



Assessing Treatment Integrity of Parent-to-Parent Phone Support for Families of Students with Emotional and Behavioral Disturbance

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Abstract

Assessing treatment integrity is essential to understanding how well school-based interventions are delivered. The assessment of treatment integrity is especially challenging for interventions that provide one-on-one peer support over the phone. To address this gap, we explored treatment integrity approaches used for the *Parent Connectors* program, which provides parent-to-parent support via weekly phone calls to families of students receiving special education services for emotional and behavioral disturbance. Our multi-dimensional approach to assessing treatment integrity includes the consideration of dose, adherence, quality of service delivery, participant responsiveness to the intervention and program differentiation. We share and discuss data from a variety of approaches that have been used with this intervention to collect treatment integrity data such as logs completed by the trained parents following each phone call, content ratings of behavioral rehearsals between trained parents and research staff and surveys regarding services received from participants. We discuss obstacles collecting treatment implementation data, ways our approach is continually evolving and possibilities of applying some treatment integrity approaches to wide-scale intervention applications in the field.

Keywords Treatment integrity · Family support · Emotional and behavioral disturbance · Peer support

Introduction

Students receiving special education services for emotional and behavioral disturbance (EBD) often struggle in school and have poor educational and life outcomes compared to peers without risks and students with other disabilities (Bradley et al. 2008; Wagner et al. 2005). Research has found that the parents of students with EBD tend to have lower levels of parental involvement in school (Duppong Hurley et al. 2019; Newman 2005), which may put these students at a unique disadvantage considering that parental involvement in school has repeatedly been found to be a strong predictor of academic achievement (Hill et al. 2009; Jeynes 2005, 2007). Given this, it is especially important to help the parents of students with EBD to engage in their

child's education and mental health services to improve the trajectory for success. Over the last fifteen years, work has been done to develop and test an innovative intervention, *Parent Connectors*, to support the families of students with EBD who may (a) feel disconnected from their child's school, (b) struggle with issues of blame and stigma and (c) need strategies for engaging in their child's educational and mental health services (Duppong Hurley et al. 2020; Kutash et al. 2011, 2013). *Parent Connectors* is innovative in that parents of students with EBD are trained to deliver a manualized, evidence-based intervention via weekly phone calls (Duppong Hurley et al. 2020). The remote and individualized delivery of the intervention has created interesting complexities to assess the fidelity of implementation, or treatment integrity, a core implementation outcome to determine if an intervention is delivered as intended (Dane et al. 1998; Durlak et al. 2008; Proctor et al. 2011). As *Parent Connectors* has been in development and refinement for over a decade, the approach to assessing treatment integrity has also been evolving. Our objective is to expand upon the initial work describing the *Parent Connectors* treatment integrity framework (Kutash et al. 2012) by sharing examples of how the treatment integrity elements of dose,

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adherence, quality of service delivery, participant responsiveness and program differentiation were measured and interpreted (Dane et al. 1998; Dusenbury et al. 2003). In addition to our examples, we discuss barriers encountered, modifications made and how treatment integrity methods might differ when the setting is an efficacy study compared to routine service delivery.

Parent Connectors were developed in response to the lived experience as a parent of a child with EBD, recognizing the issues of blame and stigma placed upon parents as well as the difficulties of engaging in the child's educational and mental health services. It is based on the Double ABCX model of family stress (e.g., McCubbin et al. 1983) and Theory of Planned Behavior (Ajzen 1991) as described previously (Duppong Hurley et al. 2020). *Parent Connectors* emphasize the role of shared experience—of a peer disclosing their story—to provide emotional and informational support and improve positive attitudes toward educational and mental health services. This is done by recruiting and training parents who have a child with EBD (identified as Parent Connectors or PCs) to provide weekly phone support to families to meet their individualized needs. The conversations are focused on topics such as understanding EBD, improving communication with school and service providers, understanding the special education process, understanding and advocating for academic and emotional/behavioral services for their child and remembering parental self-care. The primary strategies used during the weekly calls are shared experience such as “when I tried...”, “I found that ...” to help the parent to see the benefits of engaging in services for their child, for developing positive attitudes towards educational and community-based services and to see that they can influence the academic and mental health supports provided to their child. PCs participate in weekly group supervision under the guidance of a trained PC Coach to encourage high quality of individualized service delivery to families. Parents are invited to participate by school referral from special education teachers. *Parent Connectors* have demonstrated improvements in parental engagement in their child's education and mental health services as well as student outcomes such as suspensions and reading achievement, especially for highly strained families (Kutash et al. 2011, 2013) and are listed as a promising program on the California Evidence-Based Clearinghouse for Child Welfare (<https://www.cebc4cw.org/program/parent-connectors-program/>).

In recent years, attention has been drawn to the importance of implementation outcomes in addition to service system and treatment outcomes; these implementation outcomes include concepts such as acceptability, adoption, appropriateness, costs, feasibility, penetration, sustainability and fidelity of implementation (Proctor et al. 2011). While all implementation outcomes are essential, the concept of treatment integrity, or knowing that the intervention is

being implemented with fidelity (Dane et al. 1998; Gresham 1989), is still under-collected in research and practice settings (e.g., Cochrane et al. 2018; Cox et al. 2019; Sanetti et al. 2020). In 2012, Kutash and colleagues reviewed the approach of *Parent Connectors* for measuring treatment integrity according to a multi-dimensional framework that examines dosage, adherence, quality of service delivery, participant responsiveness and program differentiation (Dane et al. 1998; Dusenbury et al. 2003; Proctor et al. 2011). To clarify, this framework (Dusenbury et al. 2003) defines dose as the amount of a program delivered. In the case of *Parent Connectors*, we measure dose as minutes of service provided (see Table 1 for additional examples for each of the five treatment integrity components). Adherence is ensuring that essential program elements are implemented according to the program theory and is often the most frequently reported treatment integrity component (e.g., Sanetti et al. 2020). Quality of service delivery goes beyond the adherence to basic components to assess how the program is delivered. Participant responsiveness is often seen as the degree to which participants are engaged, which could include being aware of the intervention, recommendations and satisfaction with services. According to Dusenbury and colleagues (2003), program differentiation focuses on the degree that components of one program or another are present or absent and could include a component analyses of implementation. While this multifaceted conceptualization of treatment integrity has been helpful for our model, over the years we have found that we needed to revise some of the original approaches. We revisited the original treatment fidelity framework for *Parent Connectors* (Kutash et al. 2012) and updated it to reflect the treatment integrity assessments we used in a recent randomized trial (see Table 1). Our efforts to assess implementation integrity should be interpreted as an ongoing attempt to consider these five components of treatment integrity with varying degrees of success. It is also important to consider whether the treatment integrity assessments differ in early developmental studies or efficacy trials, compared to the assessments required during standard implementation outside of formal research studies.

