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Increased Treatment Intensity Promotes Reduced Attrition in Parent Training Programs for Children With Challenging Behavior

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Abstract

Background: Behavioral Parent Training (BPT) Programs are highly efficacious but are limited due to high attrition. We sought to reduce attrition through modifications to the intensity level (i.e., number of hours per week) with which services are delivered.

Methods: We conducted a nonrandomized, parametric study of three distinct treatment intensity levels (high, medium, and low) with 116 participants with clinically significant challenging behavior and their caregivers. We examined rates of attrition, within appointment behavior reduction, and pre-post changes in standardized measures across all treatment groups.

Results: Rates of attrition varied by intensity level, with higher intensities producing less dropout (i.e., 6% in high intensity vs. 36% in low intensity). Statistically significant reductions in pre-post measures with large effects sizes were found in both the high and moderate intensity levels (*d*'s = 0.95–1.2 and 0.56–1.0, respectively).

Conclusions: Optimizing behavioral service delivery can address limitations in current BPT programs and may have substantial public policy implications.

Plain Language Summary

While behavioral training programs for parents are very effective, many families find it hard to finish them. This study looked at whether changing the intensity (the number of hours of help per week) would help families stay enrolled and see better results for their children. Results showed that families stay longer when they get more help, and children showed significant improvements in their behavior when they participated in high intensity programs.

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behavioral parent training, attrition, applied behavior analysis, treatment intensity

Externalizing behavior problems in young children, such as aggression, tantrums, and noncompliance, can be early predictors for more significant concerns later in life, including disruptive behavior and conduct disorders, mood disorders, and substance abuse (e.g., Chacko et al., 2012). As most evidence-based behavioral treatment programs focus on the caregiver as the change agent [i.e., behavioral parent training (BPT)], participation and retention of families is a crucial predictor of treatment success. However, these programs suffer from significant attrition (up to 69% of families; Ufford et al., 2022), reducing their impact.

Given the significance of attrition on program effectiveness, researchers have attempted to understand the factors that contribute to its prevalence. Friars and Mellor (2009) noted several family and environmental factors relevant to attrition, including caregivers' perception of the severity of the child's challenging behavior (e.g., that their case was extreme and wouldn't benefit from a traditional behavior program), caregiver competing demands (e.g., multiple children in the family, need to work), and judgement from the therapist (i.e., poor therapeutic alliance). To reduce the impact of these factors, the authors highlighted that incorporating caregiver preferences regarding treatment schedule, who was included in training, and supportive counseling.

Numerous intervention strategies have aimed to increase retention with minimal success (e.g., appointment reminders, behavioral contracting, caregiver supportive counseling; Chacko et al., 2012). Efforts to increase the efficiency of behavioral parent training programs have focused on condensing the delivery of intervention procedures (e.g., Robinson et al., 2020). Specifically, shortening the length of treatment [e.g., Brief Behavioral Intervention (BBI; Axelrad & Chapman, 2016); Intensive Parent-Child Interaction Therapy (iPCIT; Graziano et al., 2020), has been suggested to have a positive impact on caregiver attrition. Prospective applications in the educational literature have involved examining the number of times the intervention is provided per day and per week (i.e. intensity; Warren et al., 2007). In a separate study (Codding et al., 2016), the role of academic intervention frequency on outcomes was examined while the total number of intervention hours remained constant. Results indicated that students in the highest intensity intervention condition demonstrated significantly better math productivity than those in the lower intensity conditions. Additional studies (e.g., Duhon et al., 2020) investigated the role that exposure to an intervention (e.g., the amount of time an individual contacts the intervention) had on their skill acquisition. Results suggested that the magnitude of treatment effect varied as a function of dosage. Specifically, the highest dosage schedule (i.e., 8 times per day) resulted in largest improvements in students' academic performance (d = 1.29).

In the context of BPT, questions about generality of treatment recommendations remain unaddressed, as difficulties with treatment retention and adherence persist in the literature. One possible explanation may involve competing concurrent schedules, which result in caregivers favoring the immediate effects of punishment available in the natural environment rather than more durable reinforcement-based procedures taught in clinic (Heward & Malott, 1995; Skinner, 1953). In other words, when presented with the option for smaller, sooner reductions in challenging behavior (i.e., via punishment) over larger, later reductions (i.e., via differential reinforcement of alternative adaptive behavior), caregivers may opt for the quick fix requiring less time and effort. Practically, allocation of responding towards these "quick fixes" (i.e., either reinforcing or punishing challenging behavior to temporarily abate it) are inconsistent with recommendations from

behavioral treatment programs (Allen & Warzak, 2000) but may feel like the best option in the natural environment.

