

Cognitive-behavioral treatment for specific phobias with a child demonstrating severe problem behavior and developmental delays[☆]

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Abstract

Cognitive-behavioral treatments (CBTs) are widely used for anxiety disorders in typically developing children; however, there has been no previous attempt to administer CBT for specific phobia (in this case study, one-session treatment) to developmentally or intellectually disabled children. This case study integrates both cognitive-behavioral and behavior analytic assessment techniques in the CBT of water and height phobia in a 7-year-old male with developmental delays and severe behavior problems. One-session treatment [Öst, L. G. (1989). One-session treatment for specific phobias. *Behaviour Research and Therapy*, 27, 1–7; Öst, L. G. (1997). Rapid treatment of specific phobias. In G. C. L. Davey (Ed.), *Phobias: A handbook of theory, research, and treatment* (pp. 227–247). New York: Wiley] was provided for water phobia and then 2 months later for height phobia. The massed exposure therapy sessions combined graduated in vivo exposure, participant modeling, cognitive challenges, reinforcement, and other techniques. Both indirect and direct observation measures were utilized to evaluate treatment efficacy. Results suggested CBT reduced or eliminated behavioral avoidance, specific phobia symptoms, and subjective fear. Negative vocalizations were reduced during height exposure following treatment. Vocalizations following treatment for water phobia were less clear and may have been indicative of typical 7-year-old protests during bath time. Findings indicate CBT can be effective for treating clinical fears in an individual with

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developmental disabilities and severe behavior. Future research in this population should examine CBT as an alternative to other techniques (e.g., forced exposure) for treating fears.

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The application of cognitive-behavioral therapies (CBT) to children with intellectual and developmental disabilities is a relatively new and emerging field of study. Recent studies and reviews highlight the need for further examination of these techniques with this special population (see the *Journal of Applied Research in Intellectual Disabilities*, vol. 19, 2006 for a special issue reviewing the use of CBT in the intellectually disabled). Moreover, there have been numerous calls for behavior analysts to investigate anxiety (e.g., Friman, Hayes, & Wilson, 1998) and, concomitantly, there has been a growing need for more precise and systematic behavioral measurement of anxiety by cognitive-behaviorists (Davis & Ollendick, 2005). Unfortunately, there has been little convergence between these two fields. The extant literature on anxiety and specific phobia within these two fields seem to have developed largely in isolation, with neither making use of the significant contributions of the other.

Specific phobias are intense, problematic fears of particular animals, objects, situations, or environments (American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders*, 4th ed., text-revision, 2000; DSM-IV-TR). According to the DSM-IV-TR (pp. 443–450), to meet criteria for diagnosis there must be a specific cue which evokes a marked and persistent fear (criterion A), cue exposure must prompt an anxiety response (criterion B), the cue must be avoided or endured with distress (criterion D), and the fear or its consequences must interfere with the individual's typical functioning. Importantly, with children there are two distinct differences: there is no need for a child to report that fear is excessive (criterion C) and there must be a minimum of 6 months duration of the phobic symptoms (criterion F) to assure the fear is not developmentally appropriate and transient. These criteria, C and F, are likely of equal importance when treating those with intellectual or developmental disabilities of any age. Fears with this intensity and impairment occur in approximately 5% of typically functioning children in community samples and 15–20% of children presenting to anxiety disorder clinics (Ollendick, Hagopian, & King, 1997). Rough estimates have suggested specific phobia could affect as many as 350,000 children in communities across the United States (Davis & Ollendick, 2005).

Given the pervasiveness of the problem, a variety of exposure-based interventions have been created to treat specific phobia in children. The ongoing push to identify empirically supported treatments (ESTs) for childhood disorders (task force on promotion and dissemination of psychological procedures; Task Force, 1995; Chambless et al., 1996, 1998; Chambless & Ollendick, 2001) has resulted in the identification of several empirically supported treatments for specific phobias in typically developing children (Davis & Ollendick, 2005; Ollendick & King, 1998). These interventions are imaginal and in vivo systematic desensitization, reinforced practice, participant modeling, and CBT and its variants (Davis & Ollendick, 2005). Briefly, systematic desensitization involves counter-conditioning fear by pairing a hedonically incompatible response with exposure to the feared stimulus (e.g., relaxation). Reinforced practice simply involves shaping approach behavior to the feared stimulus through operant procedures, while participant modeling involves having the therapist model approach behavior toward and appropriate interactions with the feared stimulus while actively involving the

participant (e.g., providing verbal instruction, physical guidance). CBT and its variants typically incorporate any or all of these behavioral or social learning techniques with the addition of cognitive challenges and/or cognitive restructuring.

