Examining the Effects of AAC Intervention on Oral Language in Children with Autism Spectrum Disorders: A Systematic Review

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Examining the Effects of AAC Intervention on Verbal Language in Children with Autism Spectrum Disorders: A Systematic Review


Background

- Many children with Autism Spectrum Disorder (ASD) are non-verbal or minimally verbal.1,2
- Augmentative and Alternative Communication (AAC) is an external system used to support communication, which may include the Picture Exchange Communication System (PECS) or Speech Generating Devices (SGDs)3
- AAC is a common intervention for children with ASD2
- There is a widely held fear that AAC use may have a negative impact on verbal language development, but research shows this is not the case3

Objective

To determine whether AAC intervention will increase verbal communication in children with ASD

Methods

Systematic Review Protocol:

- Inclusion criteria: 0-17;11 years old, diagnosis of ASD, research within the past 10 years, peer-reviewed, quantitative studies
- Exclusion criteria: Publications in languages other than English, qualitative studies
- Intervention: Aided AAC [e.g. Picture Exchange Communication System (PECS), Speech Generating Device (SGD)]
- Outcome: Verbal language (e.g. words, word approximations, meaningful verbalizations)
- Boolean Sentence used for search strategy: (Autism Spectrum Disorder OR ASD) AND Alternative Communication OR Speech Generating Device OR Speech Development OR Verbals
- Manual search yielded an additional 22 articles

Results

Table 1. Quality Analysis of Included Studies

<table>
<thead>
<tr>
<th>Evidence Level*</th>
<th>Number of Studies</th>
<th>Study Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>7</td>
<td>Meta Analysis (3) Systematic Review (2) Randomized Control Study (2)</td>
</tr>
<tr>
<td>Level 4</td>
<td>16</td>
<td>Single-subject (16)</td>
</tr>
</tbody>
</table>

*Scale of 1 to 5, with 1 being the highest

Figure 1. Flow Chart

- Number of studies identified through database search: Psychology 46 PubMed 36 Compendex 7 Global Health 6 Ovid Medline 54 CINAHL 3 CokiSearch 1 Campbell 0 Write of Science 49 Google Scholar 554
- Total number of studies screened: 1,732
- Total number of studies excluded after screening title and abstract: 1,217
- Total number of studies excluded after reviewing full text: 142
- Number of studies after duplicates removed: 59
- Number of full text articles read: 59
- Number of studies included in qualitative synthesis: 25
- Studies analyzed in this systematic review: 23

- Remaining 2 articles not analyzed as they were literature reviews used exclusively for background information.

Limitations

- The research currently lacks randomized control studies (RCTs), replication, and longitudinal studies.
- Heterogeneity of intervention protocols and participant characteristics reduces generalizability of results.
- Clinical significance is low due to reduced generalizability of results, lack of robust evidence, and lack of significant changes due to intervention.

Conclusions

- AAC does not hinder spoken language.
- AAC will increase overall communicative acts, but not necessarily verbal output.
- There is not enough research evidence at this time to support using AAC interventions to increase spoken language in children with ASD.

Recommendations

- Conduct more RCTs and replicate methodologically rigorous studies
- Consider communicative function of AAC use in future studies
- Request vs. comments
- Conduct more research on forms of AAC other than PECS
- Use more formal measures
- Conduct a longitudinal study to determine what happens once the child learns how to functionally use the device
- More analysis of confounding variables of studies (e.g. subjects’ baseline characteristics, intervention environment, interaction partners)

Selected References