Massed trial practice is a learning procedure where rest periods between practice trials are separated by only short (if any) periods of time (i.e., Forehand et al., 1983). Alternatively, distributed practice involves learning via practice trials that are spaced apart by lengthy rest periods. In the context of reward-based (i.e. reinforcement shaped) learning, massed trial practice has been shown to improve performance during learning phases, improving short-term retention of skills (e.g., Krueger, 1929) and increasing opportunities for correct responding to receive feedback and reinforcement. Decreasing the time between a behavior and a reinforcer serves to strengthen the behavior, increasing the likelihood that it will occur again in the future (Skinner, 2014). Thus, the primary practical benefits of accelerating feedback to caregivers are to (1) increase skill acquisition and retention, (2) improve procedural fidelity to the evidence-based protocol, and (3) accelerate improvements in child behavior. With more rapid acquisition of skills, caregivers can begin seeing improvements in their child's behavior sooner than later, which may provide an important and more immediate source of reinforcement for their participation in treatment.

Given the poor consensus regarding ways to optimize service delivery to ensure that children and families receive the full benefits of BPT programs. The purpose of the current study was to evaluate the influence of treatment intensity on treatment attrition and behavioral reductions through a quasi-experimental parametric design.

Method

Participants and Procedure

We conducted a retrospective, nonrandomized quasi-experimental study comparing participants who self-selected into one of three treatment intensity levels (see Figure 1). Participants included children aged 3-17 referred for behavioral intervention to a large-volume pediatric outpatient behavioral treatment program between February 2023 and February 2024. That is, inclusion criteria included any family receiving their first course of treatment for the assessment and treatment of challenging behavior during the calendar year. Based in the Mid-Atlantic region, this urban outpatient program serves a diverse demographic of families with varying cultures, family structures, and socioeconomic backgrounds. In addition, a variety of services were available to minimize barriers for families, including on-site interpreters for non-English speaking families, transportation services, and school excuse letters. All participants had functionally impairing challenging behavior that interfered with daily functioning, which was confirmed by their scores on normed measures (i.e., ECBI). Exclusion criteria included children with (a) pre-existing or suspected diagnosis of psychosis or thought disorder, (b) previous history of suicide intent or attempts, (c) previous or current substance use disorder, and (d) intellectual disability. General procedures were identical across all three treatment arms, with all sessions occurring in a clinic-based setting. This study was deemed exempt by the University Institutional Review Board.

Design. We conducted a retrospective, nonrandomized quasi-experimental study comparing participants who self-selected into one of three treatment arms: high intensity (consisting of daily, two-hour appointments across two consecutive weeks), moderate intensity (consisting of twice weekly, two-hour appointments across five consecutive weeks), and low intensity (consisting of once-weekly, one-hour appointments across 10 consecutive weeks). Regardless of the treatment arm, caregivers received the same information regarding treatment expectations, goal setting, and the

