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Review

Parent training: A review of methods for children with autism spectrum disorders

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ABSTRACT

Autism Spectrum Disorders (ASD) are common in the general childhood population, and are both serious and lifelong. Tremendous strides have been made in the treatment of these ASD in recent years, particularly with respect to psychological interventions. Given the considerable amount of time and cost involved in providing these interventions, parent training and involvement is a particularly appealing intervention option. This paper is a review and status report on evidence based methods that are available for training parents of children with ASD as therapists. Current trends and future directions are discussed.

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Autism Spectrum Disorders (ASD) constitute one of the most problematic and heavily studied childhood disorders (Chiang, 2008; Matson, 2007a,b; Matson & LoVullo, 2009; Matson & Nebel-Schwalm, 2007a, 2007b). Prevalence rates are high and growing, with the occurrence of ASD in 1 in

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150 children now considered the correct rate (Croen et al., 2002; Fombonne, 1999). Additionally, symptom patterns within and across the five disorders that make up the spectrum can be very heterogeneous (Matson & Boisjoli, 2007; Matson, Fodstad, & Boisjoli, 2008b; Willemsen-Swinkels & Buitelaar, 2002). ASD are generally considered to be neurodevelopmental in origin (Matson et al., 1996), and are characterized by impairments in social skills, communication, and repetitive/restrictive behavior (Matson, 2007a,b; Matson & Boisjoli, 2007; Matson, Carlisle, & Bamburg, 1998a). Furthermore, co-occurring disorders such as intellectual disability, seizures, challenging behaviors and comorbid psychopathology are common (Applegate, Matson, & Cherry, 1999; Hartley, Sikora, & McCoy, 2008; Matson, Dempsey, LoVullo, & Wilkins, 2008a; Matson, Fodstad et al., 2008; Matson & Smiroldo, 1997; Paclawskyj, Matson, Rush, Smalls, & Vollmer, 2001; Rojahn, Aman, Matson, & Mayville, 2003; Rojahn, Matson, Naglieri, & Mayville, 2004). These additional disorders bring with them a host of problems as well (Agaliotis & Kalyva, 2008; Farran, 2008; Holden & Gitlesen, 2008; La Malfa, Lassi, Bertelli, Pallanti, & Albertini, 2008; Lifshitz, Merrick, & Morad, 2008; Mitchell & Hauser-Cram, 2008; Myrbakk & von Tetzchner, 2008; O'Reilly et al., 2008). Finally, a lifelong course of ASD can be anticipated (Dawson, Matson, & Cherry, 1998; Matson, Carlisle et al., 1998; Matson, Smiroldo, & Bamburg, 1998b; Szatmari, Bryson, Boyle, Streiner, & Duku, 2003).

The picture is not altogether a gloomy one. Early Intensive Behavioral Intervention (E-IBI) can prove to be very important and effective in modifying or eliminating many of the most serious symptoms (Ben Itzchak, Lahat, Burgin, & Zachor, 2008; Ingersoll, Schreibman, & Stahmer, 2001; Matson & Smith, 2008). Issues of social skills, communication, compliance, rituals and stereotypies are routinely targeted (Heiman & Berger, 2008; Hsieh, 2008; Matson, Dixon, & Matson, 2005; Matson, Leblanc, & Weinheimer, 1999; Matson & Wilkins, 2009; Njardvik, Matson, & Cherry, 1999). The implementation of psychologically based methods across time and settings (e.g., school and home) is a primary treatment approach (Coe et al., 1999; Ingersoll et al., 2001; Ringdahl, Call, Mews, Boelter, & Christensen, 2008). More controversial but also used frequently are pharmacological treatments (Advokat, Mayville, & Matson, 2000; Singh, Matson, Cooper, Dixon, & Sturmey, 2005). This latter therapeutic method is particularly common in the treatment of challenging behaviors which occur in high rates for ASD and the often accompanying intellectual disabilities (Matson & Bamburg, 1998; Matson et al., 1997).