Our objective is to share our experiences and reflections regarding collecting treatment integrity data from a randomized trial of *Parent Connectors* that was conducted from 2013–2019. We will continue with the intervention's treatment integrity focus encompassing dosage, adherence, quality of delivery, participant responsiveness and program differentiation (Kutash et al. 2012). We will pay special attention to the obstacles and adaptations that we made as our treatment integrity assessment approach continues to evolve. We believe the field can advance by sharing these messy, but important, lessons regarding assessing treatment integrity of an individualized, phone-based, parent support intervention. Specifically,

Table 1 Overview of procedures to capture five aspects of treatment integrity for the Parent Connectors program*

Fidelity component	Conceptualization	Current measurement system
Dose	Monitor to ensure participants are receiving the program	Following each phone call the PC logs the amount of contact with the participant
Adherence	Determine whether PCs are providing participants with the critical elements of the program	Following each call, the PC logs use of critical program elements (topics/strategies) via the Family Contact Log At mid-point and end of services, participants rate whether the PCs delivered critical elements using the PC Adherence Scale
Participant responsiveness	Acceptance of intervention by participants	Family Contact Logs are reviewed weekly by PC Coach to determine if participants are engaged or not engaged in program At mid-point and end of services participants rate the helpfulness of the critical program elements using the PC Adherence Scale At the end of services, participants provide input on their level of satisfaction with their PC and the <i>Parent Connectors</i> program
Quality of delivery	How well the program is being delivered	Weekly group supervision meetings with the PC Coach provides an opportunity to review the content of calls and ensure the critical elements of the program are being carried out Training is provided periodically to review program goals and procedures Behavioral rehearsals are conducted every 3–4 months with PCs to provide an opportunity to receive feedback on advanced/non-routine skills
Program differentiation	Document how the <i>Parent Connectors</i> program differs from other activities	PC Program Manuals outlines how program differs from other programs in theory and approach Participants rate how often PCs discuss non- <i>Parent Connectors</i> specific topics in PC Adherence Scale

* updated from original Table in Kutash et al. 2012

we will share examples of how we revised measures of adherence to provide greater details regarding core topics and strategies used during the phone call. We will also discuss obstacles we encountered to collect observational data regarding quality of service delivery and modifications made to adapt to these challenges. Finally, we will examine the tension between collecting treatment integrity assessments for a research study in comparison to routine intervention delivery.

Methods

Setting

The *Parent Connectors* intervention was implemented as part of a federally funded six-year efficacy trial that began in 2013. The study included families from two midwestern states in both urban and suburban communities spanning 28 public and 4 private schools involved in identifying and inviting eligible participants as well as data collection.

Parent Connectors—Hiring, Training and Supervision

Former or current parents of children with EBD were recruited to serve as Parent Connectors (PCs) through local family agencies that support families of students with elevated emotional and behavioral needs. Over the course of the study, 16 PCs were trained. These veteran parents had a child with an Individualized Education Program (IEP) for EBD, had a child in a school in the geographical region of the study and completed an interview process demonstrating successful navigation of school and emotional/behavioral services with their child. All PCs had a child or grandchild that was served by a local school district, either currently or previously and were knowledgeable of the school system and special education processes. All PCs completed an initial 20-h training session and passed a *Parent Connectors* knowledge exam. The knowledge exam was first given to candidates before training to assess baseline knowledge and provide insight on areas of strength and areas to focus on for the trainers. The knowledge assessment was administered a second time following the completion of training activities to ensure that PCs had adequate understanding of the

program and to identify any additional areas of concern that would be addressed during weekly supervision. PCs were available 15 h per week to conduct weekly phone calls to families and participate in 2-h weekly group supervision meetings with their PC Coach (a licensed mental health practitioner, such as a school social worker or school psychologist, that successfully completed the PC Coach training). Program developers periodically joined supervision sessions via phone to provide ongoing support and joined mid-year booster training sessions but were not involved in treatment integrity data collection efforts. The *Parent Connectors* program is completely manualized, with versions for the PCs, the PC Coach and PC agency administrators.

Participants

Inclusion criteria for potential families consisted of having a child in middle school who received special education services under the Individuals with Disabilities Education Act (IDEA 2004) due to emotional or behavioral disturbance (EBD) and received at least 5 h of special education services each week. Participating districts located in one state did not use the formal federal definition of EBD or emotional disturbance (ED) and used a general definition of eligible for special education or “other health impairment” (OHI) but then identified the formal assessment used to ensure that the student had emotional/behavioral needs. There are many inconsistencies regarding eligibility determination of students and we worked with schools to be certain we were recruiting similar students across districts. The parent/guardian also needed to speak English, have the child living with them a significant portion of the time and have access to a phone. A total of 401 parents/guardians consented to participate in the study and 348 completed intake data. Participants were randomized upon the completion of intake data to the *Parent Connectors* ($n = 180$) and control ($n = 168$) conditions. Objectives from this study focus on intervention implementation so only participants randomly assigned to the *Parent Connector* condition were included. One participant randomized to the treatment condition withdrew participation in the intervention and only completed outcome data, so that participant was excluded from these analyses. Further, seven treatment families participated in a unique cohort that began in the winter months to explore how service delivery would work in a different part of the school year. As experiences and data collection for these seven families were different than the other families they were excluded from analyses in this study. The final sample included in analyses consisted of the 172 treatment families recruited during the early fall and completed services during the school year. See Table 2 for demographic characteristics of the students and families.

Table 2 Demographic characteristics of Parent Connectors participants

Demographic characteristics	Proportion of participants (%)
Parent	
Female	86.6
Hispanic or Latino	5.2
White	85.5
Education level	
High School diploma/GED	25.0
Associate degree	20.3
Bachelor's degree	14.0
Master's degree/professional school/Ph.D	1.7
Relationship to child	
Biological parent	80.2
Adoptive/step-parent	13.4
Other relative	6.4
Annual household income	
Less than \$20,000	29.7
\$20,000 to \$29,999	13.4
\$30,000 to \$39,999	11.0
\$40,000 to \$49,999	7.6
\$50,000 and over	34.3
Child	
Male	84.9
Hispanic or Latino	12.2
White	81.4
Age	
11	25.0
12	32.6
13	29.7
14	12.8
Age at first IEP	
< 5 years old	7.8
5–8 years old	69.0
9–12 years old	23.1

Measures of Treatment Integrity

Dose–Family Contact Log.

