

A review of parent training programs targeting noncompliant behaviors for individuals
with autism spectrum disorder

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evidence based (EBP) training track for school psychologists*

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Introduction

Autism spectrum disorder (ASD) is a developmental disability that includes deficits in social communication and social interaction and restricted, repetitive patterns of behavior, interests, or activities (American Psychiatric Association [APA], 2013). Individuals with ASD encounter difficulties in developing and maintaining relationships, understanding nonverbal cues and using appropriate nonverbal communication, and understanding social rules and protocols. Impairments in ASD impact individuals across the lifespan with increasing social impairments and isolation through childhood and adolescence (Bauminger, Shulman, & Agam, 2003), and poor academic achievement, unemployment, and mental health concerns in adulthood (Howlin, Goode, Hutton, & Rutter, 2004; Farley et al., 2009).

Because of these impairments, individuals with ASD often have co-occurring mental health concerns. Studies have shown that children with ASD suffer from anxiety and mood disorders at a greater rate than the general population (Kim, Szatmari, Bryson, Streiner, & Wilson, 2000). In addition to core deficits, impaired understanding of verbal and nonverbal communications of others as well as impaired understanding of social rules and conventions often result in inappropriate social interactions and challenging behaviors such as aggression, temper tantrums, and noncompliance in children with ASD (Dawson, Matson, & Cherry, 1998; Matson, Dixon, & Matson, 2005). Of 169 children ages 1.5 years to 5.9 years diagnosed with autism, Hartley, Sikora, and McCoy (2008) found that one-third of the children's scores on the Child Behavior Checklist (CBCL) fell at the Clinically Significant range for Total Problems and Externalizing Problems. Clinically significant scores were also found on the following symptom scales for a high

percentage of children: Withdrawn (70%), Aggression (22.5%), and Emotionally Reactive (18.2%).

Researchers have found that such behavior problems in children with ASD not only exacerbate social rejection and isolation, but also significantly impact the levels of stress among parents. Studies have found that challenging behaviors are a great contributor to parent stress more so than deficits in daily living skills (Lecavalier, Leone, & Wiltz, 2006; Schieve, Blumberg, Rice, Visser, & Boyle, 2007; Estes, Munson, Dawson, Koehler, Zhou, & Abbott, 2009).e Parents and caregivers frequently report noncompliance as one of the most prevalent behavior problems in children and it is considered a keystone behavior in the later development of severe conduct problems and antisocial behaviors (Forehand & McMahon, 1981; McMahon & Forehand, 2003). When a child is able to comply with requests, the child is able to actively engage in learning new skills and pro-social behaviors (Rhodes, Jenson, & Reavis, 1993). When a child demonstrates noncompliance, a coercive cycle between parent and child often occurs and interferes with the child's ability to learn new skills and behaviors and impacts the parent's ability to positively interact with their child (Patterson, 1982).

The coercive cycle posits that there are reciprocal effects between parenting practices and children's behavior. Specifically, a child's antisocial or aggressive behaviors may elicit a negative reaction from parents, which in turn, escalates the child's aggressive behavior and the cycle repeats until one participant gives in to the other. As children learn this pattern of behavior over time within the family, it carries over into social interactions with others outside the family, resulting in conduct problems in later developmental stages (Dishion & Patterson, 2006; Shaw & Bell, 1993). According to

Smith, et al. (2014), the coercive interactions between parent and child are a stronger predictor of subsequent childhood noncompliance and oppositional behaviors than the behaviors themselves that lead to the coercive cycle initially.

According to Matson, Mahan, and Matson (2009), “autism spectrum disorder is one of the most problematic and heavily studied childhood disorders” (p. 868) with social and behavioral concerns that are serious and life-long. The Centers for Disease Control and Prevention (CDC; 2014) show that 1 in 68 children in the United States has an autism spectrum disorder (ASD) and a comparison in overall prevalence rates of ASD show a 123% increase between the years of 2002 and 2010. Given the increasing prevalence rates of young children with autism and its effects throughout the lifespan, the development and implementation of effective parent training programs is necessary. As effective parent training programs are implemented for children with ASD, it is more likely that individuals with ASD will engage in functional activity and prosocial behaviors, decreasing the prevalence of comorbid conditions associated with ASD.

