



AOTA Evidence Briefs

Autism Spectrum Disorder

**A product of the American Occupational Therapy Association's Evidence-Based Literature Review Project*

Relationship-focused Early Intervention with Children with Pervasive Developmental Disorders and Other Disabilities

Mahoney, G., & Perales, F. (2005). Relationship-focused early intervention with children with pervasive developmental disorders and other disabilities: A comparative study. *Developmental and Behavioral Pediatrics, 26*(2), 77–85.

Level III

One group, nonrandomized study

Why research this topic?

Relationship-focused interventions have been implemented with young children with development disorders and their parents to help parents interact with their children in a positive and responsive manner. Improvements in parents' responsiveness to their children have been associated with improvements in children's cognitive and communicative function. In Responsive Teaching (RT), parents are taught ways to increase their responsiveness to their young child, with an aim to enhance the child's cognitive, communicative, and socio-emotional development. Empirical evidence is needed to determine whether RT is an effective approach for children who have **pervasive developmental disorders (PDD)** (see *Glossary*). Specifically, this study examined whether and how RT influenced children's development of pivotal developmental behaviors, cognitive and language development, and social emotional functioning.

What did the researchers do?

The participants were 50 mother–child dyads. At the start of this Level III pretest/posttest study, the children were 12 to 54 months of age and had been diagnosed with PDD ($n = 20$) or other developmental disabilities (DD) ($n = 30$). All participants received the intervention; therefore, the study did not implement a control group or condition. The study was conducted at a center-based facility or in homes. The RT intervention was provided once a week for approximately 1 year, with an average of 32.6 sessions received.

The children were assessed before and after RT intervention by determining their developmental age for cognition and language using the Developmental Rainbow scale and the procedures of the Transdisciplinary Play Based Assessment. They also administered the Infant–Toddler Social Emotional Assessment (ITSEA), the Temperament and Atypical Behavior Scale (TABS), and

the Child Behavior Rating Scale (CBRS) for each child before and after intervention. The CBRS was used to assess the children's pivotal behavior; that is, to characterize the child's persistence, attention, involvement, initiation, cooperation, joint attention, and affect. The mothers' style of interaction was assessed using the Maternal Behavior Rating Scale (MBRS). Raters of the MBRS were trained and reliability of the raters was determined to be high. To reduce **bias** (see *Glossary*), the raters analyzed the videotapes of the mother-child dyads in a randomized order.

What did the researchers find?

The researchers completed a number of analyses to determine whether and how mother-child interaction related to improvement in the child's pivotal behaviors, cognition, language, and socio-emotional functioning. The analysis of maternal-child interaction using the MBRS revealed that the intervention resulted in improvement in the mother's responsiveness and affect. Child behaviors as measured by the CBRS also improved after the intervention. When pre- and post-intervention scores for cognitive and language developmental ages were compared, the post-intervention scores were higher than expected, given the child's developmental trajectory. The children with PDD made greater gains than the children with DD. Children also improved **significantly** (see *Glossary*) in social emotional functioning; that is, they improved in internalizing, self-regulation, and social competence. Only the children with PDD improved in temperament, as measured by the TABS.

Changes in children's pivotal behaviors (i.e., affect, attention, cooperation, imitation, joint attention) were related to changes in mothers' responsiveness. Scores for pivotal behaviors related to cognitive and language performance, but not to socio-emotional function.

What do the findings mean?

RT is effective in helping parents become more responsive when interacting with their children. Children's improvement in pivotal behaviors related to the responsiveness of their mothers during intervention. RT also appears to be effective in promoting children's communication and cognitive development. Children with PDD benefited more from this intervention than children with DD. In particular, the children with PDD demonstrated more gains in socio-emotional functioning than children with DD.

Mahoney and Perales noted several important implications of their findings. One is that the intervention was less costly than the intensive behavioral interventions often advocated for PDD. Another important implication is that the relationship-focused interventions can improve development beyond the socio-emotional domain. The study also supported the importance of pivotal behaviors to overall developmental progress.

In summary, this study provided empirical evidence that positive parent-child relationships fuel growth in the child's developmental performance. The study's findings suggest that mother-child interaction can improve with interventions that focus on the dyad's interaction. When parents are sensitive and responsive to their child's needs, the child is likely to demonstrate gains in attention, persistence, and affect. Improvements in these pivotal behaviors appear to relate to improvements in other developmental skills, such as cognition and language. Relationship-focused intervention is markedly different from a direct treatment model where the focus is child performance and suggests that occupational therapy practitioners take on a coaching role, guiding and supporting mother-child interaction.