The Family Contact Log (FCL) performs many functions, one of which is to record the length of each phone call in minutes, the number of attempted phone calls and number of text messages to schedule calls. PCs were trained on how to complete the FCLs using carbonless forms immediately following each phone call. The PCs kept the original and submitted the copy to the PC Coach during the weekly meeting. The data on the FCL were then entered by a researcher into an MS Access database and aggregated into weekly reports distributed electronically to the PC Coach and program

administrators. These weekly reports allow for monitoring dosage (Kutash et al. 2012). Ideally, PCs were encouraged to schedule weekly phone call with each parent for 30–60 min each week. It was conveyed that phone conversations with families should be attempted every week but that supervisors understood that these might not occur with such frequency given demands of families (e.g., sickness, vacation, work/family schedules). Early work considered a minimum dosage to be 60 min (Duppong Hurley et al. 2017), but in this study, we used a more stringent 90 min, which should represent about three phone calls, as the minimum dosage threshold.

Adherence-Family Contact Log.

In addition to information about dose, the Family Contact Log contained 14 items that reflect key program elements and are rated to indicate the extent to which each is discussed (“not at all,” “a little,” “somewhat,” “a lot”; Kutash et al. 2012). The 14 core program elements are listed in Fig. 1. As

described in the dose section, PCs complete the entire FCL immediately following each phone call, but the program elements section was only completed on calls that lasted 5 min or longer; calls shorter than 5 min would be too difficult to code content due to the limited amount of conversation that occurred. Often such brief calls are focused on rescheduling and pleasantries. It took PCs only a few minutes to complete each FCL. The FCL is a core method for examining *Parent Connectors* treatment integrity and the study team noticed some difficulty in linking the program elements described on the FCL to training activities. During the fifth year of the trial, based on feedback from the study team, the FCL was revised to separate program topics (i.e., parent self-care, parent communication with school, child’s IEP; $n = 10$) and program strategies (i.e., provided emotional support, shared your experience, provided informational support; $n = 10$). Thus, PCs completed the original form throughout the entire study and added the modified FCL form during the last two years of the trial. All other FCL procedures were identical

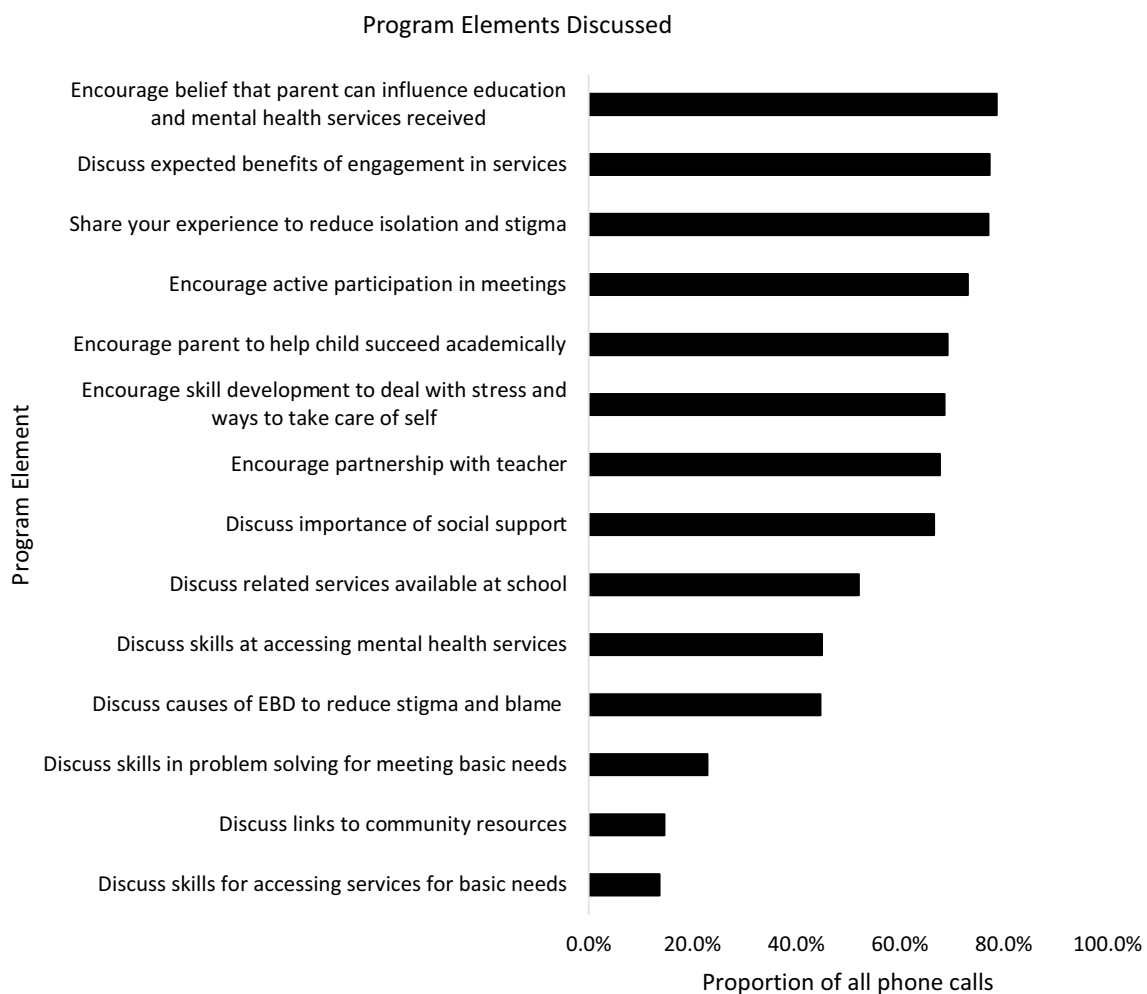


Fig. 1 Original 14 FCL Items used for entire study for each call lasting over 5 min (1464 phone calls)

to those described in the dose section. The weekly FCL reports allow for monitoring adherence of core intervention elements across all PCs and families.

Adherence—*PC Adherence Survey*.