1. Overview

The general consensus is that behaviorally oriented parent training procedures used with the general population, and to some extent with developmentally disabled populations, are effective for parents of children with ASD (Brookman-Frazee, Stahmer, Baker-Ericzén, & Tsai, 2006). Having said this, authors also stress that ASD presents with a wide range of symptom patterns and challenging behaviors (Aman, 2005). Thus, the likelihood that parents would need and could benefit from such training is significant.

It is also important to stress that drop out rates from parent training in general are high. Forehand, Middlebrook, Rogers, and Steffe (1983) note that for typically developing children with challenging behaviors the rate was 28%. And, parents who perceived the treatment to be ineffective are more likely to drop out. Thus, training parents using the procedures that have the most evidence to support their efficacy would seem prudent. Along these lines Helm and Kozloff (1986) recommended a training model that focused on functional skills and which employ behavioral methods that enhance generalization and maintenance. The effective methods described which have an evidence base, rely on behavior therapy/applied behavioral analysis. A description of some of these interventions is as follows.

2. Training techniques

The notion that parents of children with ASD should be involved in their treatment, and that this involvement should come at an early age, is not a new one (Lovaas, Koegel, Simmons, & Long, 1973). Typical effective parenting methods are provided by Jocelyn, Casiro, Beattie, Bow, and Kneisz (1998). They describe care givers being trained to provide services to their children in community based day

care centers. Preschoolers ($n = 35$) who met DSM-III-R criteria for autism or Pervasive Developmental Disorder Not Otherwise Specified (PDDNOS) served. Children were randomly assigned to an experimental or control group. Experimentals received 12 weeks of intervention involving lectures and on-site consultation by therapist/trainers. Control received the normal day care program. Experimentals had greater gains in language and parents acquired greater knowledge of autism. They also were satisfied with the training and felt they had achieved greater positive control in the parent/child relationship.

One of the best known and most commonly used training procedures, particularly for young children with ASD, is discrete trial training. Thus, a logical step would seem to be parent training in these procedures. Lafasakis and Sturmey (2007) did just that. They taught three mothers of developmentally disabled children. Furthermore, they reported generalization of these applied behavior analysis principles to novel skills. It should be noted, that while this is the only study devoted exclusively to describing discrete trial training to parents, it has been achieved in other contexts. Numerous large package treatments of 20–40 h per week over a year time and described as early intensive behavioral interventions, employ discrete trial training. In these studies, teaching parents to carry out these methods in addition to trained therapists are commonly reported (Matson & Smith, 2008).

These basic applied behavioral analysis methods have also been included in manuals for parents and in combination with psychotropic drugs (Johnson et al., 2007). However, the more conventional approach with normalized training is to use it alone based on applied behavior analysis principles. Typical of this approach are the efforts of Laugesen, Frankel, Mogil, and Dillon (2008). They taught parents to treat their teens (age 13–17 years) with ASD on a series of social skills. Among the behaviors targeted for treatment were conversational skills, peer entry and exit skills, developing friendships, good sportsmanship, being a good host at get togethers, dealing with arguments, and teasing and bullying. Similarly, Sofronoff, Leslie, and Brown (2004) tailored psychoeducational procedures for psychosocial issues of Asperger's children. Among the targets for interventions were challenging behaviors, dealing with routines and overblown specialized interests, and anxiety problems.

One of the most visible and best empirically supported parent training programs is the Stepping Stones Triple P (Positive Parenting Program). Group training is used for sessions involving teaching the parents treatment strategies. Special adaptations for the ASD population included adding comic strip conversations and social stories. Target areas include developing positive relationships, encouraging desirable behavior, teaching new skills and behaviors (e.g., physical guidance, using incidental teaching, chaining, establishing ground rules, and giving clear calm instructions). Whittingham, Sofronoff, Sheffield, and Sanders (2009) studied 59 families (29 in the treatment group and 30 in the wait list control group). The Triple P Program was effective and parents found the program helpful. Treatment procedures they considered particularly helpful were time-out, physical guidance and blocking.