While the use of these interventions for specific phobia has found varying degrees of support in the literature with typically developing children, comparably little research has investigated their efficacy with intellectually or developmentally disabled children. For example, [Matson, Smiroldo, Hamilton, and Baglio \(1997\)](#) used parent-guided participant modeling to successfully treat two autistic children's fears, while [Jones and Friman \(1999\)](#) used reinforced practice to treat insect fear in an adolescent. [Hagopian, Crockett, and Keeney \(2001\)](#) treated an adolescent's blood–injection–injury phobia with a combination of restraint, forced exposure, medication, topical anesthetic, reinforcement, fading, and modeling. Similarly, [Rapp, Vollmer, and Hovanetz \(2005\)](#) treated “pool avoidance” in an adolescent through a series of procedures including parental enticement, blocking and forced approach, reinforced practice, and systematic desensitization using an edible or toy. However, to date no studies have reported on the application of CBT for specific phobia with children with intellectual or developmental disabilities ([Dagnan & Jahoda, 2006](#)).

One-session treatment (OST; [Öst, 1989, 1997](#)) is a unique variant of CBT that combines several behavioral, social learning, and cognitive techniques into a single, massed, 3-h session of graduated exposure. Through a series of behavioral experiments (i.e., steps in the fear hierarchy completed by both the participant and the therapist), participants gradually negotiate the steps of their fear hierarchy at their own pace in a controlled way. Potential behavioral experiments are proposed by either the therapist or the participant, agreed upon by both, modeled by the therapist, completed (either successfully or unsuccessfully), and subsequently discussed. Broadly, the treatment incorporates participant modeling, massed in vivo exposure, verbal reinforcement, and cognitive challenges to catastrophic beliefs and expectancies. At no time is the participant forced to approach or engage the phobic stimulus.

As described, OST has garnered “well-established” treatment status when used with typically developing children based on the three studies investigating its use with that population ([Davis & Ollendick, 2005](#)). Impressively, [Öst, Svensson, Hellström, and Lindwall \(2001\)](#) reported a 90% clinical improvement rate, and OST has been found to be more effective than other specific phobia treatments ([Muris, Merckelbach, Holdrinet, & Sijsenaar, 1998](#); [Muris, Merckelbach, Van Haften, & Mayer, 1997](#); [Öst et al., 2001](#)). Moreover, results have suggested that typically developing children generally experience the treatment positively and appreciate their control over the exposure and the pace of treatment ([Svensson, Larsson, & Öst, 2002](#)).

In the present case study, methodologies from applied behavior analysis and CBT were used to assess and treat specific phobias in a boy with severe problem behavior and developmental delays. OST was chosen as the CBT to be piloted with an intellectually and developmentally delayed child with specific phobia for several reasons. First, OST emphasizes continued and prolonged exposure in the absence of interference from distraction or desensitization techniques. Distraction and/or desensitization have been theorized to interfere with the benefits and generalization of exposure ([Foa & Kozak, 1998](#); [Lang, 1977](#)) and have subsequently been shown to be less effective than focusing on the exposure and its associated cues as in CBT ([Craske, Brown, & Barlow, 1991](#)). Second, CBT has been found to have better long-term generalization effects than relaxation ([Craske et al., 1991](#)). For example, typically developing children receiving OST maintain treatment gains even at 1-year follow-up ([Öst et al., 2001](#)). Third, with this child in particular, the absence of a forced approach would minimize severe behavioral outbursts while also serving to prevent the association of further aversive cues to the presence of the feared stimuli. Finally, it was hypothesized that use of verbal reinforcement and cognitive discourse

present in OST would be advantageous, given the participant's history of attention-maintained problem behavior (further described below).

1. Method

1.1. Participant

John was a verbal, 7-year-old, Caucasian, male who presented to a neurobehavioral outpatient clinic for treatment of severe behavior including self-injury (i.e., head banging, head hitting, and self-gagging), aggression (i.e., hitting, slapping, pushing, biting, and spitting), and disruption (i.e., tantruming). John had prior developmental difficulties related to dysarthria and coordinating ambulation and had previously been diagnosed with varying pervasive developmental disorders. Results from a functional analysis of John's problem behavior (Iwata, Dorsey, Slifer, Bauman, & Richman, 1982/1994) indicated that he engaged in problem behavior in order to gain access to adult attention and tangible items. Each function was successfully targeted with a combination of treatment components including functional communication training and extinction (e.g., Kurtz et al., 2003).