Phone-based surveys of participants in the treatment condition were used to monitor implementation at the beginning, middle and end of program services. The surveys were completed using computer-assisted telephone interview (CATI) software and scheduled at the convenience of the participant. Parent surveys were only collected after the participant had achieved over 90 min of calls, as participants would likely have 2–3 calls with their PC and thereby have enough contact to rate their experience. Of the 172 participants, 47 had less than 90 min of participation and 18 eligible participants were missing data, resulting in a sample of 107 participants with *PC Adherence Survey* data collected at the end of program services. The phone-based *PC Adherence Survey* allowed parents to provide a report of how frequently (“none/not at all,” “very little,” “somewhat,” “often,” “very often”) they discussed the core program elements with their PC (i.e., discussions of “the IEP and your role,” “resources in your community that may be helpful to you,” “how to handle stress and find support”; Kutash et al. 2012).

Quality of Service Delivery—*Monitored Phone Calls*.

Initially, quality of treatment integrity was intended to be monitored through recorded phone calls made by PCs to families. However, PCs were uncomfortable asking families to record a call with them despite repeated encouragement and that parents had consented to the recordings, resulting in very few recorded calls ($n = 12$). Unfortunately, monitoring live calls also proved to be inefficient from a logistical standpoint. To address the need of collecting quality of delivery information via observation, it was decided to engage PCs in behavioral rehearsals (i.e., role plays over the phone) with program staff, which has been found to be an effective way to monitor treatment integrity when observations are not feasible (Becker-Haimes et al. 2020; Wisdom et al. 2014). These behavior rehearsals were scenario-specific and a program staff member acted as the parent. Scenarios were often tailored to training needs identified by the PC Coach and all calls were audio recorded and transcribed. Transcripts were coded in NVivo 11 to identify the frequency with which ten program strategies and ten topics were discussed. A coding dictionary was developed and raters achieved 85% reliability on their use of the codes. The monitored phone calls and behavioral rehearsals were shared with the PC Coach to assist with supervision.

Participant Responsiveness—*PC Adherence Survey*.

The phone-based *PC Adherence Survey* also asked participants how helpful the PCs were on the 14 items used to monitor adherence using the scale (“not at all helpful,” “a little helpful,” “somewhat helpful,” “helpful,” “very helpful”) to them. Helpfulness questions were only asked if a respondent indicated that the topic was discussed. Like the FCL, results of the *PC Adherence Survey* were used by the PC Coach to inform supervision and training efforts (Kutash et al. 2012).

Participant Responsiveness—*Satisfaction*.

Participant engagement and satisfaction with their PC and the program were also measured during phone interviews. Participants were asked how often they talked on the phone with their PC (“not at all,” “once or twice,” “several times,” “about every week”), as well as how this compared to their ideal frequency (“about right,” “too long,” “too short”). Survey items also addressed the degree to which phone calls were helpful (“helpful,” “not helpful,” “neither”) and if parents would “recommend a Parent Connector to a friend” (1 = no, 2 = maybe, 3 = recommend, 4 = highly recommend).

Program Differentiation—*PC Adherence Survey*.

In addition to the adherence and participant responsiveness components, the *PC Adherence Survey* also included 5 control items (i.e., discussions of “specific medications your child should take,” “the math and reading tests your child’s teacher should use with your child”). These control items were intermingled with the 14 program items to see if parents would rate frequency of discussing non-programmatic topics differentially than *Parent Connectors* program topics.

Data Analysis

To evaluate treatment integrity, various approaches were used to analyze data from several program specific measures. First, data from the FCL access database and participant telephone surveys in the CATI system were imported into the SPSS and R Statistical packages. Second, quantitative methods were used to analyze all FCL and participant survey data. This included calculating measures of central tendency and descriptive statistics. Third, monitored phone calls were recorded and imported into NVivo 11 and transcribed. Transcriptions were then

coded according to the modified FCL topics and strategies. IBM SPSS Statistics 26 and R were used for all quantitative analyses and data visualization.

Results

Dose

Parent Connectors (PCs; $N = 16$) served 172 families over the six-year study. The total number of calls and minutes of *Parent Connectors* support varied by family, with calls (of 5 min or more) ranging from 1 to 70 and total minutes ranging from 5 to 2,728. These calls totaled 62,576 min of phone support provided by PCs to families, with an average of 364 min or just over 6 h of phone conversations per family. Approximately 162 families (94.2%) received at least one phone call lasting a minimum of five minutes. Although early research studies considered the minimum dosage to be 60 min (Duppong Hurley et al. 2017), we adopted a more stringent 90 min minimum dosage for this study, which should represent about three phone calls between participants and a PC. A total of 128 families (74.4%) received this minimum dosage of at least 90 min of phone support. When excluding the families who did not meet the minimum dose for participation (i.e., under 90 min of total phone support), the average hours of total phone conversations per participant increased from about 6 to 8 h.

Adherence

Original FCL

The FCL was completed by PCs after each phone call with families, with detailed data for 1,464 calls lasting 5 min or longer. Aggregated results show that PCs did not discuss all program components with the same frequency, which aligns with intervention training to tailor conversations to the needs of the family. The program elements discussed (*somewhat or a lot*) during the highest proportion of calls with families included *encourage belief that parent can influence education and mental health services received* (80.0%), *sharing your experience to reduce isolation and stigma* (79.1%) and *discuss expected benefits of engagement in services* (78.9%; Fig. 1). These components reflect core principles of the model that should be frequently discussed. It is understandable that they would not be present in every conversation, but it is encouraging that they were reported in the majority. The program elements least likely to be discussed (*somewhat or a lot*) were *skills for accessing services for basic needs* (13.6%), *links to community resources* (14.7%) and *skills in problem solving for meeting basic needs* (23.0%). This aligns with program expectations that issues surrounding

basic needs would only be addressed for families indicating that they had challenges meeting their basic needs.

Modified FCL

For the last two cohorts, use of the 20-item FCL, in addition to the original FCL, allowed for a more tailored assessment of the topics discussed and strategies implemented by PCs during 389 phone calls. Similar to results of the original 14-item FCL, aggregation of data collected on the 10 topics indicated that PCs did not talk about each topic for the same amount of time, but instead followed program expectations and tailored the program to meet family needs. The topics discussed (*somewhat or a lot*) in the greatest proportion of calls were *parent communication with school* (80.6%), *child's behavior at school* (77.1%) and *child's academics* (75.6%; Fig. 2). The topics discussed least were *community resources* (24.4%), *home/family issues not related to child* (38.4%) and *home/family issues related to child's emotional/behavioral needs* (43.1%).

