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Communication Sciences and Disorders

**Background**

- Areas of social communication are globally impacted in children with Autism Spectrum Disorder (ASD).
- Social communication is the use of language in social contexts and encompasses social interaction, social cognition, pragmatics, and language processing.
- Augmentative and Alternative Communication (AAC) systems are modes of communication used to supplement or replace oral communication to help individuals express their thoughts, wants, needs, and ideas.
- The Picture Exchange Communication System (PECS) is a form of AAC that aims to overcome absence of communication initiations in social interactions by providing rewards and supporting children with ASD.

- Research has been conducted regarding the efficacy of AAC in increasing verbal output, but less focus has been placed on its efficacy in increasing social communication.
- Current research is limited on comparison of the PECS to other AAC systems and their role in facilitating the development of social communication in children with ASD.

**Purpose**

This systematic review aims to examine the effectiveness of PECS when compared to other forms of AAC in supporting children with ASD in development of their social communication skills.

**Methods**

Sources: PubMed, CINAHL, PsycINFO, Ovid MEDLINE, ERIC, and manual search.

Keywords: Asperger*, ASD, autism*, autism spectrum disorder*, AAC, augmentative and alternative communication, Picture Exchange Communication System, and PECS.

**Inclusion Criteria:**
- Peer-reviewed articles published after 2007.
- Participants under the age of 18 years.
- Majority of individuals with a formal diagnosis of ASD.
- Persons free of severe sensory, motor, and/or other medical conditions.
- Studies discussing PECS or another AAC system on social communication.

**Quality Assessment:** Studies were critically appraised using inclusionary/exclusionary criteria followed by an analysis of the criteria of quality evidence and the levels of evidence used.

**Results**

**Number of studies identified through database search:**
- PubMed: 67
- CINAHL: 36
- PsycINFO: 179
- Ovid MEDLINE: 309
- ERIC: 80
- Total: 671

**Number of studies excluded after parameters were added to database searches:**
- Year of Publication: 133
- Age (<18): 135
- Non-Human: 69
- Not related to PECS: 204

**Number of duplicates removed:**
- 63

**Number of studies excluded after screening "Title and Abstract":**
- Age (<18): 5
- Not related to PECS: 34
- Not English: 2
- Verbal Language: 8

**Total articles remaining = 18 articles**

**Table 1. Summary of Discrete Social Skills Discussed in Included Studies**

<table>
<thead>
<tr>
<th>Study</th>
<th>Initiation</th>
<th>Requesting</th>
<th>General Social Communication</th>
<th>Generalizability</th>
<th>Rate of Acquisition</th>
<th>System Preference</th>
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<td>Agius, et al. (2016)</td>
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**X:** Represents discussion of the social communication skill(s) and/or AAC system aspect(s) but does not indicate specific results.

**Figure 1. Search Strategy**

**Table 1. Summary of Discrete Social Skills Discussed in Included Studies**

**Initiation: Evidence suggests that PECS is moderately effective at increasing rates of initiation in children with ASD.**

**Requesting: PECS, PE, MS, and SGDs are effective modes for increasing and facilitating requesting behaviors. Neither mode stood out as more effective.**

**Generalizability/General Social Communication:** PECS is generalizable across settings and teachers, therefore it improves social communication long-term.

**Rate of Acquisition:** Research showed mixed results for whether children reached a level of mastery faster for PECS or SGDs. Minimal evidence suggested PECS had a quicker rate of acquisition compared to SGDs.

**System Preference:** Many studies found that children have a moderate-strong preference towards a specific communication mode. There is little evidence that one mode is more preferable than another.

**Limitations**

- Only included articles written in English available through the UVM research network.
- 3 studies had participants diagnosed with a developmental delay or cormobid diagnoses.
- Inclusion of single case design studies.
- Minimal discussion of fidelity of intervention.
- Inconsistent inclusion of all Phases of PECS with many studies stopping intervention at Phase IV.

**Recommendations**

- Additional research focusing on direct comparison of the efficacy of PECS and AAC.
- Studies with larger sample sizes to increase generalizability of results.
- Research regarding pre-treatment factors that may affect level of success.

**Selected References**