According to parent report, John also presented with persistent and intense fears of water and heights. John evidenced extreme avoidance of water and had not had a bath or shower for 3 years. Instead, John was given "birdbaths" which involved being cleansed with a baby wipe and waterless cleanser. John had previously exhibited severe aggression, disruption, self-injury, and fear when presented with the task of taking a bath. John's fear and avoidance of heights were less problematic but still clinically severe: a moderate to severe fear of high places including elevators, stairs, sidewalk gratings, etc. While John did not have as severe a fear of heights, his avoidance limited his access to exposed second storey areas (e.g., in the mall), caused distress when riding elevators, and required his mother to frequently carry him across grates, gaps in flooring, and at times up and down unfamiliar stairways. These accommodations were especially difficult as John's growth with age had made carrying him increasingly unwieldy, and he had a younger brother with similar developmental delays and behavior problems who would frequently accompany them.

1.2. Setting

Treatment sessions for John's height phobia were conducted at various locations across the Johns Hopkins Hospital and included stimuli such as elevators, escalators, atrium balconies, catwalks, and a glass-enclosed corner office on the top floor of a high-rise office building. Treatment of John's water phobia occurred in his home using a small $\frac{1}{2}$ bathroom on the ground floor and his bathroom/tub/shower on the second floor.

1.3. Measurement

A combination of traditional cognitive-behavioral and behavior analytic measures were utilized for the assessment and treatment of John's phobias. These measures and techniques are separated below into sections on indirect measures and direct observation.

1.3.1. Indirect measures

1.3.1.1. *Anxiety disorders interview schedule-IV-parent (ADIS-IV-P, Silverman & Albano, 1996)*. The ADIS-IV-P semi-structured diagnostic interview (based on DSM-IV categorical

scheme) was administered by trained clinicians. This measure is used to assess psychopathology in children and adolescents 7–17 years of age. The specific phobia module of the ADIS-IV-P was administered to John's mother and was separate from John's responses. Severity of each phobia diagnosis was assigned a clinician severity rating (CSR) on a scale from 0 (none) to 8 (very severely disturbing/disabling) with a severity rating of 4 (definitely disturbing/disabling) being considered clinically significant. The inter-rater reliabilities of the ADIS-IV-P semi-structured diagnostic interview have been found to be acceptable (parent interviews, $\kappa = 0.77$; Grills & Ollendick, 2002).

1.3.1.2. Fear survey schedule for children-revised (FSSC-R, Ollendick, 1983). The FSSC-R, a widely used fear and anxiety self-report measure for children and adolescents 7–22 years of age, was administered to John with his mother's assistance. He responded to the 80 items describing situations, objects, environments, and animals which children typically fear. John was asked to rate his fear of each item as "none," "some," or "a lot." The FSSC-R has been extensively studied and been found to have excellent to acceptable internal consistency, reliability, and stability over time (e.g., Ollendick, 1983).

1.3.1.3. Treatment credibility. In order to indirectly examine to what extent a participant's expectations about the effectiveness of a therapy will affect actual treatment outcome, a treatment credibility form developed by Thomas Ollendick and Lars-Göran Öst (unpublished; based on Waltz, Addis, Koerner, & Jacobson, 1993) was used and administered separately to John and his mother. The questionnaire included three questions asking if it makes sense to use this treatment, how successful it is believed this treatment will be, and if one would recommend this treatment to others with similar problems based upon the description. Items were rated from 0 (no sense at all, not useful, definitely not) to 8 (makes a lot of sense, very useful, definitely yes). A fourth item queried how much improved they believed they would be by the end of treatment. Respondents could indicate from 0% to 100% in 10% intervals (i.e., 11 choices).

1.3.2. Direct observation

1.3.2.1. Behavioral avoidance tasks (BATs). Two BATs were developed by the investigators to assess John's fear responses and behavior before and after treatment. The water/bath hierarchy included the following steps: does not attempt, stands in doorway, stands within 3 feet of tub, stands within 6 in. of tub, touches tub, stands with one leg in filled tub, stands (both legs) in filled tub but remains less than 30 s, stands (both legs) in filled tub and remains 30+ s, sits in filled tub and remains less than 30 s, sits in filled tub and remains 30+ s.