The strategies that PCs used (*somewhat or a lot*) the most frequently were *providing emotional support* (93.1%), *affirming and acknowledging positive efforts and actions of parents* (90.9%) and *encouraging parents to see how they have influence and control over what happens to their child* (87.7%; Fig. 3). The strategies used by PCs in the smallest proportion of phone calls included to *identify unmet needs of child/family* (18%), *provide informational support* (38%) and *problem solved with the parent* (40%). When analyzing the strategies used with each family, seven of the 10 strategies (*provided emotional support, affirm/acknowledged positive efforts/actions of parents, discussed expected positive benefits of engagement with others/services, shared experience/self-disclosure, encouraged parent to see how they have influence/control over what happens to their child, discussed parent's social supports that are helpful or potential barriers, discussed next steps for the parent to take*) were applied at least once with 95% of families.

PC Adherence Survey

Using the *PC Adherence Survey*, families were asked to describe how frequently they discussed these topics with their PC. Families were most likely to describe discussions about *your experience with your child navigating the service system* and *taking action on behalf of your child's education or mental health would have a positive impact on your family* as discussed *often* or *very often* (Table 3). Those most likely to be discussed *not at all* or *very little* were specific to *resources in your community that may be helpful to you and how to access services to meet needs*.

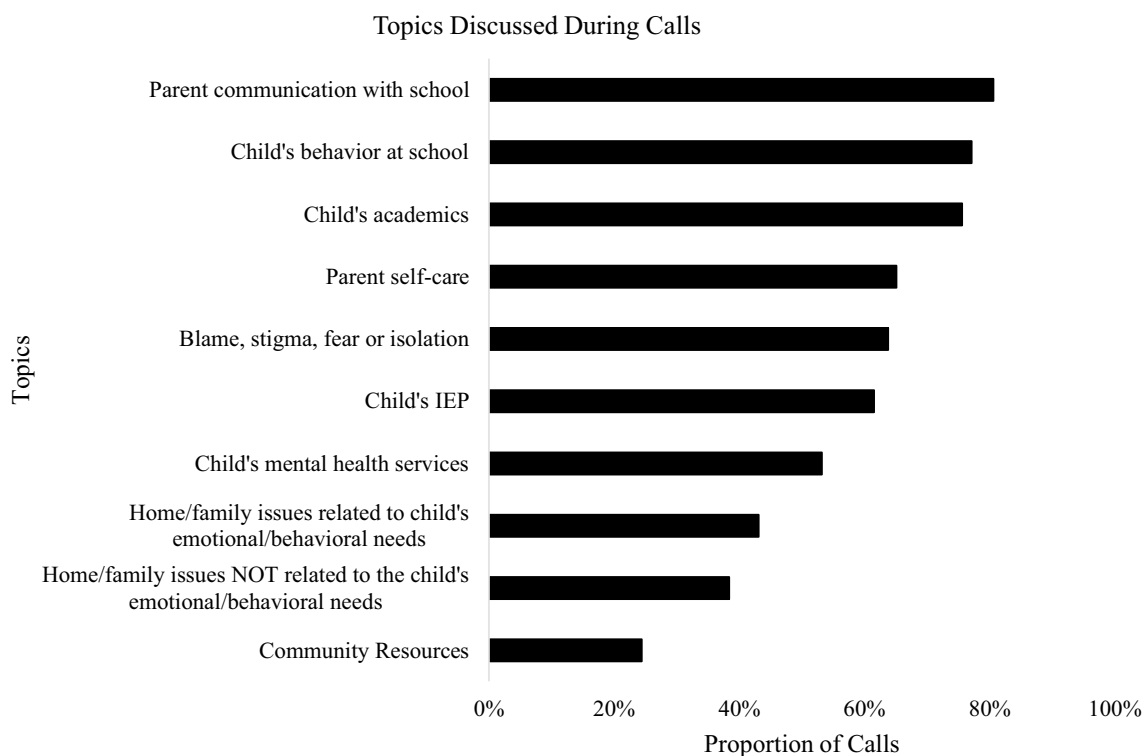


Fig. 2 Revised FCL topics used per call lasting over 5 min for last two years of study (389 phone calls)

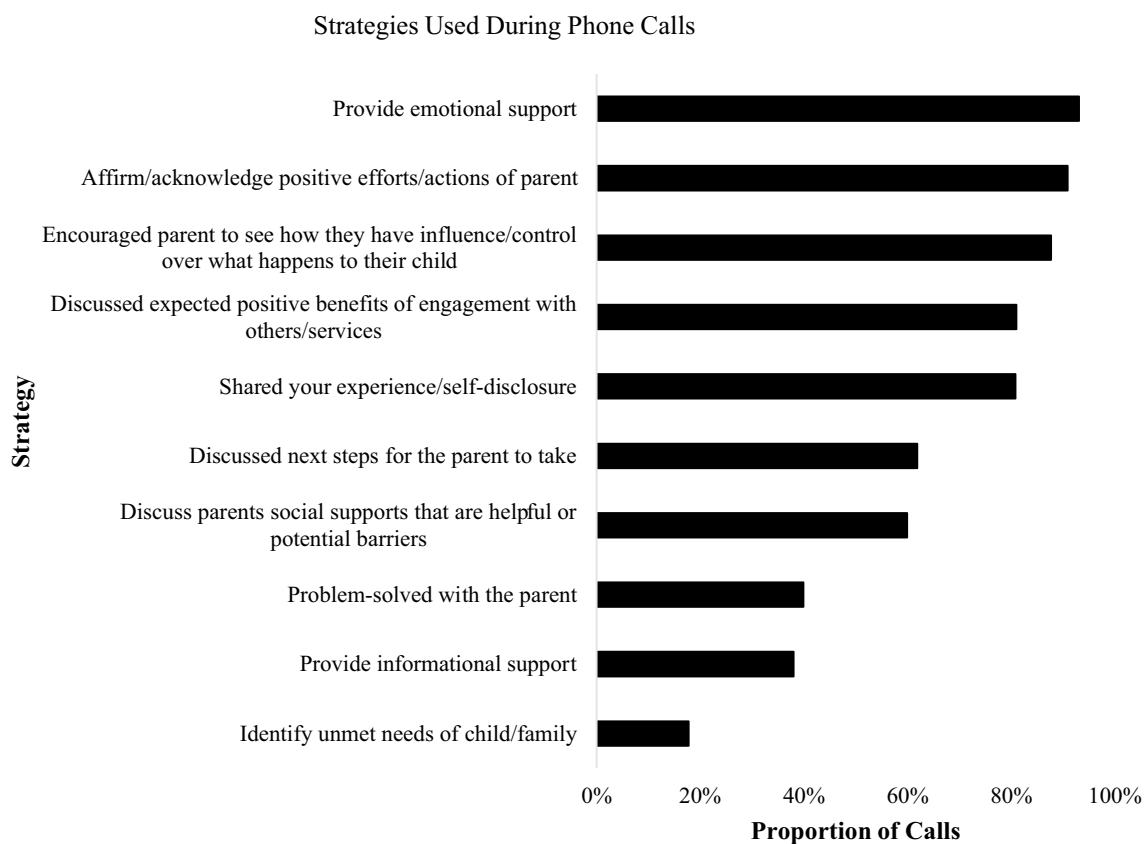


Fig. 3 Revised FCL strategies used per call lasting over 5 min for last two years of study (389 phone calls)