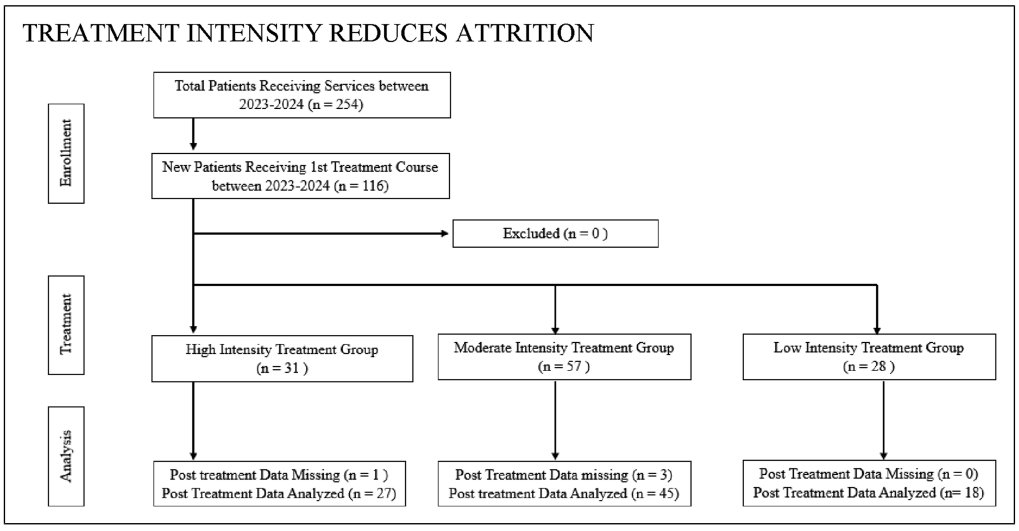

Figure 1. CONSORT flow diagram

requirement for home-based practice between appointments. Caregivers were provided information about the structure of all three treatment intensities (i.e., high, moderate, low) during the initial intake appointment. While no participants in the current study switched intensity level mid-treatment, they were invited to discuss issues with treatment acceptability with their clinician to navigate their concerns. All appointments were scheduled prior to the commencement of treatment based on caregiver preferences.

Treatment

Functional Behavior Interview. Prior to the start of treatment, all participants and their caregivers participated in a semi-structured functional interview designed to inform subsequent functional assessment procedures. Specific components of the interview included: (1) identifying and defining target behavior, and (2) discussion of antecedent and consequent events that reliably precede and follow challenging behaviors. Specific questions were designed to both solicit relevant clinical information as well as to orient caregivers to the functional perspective of treatment (Edelstein et al., 2023).

Functional Behavior Assessment. Specific assessment procedures were individualized based on the dimensions of the challenging behavior being targeted for reduction and the clinical needs of the patient and families. These empirically supported functional assessment procedures were based on the functional analysis (Iwata et al., 1984/92), with modifications to increase ecological validity. The range of empirically-supported functional assessment procedures include measurement of the latency to the first target response (e.g., latency analysis; Thomason-Sassi et al., 2011), programming reinforcement for responses within a response class rather than high risk target behaviors (e.g., precursor analysis; Smith & Churchill, 2002), increasing ecological validity through synthesized contingencies (e.g., IISCA; Hanley et al., 2012), limiting the number and duration of sessions (e.g., brief functional analysis; Northup et al., 1991), and antecedent manipulation through

structured descriptive assessment (Fisher et al., 1998). Test conditions involved experimentally testing variables in the child's environment thought to evoke and maintain challenging behavior. All assessment procedures included a control condition involving an enriched environment that served as a comparison to test conditions. Specifically, enriched environments typically included the presence of preferred toys/activities identified by participants themselves (e.g., iPads, coloring, toys) as well as the absence of adult directives. Observance of problem behavior in test conditions and absent in relevant control conditions confirmed the functional hypotheses and aided in selection of relevant treatment components. The test conditions of each participant's functional assessment served as the baseline for within-appointment data analysis.

Treatment Evaluation. Treatment for all participants included a habituation paradigm designed to increase tolerance to aversive contexts. Session content focused on improving adaptive skills across up to four phases, based on the behavioral analytic literature to promote tolerance for delays to reinforcement (e.g., Akers et al., 2019): (1) reinforcing an appropriate communication as a functional replacement for challenging behavior (i.e., functional communication training; FCT), (2) tolerating delays to access to preferred items/activities, (3) tolerating denied access to preferred items/activities, and (4) a cooperation procedure to increase compliance with task demands.

When training children to wait, caregivers used a digital or visual timer and stimuli (e.g. "clinic rules") to help them communicate expectations for waiting with their children. Clinic rules were individualized based on the developmental level of the child but generally included appropriate behaviors that were incompatible with challenging behavior (e.g., safe body, calm voice). Practice trials began by clinicians coaching caregivers to programmatically restrict access to preferred items with which the child was engaged (e.g., "it's my turn"). During wait intervals, the child was not required to engage in any specific behavior; that is, all behavior other than challenging behavior was reinforced at the end of the interval (i.e., differential reinforcement of other behavior; DRO). If the child engaged in challenging behavior at any point during skills practice, the timer was paused and caregivers were coached to remain quiet until the rules for appropriate waiting were followed. Wait times begin at 5 s for each participant and increased systematically as children and caregivers demonstrated mastery over the components of the procedure. Terminal wait criteria were determined in collaboration with caregivers and ranged from 2 to 5 min in length. Importantly, children were taught to engaged in appropriate waiting behavior without access to distractors to increase their tolerance for restricted access (i.e. habituation; Edelstein et al., 2022). Children were required to demonstrate appropriate waiting behavior in the absence of problem behavior for at least two consecutive trials prior to moving to the next phase of treatment.