The height hierarchy included the following steps: does not attempt, calls for elevator, rides elevator up one floor (floor 3), rides elevator up two floors (floor 4), rides elevator up three floors (floor 5), rides elevator up four floors (floor 6), stands beyond 5 feet of railing on sixth floor, stands within 5 feet of railing on sixth floor, stands at railing but remains less than 30 s, stands at railing and remains 30+ s. BAT sessions were attended by a primary therapist who directed John through the task and an assistant who videotaped sessions for subsequent coding (described in detail below).

1.3.2.2. Target behaviors. The dependent variables measured by direct observation included task completion, social support seeking behavior, positive vocalizations, negative vocalizations, and neutral vocalizations. Task completion was defined as John successfully completing a step from the BAT hierarchy following an initial verbal prompt from the therapist. Social support

seeking behavior was defined as John initiating physical contact with a therapist (e.g., attempting to hold hands, hug, touch, etc.) after a task prompt (i.e. during exposure). Positive vocalizations included positive statements and questions subsequent to the task prompt, such as “yes, I want to do it” (indicating a desire to further approach). Negative vocalizations included negative statements and questions following a task prompt, such as “No, no; very scared!” Neutral vocalizations included neutral statements and questions following a task prompt (e.g., “what does RV mean?”).

1.3.2.3. Interobserver agreement. All direct observation data were collected using a digital video camera operated by one of the investigators. Trained staff later coded the recorded sessions using a computer program that collected real-time data. Observers coded each session twice—the first time to score task completion and social support seeking behavior, and the second time to score John’s vocalizations (positive, negative, and neutral).

Reliability data for task completion and social support seeking behavior were collected for 50% of sessions; for the three types of vocalizations, reliability was collected in 67% of sessions. Exact agreement coefficients were calculated for each target behavior based on 10-s intervals of each session. An agreement was scored if both observers recorded exactly the same number of occurrences of a response in an interval. Agreement coefficients were calculated by dividing the number of intervals with exact agreements by the total number of intervals and multiplying by 100%. Interobserver agreement averaged 91% for task completion and 100% for social support seeking behavior. Mean agreement coefficients for John’s vocalizations were 98% for positive, 97% for negative, and 94% for neutral.

1.4. Experimental design

A multiple baseline design across water and height phobias was utilized to evaluate the diagnostic effects of one-session treatment for each phobia with the ADIS-IV-P. Consistent with most cognitive-behavioral studies, results are presented pre- and post-treatment with a detailed analysis of John’s behavior occurring at each of these four assessment periods, but not during the two-massed exposure treatment sessions themselves. Additionally, direct observation data from the BATs are reported in number of steps completed, as well as rate per minute of vocalizations (i.e., positive, negative and neutral) and social support both pre (baseline) and post treatment sessions.

1.5. Procedure

Data were collected at three time periods: baseline, 2 months after treating John’s fear of water, and 4 months after treating his fear of heights (i.e., 2 months after the first treatment). Assessment included a semi-structured diagnostic interview, the FSSC-R, and the BATs including direct observation of number of tasks completed, social support seeking behavior, and vocalizations (i.e., positive, negative, and neutral). An indirect measure of the intensity of John’s fears was determined by administering the specific phobia module from the ADIS-IV-P to his mother. Treatment was conducted according to Öst (1989, 1997) and is described in more detail below.

1.5.1. BAT procedures

1.5.1.1. Water/bath phobia. The water/bath BAT was conducted at John’s home in his bathroom upstairs which was equipped with a tub and shower. John dressed in a swimsuit and was escorted to his bathroom door by an experimenter. Upon reaching the door, the experimenter read:

“John, now we want to see how you do when you need to take a bath. Behind this door/curtain is a tub with water in it. What I would like you to do is open the door, go inside, get in the tub, and sit in the water until I tell you to come out. However John, you don’t have to do any more of this than you want to. If you don’t even want to go in the room, that’s ok. If you want to stop at any time, just say ‘I’m finished’ and that’s ok too.”

John was asked to repeat the instructions and, upon understanding them, encouraged to proceed as far as he desired.