Table 3 Parent Connectors topics frequency of discussion and helpfulness, as reported by participants with 90+ minutes of PC phone contact

Adherence topics	n	Frequency discussed (%)			Helpfulness (%)		
		Somewhat	Often	Very often	Some- what helpful	Helpful	Very helpful
How to handle stress and find support	107	19.6	52.3	16.8	15.0	43.0	32.0
Your experience with your child navigating the service system	107	15.9	37.4	32.7	21.2	35.4	40.4
How taking action...would have a positive impact on your family	107	18.7	36.4	35.5	18.2	29.3	46.5
Your ability to influence the...services your child receives	107	22.4	38.3	21.5	16.8	36.8	36.8
The IEP and your role	107	19.6	35.5	29.0	9.3	39.2	40.2
How to identify your most important needs and...meet them	107	19.6	38.3	19.6	16.7	38.9	37.8
How to access services to meet these needs	107	18.7	13.1	11.2	17.2	42.2	26.6
Your attitude about taking action to get your child services, such as being fearful/anxious or happy and enthusiastic	107	29.9	28.0	16.8	22.7	35.2	33.0
How to approach your child's school to learn about what services are available in your community that may be helpful to you	107	28.0	33.6	17.8	22.6	29.0	38.7
How to be an effective partner with your child's teacher	107	21.5	32.7	27.1	10.8	39.8	43.0
Resources in your community that may be helpful to you	107	26.2	27.1	19.6	22.8	29.3	32.6
How to negotiate/work with the mental health service system...accessing mental health services from the school/community	107	25.2	18.7	28.0	21.3	26.6	38.3
The causes of emotional disturbances in children	107	33.6	28.0	10.3	20.9	37.4	28.6
How your family and friends react to your child's problems...	107	26.2	29.0	14.0	21.6	37.5	27.3
<i>Control items for non-programmatic content</i>							
Which teacher at your child's school would be best for your child	107	15.9	19.6	10.3			
The math and reading tests your child's teacher should use...	107	15.9	15.0	9.3			
The importance of joining the PTA and attending PTA meetings	107	17.8	6.5	5.6			
How current events on television affect your child's behavior	107	17.8	5.6	3.7			
Specific medications your PC believes your child should take	107	13.1	7.5	2.8			

Quality of Service Delivery

A total of 18 behavioral rehearsals were conducted across six PCs during the last two years of the study as an alternate method to collecting recordings of calls. Primary scenario topics were determined by the PC Coach. The 18 transcripts were also coded to identify PC use of topics and program strategies during the behavioral rehearsals. The most frequently included the topics discussed during behavioral rehearsals included *communication* ($n=271$), *IEPs* ($n=157$) and *community* ($n=87$; Table 4). The strategies used most frequently by PCs during behavioral rehearsals included *problem solving* ($n=361$) and *shared experiences* ($n=125$; Table 4). The strategies used least frequently were assessing *unmet needs* ($n=0$) and *influence* ($n=6$).

Participant Responsiveness

PC Adherence Survey

Following the adherence items on the *PC Adherence Survey*, families were also asked to describe how helpful discussion of these topics was with their PC. Families were most likely

to describe discussions about *how to handle stress and find support* and *the IEP and your role* as *somewhat helpful*, *helpful*, or *very helpful* (Table 3). While overall participants found discussions helpful, the discussions most likely to be *a little helpful* or *not at all helpful* were specific to *resources in your community that may be helpful to you* and *how to negotiate and work with the mental health service system including accessing mental health services from the school and community*.

Satisfaction

Measures of families' engagement in and endorsement of the program were used to assess program satisfaction. Of the 101 families that responded, 58.4% of families reported that they spoke with their PC weekly and 88.1% of families felt that the amount of time they spent talking was *about right* and not *too long* or *too short*. The majority of families (87.1%) also reported that talking with their PC was helpful to them. Finally, parents were asked if they would recommend the program and 86.2% reported they would *recommend* (21.8%) or *highly recommend* (64.4%) *Parent Connectors* to a friend.

Table 4 Topics and strategies used during behavioral rehearsals with PCs during last two years of study

Intervention element	Total references	Proportion of all mock calls (%)
Topics		
Communication with school	271	94.4
Child's IEP	157	94.4
Home/family issues related to child's needs	41	83.3
Child's behavior at school	49	77.8
Community resources	87	61.1
Parent self-care	14	27.8
Child's mental health services	12	27.8
Blame, stigma, fear or isolation	2	5.6
Home/family issues NOT related to child's needs	1	5.6
Child's academics	0	0.0
Strategies		
Problem-solved with the parent	361	94.4
Shared your experience	125	94.4
Provided informational support	66	61.1
Discussed expected positive benefits of engagement with others/services	22	55.6
Provided emotional support	20	50.0
Affirm/acknowledged positive efforts/actions of parent	11	44.4
Discussed next steps for the parent to take	9	33.3
Discussed parents' social supports that are helpful or potential barriers	17	27.8
Encouraged parent to see how they have influence/control over what happens to their child	6	16.7
Identify unmet needs of child/family	0	0.0

Program Differentiation

This aspect was assessed primarily by analyzing whether PCs adhered to the core program components, as described above and did not engage in proscribed content during calls as assessed with control items in the PC Adherence survey. Parents were asked about the frequency of discussions with five control items not endorsed as core topics of *Parent Connectors*. Results indicate that between 14 and 38% of parents reported that discussed these topics with their PC. As shown in Table 3, this represents the low indication of non-programmatic content coverage in comparison with the *Parent Connectors* focused topics.