Parent Training

Parent training has been defined as an “indirect service delivery in that the practitioner trains parents to apply treatment to children (Shriver, 1998), a set of procedures in which “parents are trained to alter their child’s behavior at home” (Kazdin, 1997). Parent training programs are also described as interventions in which “parents actively acquire parenting skills” (Wyatt-Kaminski et al., 2008).

From the work of early researchers, an operant model of parent training was established with a simple focus to teach parents how to provide positive reinforcement

and mild contingent consequences for deviant behaviors. A wealth of parent training programs stemming from this operant model showed promising evidence; that parents can make significant and meaningful differences in their child's deviant behaviors. The application of parent training began with research conducted by Williams (1959) and Hawkins, Peterson, Schweid, and Bijou (1966), who found that the use of operant extinction procedures could be taught to, and implemented by, parents to effectively reduce tantrums and aggression.

In addition, the efficacy of parent training procedures were evaluated on negativistic, noncompliant, oppositional, aggressive, autistic, and delinquent behaviors, as well as speech deficits and somatic illnesses (Bijou, 1984). In Graziano's review (1977) of parent training techniques, it was stated, "utilizing parents may be the single most important development in the child therapy area" (p. 257). With the success of these initial studies and using parents as partners in the intervention process, research on parent training practices increased.

Patterson and colleagues (1976) were the first to develop a manualized parent training program. Patterson and colleagues (2010) developed behavioral parent training (BPT) centered on the idea that through modification of the parent's behavior, a change in the child's behavior would subsequently occur and reduce the coercive style of communication between parents and children often maintained by negative reinforcement. Temper tantrums were identified as common coercive behavior demonstrated by children whereas harsh punishment, physical or psychological, was identified as coercive behaviors demonstrated by parents. An example of the coercive cycle is when a parent makes a request of their child. The child begins to whine and

eventually throws a tantrum. As a result, the parent revokes the request and both the child and the parent have escaped the situation.

Current Parent Training Programs

Based upon the coercion theory, the *Living with Children* manual was developed and is also referred to as the Parent Management Training-Oregon (PMTO). According to Forgatch and Patterson (2010), the PMTO intervention “empowers parents in their use of positive parenting strategies and to reduce their reliance on more coercive approaches” (p.166). There are three main goals of the PMTO program: 1) to focus on strengths, 2) to give effective directions, and 3) to teach through encouragement.

The parenting program can be completed in either group or individual format. When conducted in a group format, weekly sessions only include parents and range from 60 to 90 minutes across 14 sessions. Used in an individual format, weekly sessions typically include the child and range from 60 to 90 minutes across 25 to 30 sessions, depending on the specific need of the family. Both formats incorporate homework for parents to generalize skills and midweek phone calls to troubleshoot issues and to promote the use of newly acquired skills. Since its inception, PMTO has been extensively validated as a well-established treatment for children with conduct problems (Brestan & Eyberg, 1998; Patterson & Fleischman, 1979). Several studies have also found the treatment to be superior to control groups (Alexander and Parsons, 1973; Bernal, Klinnert, and Schultz, 1980; Firestone, Kelly, and Fike, 1980).

Subsequent parent training programs were also highly influenced by Patterson’s research. Forehand and McMahon (1981), using the tenets of the coercion theory, created a parent training program to reduce disruptive and noncompliant behaviors. The goal of

Helping the Noncompliant Child (HNC) is to replace the coercive cycle of negative parent-child interactions with positive interactions in which parents learn to effectively give alpha commands in order to reduce the likelihood of problem behavior and the initiation of the coercive cycle.

Parent Child Interaction Theory (PCIT) (Eyberg, 1982) also draws upon the coercion theory as a staple feature of the program; however, it departs from the previous packages as the main focus of PCIT is on the quality of parent-child interactions (Hanf, 1969). The goal of PCIT is to restructure the patterns of parent-child interactions to foster a warm relationship between parents and children. In order to achieve the goal of this program, parents are coached during in vivo play with their child by using a “bug in the ear” technique. This technique allows parents to learn both Child Directed Interaction (CDI) and Parent Directed Interaction (PDI) skills. CDI focuses on parents engaging their child in play to strengthen the relationship, whereas PDI focuses on parents using specific behavior management strategies. PCIT is considered to be an evidence-based treatment for young children with behavior disorders (Eyberg et al., 2008).