1.5.1.2. Height phobia. The height BAT was conducted in the six-storey parking garage structure at the Kennedy Krieger Institute. John was escorted to the elevators at the street level entrance to the parking garage. Upon reaching the elevators, the experimenter read:

“John, now we want to see how you do when you are up some place high. What I would like you to do, when I tell you to, is push the button for the elevator, get in, ride the elevator to the 6th floor, walk out to the staircase, and look out the window until I say stop. However John, you don’t have to do any more of this than you want to. If you don’t even want to go in the elevator, that’s ok. If you want to stop at any time, just say ‘I’m finished’ and that’s ok too.”

Again, John was asked to repeat the instructions to assure his understanding. John was then encouraged to proceed whereupon he could ride the elevator with the experimenter and an assistant with a video camera. All sessions were videotaped for subsequent behavioral data coding.

1.5.2. OST

As previously described, OST is a massed exposure therapy, which combines intensive, graduated, in vivo exposure with participant modeling, verbal and physical reinforcement (e.g., praise, pats on the back, etc.), psychoeducation about the phobic stimulus, and cognitive challenges. These techniques are used fluidly throughout the single session that is maximized to three hours. During the massed exposure, the therapist and patient work collaboratively through the steps of the individual’s fear hierarchy. The goal of OST is to “expose the patient to the phobic situation in a controlled way, and enable him/her to stay in the situation until realizing that the feared consequence does not occur” (Öst, 1989, p. 3). These procedures are thought to facilitate treatment in three ways: through habituation and extinction, the eliciting and challenging catastrophic cognitions, and by preventing cognitive and behavioral avoidance (Davis & Ollendick, 2005). The massed exposure session is seen as the start of treatment (even though it is the only “formal” treatment received) as participants are encouraged to self-expose on a regular basis at home. As a result, subsequent assessment followed treatment by several months in order to provide ample practice and generalization opportunities.

OST was administered to John without any adaptations and as per the manual by Öst and Ollendick (1999). The therapist administering both massed exposure sessions had been trained to criterion and had 4 years experience administering the treatment. As such, treatment proceeded as series of behavioral experiments during which the therapist proposed a step in the hierarchy, obtained John’s approval to continue, modeled the step and vocalized coping statements, encouraged John to then attempt the step, and finally discussed the success or failure of the experiment as well as encouraged John to consider the outcome as a test of his catastrophic cognitions.

2. Results

The results of the OST evaluation are depicted in Figs. 1 and 2. Fig. 1 presents the results of indirect assessment via the ADIS-IV-P. At baseline, John’s fear of water was rated an “8” due to his intense fear and avoidance (see top panel). Recall that because of his fear of water, he had not had a bath in several years, choosing instead to take “birdbaths” in which he was hastily wiped