What were the strengths and limitations of the study?

This study's strengths were the use of multiple measures, training of raters, **blind** (see *Glossary*) evaluation, and assessment of interrater reliability. Multiple analyses were used to compare child performance before and after intervention and to examine the relationships among variables. Design limitations include lack of a **control group** (see *Glossary*) or control condition. Long-term follow-up is needed to determine the effect of this intervention for children at school ages.

Glossary

Autism—Autism Spectrum Disorder—Pervasive Developmental Disorders (PDD) is the diagnosis used in the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.), text revision (DSM-IV-TR; American Psychiatric Association [APA], 2000), and in the International Classification of Diseases (ICD-10; World Health Organization, 1993) to describe children with a cluster of symptoms that vary widely in type and severity. The symptoms are grouped into three broad categories: (a) qualitative impairment in social interaction; (b) communication disorders; and (c) stereotyped, repetitive patterns of behaviors or a restricted range of interests. Depending on the level and distribution of impairment across these categories, a child can be diagnosed with Autistic Disorder, Asperger syndrome, or Pervasive Developmental Disorder—Not Otherwise Specified (PDD—NOS). All three of these diagnoses are usually included under the umbrella term *autism spectrum disorders* (ASDs).

The Individuals with Disabilities Education Improvement Act of 2004 (IDEA, Pub. L. 108-446) also includes autism as a disability category under which children might be eligible for special education and related services. The IDEA regulations define *autism* as “a developmental disability significantly affecting verbal and nonverbal communication and social interaction generally evident before age 3 that adversely affects a child’s educational performance. Other characteristics often associated with autism are engagement in repetitive activities and stereotyped movements, resistance to environmental change or change in daily routines, and unusual responses to sensory experiences” (34 C.F.R., §300.7[c][1][i]).

Biased/biases—Biases are systematic errors within a study. When a study is biased, the means of treatment and/or control groups are artificially inflated or reduced. This artificial inflation or reduction can cause the study’s results to be incorrect; the treatment will appear to have an effect, when in reality it does not, or vice versa. Many of the limitations reported in these evidence briefs are related to biases.

Blinded/blinding—Blinding refers to the practice of keeping members of the research study unaware of which group a participant is assigned to (treatment or control) in the study. Single blinding usually refers to keeping study participants unaware of whether they are receiving the experimental or the sham treatment. Double blinding usually refers to keeping the participants and those who are administering the treatment unaware of who is receiving the experimental and who is receiving the sham treatments. In some cases, where it is impossible to blind those administering treatment, the individuals who are administering the outcome measures can be blinded to group status.

Studies in which blinding does not occur can have significant biases. When the participants know that they are receiving the experimental treatment, they often get better because they think they ought to (this is often referred to as the placebo effect). When researchers know that a participant is receiving the experimental treatment, they often subconsciously favor those participants when evaluating them on outcome measures. For instance, when timing a participant in the treatment group, researchers may unknowingly stop the watch a little faster or slower so the treatment participant seems to do better.

Control group—A group that received special attention similar to that which the treatment group received, but did not receive the treatment.

Pervasive Developmental Disorders (PDD) – see Glossary term *Autism*

Significance (or significant)—A statistical term that refers to the probability that the results obtained in the study are not due to chance, but to some other factor (e.g., the treatment of interest). A significant result is likely to be generalizable to populations outside the study.

Significance should not be confused with *clinical effect*. A study can be statistically significant without having a very large clinical effect on the sample. For example, a study that examines the effect of a treatment on a client's ability to walk may report that the participants in the treatment group were able to walk significantly longer distances than those in the control group. However, after reading the study one may find that the treatment group was able to walk, on average, 6 feet, whereas the control group was able to walk, on average, 5 feet. Although the outcome may be statistically significant, a clinician may not feel that a 1-foot increase will make his or her client functional.

References

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed.—Text Revision). Washington, DC: Author.

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World Health Organization. (1993). *International classification of diseases: Diagnostic criteria for research* (10th ed.). Geneva, Switzerland: World Health Organization.

This work is based on the evidence-based literature review completed by Jane Case-Smith, EdD, OTR/L, FAOTA

For more information about the Evidence-Based Literature Review Project, contact the Practice Department at the American Occupational Therapy Association, 301-652-8611, x 2040.



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