schools (94%) and the better-resourced schools (92%). Significant differences with similar effects were seen [F(2,80) = 20.80, p = .00] in the percent of homework students completed (low income urban = 31%, low-income rural = 73%, higher income = 67%) and the number of recess coaching sessions [F(2,85) = 2.56, p = .08], averaging 12.00 for low-income urban, 16.43 for low-income rural, and 13.83 for better-resourced schools, with statistically significant post-hoc differences between low-income urban and rural. For teacher consultation meetings [F(2, 85) = 2.56, p = .08], low-income urban school teachers received fewer meetings (5.35) than higher resourced schools (6.74), but not low-income rural schools (5.57). Although not statistically significant overall, there were similar differences for parent group attendance [F(2,85) = 2.07, p = .13], with parents from low-income urban schools attending fewer sessions (48%) than parents from better-resourced schools (68%), but this was not significantly different from parents in low-income rural schools (51%).

Program adherence

Based on items reflecting our adapted model, our adherence rate across the 17 groups by group leader report was 91% and was 93% when calculated based on clinic model expectations (i.e., all adherence checklist items). These adherence rates suggest high content adherence and little differences between our adapted model and the clinic model. There were no significant differences across groups by type of school in overall adherence. However, there were differences in the total number of vignettes shown [$F(2,16) = 4.10$, $p = .04$], with urban low-income schools showing fewer vignettes (40.67) than rural low-income schools (63.67), and higher resourced schools with a number in between these two (53.80).

Delivery quality

As shown in Figure 1, overall fidelity as rated from video by an independent reviewer was 3.9 on a 1–5 scale. Group leader knowledge was rated as the highest possible score of 5.0, which may reflect the extensive supervision and consultation supports provided. Fidelity to session protocol and student engagement and scaffolding was rated as between "sometimes" and "often," with scores of 3.8. The lowest rating, indicating that activities occurred sometimes (3.2), was in the number of vignettes shown. Indeed, examination of the actual number of vignettes suggests that on average, one vignette was shown per group rather than two as is expected for a session of this length of time, per guidance from the developer. This may reflect some of the challenges in the groups, to be described further. There were no significant differences among types of schools in fidelity of program delivery as rated by an independent expert.

Intervention satisfaction

Among responding parents ($n = 66$ of 86), most were satisfied or very satisfied (≥6 on 1–7 scale) with the overall program (93%), the parent meetings (95%), and the Incredible Years® parent book (84%). Also, 95% reported that talking with the study clinician was helpful or very helpful, and 97% would recommend the program to others. Parents' responses to open-ended questions most strongly reflected

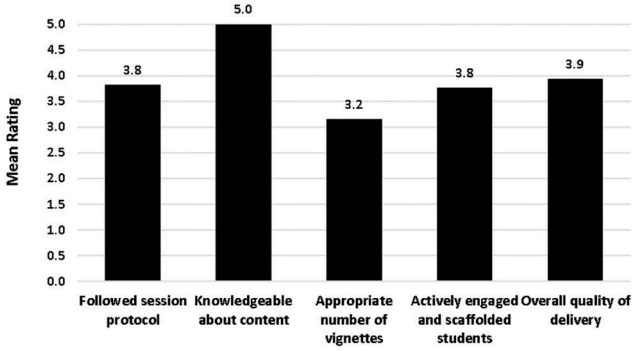

Figure 1. Independent expert ratings of session quality ($n = 61$)[a]. 1–5 scale where 1 = Not at all, 3 = Sometimes, 5 = Frequently/extremely well[a]exploratory analyses showed no differences by school type.

themes of feeling that learning specific social and emotion regulation skills were most helpful to their child. Parents most often reported that their child liked the puppets and certain activities (e.g., making a "teasing shield"), and forming positive relationships with peers in the group and the group leaders. Parents frequently suggested that the program run longer or begin earlier in the child's developmental/educational trajectory, along with requests for more parent involvement and support (Kurian, Murray, & LaForett, 2018).

Based on teacher satisfaction surveys focused on specific students who participated in the intervention ($n = 84$ of 86 possible students, based on 77 teacher ratings), 48% were satisfied with the students' progress in the intervention (≥6 on 1–7 scale) and 68% were at least somewhat satisfied (≥5). In contrast, most teachers were satisfied or highly satisfied with the 1:1 consultation and in-service meetings (82% and 71%, respectively), and 71% would recommend the program to another teacher or parent. In response to open-ended questions about their own participation, the strongest themes showed teachers valuing opportunities to develop their own behavior management skills (Kurian, LaForett, & Murray, 2018).