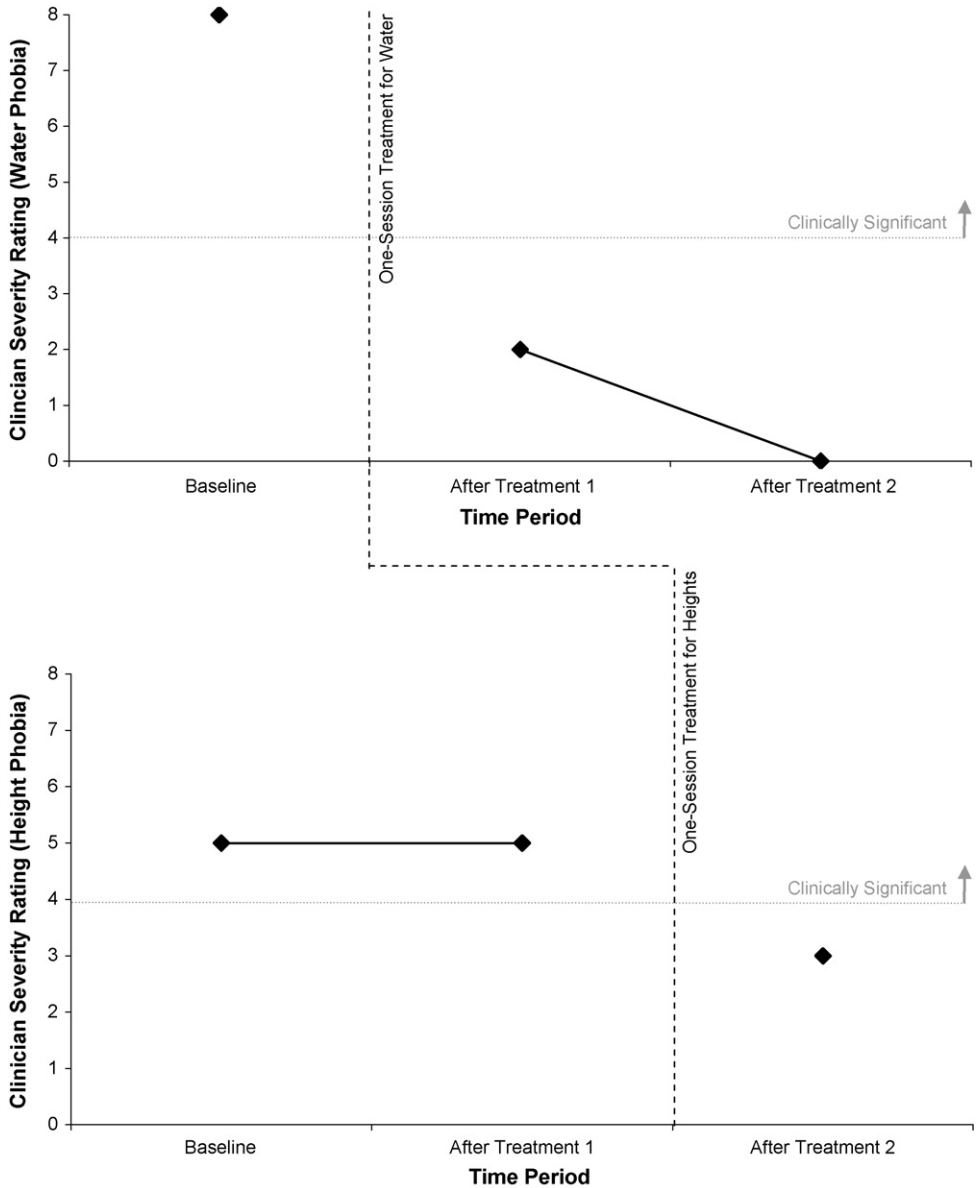


Fig. 1. Diagnostic severity of water and height phobia according to ADIS-IV-P at baseline, after one-session treatment (OST) for water phobia, and after OST for height phobia.

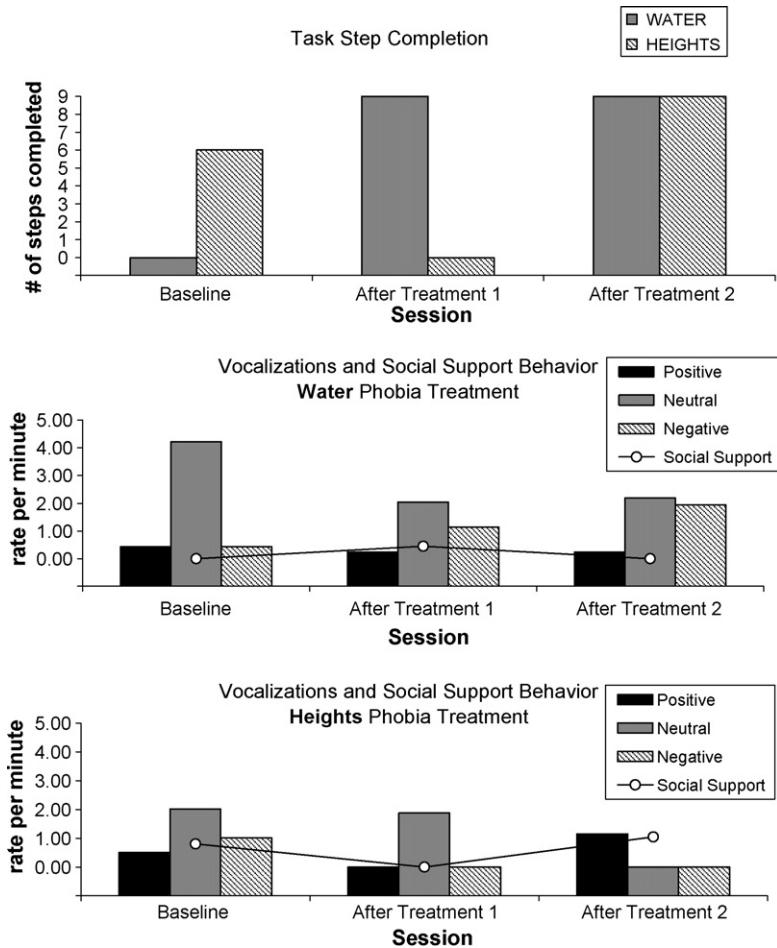


Fig. 2. The effects of treatment on overall behavioral avoidance task (BATs) performance, vocalizations, and support seeking behavior.

down with baby wipes. John’s fear of heights was also clinically significant, with an assigned CSR of “5” indicating a moderate to severe fear of high places including elevators, stairs, sidewalk gratings, etc. (see bottom panel). While John did not have as severe a fear of heights, his avoidance limited his access to exposed second storey areas and caused distress. At baseline, John’s FSSC-R total score was 113 (within the average range).