After children demonstrated appropriate requesting and waiting behavior at the predetermined terminal wait criterion, clinicians taught caregivers to deny access to preferred items/activities. During denial training, participants were required to demonstrate appropriate behavior following an instance where a request is denied. Following the denial statement from their caregiver (i.e., "no, that's not available") participants were required to demonstrate appropriate behavior (i.e. clinic rules) to earn access to alternate, lesser preferred activities. Denial trials were unsignaled to participants to ensure that practice sessions had external validity and occurred on an unpredictable schedule (variable ratio three; VR3) intermixed with wait trials. Once an item or activity was denied, it remained in the treatment space but unavailable for the duration of the appointment.

Finally, for those children whose challenging behavior were identified as maintained by social negative reinforcement (i.e. escape, avoidance), the task extension procedure was used to build caregivers' instructional control over their child's task completion. Task demands (e.g., activities of daily living, homework completion) were inserted into the wait interval to provide caregivers with

opportunities to practice key components of delivering effective instructions (i.e. providing clear instructions, setting contingencies, following through). Contingent on their child's task avoidance or refusal, caregivers were taught to pause the timer to provide a functional consequence (i.e. escape extinction) for poor cooperation. Once the wait interval ends, the child was permitted to take a break from the demand and access their requested item for a pre-determined period. Practice trials were repeated in this way until the required task demand has been completed.

Concurrent with child-based skills training, caregivers were taught to implement treatment procedures related to differential reinforcement (i.e., reinforcing only adaptive behavior consistent with the identified function of their child's challenging behavior), delivering effective instructions (i.e. clear concise language, minimal prompting, and consistent follow-through), and contingency management (i.e., limit-setting and follow-through). During periods where participants earned access to positive reinforcement, caregivers were encouraged to play and attend to their children using behavior specific praise. That is, caregivers were coached by clinicians simultaneously while their child was engaging in practice trials. This concurrent skills practice allowed caregivers to see the clinician interacting with their child using the procedure with high fidelity. All target skills were taught to caregivers via behavioral skills training (i.e., instruction, modeling, rehearsal, and feedback) at each phase of the intervention. The process of providing skills feedback also served as the vehicle for data collection on treatment procedural fidelity.

Data Collection, Operational Definitions, and Standardized Measures

Our primary outcome was program attrition, measured categorically and dimensionally; families that dropped out of treatment prior to either meeting their goals or reaching the end of their treatment course were counted in this category. Secondary outcomes included child problem behavior (i.e., tantrums, aggression), measured as a continuous variable via direct observation by trained observers within appointments. Data were collected via pencil and paper by the primary clinician on data sheets individualized to each participant. Each appointment was recorded via a digital camera system and stored in a confidential, HIPAA-compliant server for later review to ensure accurate data collection. The definition of *problem behavior* was individualized to each participant; however, all participants engaged in either tantrums, aggression, or both as a primary target behavior. Tantrums were broadly be defined as being some combination of screaming, crying, property destruction, or throwing items; Aggression was broadly be defined as being any instance of hitting, kicking, biting, shoving other people, profanity, or verbal threats. Frequency of targeted behaviors were converted to responses per minute to allow for comparisons across differing observation periods. In baseline, all direct measures were collected in 5-min sessions. In the treatment evaluation, data were collected on a trial-by-trial basis, with the total number of trials varying each visit (average range 3 to 27 trials). A second trained observer reviewed video of sessions to collect interobserver reliability (IOA) data for a minimum of 33% of trials across all participants and caregivers, and averages were in the acceptable range (M = 90%; range, 80% to 100%). Procedural fidelity IOA was collected across caregivers at the end of each treatment phase when caregivers had demonstrated independence (i.e., clinicians were no longer providing coaching). Clinicians used a checklist of all components encompassing the procedure that had been taught, and caregivers were scored based on their demonstration of a specific skill given an opportunity. All caregivers were required to meet mastery criteria of 90% fidelity or greater to move to the subsequent treatment phase. Observations where caregivers scored less than 90% were remediated by the clinician re-modeling and coaching the caregiver to demonstrate the skill correctly.