There were no differences in parent or teacher satisfaction. However, there was a trend towards differences in teachers' perceptions of improvement in the major problems that prompted student referrals to the program [$F(2,160) = 3.01$, $p = .05$], with teachers in the low-income urban schools seeing less

improvement (M = 4.20) than those in low-income rural (M = 4.77) and better-resourced schools (M = 4.72).

Counselors' satisfaction ratings (Figure 2) showed relatively high ratings overall for the ease of use (average rating 5.2 on 1–7 scale) and helpfulness of methods (5.9 on 1–7 scale). They rated ignoring and using puppets lower for ease of use, but also perceived these methods as very helpful. This disparity may reflect growth areas for counselors' skills, and ones that they perceive as having high pay off and benefit for students. Of note, they perceived time out and vignettes as relatively less useful than other methods. Counselors also had generally high ratings of helpfulness of the supports they received to deliver the small group and other intervention activities (Figure 3), reflecting our successful partnership approach and the potential value of these other intervention activities for other school-based mental health programs.

Counselors also gave unsolicited feedback on how their participation as a group co-leader benefitted their professional development, reporting an increase in their skills to manage behavior and more effectively praise and ignore students. Similarly, they described having gained understanding of challenging students and how to teach them social-emotional skills in "fun" ways. They also commented on how delivering IY® Dina helped them support teachers and deliver classroom-level supports, making them better equipped to suggest and model effective strategies to use with challenging students (e.g., calm-down thermometers). Finally, counselors described using intervention materials for classroom guidance activities.

Discussion

We next summarize key findings and reflect on our implementation questions related to: 1) fidelity, 2) satisfaction, and 3) implementation challenges. We address each of these within the context of considerations for future delivery of IY® Dina in schools. Though our conclusions certainly reflect our study's relatively small sample of schools and selected students, our implementation challenges are consistent with those of other school mental health programs (Forman et al., 2009; Langley et al., 2010). Therefore, we believe that this work has broader implications for implementing clinical programs in schools.

Dosage and fidelity

Based on our data, we conclude that IY® Dina can be delivered in schools with a moderate to high level of fidelity expected to produce positive results when highly skilled clinical research staff partner with school counselors. Still, considerable time and resources were required for the training, consultation, and implementation supports to do so. And, there were areas where our delivery could have been enhanced (e.g., number of vignettes shown). Without external grant funding, fidelity could become a concern particularly for schools with greater adversity (e.g., more economically disadvantaged; staff experiencing significant stress; high numbers of students with extremely challenging behaviors). We also expect that challenges related to logistics (e.g., space, scheduling) might be more difficult to overcome outside of a research context absent principal and district

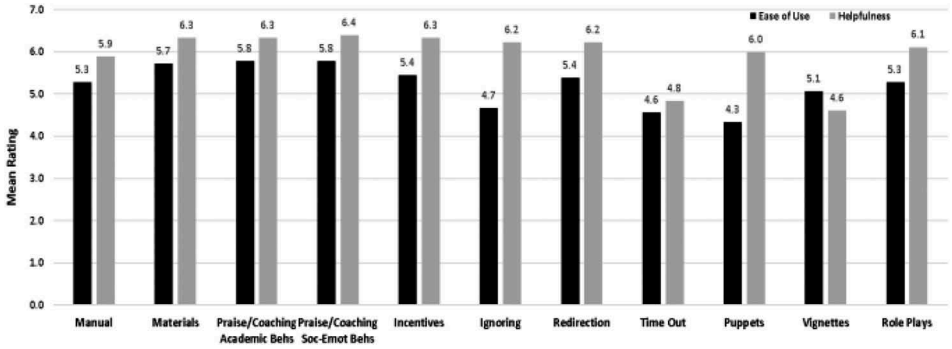

Figure 2. Counselor ratings of IY teaching methods (n = 17).
1–7 scale where 1 = extremely difficult to use/unhelpful, 4 = neutral, 7 = extremely easy/extremely helpful.