3. Communication

As noted earlier in this paper, communication is a core symptom of ASD. As a result, it is appropriate that communication would be a target for parenting programs. Elder, Valcante, Yarandi, White, and Elder (2005) obtained frequency counts of skills taught to fathers via play sessions that had been videotaped. In home father training resulted in these parents evincing greater levels of appropriate imitation and responding. Another important gain was increased child vocalizations.

A second example of this approach is provided by Gillett and LeBlanc (2007). They use what they describe as a Natural Language Paradigm (NLP). Participants in their study were three children with autism and their mothers. Parents were trained in NLP for use with their largely nonverbal children. The mother sat on the floor with various toys and books, facing their child. Items were used as a stimulus to initiate vocalizations. The mother would describe the action of the toys and then wait up to 5 s for the child to make the expected vocalization. If no response occurred, the mother continued to model the vocal behavior up to three trials. This method was repeated by the mother using various objects. Parents were trained in these procedures via instructions and observation of a videotape of a

psychologist implementing NLP with a child who had autism. Significant improvements in play were noted for two of the three children. Parents reported that NLP was useful and easy to learn.

Across developmental disabilities in general, and for ASD as well, the most common goal of parent training is challenging behaviors. O'Dell, Blackwell, Larcen, and Hogan (1977), for example, describe such a program with the goal of integrating the children into regular or special education classrooms. Similarly, Butter (2007) used a manualized parent training program of 24 weeks duration targeting irritability, tantrums, aggression and self-injury. Noncompliance and irritability were decreased and daily living skills were increased. Similar results for challenging behaviors of autism have been reported with the philosophy and practice of mindfulness (Singh et al., 2007).

Several elements are common denominators in all these successful programs. Being organized, targeting specific operationally defined behaviors which can be treated, establishing consequences, and maintaining consistency in programming are all important. Osborne, McHugh, Saunders, and Reed (2008) underscore a number of these points in their research on parent effectiveness. They studied 72 children age 5–16 years who had ASD and their parents over a 9–10-month period. They looked specifically at the effects of parenting behaviors on their children's challenging behaviors. These authors noted that early effective limit setting by parents was the best predictor of fewer challenging behaviors. Furthermore, they concluded that equipping parents with behavior management skills early is a very successful strategy. These data then, underscore a large movement in the parenting literature with ASD: the move to early intensive behavioral interventions which include a parent training component.

4. Early intervention

Mahoney and Wiggers (2007) underscore the notion that parents should play an important role in early intervention programs. They stress that these early intervention programs could and should do more to put parents in the central role in treatment, given the substantially greater number of opportunities parents have to effect learning on the part of their offspring. Furthermore, when parents serve as the primary therapist, professionals are able to markedly increase the number of families they can serve. An excellent example of this approach is described by Sheinkopf and Siegel (1998). They trained 11 parents to implement applied behavior analysis for their pervasive developmental disordered preschoolers. Results of treatment were compared to 11 other matched preschoolers with pervasive developmental disorders. The treatment group received an average of 27 h of treatment weekly for 20 months. At post-test, children in the treatment group received higher scores on IQ tests, and displayed far fewer symptoms of autism.

In a similar study, Smith, Buch, and Gamby (2000) trained parents and paraprofessionals they had hired to provide therapy at home. Care providers received 6, 1-day workshops over a 5-month period on the application of applied behavior analysis principles with these children. Five of the six children rapidly acquired communication and self-care skills, but only two children showed marked improvement at follow-up, 2–3 years later. While results were mixed, parents were highly satisfied.

Mudford, Martin, Eikeseth, and Bibby (2001) also describe a parent directed early intensive behavioral intervention program in England. They interviewed 75 parents of children with ASD who were participating in these programs. By 4 years of age 71% of the children had begun the program, with the oldest age at initiation of treatment being 7 years of age. These authors noted improvements in the children's overall behavior profile, but not all at the same magnitude as that observed in studies where professionals were the primary therapy provider. The authors concluded that having parent based implemented programs may require more assistance from consultants and other professionals than previously thought.