Additionally, the Eyberg Child Behavior Inventory (ECBI; Eyberg & Pincus, 1999) and Parenting Stress Index (PSI; Abidin, 2012) were used to measure pre-post changes. The ECBI is a widely used, 36-item parent-rating scale designed to measure disruptive or externalizing behaviors in children and adolescents. It has both a behavior intensity subscale (i.e., how often the behavior occurs) and a problem subscale (i.e., whether or not the behavior is a problem for the caregiver). The PSI is a clinically validated screening tool designed to measure the magnitude of stress in the parent-child system, and includes three subscales: parent distress (i.e., PD; how the parent is functioning), parent-child dysfunctional interaction (i.e., PCDI; parent perception of their relationship with their child), and difficult child (i.e., DC; parent perception of their child's behavior). Both measures have acceptable test-retest reliability (i.e., ECBI: alpha = 0.86 for intensity scale; 0.88 for problem scale, PSI: alpha = 0.9–0.91).

Data Analysis

Demographic characteristics and dependent variables were analyzed across all three treatment arms using chi-square for categorical variables and one-way ANOVA; post hoc Tukey (HSD) tests were conducted for any significant results. Cohen's *d* was used to determine any effect sizes between pre-post treatment outcomes.

Results

Participant characteristics are shown in Table 1. At baseline, there were no differences between treatment arms on most demographic variables, either subscale of the ECBI, or all but one subscale of the PSI. Tukey HSD tests revealed significant baseline differences between the high (M = 78.5, SD = 17.6) and low (M = 65.8, SD = 20.2) intensity groups in the PSI-Parental Distress subscale ($p < 0.05$), as well as within-appointment challenging behavior; challenging behavior in both the high intensity (M = 3.49; SD = 3.57) and moderate intensity (M = 2.9, SD = 2.2) arms were significantly higher than in low intensity (M = 1.49, SD = 1.0) arm, (p's < 0.01 and 0.05, respectively). Significant differences were found in participants' insurance types between moderate and low intensity arms only: $\chi^2(1, N = 85) = 9.08$, $p = .003$ using the Yates correction.

For the primary dependent variable (attrition), chi-square tests of independence were performed to examine differences between treatment arms. Significant differences in attrition were found between high and low intensity arms: $\chi^2(1, N = 59) = 7.78$, $p = .005$, as well as moderate and low intensity arms: $\chi^2(1, N = 85) = 4.29$, $p = .04$. Insurance type (i.e., MA, COM) on its own was not found to significantly predict treatment attrition. Paired samples *t*-tests were used to evaluate pre-post differences in secondary dependent variables, with Cohen's *d* used to evaluate effect sizes (Table 1). Results suggest that participants receiving high intensity treatment had improvement with the largest effect sizes (*d*'s = 0.95 - 1.3). Results suggest that participants who completed low intensity treatment courses did not demonstrate clinical outcomes reaching statistical significance, except for within-appointment behavior reduction, and the Parent Distress and Parent-Child Difficult Interaction subscales of the PSI (*d*'s = 1.6, 1.2, and 0.76, respectively).

To examine patterns of attrition within treatment courses themselves, datasets were categorized based on participant response to treatment (see Figures 2-4). Specifically, participants whose within-appointment behavior was reduced by 80% or greater from baseline were categorized as "responders; " those who did not achieve this reduction but completed their prescribed treatment course were categorized as "nonresponders." Finally, those families that dropped out of treatment prematurely were categorized as "attrition." Visual analysis suggests that families who dropped out

Table 1. Participant Characteristics, Paired Samples *t*-Test Results, Effect Sizes

