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

Alison R. Joseph, B.A., Emily V. Mortner, B.A., & Alexandra F. G. Patch, B.A.



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)²
- ❖ 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

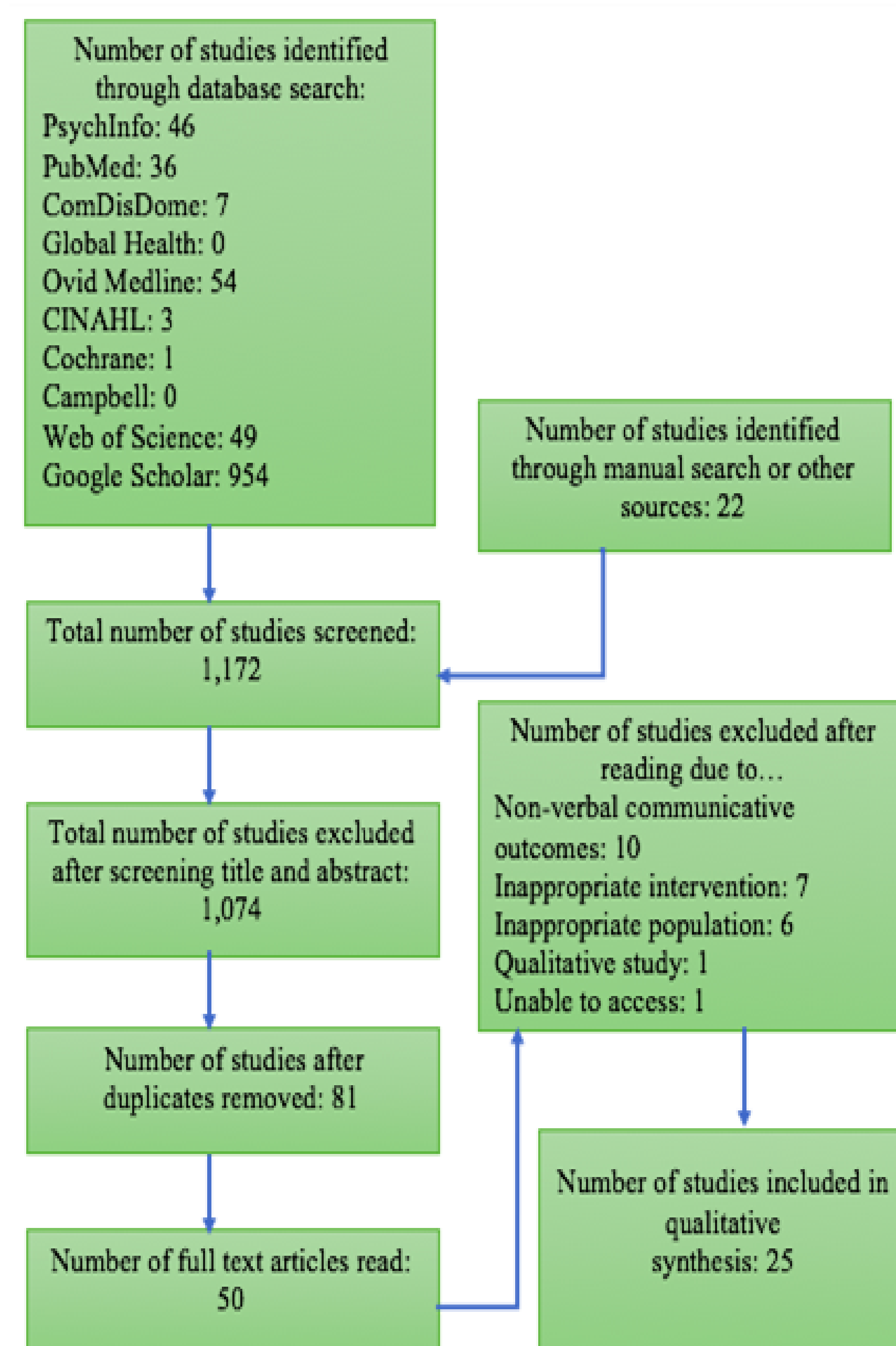
Methods

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:** (Autis* Spectrum Disorder OR ASD OR Autis*) AND (Verbal Communication OR Speech Development OR Verbal Language Development OR Verbal Development) AND (Augmentative Communication OR Augmentative AND Alternative Communication OR Assistive Technology)
- ❖ Manual search yielded an additional 22 articles

Results

Figure 1. Flow Chart



Studies analyzed in this systematic review: 23[◊]

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

Table 1. Quality Analysis of Included Studies

Evidence Level*	Number of Studies	Study Design
Level 1	7	Meta Analysis (3) Systematic Review (2) Randomized Control Study (2)
Level 4	16	Single-subject (16)

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

Measurements: The majority of studies used event recording of verbalizations to quantify data. Of all the studies collected, only three used formal measures.

PECS: Some studies showed that PECS has the potential to increase verbal language. However, there were mixed results across studies.^{4,5}

SGDs: The two studies that conducted a statistical analysis showed significant gains in expressive language with SGD intervention.⁷ Most other studies found varied results.⁸

PECS vs. SGD: A comparison of PECS and SGDs suggested that both forms of AAC benefit verbal language outcomes when compared to baseline, with no clear advantage to using one over the other.⁶

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)

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