Similarly, The Incredible Years program targets parent-child interactions to decrease conduct disordered behaviors in children. It is conducted in a group format using video models to train parents. The Incredible Years not only focuses on strengthening parent-child interactions, but also in teaching and strengthening parenting competencies: positive communication, play skills and limit setting. Based on several studies that reviewed the Incredible Years, both parent report and observed behaviors in the home showed decreases in deviant behavior (Spaccarelli, Cotler, and Penman, 1992;

Webster-Stratton, 1984, 1990, 1994; and Webster-Stratton, Kolpacoff, and Hollinsworth (1988).

The Parent Management Training (PMT) also draws upon coercion theory and altering parent-child interactions while incorporating principles of applied behavior analysis to change both parent and child behaviors (Kazdin, 2005). PMT has an extensive literature base purporting the efficacy of the program (Kazdin, Weisz, 1998). Parents who had children with significant behavior problems participated in PMT for 9 weeks and showed a significant decrease on problem behaviors based on observational data. In addition, these results maintained at a one-year follow up and the findings have been replicated in a study of 101 participants (Webster-Stratton, Hammond, 1990). After participants concluded PMT, the children’s deviant behaviors were reduced from clinically significant to nonclinical levels of functioning. Moreover, treatment gains have been reported to maintain at 1 to 3 years post treatment (Kazdin, 1997).

Table 1. Common Parent Training Programs

Common Programs	
Living with Children	Patterson, 1976
Helping the Noncompliant Child	Forehand & McMahon, 1981
Parent Child Interaction Therapy	Eyeberg, 1982
The Incredible Years	Webster-Stratton, 1984
Parent Management Training	Kazdin, 1995
The Tough Kid Parent Book	Jenson, Rhodes, Neville, 2001

Common Parent Training Components

It was estimated in 2005 that over four hundred parent training reports are in circulation, treating a myriad of behavior problems in children (Maughan, Christensen, Jenson, Olympia, & Clark, 2005). Given the breadth of programs, these programs incorporate many different training components in format or delivery. Despite the differences, the components all share a common objective in teaching parent strategies to increase positive behavioral outcomes in children and according to Johnson et al. (2007), program objectives must ensure that parents develop certain skills in behavior management. Parent training curricula need to focus on teaching antecedent strategies (i.e., proactive strategies to prevent problem behaviors), teaching strategies (i.e., strategies to teach new behaviors and skills), and consequence strategies (i.e., strategies for responding to problem behavior). Basic skills that parents need to develop include learning how to effectively deliver instructions, appropriately provide reinforcement, and consistently apply rules and consequences. The goals of parent training should be to provide instruction to parents about treatment strategies, to model strategies for the parents, to provide opportunities for guided practice, and to give parents feedback on their implementation.

Homework is the most common component included in evidence based parent training programs. Every program listed in Table 1 requires parents to complete homework in some fashion, whether it is to review materials or actively practice new skills. Because parents are acquiring a new skill in a setting outside of their home, having ample opportunities to practice the skill(s) taught is necessary for skill acquisition. Homework might also require parents to collect daily or weekly data and return this

information to the practitioner; however, this is less common than many other forms of homework. Additionally, handouts or didactics are commonly included in parent training programs to educate and support a newly acquired skill. Handouts are provided in many different formats such as refrigerator magnets to cue parents of program procedures (Webster-Stratton, 1994).

A common feature of parent training programs is to begin with a psycho-educational component. It is thought that parents of children with autism need background information to help them understand their child's diagnosis. Education is often provided as information about typical child development and the symptoms and characteristics associated to autism. Wyatt Kaminski et al. (2007) discuss that education is often provided based on the assumption that parents have inappropriate behavioral expectations of their children and therefore, instruction in child development may be sufficient to change parenting behaviors. Additionally, some programs may include education on the types of treatment programs that are available to children and families with autism and the research evidence to support their use.