Discussion

It is essential for school-based research to consider implementation outcomes (Proctor et al. 2011), particularly the assessment of treatment integrity (Cochrane et al. 2018; Cox et al. 2019; Sanetti et al. 2020). The goal of this study was to provide an example of how an individualized parent-to-parent support intervention for families of middle school students with an IEP for EBD collected multi-dimensional

treatment integrity data related to dose, adherence, service delivery quality, program differentiation and participant responsiveness (Dane et al. 1998; Dusenbury et al. 2003). We expand on previous work describing the approach for assessing treatment integrity for *Parent Connectors* (Kutash et al. 2012) to provide examples of specific methods to assess treatment integrity. Special attention was given to how our assessment of treatment integrity continues to evolve as we move from development and efficacy studies to preparing for assessments feasible in routine service delivery settings.

Information on the dose, or the minutes of phone calls received, was recorded by the PCs on the FCL and was consistent with previous research (Kutash et al. 2011, 2013). However, for an intervention delivered entirely over the phone, the idea of dose is intertwined with participant responsiveness; the PCs can only implement the intervention with parents that answer their calls. Our reflections on dose in this study have led us to wonder if we were as effective in reaching optimal families. For example, the intervention called for (a) identifying and recruiting families at the start of the school year, (b) providing services until the end of the school year and (c) inviting all middle school families of a student with EBD to participate. While all families of a student with EBD could benefit from parent-to-parent support,

it is likely that some families may benefit more such as those just entering the special education system, transitioning a child to new services, or experiencing current difficulties with a school or teacher. Thus, upon reflecting on our dose and other treatment integrity data, in future studies, we plan explore with schools a way to invite families with specific referral reasons to participate to examine if families with certain referral reasons are more engaged or have differing amounts of “dose.” We will also incorporate quick progress monitoring checks regarding these primary referral reasons, to better inform the optimal length of services when using rolling admissions. We believe that these questions regarding dosage, initial referral and discharge, reflect ongoing considerations experienced by other researchers during initial development and ongoing program refinement. As interventions proceed through iterative studies from development to efficacy to scale-up we have found that these implementation questions continue to need to be continuously revisited and reconsidered to promote sustainability.

Adherence is one of the most widely collected components of treatment integrity (Sanetti et al. 2020). The FCL completed following each phone call provides a depth of information regarding adherence to core *Parent Connectors* topics and service strategies. First, the data from the original FCLs documented that the components of the model were delivered with high frequency on calls and topics regarding more basic needs were discussed less frequently. This resonates with elements of the PC training which includes resources on basic needs but recognizes that many families may not need these supports. This variation of use of core topics to individualize services for families does not require all topics or strategies to be used on all calls, or even with all families, so variation in adherence to the items was anticipated and is an issue encountered by other interventions that customize service delivery (Sheridan et al. 2009). The PCs reported discussing the core aspects of the model the most frequently, illustrating strong adherence. While the FCL reflects many of the core components of the intervention, this study provided an opportunity for the research team to reconsider this core adherence tool. During conversations with PCs, it became clear that they were unsure how to complete some FCL items, such as when topics and strategies were unintentionally intertwined in a single item. For example, the item “share your experience to reduce isolation or stigma” is specific, yet it is the only item where the idea of sharing experience is assessed. Thus, sharing experience regarding partnering with a teacher is not specifically captured. Upon realizing the problem, the research team began working collaboratively with the PCs and supervisor to develop an approach that separated topics and strategies. We found that being receptive to feedback and willing to modify treatment integrity methods was helpful and PCs appreciated that their voices were heard. As hoped, the modified

FCL demonstrated a similar pattern as the original, with core topics addressing the parent’s communication with school, child’s education and parental self-care discussed more frequently than general community resources for basic needs or family issues not related to the child’s emotional or behavioral needs. It was not surprising to see the discussion of mental health services in about 50% of the calls, as several families did not have their child receiving additional mental health services, yet all families were focused on the educational activities of their child. In all, use of the revised FCL has provided more detail on PC adherence and less ambiguity than the original version. Based on these findings, future implementations of *Parent Connectors* will use the revised FCL form. Continuous gathering of feedback from the implementation team, regardless of the stage of intervention development and a willingness to reconsider and modify tools can greatly improve the measurement of treatment integrity.

Adherence to the model was also assessed via a brief phone survey of participants, as a way of determining if parents reported receiving phone calls with *Parent Connectors*-related content. Like the FCL data, participants reported that they recalled a substantial portion of the phone calls involving topics related to the core aspects of the model and were similar to the PC reported FCL adherence data. Like the FCL data, topics reported less frequently tended to be the items that might not come up as routinely such as the reactions of family and friends and specific community resources. Despite issues with parent recollection of topics discussed over several months at the completion of services, there were considerable similarities between our PC and participant reported adherence assessments. Additional research is needed to explore the reliability of the two approaches when considering the individualization of services from a within-participant perspective. Further, we believe that the parent survey would benefit from revisions to align more with the modified FCL, but we were limited in our ability to change this instrument during the research study.

The gold standard to measure the quality of service delivery is often direct observation of a program’s implementation, yet this approach also has limitations such as expense of coding and reactivity of participants (e.g., McLeod et al. 2009; Sheridan et al. 2009; Southam-Gerow et al. 2020). For phone-delivered interventions direct observations necessitates the recording of a phone conversation or having another individual join a scheduled call. Originally, we did not believe that this would prove to be a significant obstacle, as we had been recording service delivery in-person for other interventions without difficulty. For this specific intervention, which is rather brief in nature, the PCs rarely were able to record conversations, despite training and encouragement. Similar to walk-throughs used in family support interventions (Wisdom et al. 2014) and behavioral rehearsals used in

other implementation research (Becker-Haimes et al. 2020) we conducted themed behavioral rehearsals where the PCs role-played specific scenarios on the phone with program staff. These recorded and coded calls had a similar focus on topics as the FCL data; albeit with some differences such as academics not being discussed, which was likely a direct result of the specific scenarios discussed. Upon reflection, we noticed that we tended to pick role-play topics to reflect difficult conversations and not so much routine ones, such as academics. Given this limited range of topics for the behavioral rehearsals, the use of strategies was especially interesting. In contrast to the FCL data in which PCs reported problem solving in less than half of all calls, the behavioral rehearsals showed a high percentage of problem solving with the parent. It is possible that the PCs are engaging in problem-solving behaviors during the call, but they are not even aware of it. Thus, it is essential to use multiple methods to assess service delivery when possible. The behavioral rehearsals found no instances of identifying additional needs of the family, which also may be a limitation of the topics we selected. In future behavioral rehearsals, we will revisit the coding procedures and ensure that the role plays include more examples of “typical” content. We also plan to explore methods for the PC Coach to routinely incorporate behavioral rehearsals into supervision to better understand the PCs skills in delivering services and customize training support.