Both John and his mother completed the treatment credibility rating scale before undergoing each treatment (i.e., 1 for water phobia after baseline and 1 for height phobia 2 months later). Prior to beginning OST for water, John indicated the treatment “made a lot of sense” (i.e., 8), would be “very useful” (i.e., 8), he would “definitely” (i.e., 8) recommend it, but he did not anticipate being any better immediately after the session (i.e., 0%). John’s mother similarly indicated the treatment “made a lot of sense” (i.e., 8), would be “very useful” (i.e., 8), she would “definitely” (i.e., 8) recommend it, however she anticipated John being “60%” better by the end of the session.

Prior to undergoing OST for heights, John indicated the treatment “made a lot of sense” (i.e., 8), would be “very useful” (i.e., 8), he would “definitely” (i.e., 8) recommend it, and he anticipated

being “100%” better by the end of the session. John’s mother similarly indicated the treatment “made a lot of sense” (i.e., 8), would be “very useful” (i.e., 8), she would “definitely” (i.e., 8) recommend it, and she anticipated John being “80%” better by the end of the session. As a result, overall treatment credibility was believed to be acceptable to very good.

John was treated first for his water phobia and 2 months later for his height phobia. Following his water treatment, John evidenced no meaningful change in his FSSC-R score and his CSR for height phobia remained a 5 (i.e., moderate to severe diagnosis). His CSR for water phobia, however, dropped to a 2 (i.e., subclinical, mild). Two months after the water phobia treatment, John participated in the height phobia treatment. Two months after the height phobia treatment (i.e., 4 months after the water phobia treatment), he was assessed again to determine the effects of both interventions. Diagnostically, John no longer met criteria for either specific phobia (see Fig. 1). His CSR for water phobia was 0 (i.e., no diagnosis) and his CSR for height phobia had changed from a 5 (i.e., moderate to severe) to a 3 (i.e., subclinical, mild). Additionally, John’s total score on the FSSC-R decreased by half a standard deviation compared to other children his age (i.e., 14 points).

Results of direct observation support the positive outcomes indicated via indirect measures. Fig. 2 presents John’s overall performance on the BATs (top panel), as well as rate of vocalizations and social support behaviors during water phobia (center panel) and height phobia (bottom panel) sessions, respectively. At baseline, John completed 0% of the steps on the water BAT and 70% on the height BAT (the final step involved him going to the railing of a sixth floor parking garage but he would not go within 15 feet of the railing; see top panel, Fig. 2).

Following treatment for water phobia, John was able to complete 100% of the steps in the BAT hierarchy with some increase in social support seeking behaviors (from 0.00 to 0.45/min) and negative vocalizations (8.5% of total vocalizations to 33.3%) (see center panel). Neutral vocalizations decreased from baseline levels (83.1% of total vocalizations to 59.9%). John’s performance on the height BAT decreased dramatically from 70% completion at baseline to 0% completion after the treatment for water phobia. In addition, John evidenced a decrease in social support seeking behaviors from baseline (0.80–0.00/min), an increase in neutral vocalizations (57.2% of total vocalizations to 100.0%), and decreases in positive (14.2% of total vocalizations at baseline) and negative (28.6% of total vocalizations at baseline) vocalizations to 0% of total vocalizations (see bottom panel). Initial results of the intervention for water phobia suggested an improvement in John’s water phobia and either no change or a worsening of his height phobia.

However, after treatment for height phobia, John completed 100% of both BATs. On the water BAT, John did not evidence any social support seeking behavior and showed a continued trend of increasing negative vocalizations and decreasing neutral vocalizations. On the height BAT, John evidenced an increase in social support seeking behavior and a decrease in neutral and negative vocalizations along with an increase in positive vocalizations.