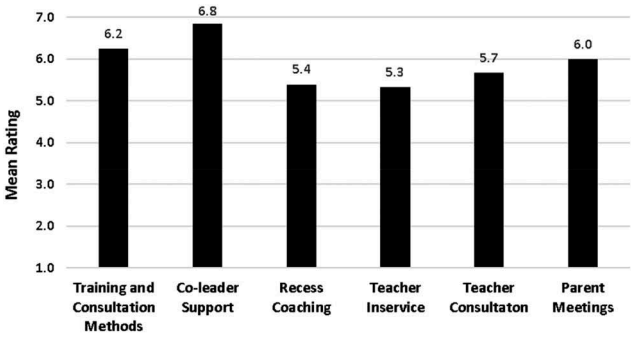

Figure 3. Counselor ratings of perceived helpfulness of other intervention supports and activities (n = 17).
1–7 scale where 1 = extremely unhelpful, 4 = neutral, 7 = extremely helpful.

staff commitment to support program delivery and compensation for school staff.

Contextual variability

There were also interesting findings related to variations in implementation by the urbanicity and income level of our participating schools. In general, it appears that low-income urban schools received a lower dosage of the intervention as defined by child group attendance, recess coaching sessions, homework completion, parent meeting attendance, and teacher consultation sessions (although given our limited statistical power, not all of these differences were significant). Groups delivered in these schools also showed fewer vignettes, considered a core component of the intervention, although overall adherence and fidelity by group leader self-report of content and activities and by delivery quality rated by an objective expert did not differ. Of note, low-income rural schools did not demonstrate this pattern and in fact showed the best implementation on several measures. This finding is consistent with other work suggesting that rural and urban poverty are distinctly different contexts (Tine, 2017). Although we encourage caution in interpreting these exploratory findings, such contextual variability appears important to consider in future school implementation research.

Satisfaction

An important consideration for future delivery of IY® Dina in schools is parent, teacher, and counselor satisfaction, which may impact district administrators' decisions to support the program. Our parent meeting attendance was 54% overall, which is better than average for school-based interventions (Garbacz, Herman, Thompson, & Reinke, 2017; Minney, Lochman, & Guadagno, 2015). Most parents had at least some involvement and were quite satisfied with the program and their child's participation, and this did not seem to vary by the poverty or urbanicity of the school. Indeed, we heard numerous unsolicited comments about parents who engaged with their schools in positive ways for the first time as a result of the program, and about parents who praised the program at unrelated school and district meetings.

For teachers, satisfaction with student progress was notably lower than satisfaction with the program itself, and this seemed to be particularly true for teachers in the low-income urban schools. This may be related to the initial severity of students' behavior and teachers' expectations for behavior change, which they communicated to our study clinicians. Indeed, in other analyses we have presented, teacher satisfaction was associated with decreases in students' hyperactivity/impulsivity (Masked for review, 2018b). Qualitative data are also encouraging in that teachers reported many benefits to their knowledge and skills from the in-service meetings and consultation, despite these not being core components of the program. Interestingly, their perceptions of student improvement were moderately associated with the 1:1 consultation they received (Masked for review, 2018b).

Counselors reported clear professional development benefits and rated all therapeutic methods as at least *somewhat useful* and the majority as *useful*. They also informally reported applying knowledge and skills learned in the program to other students, programs, and practices may increase schools' capacity for providing effective social-emotional learning supports. Overall, satisfaction data suggest that IY® Dina may meet professional development and service needs within schools that support its future use in this setting.

Implementation challenges

Capacity building needed for counselor skills

Even with extensive consultation support, acquiring the breadth of skills needed for effective group leadership was challenging for many of our

counselors. This seems to reflect counselors' lack of training in the clinical skills and intensive behavior management needed for young students with significant self-regulation difficulties. Encouragingly, some of our counselors greatly developed these skills during the intervention. Two successfully achieved certification in the program, and another passed the video portion of certification (3 of 4 who were eligible), reflecting 20% of the 15 school staff who co-delivered groups with us.

One of the biggest challenges for many counselors was understanding the behavioral principles underlying the positive reinforcement systems and strategies to reduce inappropriate behavior. For example, they struggled with the rationale of rewarding children for expected behaviors, the high reinforcement rates needed to shape behavior, and resisting the urge to mix reward and punishment systems. Also, concepts such as ignoring minor disruptive behaviors and withdrawing adult attention during time-out were difficult for some to implement consistently. Others struggled with the dynamic nature of group therapy for children with challenging behaviors, which requires group leaders to constantly monitor behaviors, respond quickly to prevent problems, and engage the group in a very active, child-focused way (e.g., singing songs, physical movement). Overall, 3 of the 15 school staff who co-led groups struggled to develop the competencies needed (about 20%), similar to the number who mastered program delivery. Our experience with school counselors is consistent with research that has identified limitations in the knowledge and skills of school-based personnel for serving students with significant mental health difficulties (Koller & Bertel, 2006).