Consistent with other components, feedback is commonly incorporated into programs to increase parent skill acquisition. Performance feedback is a technique to provide information on the implementation of a skill. Feedback can be provided in varying formats such as direct coaching, observations and/or performance feedback. Programs that utilize in vivo coaching commonly use "bug in the ear" technology to guide the parent while they are in session with their child (Eyberg, 2008; Jones, & Forehand, 2014). Clinicians also incorporate observations to assess mastery of parenting

skills taught in programs. Observations can be used to review how the parent is utilizing skills and/or procedures outlined in a parent training program.

Parents can receive verbal or visual feedback from a program facilitator. Verbal feedback might entail the clinician reviewing how the parent demonstrated an expected procedure or skill set. Visual feedback consists of viewing collected and graphed data on performance and is commonly used in parent training programs to review the child's change in behaviors. Analyzing data and objective pieces of information allows the clinician to address possible strengths and weaknesses of implementation as well as to modify any parts of a program. Finally, but less commonly implemented, is video feedback in which parents demonstrate and record their new skills with their children. Clinicians and parents then review a video session and discuss successes or difficulties in implementing the specific procedure or skill set. Results from a recent study indicated that providing feedback to parents increased their use of positive parenting strategies (Shanley & Niec, 2010); however, it is unclear whether providing feedback to parents alone is enough to obtain parent skill acquisition.

More recently, parent training programs have incorporated the use of technology, specifically video modeling, as a component. The Incredible Years is a program that has evaluated the use of a video format to deliver parent training procedures, in which the videos depict parent-child interactions and discussion of behavior management principles. Results of several studies provided evidence that incorporating video modeling (for parents and children) is superior to a waitlist group (Webster-Stratton, 1990, 1992; Webster-Stratton & Hammond, 1997). Meharg and Lipsker (1991) also implemented a video modeling intervention to teach parents to give clear commands and

provide contingent reinforcement. Results indicated that treatment effects were not significant as moderate to small effect sizes were reported. However, treatment integrity was not well documented and may have impacted the outcomes considerably. More recently, Kahn (2012) evaluated the effects of a video modeling intervention to increase positive parenting statements to children with ASD. Although only a slight improvement was observed in parent behavior, results indicated a decrease in parent report of child problem behaviors.

While many manualized parent training programs exist with common objectives, they have varying degrees of success in increasing pro-social behaviors and generalizing these behaviors to new settings. There are many overlapping components found within the programs; however, the programs also vary in methods and skills targeted. While the structure of the parent training programs is central to the success of the program, it is also important to evaluate the additional components of efficacious parent training programs to determine what factors may contribute to positive outcomes.

	Living with Children	Helping the Noncompliant Child	Parent Child Interaction Therapy	Incredible Years	Defiant Child	Parent Management Training	The Tough Kid Parent Book
Commands		✓	✓	✓	✓	✓	✓
Praise	✓	✓	✓	✓	✓	✓	✓
Attending		✓	✓	✓	✓	✓	✓
Play Skills			✓	✓	✓		
Rules		✓		✓			✓
Limit Setting		✓		✓	✓		✓
Planned Ignoring		✓	✓	✓		✓	✓
Point Chart	✓			✓	✓	✓	✓
Incentive Program	✓				✓	✓	✓
Response Cost	✓		✓	✓			✓
Time-Out	✓	✓	✓	✓	✓		✓
Imitation			✓				
Self Management							✓
Reflective Statements			✓				
Family Meeting						✓	
Negotiation						✓	