Bibby, Eikeseth, Martin, Mudford, and Reeves (2002) also looked at parent management programming, in their case with 66 children receiving services from 25 different professionals. They reported gains in adaptive functioning, but not for IQ, over the course of the 31.6-month treatment program. Age and IQ were also major predictors of outcome. No child over 4 years of age was described as functioning normally at post-test, and an initial IQ over 85 was necessary for mainstreaming in school. Additional data showed that 60 children evinced progress in mental age, adaptive behavior and language (Bibby et al., 2002).

Taking this idea a step further, [Anan, Warner, McGillivray, Chong, and Hines \(2008\)](#) put more emphasis on the parents as the therapist. Designated Group Intensive Family Therapy (GIFT) is described as a 12-week program delivered for 3 h each weekday. Designed for preschoolers with ASD, parents are individually trained in direct applications of applied behavioral analysis. Children improved on cognitive and adaptive functioning.

Taken as a whole, there is a recognition that early intervention can benefit from marked parental involvement. The biggest issue regarding such involvement is pragmatic. For example, do parents have the amount of time needed to carry out such training, particularly if they have young children. Additionally, can they carry out the training program accurately. This latter point of discussion has been emphasized in a number of studies (e.g., [Mudford et al., 2001](#)).

5. Stress and anxiety

Another topic in the general areas of ASD where parent training has been addressed is stress and anxiety. [Baker-Ericzén, Brookman-Frazee, and Stahmer \(2005\)](#) in one such study report that mothers and fathers of children with ASD, as well as the children themselves, report high levels of stress. Additionally, these stress levels are significantly greater than what is observed with typically developing children. Furthermore, social skills, a core feature of ASD, were particularly related to stress levels. Thus, targeting treatments in this core symptom domain would appear to be prudent.

Stress and anxiety in children with ASD can be manifested in two major ways. One is general anxiety, and the other is fears and phobias that result in stress and anxiety. [Love, Matson, and West \(1990\)](#) describe an early study designed to teach mothers to treat specific fears of their children with ASD. There were two boys with ASD, age 4.5 and 6 years, in this study. Fears were particularly important since they were functional behaviors required to enhance independence. For one child, fear of the outdoors was the target behavior, while for the second participant fear of a running bathroom shower was the target for intervention. Children were exposed gradually to fearful stimuli, with the mothers reinforcing adaptation to these stimuli. Dependent variables were number of approach to feared stimuli, appearance of fear, and vocalizations of fear. Children overcame fear of the targeted situations, and gains were maintained at 1 year for one child. [Raven and Hepburn \(2006\)](#) underscore these findings in their review of parenting for anxiety symptoms of children with ASD. They note that the literature supports cognitive behavioral therapy as the treatment of choice for these populations.

6. Conclusions

Parent training has received some research attention in the field of ASD, and what has emerged at this point is promising. Parents are able to develop skills, largely within the domain of applied behavioral analysis, which result in more effective treatment for their children. Obvious advantages of these methods include enhanced generalization, cheaper and less resource intensive interventions, and greater potential for maintenance of treatment gains. Additionally, such interventions position parents to better understand how to effectively treat their child. At the same time, parents are able to gain insights about effective interventions. These factors make the parent a better consumer with respect to treatment efficacy and fidelity.

There is a long tradition of parent training in the ASD literature, but it has not reached the sophistication level of treatment packages seen for typically developing children with compliance problems. Determining the best package methods for given ASD, and ASD severity, as well as modifications to programs based on age, are in order. Early intensive behavioral intervention packages often include a parenting component. This approach is significant and important since getting parents involved in these treatments as early as possible is advisable. However, less cohesive models exist as the child ages out of these early treatment programs. Researchers know that symptoms wax and wane with age in the ASD group. Furthermore, as with all youth, the types of issues encountered as a teenage for example, are vastly different than issues a beginning preschool child faces. These factors have not been adequately addressed in the literature.

A lifelong treatment model of parent training would seem to be prudent, even for the best responders to early intensive behavioral treatments. At this point researchers do not know the

maintenance properties of early intensive behavioral interventions over an extended period of time. However, it would seem advisable that parents periodically (as needed) provide booster sessions to maintain existing skills. Furthermore, programs need to be developed that help the child with ASD cope with new life challenges over time.

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