Misalignment with school discipline systems

One of the biggest implementation challenges we encountered was navigating differing philosophies between the IY® positive discipline approach to managing behavior and schools' discipline policies. Some of our partner schools utilized zero-tolerance policies that press adults to respond to certain behaviors and incidents with immediate and sometimes significant consequences (e.g., in-school suspension). These approaches can inadvertently reinforce inappropriate behaviors or discourage a student from trying to do better. Also, wording of classroom and school rules sometimes led to inconsistent responses to student behavior. Finally, some schools utilized consequences such as walking laps around the playground and writing sentences (e.g., "I will not _____."), which are inconsistent with the IY® positive discipline approaches.

Scheduling and time

One challenge was identifying a time to hold the two weekly 45-minute sessions during non-instructional time. When recruiting schools, we sought commitments from principals to assist with creative scheduling options, which was helpful. But in schools where we served students across grade levels, there were limited overlapping blocks of non-instructional time. For children struggling with self-regulation who are also more likely to have academic difficulties, it is critical that the intervention does not further reduce academic learning opportunities. We learned to avoid lunchtime and tried not to schedule during recess given the importance of physical activity for many of the participating students.

Working in 11 schools over three years, we found a few options such as during designated "intervention" time, when teachers implement specialized academic interventions for students who need them. We also scheduled groups to overlap with the beginning or end of recess. Finally, we scheduled some groups at different times within the week (e.g., 9:00 am on day one, 10:25 am on day two). Nonetheless, it was difficult to find options to make up missed sessions due to inclement weather or unexpected scheduling issues.

Finally, our study clinicians took on most of the responsibility for planning the lessons and doing other tasks that school counselors typically would not have time to do. Based on several randomly distributed surveys assessing their weekly intervention time and tasks, study clinicians spent an average of 5 hours per week preparing and delivering the two sessions, reflecting significant time to select vignettes and activities, anticipate behavioral challenges, and prepare materials. The extent to which any of this time reflected over-preparation or activities specific to the research context of our delivery is unknown. Surveys indicated that counselors spent about half this amount of time, reflecting at least 1 hour of preparation per week.

Space

Delivering the group with fidelity assumes the space is big enough to hold up to six children and at least two adults comfortably (seated either in chairs or on the floor) for whole group activities and for small group activities. Space is needed to show video vignettes with a television and DVD player or a computer with projector. Further, there must be enough space to have a designated time-out area away from other children in the room. Finally, given that many children in these groups are likely to be inattentive, impulsive, or show other disruptive behaviors, it is recommended that the space has minimal distractions. However, it can be challenging to find such a space within schools given overcrowding and other school space policies. Available spaces typically are not set up to match an ideal therapeutic classroom. At some schools, we have held groups in counselors' offices, which are often small and may have distracting items that cannot be removed. This can impact delivery quality by increasing challenges with managing children's behavior.

Despite these challenges, we used creative approaches to maximize space and minimize set up/clean up burden such as using large poster boards with Velcro slots to attach cue cards and other materials, tri-fold poster boards and pocket charts with visual displays prepared ahead of time, and non-traditional surfaces (e.g., doors, windows) for displays. We also used a cell phone-sized projector and a sheet for a screen when there was not enough room for a TV. To reduce children's distractibility, we turned shelves to face walls or covered them with butcher paper. With limited space, group leaders worked to keep reinforcers (e.g., token economy materials, stickers) out of children's reach, often keeping them on their person (e.g., wearing a pouch or fanny pack). These strategies minimized some of the challenges related to space while still maintaining intervention fidelity.

Time-out

Space limitations may reduce the effectiveness of time-out when there is not enough physical distance between the time-out space and other reinforcing activities in the group. This close physical proximity can make it especially difficult for group leaders and the other children to ignore disruptive behaviors from the child in time-out. In addition to limited space for putting two children in time-out at the same time if needed, it may not be possible to move other children in the group so that a time-out can be done "on the spot" if a child refuses to go. When a child is so dysregulated that the group is disrupted (e.g., screaming loudly, destroying group materials), one group leader grabbed a bag prepared ahead of time with materials for a fun activity and take the rest of the group in the hallway or to the playground while the dysregulated child remained in the room with the other group leader. This allows the dysregulated child to serve a time-out "on the spot" and typically prevents further escalation.