	Living with Children	Helping the Noncompliant Child	Parent Child Interaction Therapy	Incredible Years	Defiant Child	Parent Management Training	Positive Parenting Program	The Tough Kid Parent Book
Age Range	3-14 years	3-8 years	2-8 years	2-8 years	4+	2-14/7-14 years	0-16 years	3-13 years
Type of Behavior	Social Aggression	Noncompliance	Conduct Problems	Conduct Problems	Noncompliance	Conduct Problems	Common Behavior Problems	Common Behavior Problems
Child Present		✓	✓		✓			
Number of Sessions	5-12 Weeks	12 weeks	12 weeks	10-14 weeks	10 weeks	12-16 weeks	multiple levels	
Duration of Sessions	60-90 minutes	75-90 minutes	60-90 mins	120 minutes	60 minutes	45-60 minutes		
Frequency		2x/week		weekly	weekly	weekly		
Manualized	✓	✓	✓	✓	✓	✓		✓
Training Required			✓	✓			✓	
Cost	\$13.92	\$34.20- 65.83	\$3000- \$4000	\$895 - \$1395	\$24.78	\$33.20	Not Available	\$14.95
Group Format	✓			✓	✓		✓	✓
Individual Format	✓	✓	✓	✓	✓	✓	✓	✓
Didactics		✓	✓	✓		✓	✓	✓
Group Discussion		✓	✓	✓	✓			✓
Video Based				✓			✓	
Other Technology		✓	✓					
Observations	✓	✓	✓			✓		
Intake	✓	✓	✓			✓	✓	
Orientation						✓		✓
Handouts		✓		✓		✓	✓	✓
Homework	✓	✓	✓	✓	✓	✓	✓	✓
Performance Feedback		✓	✓		✓	✓		
Performance Criteria		✓		✓		✓		
Daily Parent Reports	✓					✓		
Parent Collects Data	✓				✓	✓		✓

Efficacy of Parent Training Programs

There has since been a proliferation in studies investigating the utility of behavioral parent training programs (BPT) to increase skill acquisition and to reduce maladaptive behaviors in children. Serketich and Dumas (1996) conducted a meta-analysis to review the effectiveness of parent training in children who displayed antisocial behavior such as aggression, temper tantrums, or noncompliance. Based on a total of 26 studies, it was found that children whose parents participated in parent training were better adjusted than 81% of children who participated in another treatment or no

treatment at all. The effects also generalized to the school setting, in which children whose parents received parent training were better adjusted than 75% of children whose parents did not. In addition, parents were better adjusted themselves after participating in parent training and many of the included studies demonstrated maintenance of improved behavior in children with some follow-ups occurring a year post-treatment.

Maughan, et al.(2005) also evaluated the effectiveness of BPT as a treatment for children with externalizing behavior disorders. A total of 79 studies were included in the meta-analysis, which found a mean effect size of .54 for single-subject studies, .30 for between-subject studies, and .68 for within-subject designs. Although this finding suggests that BPT is not as effective as once believed (Serketich & Dumas, 1996), the effects indicate that BPT is still an effective intervention for behavior modification and is most effective for children ages 9 to 11. The researchers also found that treatment efficacy was significantly affected by the number of treatment sessions, with shorter programs of one to five sessions having a larger effect size than programs using more treatment sessions.

Consistent with these findings, Wyatt Kaminski and colleagues (2008) supported the use of parent training programs in changing parenting behavior and reducing child behavior problems through a meta-analytic review of 128 studies. Effect sizes were larger for stand-alone parent training programs than programs part of a package of interventions or those that included supplementary services (e.g. substance abuse treatment, vocational training, stress management). In addition, it was found that programs that directly targeted parenting skills produced better outcomes than ancillary focuses.

Wyatt Kaminski et al. also conducted a component analysis to evaluate the effectiveness of program features such as how instruction is delivered and what skills are taught to parents. Components associated to higher effect sizes were indicated for programs that provided instruction on emotional communication, provided instruction on responding consistently to problem behaviors, and required parents to practice their newly acquired skills with their child, regardless of the program content and delivery. Larger effects were found from programs that engaged parents through modeling and role-playing of specific behavior management skills: attending (positive-child interactions), positive reinforcement, planned ignoring, providing clear instructions, and using time out from reinforcement. In particular, parent training on positive parent-child interactions was found to be predictive of behavioral outcomes for both parents and children.