	High intensity	*d*	Moderate intensity	*d*	Low intensity	*d*
Total families enrolled	31		57		28	
Total completed	29		48		18	
% Attrition	6		16		36	
Total # "wasted" Appts	10		38		54	
Age range *M*(%)						
Preschool (ages 3–5)	9(29%)		15 (27%)		8 (29%)	
Elementary (ages 6–12)	18 (58%)		39 (68%)		16 (57%)	
High (ages 13–18)	4 (13%)		3 (5%)		4 (14%)	
Sex n(%)						
Male	22 (71%)		49 (86%)		20 (71%)	
Female	9 (29%)		8 (14%)		8 (29%)	
Insurance type						
% MA	59		25		60	
% COM	41		75		40	
Problem behavior						
Pre *M*(SD)	3.49(3.57)		2.9 (2.2)		1.49 (1.0)	
Post *M*(SD)	0.43 (1.13)***	1.2	0.79 (1.45)***	1.1	0.235 (0.38)***	1.6
ECBI-intensity *M*(SD)						
Pre *M*(SD)	68.1 (8.8)		66.3 (9.4)		68.8 (8.12)	
Post *M*(SD)	58.6 (6.7)***	1.2	59.9 (8.1)***	0.72	62 (9.4)	--
ECBI-problem *M*(SD)						
Pre *M* (SD)	66.8 (12.8)		63.9 (10.5)		67.2 (9.74)	
Post *M*(SD)	54.6 (11.6)***	1.0	53.9 (8.63)***	1.0	62.4 (9.56)	--
PSI-PD *M*(SD)						
Pre *M*(SD)	78.5 (17.6)		71.7 (17.5)		65.8 (20.2)	
Post *M*(SD)	58.3 (20.3)***	1.1	60.1 (16.2)**	0.68	43.1 (18.5)**	1.2
PSI-CDI *M*(SD)						
Pre *M* (SD)	79.7 (19)		74.1 (19.9)		78.1 (13.5)	
Post *M*(SD)	63.3 (15) ***	0.95	64.3 (14.7)**	0.56	66.1 (16.6)**	0.79
PSI-DC *M*(SD)						
Pre *M*(SD)	91.3 (11.8)		87.9 (13)		85.6 (16.3)	
Post *M*(SD)	76.7 (12.5)***	1.2	71.9 (17.3)***	1.0	49.3 (18.8)	--
PSI-TS *M*(SD)						
Pre *M*(SD)	84.1 (13.9)		79.4 (16.2)		73.7 (19.2)	
Post *M*(SD)	66.6 (13.5)***	1.3	61.9 (20.9)***	0.93	61.3 (16.5)	--

***$p < .001$; **$p < .01$.

Note. "Wasted" appointments defined as number of attended appointments prior to dropout; MA = medicaid; COM = commercial Insurance.

of treatment had less significant reductions from baseline across treatment arms. Specifically, reductions of less than 80% by hour two of treatment (i.e., treatment appointment one in high and moderate intensity, appointment two in low intensity) were predictive of dropout.

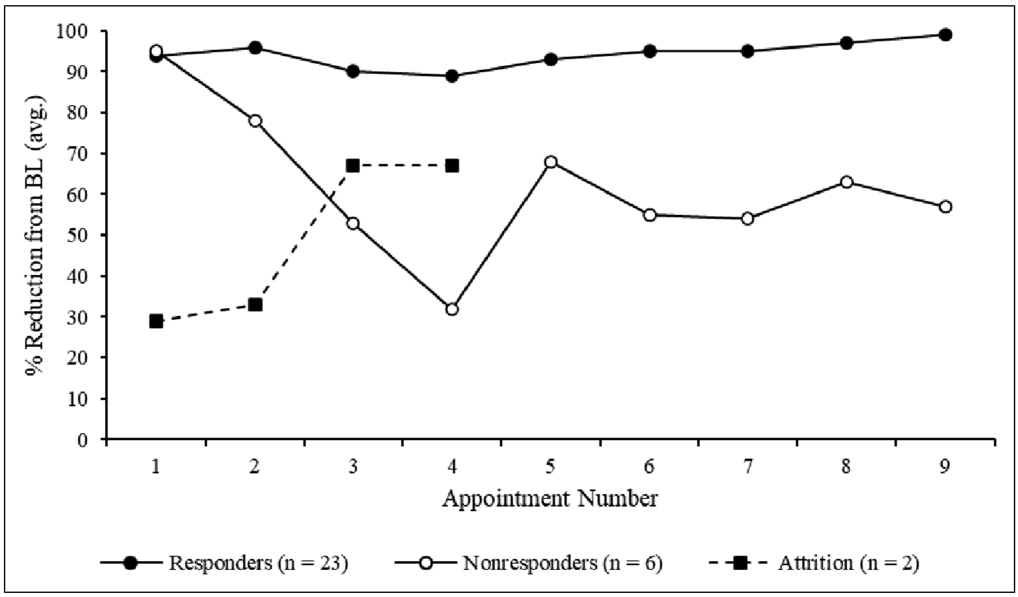

Figure 2. Mean reduction from baseline by appointment number (High Intensity).
Note. Appointment number refers to treatment appointments occurring after the functional assessment. Responders refers to participants achieving ≥80% reduction of within-appointment challenging behavior from baseline by the end of their treatment course; Non responders refers to participants achieving <80% reduction. Attrition refers to participants who did not complete their treatment course