Student selection/group heterogeneity

Given our study's RCT design and inclusion criteria, students assigned to the intervention group had a wide range of clinical difficulties. Most demonstrated significant hyperactivity and impulsivity often with oppositional and aggressive behavior, yet others had impairing social skills deficits and internalizing difficulties (Cavanaugh et al., 2017). Students also varied in developmental and cognitive abilities, SES, exposure to negative sequelae associated with living in poverty, and gender. Within-group variability at times created challenges in delivering the curricula and with group dynamics, which would be less likely in a non-RCT context as schools could strategically determine group composition. Ideally, this would involve children with different temperaments, so that not all are hyperactive or have social or language delays (Webster-Stratton & Reid, 2003).

There are some provisions in the curriculum that help group leaders respond to the needs of different children in the groups. One of the most useful aspects involves identifying special challenge goals that are individualized for each child. This strategy is particularly valuable for supporting students with severe behaviors who may be hard to accommodate in a small group setting. Also, small group activities provide a natural time to divide groups based on abilities (e.g., by grade level) or to create peer modeling opportunities (e.g., pairing a more verbal child with one who is less verbal). Finally, group leaders look for ways to leverage the

cognitive and academic skills of specific children by giving them special privileges with leadership roles (e.g., reading instructions or other information for the group, leading a group review).

Summary and application to practice

Lessons learned and future directions

One of the most important lessons learned is that our conjoint delivery approach with school counselors appears valuable, particularly for building long-term mental health capacity in schools. As noted, elementary school counselors are ideal group leaders in many ways given their backgrounds and roles within the school. Across school districts, counselor interest in learning the program and their satisfaction in delivering it was quite high. Although some counselors struggled to develop the skills and competencies needed for high-quality program delivery with a modest amount of training (e.g., 3 initial days plus 2-hour monthly consultation and coaching meetings), several others were very successful in their skill development as validated by their certification through IY® Inc. We believe that providing professional development to school mental health staff may have broad, long-term impact on students and schools. At the same time, the inadequacy of preservice training in mental health for school counselors is an issue warranting attention (Koller & Bertel, 2006). Our conjoint delivery model aligns well with counselors' needs for support and is consistent with recommendations for community clinicians to actively collaborate with school staff to deliver services (Weist et al., 2005). The feasibility of this approach is evidenced by a national survey of school districts that found about half contracted with external mental health agencies for services (Teich, Robinson, & Weist, 2008), which could theoretically include IY® Dina. To ensure feasibility for school counselors with this approach, mental health consultants still would need adequate preparation time which may exceed that of other clinical programs, a question ripe for empirical testing.

We also gained appreciation for how school contextual factors influence program delivery, which we suspect may impact child outcomes in future planned analyses. Based on qualitative observation, some teachers in schools with greater adversity were less receptive to consultation suggestions, and appeared more likely to interact with students in ways that were counterproductive to supporting students' application of newly learned self-regulation skills. Of interest are exploratory analyses showing that we were not able to implement as many teacher consultation and recess coaching sessions in our lowest-income school district and this clearly impacted our delivery of vignettes, a core group component. Still, student and parent attendance and parent/teacher satisfaction did not differ, which is encouraging. Our experience is consistent with research showing a negative impact of teacher stress on their delivery of social-emotional programs (Larson, Cook, Fiat, & Lyon, 2018) and weaker intervention effects in more economically disadvantaged schools (Conduct Problems Prevention Research Group, 2010).

One approach for addressing such implementation concerns in schools with significant adversity is to utilize the Positive Behavior Intervention Support (PBIS) implementation framework (Sugai & Horner, 2006) which suggests that strong universal "Tier 1" programs focused on effective use of school-wide reinforcement and discipline systems be implemented prior to selective "Tier 2" social-emotional pull out programs. In practice, this might involve assessing a school's climate and positive behavior systems to determine readiness for a small group program like IY® Dina. In schools where strong systems are not already in place, it may make more sense to focus on implementing PBIS first, particularly given evidence that targeted school mental health interventions are more effective when positive discipline practices and universal social-emotional supports are in place (Weare & Nind, 2011). This is certainly understandable in that it increases the likelihood that students' newly learned skills will be encouraged and reinforced, enhancing the potential benefits of a targeted program. With a larger sample of schools, this is also a hypothesis that could be explicitly tested.