3. Discussion

Results of this case study suggest good utility in using cognitive-behavioral massed exposure (i.e., one-session treatment) with a child with a history of severe behavior and developmental delays and provides another treatment option for this population. Overall, John evidenced diagnostic and behavioral improvements for each phobia consistent with the administration of each intervention. John’s social support seeking behavior and vocalizations, however, are more difficult to interpret. Tentatively, increased social support seeking behavior seems to be consistent with an initial increase in behavioral performance on BATs. This conclusion is both

consistent with a developmental perspective in which John used adult assurance and instruction to guide his behavior and with the overall intermediate procedures used in treatment (e.g., social support being similar in some respects to participant modeling). However, it remains to be determined if social support seeking would eventually decrease over time and if John would develop increased independence (e.g., the final data point for water phobia).

Generally, John's vocalizations evidenced differing patterns. For the height BAT, a pattern of increased positive vocalizations and decreased negative vocalizations was apparent with the greatest behavioral performance, as was predicted. The water BAT may differ due to confounds related to the task and John's presentation. Specifically, behavioral compliance with elevated neutral and negative vocalizations may in fact represent the healthy and expected protests of a typical 7-year-old boy needing a bath. Overall, more investigation in this area is needed to substantiate these tentative conclusions.

Subsequent informal follow-up by phone with John's mother approximately 6 months after the final assessment suggested that treatment gains had been sustained and that further improvement had occurred. John was reportedly taking regular baths and having little or no impairment related to heights. For example, he reportedly had gone on several trips to the beach during which he was in water up to his neck (previously he would not enter the water beyond his ankles) and had begun and progressed through a gymnastics class in which he frequently walked on a low balance beam, used see-through mesh trampolines, and swung on a trapeze. As a result, it seems that the treatments successfully generalized to respective stimuli in the natural environment.

This study is the first attempt to our knowledge of using a CBT to treat specific phobia with a developmentally disabled child with severe behavior. Overall, treatment appeared to be very effective at eliminating or reducing avoidance behavior, subjective fear, specific phobia symptoms, and to a lesser degree negative vocalizations (at least with height related exposure). A significant strength of this case study was the use of a multi-method (e.g., diagnostic, subjective, behavioral) and multi-informant (i.e., parent-report as well as self-report) approach to assessment as well as the unique integration of cognitive-behavioral and behavior analytic techniques. Tentatively, the results of this case study suggest such an integration of these techniques is possible and informative, even with a child who evidences unique and severe behavioral challenges. Moreover, the graduated approach and lack of forced approach/exposure or blocking (see previously mentioned studies) may be responsible for the complete absence of any severe behavior during treatment and assessment sessions. This is especially noteworthy given parental report that phobic stimuli previously evoked severe behavior.

In any case, the less restrictive and more option-oriented approach offered by OST appears beneficial for children with developmental or intellectual disabilities who present with specific phobia. In addition, the absence of forced exposure, restraint, and blocking techniques in OST may make it a less intrusive treatment choice when a patient's capabilities permit as there is less infringement upon the patient's rights and autonomy. The overall procedure as well may be more cost-effective and brief than multiple, spaced sessions of exposure.

Willner (2006) suggests that a variety of idiosyncratic factors, such as motivation, level of functioning, verbal ability, and psychological mindedness, should be taken into account when considering CBT for disorders in a child with intellectual or developmental delays. It is important to note, however, that John had mild language, motor, and cognitive delays; it remains to be determined how well therapies utilizing a cognitive component work with children presenting with more severe delays. Potentially, OST could be adapted in ways to compensate for more severe cognitive and language impairments, as is frequently the case when treating very young children. For example, having the therapist set a slower pace and use a more detailed behavioral modeling

and participant modeling procedure may help avoid difficulties associated with not being able to fully verbally negotiate behavioral experiments. In addition, more elaborate cognitive techniques such as self-instruction training (i.e., essentially elaborated participant modeling; frequently vocalizing simplified coping statements and modeling positive vocalizations during exposure) might successfully alter negative vocalizations (i.e., cognitions) in these individuals. Even so, this case study demonstrates that cognitive-behavioral therapy is a possible alternative for a phobic child with intellectual or developmental disabilities—though further study is needed to determine key moderating variables and the appropriateness of CBT with other children or different disorders. Overall, this study is the first to demonstrate that a CBT for specific phobia can be effective with a child with developmental disabilities and severe behavior and suggests that these efficacious treatments for typically developing children can be applied in unaltered form to those with mild developmental delays and severe behavior. Future investigations should examine which adaptations may be needed to provide these therapies to those with more severe impairments.

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