Discussion

Given the challenges posed by treatment dropout in the extant literature, targeting attrition as an outcome variable is a logical endeavor as it represents resource costs with no benefit. The current study sought to manipulate treatment intensity as a means of improving caregiver buy-in by increasing opportunities for feedback and decreasing delays to child behavior change. Interestingly, neither the intensity nor the amount of caregiver-reported child problem behavior as measured by standardized measures appeared to directly influence caregiver choices around program intensity; rather, caregiver factors (i.e. level of distress) seemed to more directly influence their selection. Practically, this finding suggests that caregiver perceptions of the magnitude and frequency of their child's problem behavior may not be the only factors that contribute to their levels of distress, with only the latter being sufficient to increase their motivation to attend high intensity treatment. Once the family began treatment, observational data followed a more expected trend: children with highest rates of challenging behavior in baseline were most likely to be in the high intensity treatment program. These data provide additional context to previous research efforts to understand how caregiver perceptions influence their decision-making (e.g., Friars & Mellor, 2009). Perhaps relatedly, we found an inverse relationship between the intensity level of the treatment course selected by the family and their likelihood of attrition: the higher the intensity, the less likely they were to dropout prematurely. One possible explanation for this effect was the speed of behavioral improvement observed at higher intensity levels, highlighted in Figures 2–4.

As all participants meeting our broad inclusion criteria were included in the study, regardless of age, there were likely significant differences in parenting styles, child developmental level, and

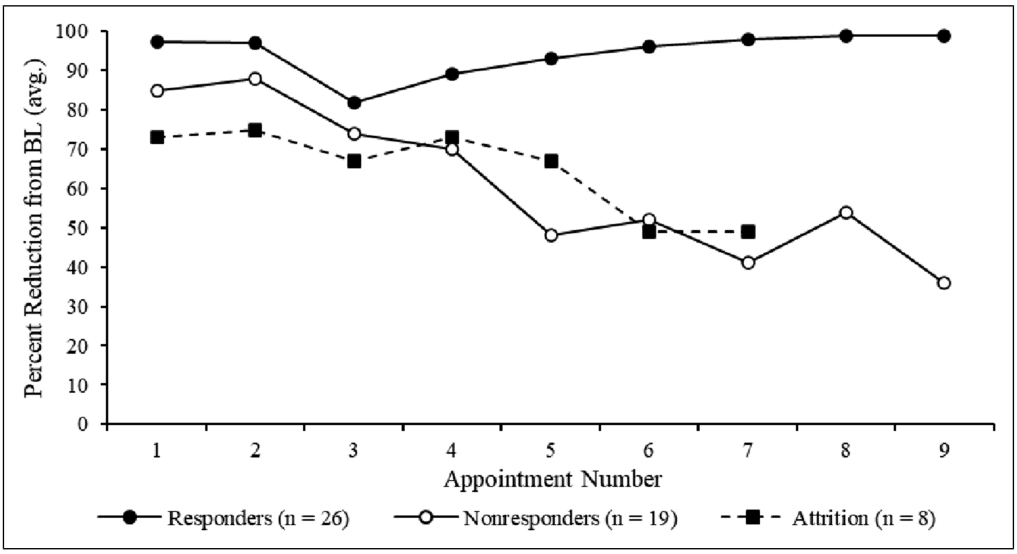

Figure 3. Mean reduction from baseline by appointment number (moderate intensity)

behavioral presentation. The use of this method was purposeful, and constitutes a controlled consecutive case series (Hagopian, 2020; CCCS). The CCCS requires reporting outcomes for every case, regardless of its outcome, enabling evaluation of how often the procedure produces positive results across a population. This comprehensive reporting is useful as it allows for the identification of identify functional relations that remain consistent across different individuals, providing insight into the prevalence and patterns of clinical problems. Finally, the CCCS helps isolate the specific

