The DIR/floortime model and its implementation and use for intervention with children with ASD/PDD

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The DIR/floortime model and its implementation and use for intervention with children with ASD/PDD

Disciplines
Occupational Therapy | Pediatrics | Rehabilitation and Therapy

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Clinical Scenario:
Autism Spectrum Disorders (ASD) are the second most common developmental disability in children in America, with one in 150 children being diagnosed (CDC, 2007). ASD, as well as Pervasive Developmental Disorder (PDD), diagnoses are clearly on the rise and therefore, a growing number of children are in need of specialized services. With the high costs of services and increased number of ASD/PDD diagnoses, it is imperative that we know the best treatment and intervention strategies; all while supporting cost effective programs.

Floortime or the Developmental, Individual Differences, Relationship-Based (DIR) approach, is an individualized approach to treating children with ASD/PDD. It focuses on the child’s core functional emotional and social capacities at each stage in his or her development, as well as his or her individual processing differences and relationship patterns (Greenspan & Wieder, 2001). There is a growing interest and use of this approach in many areas of practice, including Occupational Therapy, that treat children with ASD/PDD.

As a profession that assesses and treats children with ASD/PDD, Occupational Therapists are very interested in the floortime(DIR) approach. If this treatment is proven to be effective, it may be considered an evidence-based approach. Furthermore, with extensive research, the floortime(DIR) approach may be considered the ‘best practice’ approach when treating this population.

Focused Clinical Question:
What is known about the floortime/DIR approach for treating children with ASD and PDD and how is it used and implemented in practice?

Clinical Bottom Line:
There is insufficient evidence to support the floortime/DIR approach as a treatment intervention, and more research needs to be done. However, current research and evidence shows that the floortime/DIR approach may be as or more effective than other pediatric interventions for Autism Spectrum Disorders (ASD) and Pervasive Development Disorders (PDD).

Limitation of this CAT:
This critically appraised paper has not been externally peer-reviewed, and the reviewer is inexperienced. There are also a limited number of studies available for review, and only five studies were used.
Summary of search & key findings:

**Level I:** No articles

**Level II:** No articles

**Level III:**
(Solomon, Necheles, Ferch, & Bruchman, 2007)
This was a pre/post study exploring the effectiveness of a low cost program (the PLAY Project) that incorporates floortime/DIR principles. It included young children with ASD (n=68) and focused on training their parents/caregivers to use floortime with their children on a daily basis. There were many limitations to this study, making it impossible to prove that the PLAY Project alone is highly effective. The study concluded that with the high prevalence of ASD and the high costs of services by trained professionals, more rigorous studies are urgently needed to establish the clinical and cost effectiveness of this type of play based intervention.

**Level IV:**
(Greenspan & Wieder, 2005)
This was a follow up study of Greenspan & Wieder’s 200 chart review study (1997). The researchers were interested in whether a subgroup (n=16) of children diagnosed with ASD could learn to be related, empathetic, creative, reflective thinkers. This study concluded that children with ASD can continue to developmentally progress through adolescent years and beyond. Therefore it is important to work with families and their children on relating, communicating, and thinking, at a young age and onward. Although it is not typical of all kids with ASD, all 16 children in this follow up study became warm, related, and sensitive young people with an optimistic future.

(Greenspan & Wieder, 2003)
The purpose of this case study was to show the effectiveness of floortime/DIR approach with one boy diagnosed with autism. The study followed the young boy over the course of three years. It was concluded that floortime was central to the boy’s progress, in that helped him build the structure necessary for each successive treatment. The researchers’ observations suggest that interactive play provided the lifeline for the boy’s development. However, outcomes of this case study are not generalizable to broader populations. This boy was also receiving other treatments that were not controlled for.

(Greenspan & Wieder, 1997)
This study reviewed the charts of 200 children with ASD to help understand early diagnosis and what treatment is effective for these children. This study concluded that a number of intensive treatments appear to be helpful, but it is important to be aware that different children may respond to interventions differently, so we need to know what characteristics should be paired with what interventions. It was also determined that more research needs to be done.

**Level V:**
(Greenspan & Wieder, 2001)
This article was an overview of the floortime/DIR Approach. It focused on assessment and intervention planning. It explained that interventions for children with autism often fail because the many factors surrounding a child, their parents, and the environment are not always taken into consideration. Interventions for children with ASD should be unique to each person, and floortime is an approach that takes the whole person, environment, and occupation (play), into consideration.
### Search Strategies

<table>
<thead>
<tr>
<th>Categories</th>
<th>Key Search Terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient/Client</td>
<td>Children, infants, toddlers, pediatrics, Autism Spectrum Disorder, ASD, Pervasive Development Disorder (PDD)</td>
</tr>
<tr>
<td>Intervention</td>
<td>DIR (also developmental, interactive, relationship-based), floor time, interactive play</td>
</tr>
<tr>
<td>Comparison</td>
<td>none</td>
</tr>
<tr>
<td>Outcome(s)</td>
<td>Communication, developmental levels</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Databases and sites searched</th>
<th>Search Terms</th>
<th>Limits Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medline – OVID</td>
<td>Floor time, DIR, Developmental, Individual Differences, Relationship-based approach, Autism + children, Floortime, Floor-time, &amp; Interactive Play, Stanley Greenspan</td>
<td>Inclusion criteria was that floor time was the main intervention/treatment used</td>
</tr>
<tr>
<td>CINAHL</td>
<td>DIR, Floor time, Engaging Autism: Using the Floortime Approach to Help Children Relate, Communicate and Think” (found article on googlescholar but couldn’t get access), Developmental, Individual Differences, Relationship-based approach</td>
<td>Articles using interactive play, but not calling it floor time or DIR were excluded.</td>
</tr>
<tr>
<td>ERIC – Ebsco Host</td>
<td>Developmental Patterns and Outcomes in Infants and Children with Disorders in Relating and Communicating, floortime, DIR</td>
<td>Articles were not limited to context of Occupational Therapy</td>
</tr>
<tr>
<td>MD Consult</td>
<td>Floor time, DIR, Developmental, Individual Differences, Relationship-based approach, Autism + children, Interactive Play</td>
<td>All searches were limited to the English language.</td>
</tr>
<tr>
<td>OTcats.com</td>
<td>General search to view OT CAT topics</td>
<td>There was no limit placed on the dates of articles.</td>
</tr>
<tr>
<td>GoogleScholar.com</td>
<td>Stanley Greenspan, floortime, DIR, Developmental, Individual Differences, Relationship-based approach</td>
<td></td>
</tr>
<tr>
<td>Google.com</td>
<td>Stanley Greenspan, floortime, DIR, Developmental, Individual Differences, Relationship-based approach</td>
<td></td>
</tr>
<tr>
<td>Floortime.org</td>
<td>Searched the website’s “Professionals” tab, and viewed articles supporting floortime</td>
<td></td>
</tr>
</tbody>
</table>
Results of Search
Five relevant studies were located and categorized as shown in Table 1.

