An Overview of Autism Spectrum Disorder and Pivotal Response Treatment

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Autism spectrum disorder (ASD) is a developmental disorder that largely affects social abilities as well as behavior (Volkmar, 2014). ASD is often characterized by behaviors such as trouble communicating, difficulty responding to multiple stimuli, obsessive behaviors and difficulty in generalization of concepts (Volkmar, 2014). While ASD was once thought to be rare, it's now believed to be fairly common. Approximately one in sixty-eight children are diagnosed with ASD (Christensen, 2016). Researchers are not yet sure if the significant increase in diagnosed cases in recent years is due to a true increase in the number of cases, an increase in general public awareness, or an improvement in diagnostics. Regardless of the true cause of the increase in diagnosed cases, this increase has caused a stronger a focus on improving current treatment methods (Koegel, Koegel, Harrower, & Carter, 1999). Most fundamental findings in autism research have occurred in the past 30 years (Volkmar, 2014). The goal of this paper is to provide basic information on Autism Spectrum Disorder, the history of its treatment and diagnostics, and discuss an effective treatment method known as Pivotal Response Treatment.

Historically, autism has been misunderstood and inaccurately diagnosed. Leo Kanner was the first psychologist to recognise autism as an independent disorder in 1943. Before Kanner's work, children with autism were typically misdiagnosed with other disorders such as schizophrenia (Volkmar, 2014). After autism was initially considered an unique diagnosis, psychologists still failed to understand many elements of autism until much later in century. One of the false beliefs held by researchers in that

time was that people with autism had similar IQ scores but were just less capable of performing well in standard tests (Volkmar, 2014). Additionally, researchers in the 1950s and 1960s falsely attributed autism to poor parenting (Volkmar, 2014). As research and autism awareness improved throughout the 1970s and 1980s, autism was discovered to be strongly linked to genetics (Folstein & Rutter, 1977a; Folstein & Rutter, 1977b, Volkmar, 2014). Since the 1990s, autism research and awareness has rapidly expanded. Many treatment efforts are now centered around structured teaching, whereas before then treatment tended to focus on unstructured psychotherapy (Volkmar, 2014). As research has moved more in the direction of Applied Behavior Analysis (ABA), which is the application of basic concepts of behavior to specific behaviors (Baer, Wolf, & Risley, 1968), treatment now largely focuses on teaching and generalizing specific social and behavioral skills. Structured ABA has become the standard method of treatment for ASD in many clinics and schools (Mohammadzaheri, Koegel, Rezaee, & Rafiee, 2014). Pivotal Response Treatment was originally designed by Robert and Lynn Koegel as well as other ABA researchers in 1987 (Koegel, R., O'dell, & Koegel, L., 1987). PRT has since become one of the most prominent empirically-supported ASD treatments (Koegel, 1993; Mohammadzaheri et al., 2014; Stahmer, 1995; Pierce & Schreibman, 1997; Vismara & Lyons, 2007).

The purpose of PRT is to identify and focus on the treatment of identified pivotal areas which will lead to improvement in numerous other behavioral and social aspects, thus having a more widespread effect on development (Koegel et al., 1987). An example

of PRT could be intentional focus on interventions and lessons related to motivation, understanding that this focus will change a larger amount of behaviors than other areas of focus which may only change very specific behaviors. Koegel identified three main goals of PRT: to teach children to interact and voluntarily confront learning opportunities and social interactions that occur in a natural environment (referring to the environments in which typically developing children develop), to decrease the need for intervention by mediators, and to decrease the amount of services that remove the child from the natural environment. Some of the identified pivotal areas include responsivity to multiple cues, motivation to initiate and respond appropriately to social and environmental stimuli, and self-regulation of behavior, including self-management and self-initiations. The following paragraphs detail the importance of each of these pivotal areas while providing examples of each.

Responsivity to multiple cues, or stimulus overselectivity, refers to the the tendency of children with autism to have a perceived limit of components or features upon which they can focus. Autistic children tend to focus on fewer and more irrelevant features as compared to typically developing children (Koegel et al., 1999). An example of this could be a child noticing a bend in a piece of paper rather than the drawing on the piece of paper. Koegel (1999) defined two main methods for teaching autistic children to respond to multiple cues, within-stimulus prompting and conditional discriminations. Within-stimulus prompting aims to teach autistic children to distinguish between stimulus items by exaggerating unique qualities of the items, then fading those features

back to their regular form (Koegel et al., 1999). An example of within stimulus prompting is teaching an autistic child to differentiate the letters ‘p’ and ‘b’ by exaggerating the length of the vertical line in each letter, then gradually reducing the lines back to normal length. Conditional discriminations differ in that rather than gradually using fading to improve responsivity to multiple cues, they require the child to immediately respond to multiple cues (Koegel et al., 1999). For example, asking a child to find a blue pen from their desk drawer would be asking them to perform a conditional discrimination if they have pens of other colors and blue pencils also in their drawer. Both of these methods can be incorporated easily into natural environments. For example, one could provide a child with instructions that involve multiple cues, such as multiple descriptors for an article of clothing, or a writing utensil.