Parent Training for ASD

Research on parent training to address disruptive behaviors and conduct problems are the most widely studied; however, this research base is relevant in addressing problem behaviors for children with ASD. Many parent training programs for children with ASD share similarities in their focus on operant conditioning and using the principles of applied behavior analysis to teach positive parenting strategies (Brookman-Fraze, Vismara, Drahot, Stahmer, & Openden, 2009). In addition to these programs, parent training has also been evaluated as an intervention for children with ASD to target behaviors that vary widely from toileting behaviors (Kroeger & Sorensen, 2010) to communication (Elder, Valcante, Yarandi, White, & Elder, 2005) to anxiety (Love, Matson, & West, 1995) as well as social skills (Laugeson, Frankel, Gantman, Dillon, &

Mogil, 2011; Radley, Jenson, Clark, & O'Neill, 2014). Across these studies, parents were trained how to work with their children using behavioral principles to address target behaviors.

Because social skills are a core deficit for children with ASD, parents have been a part of teaching social skills to their children in order to increase generalization and maintenance of new skills. The Program for the Education and Enrichment of Relational Skills (PEERS®) (Laugeson, Frankel, Gantman, Dillon, & Mogil, 2011) is a social skills intervention for adolescents with ASD that includes a parent-training component across 14 weekly sessions. Parents are taught how to assist their children in practicing and generalizing the target skills of each week's lessons such as maintaining a conversation, finding common interests with others, and having get-togethers. Research has shown that parent-assisted training was effective in decreasing autistic mannerisms and increasing frequency of peer interactions and overall social skills. Similarly, Radley and colleagues (2014) evaluated the feasibility and efficacy of a parent-facilitated social skills program and found substantial improvement ($ES = 0.64$) in social engagement for program participants.

Noncompliant behaviors in children with ASD have also been the subject of research involving parent training. Butter (2007) implemented a parent-training program for parents of children with ASD with lessons targeting noncompliance, irritability, tantrums, aggression, and self-injury. Following intervention, a decrease in noncompliance and irritability was observed along with an increase in functional daily living skills. Marchant, Young, and West (2004) trained parents to provide effective and instructive praise and how to use corrective procedures to address noncompliance. In

addition, parents provided direct instruction to their children on the steps and behaviors that resulted in compliance and reward (e.g. look at the person, say okay, do it quickly, and finish). The study found that parents could successfully learn and implement the strategies to teach and reinforce compliance.

While the literature base has demonstrated the utility of parent training as a component in interventions for children with ASD, it is also important to consider the factors that contribute to its effectiveness. Osborne, McHugh, Saunders, and Reed (2008) evaluated parent training programs with 72 children with ASD. Results indicated that setting limits early in training was central to success in parent training. It was also evident that instruction in behavior management was critical in helping parents reduce parenting stress and become more effective in implementing skill acquisition programs. Matson, Mahan, and Matson (2009) also highlight the importance of targeting operationally defined behaviors that are treatable, using established consequences, and maintaining consistency throughout training. The parent training literature for children with ASD suggest that early intensive behavioral interventions, which include parent training, are highly effective in treating deficits associated with ASD.

Errorless Learning

The seminal work by Terrace (1963) led to the examination of errorless learning, a set of prompting and fading procedures designed to reduce incorrect responding and to increase discrimination abilities. In contrast, trial-and-error learning creates opportunities for errors to occur in which an individual learns what actions lead to particular consequences. As suggested by Mueller, Palkovic, and Maynard (2007), many

studies have shown that the selection of errors can negatively impact children and lead to problem behaviors and negative emotional responses. Given that children with ASD struggle to learn discriminations even with effective prompts (Schriebman, 1975) and show stimulus overselectivity (Lovaas, Schreibman, Koegel, & Rehm, 1971; Ploog, 2010), errorless learning therefore decreases the chances of making errors and exacerbating behaviors and increases the opportunities for reinforcement when learning new skills and behaviors.

Born-Miller (2002) evaluated the implementation of errorless learning with two children with ASD who had long histories of not being able to learn through trial-and-error teaching. The intervention was found to increase one child's response to verbal instruction and to increase the ability to expressively identify numbers in the second child. In another study, errorless learning was compared to a trial-and-error approach in learning words (Warmington, Hitch, & Gathercole, 2010). The findings suggested that children who followed the errorless learning approach were not only able to learn more words, but learned them at a faster rate. In addition to skill acquisition, errorless learning has shown to be an effective approach in decreasing noncompliance. Ducharme (1993) implemented the intervention with four children with development disabilities who, on average, complied with parent requests 44% of the time during baseline. After an errorless compliance training, compliance rates were over 80% and maintained at a 2-month follow up. More importantly, it was found that maladaptive behavior in response to parental requests decreased from a pretreatment mean of 51% to a treatment mean of 10%.