Program differentiation, or the use of program specific and non-programmatic strategies in an intervention, is a less studied treatment integrity component (McLeod et al. 2015). From a programmatic perspective during training and weekly supervision, the PC Coach repeatedly stressed the core program components and to refrains from aspects that were not considered programmatic (e.g., recommending specific teachers, providing medication advice). We addressed this broad concept by including items into the *PC Adherence Survey* asking parents about conversation topics that were not specific to the intervention. Encouragingly, we found a low recollection of such topics being discussed. This suggests that the PCs adhered to the model and were not routinely incorporating other topics into the intervention. This approach is limited by the types of questions we included; it is possible that PCs discussed other non-programmatic topics that were not assessed. Nonetheless, from an assessment perspective, this is an area of treatment integrity that we could strengthen considerably. Given that we knew there were no other school-based parent support options we did not specifically ask questions about other services that the treatment or comparison group might be receiving for this study. However, for future research, we are interested in understanding other types of family support services that parents may participate in while enrolled in a study. We are developing a brief measure to look at the range of formal (calling a local parent support agency, joining a social

media group) and informal peer support (conversations with another parent from school, talking with a family member) that families may receive. This is especially relevant to an intervention like *Parent Connectors* that is trying to encourage parental engagement in other local support services.

Treatment integrity is a multi-dimensional concept with a variety of interpretations as to what elements should be assessed and which methods to use. We found that not all aspects of treatment integrity are ideally captured by standard research assessments but may be incorporated within the intervention, through strategies such as the supervision or training (see Table 1). Further, having open lines of communication between service providers and the senior research team facilitated the process of refining treatment integrity methods, such as the FCL and behavior rehearsals. Currently, we also wonder about the requirements needed in assessments to demonstrate that an intervention was delivered with integrity for a research study and what may be required to ensure that a program is implemented with fidelity in the field (e.g., McLeod et al 2019). While these issues may seem a matter of simple semantics, we have found that this distinction does make a difference. For example, after exhausting all methods to improve the participation in the phone call observations, we had to rethink the process. If this was outside of a formal study, we likely would have quickly adopted a new approach (such as the behavioral rehearsals) rather than spend so much effort to try to adhere to study protocols. At times, we found a mismatch between needing to use methods from prior studies and not having the ability to easily adopt more refined treatment integrity assessments. These examples demonstrate the tension with expectations that measurement systems will not change during a formal study, even though revisions to treatment integrity assessments might be repeatedly recommended by staff/developers to improve quality. As we wrestled with these issues, we decided that it was reasonable to ask staff to submit two versions of the FCL, so we could examine if the modified form provided better information while not losing the continuity of treatment integrity data for the entire study. We decided not to change the adherence survey for parents to match the FCL as it would be too big of an ask for parents to complete the survey twice to preserve continuity of data. Other researchers at different stages in their research (e.g., first year vs final years of a study) might make different decisions, but regardless we found these issues regarding modifying treatment integrity assessments during a study to be an ongoing concern.

Upon completion of this study, we have begun the process of determining what treatment integrity assessments we might continue to require in routine service delivery and which we might use only for a formal research study. To help with this process, we have started work on a guide to use when talking with schools/agencies interested in adopted

Parent Connectors for their own use. We deliberately include the discussion of required treatment integrity methods, such as the modified FCL, upfront to ensure this important fidelity information will be collected. Likewise, this document also includes other concepts related to other implementation outcomes (Proctor et al. 2011) such as adaptability, feasibility, sustainability and costs. While not a part of assessing treatment integrity per se, the field recognizes that these important implementation outcomes play a significant role in uptake of an intervention and willingness of an agency to follow through on the required fidelity data (e.g., Chambers et al. 2013; Proctor et al. 2011).

Interestingly, as we are moving to provide *Parent Connectors* in routine settings, there are aspects of the treatment integrity assessments that we will not be continuing. For example, while the PC adherence measure was promising, we believe parents do not have enough time to complete such assessments outside of a research study. Recent research has demonstrated that few practitioners report collecting treatment integrity data (e.g., Cochrane et al. 2018), so administrators of evidence-based practices need to carefully select what aspects of treatment integrity will be required in routine practice compared to formal studies. One can imagine that for routine use of a school-based intervention perhaps only a small subset of treatment integrity measures will be used, compared to instances where the intervention is part of a formal research study where a more comprehensive approach to assessing treatment integrity will be conducted.

Finally, we encourage others to carefully consider the treatment integrity information that they collect. While our primary concern was if we met expectations and benchmarks to deliver an intervention with fidelity, we were open to the experiences of service providers and schools to consider alternate ways of collecting treatment integrity data. We also used our treatment integrity data to ask questions about how we could improve service delivery, such as improving supervision strategies or reconsidering how participants were identified. Many of the research questions we are proposing to address in future studies began from reflections on our treatment integrity data and how we can best serve stakeholders. We believe using treatment integrity data to identify ways to improve service delivery is an important exercise regardless of whether the intervention is in initial development stage, more advanced efficacy trials, or scale-up studies.

In conclusion, our objective was to share our experiences and struggles with assessing treatment integrity data of an individualized intervention for parents of students with EBD. While we discussed what went well, our focus was also on what did not work or was missing regarding assessing treatment integrity. Our hope is that sharing our experience will help other researchers in the field as they embark on this journey of determining if an intervention was delivered as

planned. While we may enjoy learning about the methods for assessing treatment integrity of school-based interventions that are successful, it is important that researchers share aspects that did not work and needed to be modified. From our experience, the task of assessing treatment integrity is a constant process of revisions for interventions that are intended to be disseminated beyond the confines of university-based research studies. The issues between meticulously assessing treatment integrity for research versus engaging in affordable and time efficient methods to improve the quality of service delivery may at times be a source of tension, but EBPs need to strive to succeed in both areas. Clearly the issues surrounding assessing treatment integrity are complex and evolving; we have much we can learn from the efforts of other implementation researchers as we walk this path together.

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Availability of data and material Instruments and materials are available through request.

Code availability Analyses code is available in SPSS or R upon request.

Declarations

Conflict of interest None to report.

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Consent to participate All research participants consented to involvement in the project.

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