Given the implementation challenges we encountered delivering this program, even with adaptations, schools may want to consider different but perhaps

other valuable ways to use IY® Dina in the future, which may involve reaching more students and/or minimizing intervention preparation time demands on counselors. Indeed, some of our counselors expressed interest in using some of the curricula and activities within classroom guidance lessons. IY® has a version of Dina Dinosaur School designed specifically for delivery in pre-k and early elementary classrooms (Webster-Stratton & Reid, 2004). This is a universal preventive approach that could benefit many more students but may not provide the level of intensive skills training that some students need. Some counselors also suggested pulling 2–3 students at a time for small group work targeting students' needs in a specific area (e.g., following school rules, emotion regulation, and friendship). The curricula lend well to this modular approach, which would be more consistent with the shorter groups (6–8 sessions) counselors typically provide. While the efficacy of this approach has not been evaluated, one small trial ($n = 12$) of program implementation for only half its dosage did not find significant behavioral effects (Hutchings et al., 2007). Examining outcomes for student participation in different units of the program that are well matched to areas of impairment would be a useful future research direction. Finally, combining programs designed to increase child skills with more comprehensive parenting programs such as has shown benefits in prior IY® research could also be considered (Reid, Webster-Stratton, & Hammond, 2007).

Implications for delivery of clinical programs in schools

Beyond considerations for delivery of IY® Dina in schools, we believe our work has several implications for delivery of other clinical programs in this setting, particularly other small group programs. First, it seems important to consider the fit of the program's philosophy with school policies and practices, especially around discipline. It may be helpful to explore this as part of a school "readiness assessment" related to PBIS as noted above and to address any potential mismatches early and directly. It also appears that both parents and teachers value opportunities for their own skill building, which might be provided through workshops or consultation (for teachers). Such collateral supports may facilitate intervention skill generalization and potentially strengthen child outcomes. Again, the specific value of these supports could be empirically examined in future research to inform cost-benefit decisions.

Given that this implementation of a school mental health program was well supported with federal grant funds in this study, funding for similar programs outside of this context must also be considered. As noted, one funding mechanism is through contracted school mental health services that are already being provided by approximately half of school districts nationally (Teich et al., 2008), and perhaps more currently. In addition, there are national nonprofit organizations like Communities in Schools that partner with school districts to obtain long-term external funding for initiatives like this. Other delivery options noted previously that would be lower cost include schools adapting the program for universal implementation as a classroom guidance program which has shown positive effects (Webster-Stratton, Reid, & Stoolmiller, 2008), or delivering it to fewer students in fewer sessions that are more targeted to specific student need. However, this latter approach does not have established efficacy, and the former may not meet the needs of the highest risk students.

In addition, for group programs targeting students' mental health needs, students should be selected with several clinical considerations in mind. Some students may need a greater level of support than can be provided in a group context, even with a 1:2 or 1:3 ratio (at least for younger students with severe emotional or behavioral difficulties). Group composition should also be considered, as including students with a history of conflict or certain combinations of characteristics can create negative peer dynamics. Though this can be a therapeutic opportunity, it can also disrupt the group process and interfere with fidelity. One way to ensure positive peer dynamics is to include some students who are less impaired or perhaps even positive role models for other group members (Bierman et al., 2017). This must be balanced, of course, with the need to adequately justify students' time out of class for intervention programs.

In sum, there is great potential for the translation of clinical programs to school settings. The potential benefits of doing so to increase service

reach and improve children's mental health outcomes are great, warranting continued efforts to identify and address implementation challenges such as those encountered in this study.

Disclosure statement

No potential conflict of interest was reported by the authors. Dr. Murray is a trained mentor in the Incredible Years Teacher Classroom Management Program, and receives compensation from community organizations for providing trainings and consultation. Dr. Webster-Stratton disseminates the Incredible Years interventions and stands to gain from a favorable report. She has agreed to distance herself from primary data handling and analysis. We are grateful to our research team and the school personnel, students and parents who contributed to the success of this project.

Funding

The research reported here was supported by the Institute of Education Sciences, U.S. Department of Education, through Grant R305A150169 to the University of North Carolina at Chapel Hill. The opinions expressed are those of the authors and do not represent views of the Institute or the U.S. Department of Education.

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