Errorless Compliance Training

Ducharme (1993) developed the *Errorless Compliance Training* (ECT) program in which parents are trained to systematically deliver increasingly demanding requests and provide positive reinforcement in order to gain compliance in children with ASD. ECT stems from errorless learning, a behavior analytic strategy designed to increase a child's opportunities for success and reduce errors in responding. When using ECT, parents determine the probability that their child will comply with a given request and requests are placed on a hierarchy in which they will be delivered based on the probability of compliance. Parents begin the program by delivering requests that are easier for children before delivering more difficult requests that may lead to errors. As Barkley (2000) suggests, ECT focuses on a positive antecedent approach unlike other programs that teach parents to use aversive procedures or punishment. ECT has been shown to be effective in increasing compliance to various types of parental requests including academic, play, and adaptive tasks and behaviors (Ducharme, 1993; 1994; Ducharme, Popynick, Pontes, & Steele, 1993; Ducharme & Ng, 2012).

The main components of Ducharme's and colleagues ECT program are training parents how to a) give effective commands, b) do so using a hierarchy of requests to increase compliance and c) increase children's compliance rates using nonintrusive techniques. The errorless compliance program consists of a checklist of 122 common activities and tasks that children can complete. This checklist is used to help parents identify how compliant their child is with different kinds of tasks. Based on responses from the checklist, a hierarchy of demands is created ranging from Level 1-Level 4. Each

level has a corresponding compliance rate: Level 1 (0-25%), Level 2(26-50%), Level 3 (51%-75%), and Level 4 (76-100%). One recent study conducted by Drain in 2001, using ECT included a preference assessment survey in addition to the compliance checklist. This survey assessed what kind of activities children like along with how much they like an activity. For example a parent could endorse that their child enjoys playing the computer (very much, somewhat, neutral, somewhat dislikes and does not like). The parent can also indicate a typical duration that the child plays or enjoys an activity (1 minute, 5 minutes, 10 minutes)

Ducharme and colleagues have developed two different formats to teach the ECT program. Parents have been trained in a group format where parent participants attend training at a location outside their home (such as a clinic). When researchers use the individual training format, the therapist conducts all training and observations in the participant's home setting. Although the format (group versus individuals) is different, the training protocol remains intact. Parents are first introduced to the Errorless Compliance training package during an orientation session. During this orientation parents are provided a brief introduction to the ECT program. More specifically parents and facilitators discuss problematic behaviors that their children demonstrate. At the end of the session, parents complete the compliance checklist (122 item checklist). Between the first and second training sessions parents complete a baseline assessment of their child's compliance with requests using the results of the checklist to identify as well as confirm which requests fall into their respective hierarchies (Level1-Level 4).

Next parents attend three more training workshops. The goal of workshop number two is to teach parents how to give effective requests. To facilitate learning, trainers use

modeling, rehearsal, and performance-feedback techniques with parents. The trainers teach parents that when issuing instructions they should be provided with a directive statement and avoid a question format. In addition parents are taught to give single step directives, maintain eye contact, proximity and allowing 10 seconds for the child to comply. The next workshop parents are taught three main skills: reinforcement planned ignoring, and avoidance of placing other directives on their children (from more difficult hierarchies e.g. Level 2,3,4). At workshop three, parents learn how to give effective directions using precision commands. Parents are expected to provide precision requests along with labeled praise. Therapists use various forms of modeling practice and feedback to teach parents to provide immediate and specific praise when their child complies with a request. They are also directed to give a variety of effective rewards and give praise enthusiastically. Parents are then taught how to ignore inappropriate behaviors for noncompliance and to avoid making more difficult requests. Trainers recommend that parents complete tasks for their child or use a prompt (not directive; e.g, lets do x) until that particular demand is introduced into compliance sessions. Workshop number 4 is provided around the halfway point of treatment as a way to troubleshoot issues or questions parents experienced when implementing the ECT program.