Children diagnosed with ASD tend to struggle with motivation related to initiation of social interactions (Koegel L & Koegel R., 1995). The goal in improving motivation of children with ASD is to increase their responsivity to social and environmental events (Koegel et al., 1999). Motivation in this sense can be understood as convincing the child to see benefits in optional social interaction. Earlier intervention methods neglected to recognize motivation as a pivotal area of importance in social and learning environments (Koegel et al., 1999). These intervention models had limited success compared to newer ones that focus on improving motivation (Koegel et al., 1999). Research has also shown a decrease in disruptive behavior with the implementation of motivation-based interventions (Koegel et al., 1999).

One of the main objectives of PRT is the improvement in the child's self-regulatory abilities (Koegel et al., 1999). Self-regulation is important as it decreases the need for intervention mediators or specialists in natural environments and supports the independence of the child. Self-regulatory behaviors are noticed in the context of self-management and self-initiations.

Self-management as a pivotal area of focus intends to teach the child with ASD to set their own goals related to behavior and then regulate their progress towards those goals. Self-management abilities may then lead to increased autonomy and independence of the child due to reduced needs for management from supervisors (Koegel et al., 1999). An example of self-management could be a child with ASD being taught to set a goal for an improvement in a particular behavior of their choice. If the child chose to reduce an inappropriate vocalization, for example, the child would be taught to keep track of the times they utter that particular vocalization. The child may then determine a reward that corresponds with a determined improvement. Studies have shown self-management techniques to be effective in reducing disruptive behaviors and inappropriate vocalizations (Kern, Marder, Boyajian, Elliot, & McElhatten, 1997; Newman, Tuntigian, Ryan, & Reinecke, 1997)

The term "self-initiations" refers to instances in which the child with ASD initiates a social interaction with someone for the purpose of conversation. Children with ASD tend to display antisocial behaviors (Volkmar, 2014). Some aspects of social behavior that are often absent for children with ASD include question asking,

expressions of curiosity, and general language use except for when the child is asking for an object (Koegel et al., 1999). Self-initiation seems to be pivotal, as teaching a child with ASD to ask a question (such as “What is that?”) about an object and receive a response seems to motivate the child to ask about other objects, and generally engage in more self-initiative behaviors with family members (Koegel et al., 1999).

PRT has been shown to be generally more effective at improving both targeted and untargeted areas of focus as compared to structured ABA, which is currently the standard of care in many clinics and schools (Mohammadzaheri et al., 2014). Research on initiation-focused interventions (which are a type of PRT interventions) have even reported some outcomes in which children 8 to 10 years old, who initially scored poorly on tests related to social aspects of ASD no longer met the criteria for an ASD diagnosis by the end of treatment (Rogers & Vismara, 2008). The implications of these findings are monumental, as autism has previously been thought of as a lifelong disorder. Yet, PRT practices have managed to greatly reduce symptoms to levels below those which meet an ASD diagnosis, and accomplish this in a relatively short time span (Rogers & Vismara, 2008).

Despite empirical evidence for the success of PRT, researchers argue that there is not enough evidence to determine which type of intervention is the most effective in treating ASD. This is due to a lack of comparative studies using randomized controlled trial (RCT) design. Long-term follow-up data would also be necessary in order to accurately compare as many aspects of ASD as possible (Rogers & Vismara, 2008).

However, some researchers call into question the accuracy of RCT studies in determining the benefits of interventions in comparison to each other, claiming that the RCT design is too rigid as it fails to account for the flexibility necessary both in initial tests and in applications in the field (Rogers & Vismara, 2008). The rigidity of the RCT design could also have less accurate results than in other contexts due to the wide range of behaviors and conditions which relate to ASD.