Table 1. Summary of Study Designs of Articles Retrieved

<table>
<thead>
<tr>
<th>Level of Evidence</th>
<th>Study Design</th>
<th>Number Located</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Systematic reviews, meta-analyses, randomized control trials</td>
<td>0</td>
</tr>
<tr>
<td>II</td>
<td>Two groups, non-randomized studies (e.g. cohort, case-control)</td>
<td>0</td>
</tr>
<tr>
<td>III</td>
<td>One group, non-randomized (e.g. before and after, pretest posttest)</td>
<td>1</td>
</tr>
<tr>
<td>IV</td>
<td>Descriptive studies that include analysis of outcomes (single subject design, case series)</td>
<td>3</td>
</tr>
<tr>
<td>V</td>
<td>Case reports and expert opinion, which include narrative literature reviews and consensus statements</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Qualitative Studies</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td><strong>Total = 5</strong></td>
<td></td>
</tr>
</tbody>
</table>

Best Evidence
The following article was identified as the ‘best’ evidence and selected for critical appraisal:


Reasons for selecting this paper were:
- It encompasses the highest level of evidence that has been published (Level III)
- It is the only article not written by Stanley Greenspan (the creator of the DIR approach), therefore eliminating any biases he may have.
- It is the most recent (2007) research study on floortime/DIR approach.
Summary of Best Evidence

_Aim of Study:_
There is a growing body of evidence showing that young children with ASD diagnoses benefit greatly from comprehensive and intensive therapies; however, these programs are often very expensive. This study explores the effectiveness of the PLAY Project, a lower cost program which incorporates floortime/DIR concepts.

_Intervention Investigated:_
Three people (one MSW, three RTs) were trained in the PLAY Project. These three acted as consultants to the 68 families. These consultants made monthly visits to the families’ homes to teach the families how to provide intensive, one on one, play based services (floortime) to their children. A key component was reviewing videotapes of the children with the family to show progress. Parents are also given a training manual and attend a one day training workshop. The once monthly consultations focus on modeling, coaching, video assessments, and written objectives.

_Outcome Measures:_
Functional Emotional Assessment Scale (FEAS) ratings, subjective 6-point rating scale, satisfaction survey (likert scale), assessment and interpretation of daily logs.

_Results:_
There were no changes in the parents’ FEAS scores from pre/post measurements (score = 86; p = 0.63). There was an increase in the children’s total and scaled scores though (p ≤ 0.0001). 45.5% of the children made good to very good functional developmental progress; two-tailed paired t-tests were used. There was an association between fewer hours/week of intervention and lower outcome scores, but no significant relationship was found (p = 0.09, two tailed paired-tests were used). High reliability was found (p ≤ 0.05, two-tailed t-test) in inter rater reliability. 70% of the parents were very satisfied with the PLAY Project.

_Original Author’s Conclusions:_
This study concluded that with the high prevalence of ASD and other diagnoses, and the high costs of services by trained professionals, more rigorous studies are urgently needed to establish the clinical and cost effectiveness of this type of low cost, play-based intervention. Limitations included: not having a control group, not knowing which is more important (parent interaction time vs. parental training), almost all children being enrolled in some sort of special education program (although not intensive ABA, SI, etc), parents’ stress levels needed to be recorded, parents’ adherence to daily log needs to be improved, and gains that children made were not compared to ability to make these gains in other environments.
Critical Appraisal

Validity
This article had extensive background information, justifying the need for the not only the PLAY Project, but for the research that needs to be done in accordance. The PLAY Project was a program that was well-representative of floortime/DIR concepts. The professionals facilitating this project were well-trained in floortime and DIR theories. Overall sample size was large (n=68), however not randomized. There was approximately equal representation of mild, moderate, and severe disabilities, but boys were over-represented 4:1. The study’s treatment was given in a reasonable and accommodating manner; parental satisfaction with the PLAY Project was 90%. Many of the children were enrolled in special education, importantly however none were receiving other intensive treatments. There was a lack of objective measurements used, reducing the amount of outcome measurements, along with other limitations (see above: conclusions).

Results
Parents and children were rated using the Functional Emotional Assessment Scale (FEAS) pre and post intervention. Parents showed no change (p=0.63), however children showed an increase in total and scaled FEAS scores (p≤0.0001), and 45% of children made good to very good progress. Researchers found an association between fewer hours per week of intervention and lower outcome score, although not statistically significant (p=0.09). Overall, this study suggests that the model has the potential to be a cost-effective intervention for children with ASD and PDD.

Article selected for appraisal:

Related Articles:


References