Conclusion

Research on parent training programs targeting noncompliance appear to vary based on different aspects of treatment such as the type of behaviors that are targeted as well as the training modalities used to teach parents new skills. Most parent training programs take a considerable number of sessions to complete. These programs also vary

widely in cost, time, number of components as well as their effectiveness to significantly impact behavior. While Errorless Compliance Training still appears to take a considerable amount of time, its use in home settings makes this program somewhat unique. ECT differs from many parent training programs targeting noncompliance, as it is largely antecedent based. Once a child gains momentum with following directions, they are exposed to more and more difficult tasks over time. It is also important to note that ECT has been successfully used with parents who experience a traumatic brain injury, as well as parents with a history of abusive behaviors with their child(ren). While more research is still emerging regarding the program's use with individuals on the autism spectrum, results indicate that it can be implemented successfully. That is, parents who have used ECT have demonstrated significant effects on increasing compliance rates for children with ASD. While only a handful of studies have included ECT training for children on the autism spectrum more research is needed to further validate this program's effectiveness with this population.

Appendix A

Errorless Compliance Training Flowchart

PRE-BASELINE

Group training workshop 1

- Information covered: informed consent; overview of errorless compliance training; project description
- Measures completed: *compliance probability checklists* and *activity preference questionnaire*

Preparation for workshop 2

- Construction of individualized baseline data sheets
- Observations of the selected activities from the activity preference questionnaire completed by parents in workshop 1; one non-preferred activity selected for each child
- Measures completed: *VABS-II* and *CBCL*

Group training workshop 2

- Information covered: baseline training procedures (request delivery, data recording, and implementing the social engagement activities)



BASELINE



PRE-TREATMENT

- (approximately 6 requests per level)
- Construction of individualized treatment data sheets

TREATMENT

Workshop 3

- Time-lagged training of treatment procedures (Lag 1: parents of Child 1, 2, 5, and 6)
- Information covered: training in the three treatment skill clusters (reinforcing compliance, ignoring compliance, and avoiding requests from subsequent levels)

Home sessions

- Implementation of *Phase 1, 2, 3, and 4* and *Transition Phase 1, 2, and 3*
- Average duration of treatment - 12 weeks (range: 8-15 weeks); average of 3 sessions per week
- 1-2 sessions per week for each child observed and videotaped by principal investigator

Workshop 4

- Information covered: review of treatment procedures and opportunity for parents to discuss concerns or other problem behaviour

Appendix B:

Example Checklists

Appendix G

Compliance Probability Questionnaire

6:30:00 AM 12/13/2013 11:11:11 AM

Date: _____

Completed by: _____

Relationship: _____

Listed below are a series of requests you may present to your child in a given day. What is the likelihood that your child will comply with the stated request if the request is stated only once? Please check (1=Always, 2=Usually, 3=Occasionally, 4=Rarely, 5=Still not learned)

	Almost always (76-100%)	Usually (51-75%)	Occasionally (26-50%)	Rarely (1-25%)	Still not learned
DRESSING					
Get your (article of clothing) from the drawer/closet.					
Put on your (article of clothing).					
Hang up your (article of clothing).					
Take off your (article of clothing).					
Fold your (article of clothing).					
HYGIENE					
Wash your hands.					
Wash your face.					
Flush the toilet.					
Dry your hands.					
Dry your face.					
Go to the bathroom.					
Brush your teeth.					
Brush/com b your hair.					

	Almost always (76-100%)	Usually (51-75%)	Occasionally (26-50%)	Rarely (1-25%)	Still not learned
CLEANUP					
Pick up your (particular object).					
Put your dish in the sink.					
Make your bed.					
Put away your _____.					
Put this in the garbage.					
Put your school bag (somewhere).					
Sweep/vac: the floor.					
PLAY					
Go get your (play item).					
Throw me the ball.					
Turn on the music.					
Do a somersault.					
Turn on the music.					
Turn on the T.V.					
Turn down the volume.					
Stack the blocks.					
Jump up and down.					
Play with your toys (or games).					
Watch the movie/video.					
Turn off the music.					
Turn off the T.V.					

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