A potential issue with PRT as a primary treatment method is the added responsibilities for the parent(s) of the child. Because PRT aims to teach in a natural setting, many treatment plans require many more hours of intervention at home led by parents and family members rather than by specialists in a clinic (Rogers & Vismara, 2008). Raising a child with ASD is already a source of stress in parents (Davis & Carter, 2008). The increased responsibilities and time commitment required of parents of children undergoing PRT treatment could prevent some families from undergoing the treatment, or cause inadequate intervention or instruction from the parent. Lower-income families may be most limited in their ability to undergo PRT, due to its demanding requirements.

PRT is a promising and developing treatment method for ASD, especially for young children with ASD. PRT has shown to be extremely effective at improving certain symptoms of ASD, especially those related to lack of self-initiative behavior, over relatively short time spans (Rogers & Vismara, 2008). It has also been shown to be significantly more effective than certain standard treatment methods at reducing certain

symptoms of ASD (Mohammadzaheri et al., 2014). As is true of all treatment methods for ASD, changes in approach and methodology are to be expected in light of new findings in autism research.

References

Baer, D. M., Wolf, M. M., & Risley, T. R. (1968). Some current dimensions of applied behavior analysis. Journal of applied behavior analysis, 1(1), 91-97.

Christensen, D. L. (2016). Prevalence and characteristics of autism spectrum disorder among children aged 8 years—autism and developmental disabilities monitoring network, 11 sites, United States, 2012. *MMWR. Surveillance Summaries*, *65*.

Davis, N. O., & Carter, A. S. (2008). Parenting stress in mothers and fathers of toddlers with autism spectrum disorders: Associations with child characteristics. *Journal of autism and developmental disorders*, *38*(7), 1278-1291.

Folstein, S., & Rutter, M. (1977a). Genetic influences and infantile autism. Nature.

Folstein, S., & Rutter, M. (1977b). Infantile autism: a genetic study of 21 twin pairs. Journal of Child psychology and Psychiatry, 18(4), 297-321.

Kern, L., Marder, T. J., Boyajian, A. E., Elliot, C. M., & McEIhatten, D. (1997). Augmenting the independence of self management procedures by teaching self-initiation across settings and activities. School Psychology Quarterly, 12(1), 23-32.

Koegel, L. K., & Koegel, R. L. (1995). Motivating communication in children with autism. In E. Schopler & G. B. Mesibov (Eds.), Learning and cognition in autism (pp. 73-87). New York: Plenum.

Koegel, L. K., Koegel, R. L., Harrower, J. K., & Carter, C. M. (1999). Pivotal response intervention I: Overview of approach. *Journal of the Association for Persons with Severe Handicaps*, *24*(3), 174-185.

Koegel, R. L. and Frea, W. D. (1993), Treatment of social behavior in autism through the modification of pivotal social skills. Journal of Applied Behavior Analysis, 26: 369–377. doi:10.1901/jaba.1993.26-369

Koegel, R. L., O'dell, M. C., & Koegel, L. K. (1987). A natural language teaching paradigm for nonverbal autistic children. Journal of autism and developmental disorders, 17(2), 187-200.

Mohammadzaheri, F., Koegel, L., Rezaee, M., & Rafiee, S. (2014). A Randomized Clinical Trial Comparison Between Pivotal Response Treatment (PRT) and Structured Applied Behavior Analysis (ABA) Intervention for Children with Autism. Journal Of Autism & Developmental Disorders, 44(11), 2769-2777. doi:10.1007/s10803-014-2137-3

Newman, B., Tuntigian, L., Ryan, C. S., & Reinecke, D. R. (1997). Self-management of a DRO procedure by three students with autism. Behavioral Interventions, 12(3), 149-156

Pierce, K., & Schreibman, L. (1997). Multiple peer use of pivotal response training to increase social behaviors of classmates with autism: Results from trained and untrained peers. Journal of applied behavior analysis, 30(1), 157-160.

Rogers, S. J., & Vismara, L. A. (2008). Evidence-based comprehensive treatments for early autism. *Journal of Clinical Child & Adolescent Psychology*, *37*(1), 8-38.

Stahmer, A. C. (1995). Teaching symbolic play skills to children with autism using pivotal response training. Journal of autism and developmental disorders, 25(2), 123-141.

Vismara, L. A., & Lyons, G. L. (2007). Using perseverative interests to elicit joint attention behaviors in young children with autism theoretical and clinical implications for understanding motivation. Journal of Positive Behavior Interventions, 9(4), 214-228.

Volkmar, F. (2014). An Introduction to Autism [Video Lecture and Slideshow]. Retrieved from Yale University Autism Seminar via iTunes U. http://autism.yale.edu