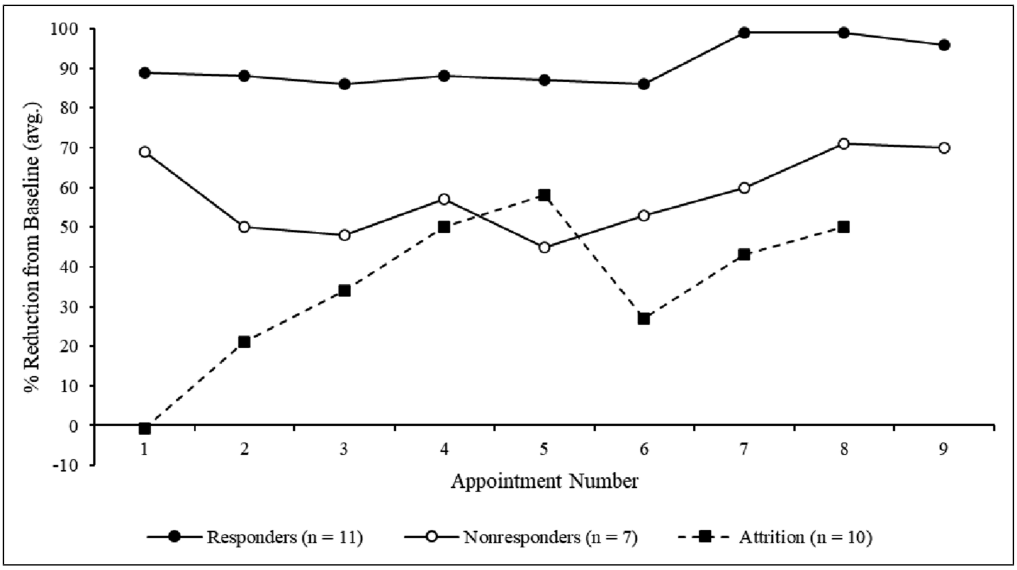

Figure 4. Mean reduction from baseline by appointment number (low intensity)

mediating variables that influence treatment success, offering a clear roadmap for refining future interventions.

The primary practical benefits of accelerating feedback to caregivers are to increase skill acquisition and retention, improve procedural fidelity to the evidence-based protocol, and accelerate improvements in child behavior. Increasing the intensity of intervention delivery leverages principles of reinforcement established by basic behavioral research to address contingencies that impact caregiver behavior. With more rapid acquisition of skills, caregivers can begin seeing improvements in their child's behavior in fewer calendar days, providing a more immediate source of reinforcement for their participation in treatment.

The current study presents a systematic study of methods to improve clinical efficiency and reduce attrition. For the pediatric behavioral healthcare field in particular, programs have largely structured behavioral interventions based on payers' rules; for instance, current procedural terminology codes (i.e. CPT codes) developed by the American Medical Association provide categories for the provision of behavioral intervention services for up to an hour per treatment appointment. The increasing trend of emergent behavioral needs coupled with the absence of appropriate behavioral programming highlights the imperative for innovative treatment programs. Due, in part, to third party payers' funding structure, the only resource for many families of children with severe challenging behavior is traditional weekly outpatient behavioral intervention programs. However, these reimbursement practices (1) may inadvertently create barriers to access to high quality behavioral interventions, particularly among treatment refractory groups, and (2) may impact innovation and curb progress toward optimizing evidence-based interventions. Additional research on the utility of diverse service delivery models may be useful in directing future policy on funding decisions.

Despite these promising findings, the results should be tempered by the study's limitations. First, additional demographic data would be useful to refine analysis regarding whether there are meaningful differences among groups who choose each intensity level. For the current study, insurance type was used as a proxy for socioeconomic status. While parsing insurance type to understand demographic differences between groups may be a useful start, future studies should incorporate more nuanced information regarding family constellation, employment history, etc. Previous research has highlighted that socioeconomic factors can be a significant barrier to engagement with behavioral parent training programs (Friars & Mellor, 2009), and expected or unexpected competing demands can impose constraints on caregiver availability. The use of high intensity programming may represent one way to combat these constraints, as reducing the number of calendar days to a successful outcome serves to also reduce the number of opportunities for unexpected life hurdles.

An additional limitation includes the self-selection of groups among participants. Caregivers chose their own intensity level after their intake appointment, limiting the study's internal validity. However, given the objective of the study, allowing families to make choices based on their own priorities likely served to increase the study's external validity. Future studies should build in these initial results by randomizing families to specific intensity levels, reducing selection bias. Ultimately, these results provide preliminary evidence of how structural modifications to service delivery models can increase access to necessary behavioral support for families.

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