

# **Augmentative and Alternative Communication Intervention Targets for School-Aged Participants with ASD and ID: A Single-case Systematic Review and Meta-analysis**

## ***Structured Abstract***

**Objective:** This meta-analysis reviews the literature on communication modes, communicative functions, and types of augmentative and alternative communication (AAC) interventions for school-age participants with autism spectrum disorders and/or intellectual disabilities who experience complex communication needs. Considering potential differences related to outcomes that were targeted for intervention could help identify the most effective means of individualizing AAC interventions.

**Methods:** We performed a systematic literature search using *Academic Search Ultimate*, *ERIC*, *PsycINFO*, *Web of Science*, and *Proquest Dissertations & Theses Global* to retrieve research conducted between 1978 and the beginning of 2020. Studies included in the synthesis are (a) in English; (b) has one or more participants with an intellectual delay, developmental disability(ies); (c) reported the results of an augmentative and alternative communication (AAC) intervention to supplement or replace conventional speech for people with complex communication needs; (d) was a SCED; (e) measured social-communicative outcomes. We synthesized results across studies using multi-level meta-analyses of two case-level effect size metrics, Tau and log response ratio. We conducted moderator analyses using meta-regression with robust variance estimation.

**Results:** Across 114 included studies with 330 participants and 767 effect size, overall Tau effects were moderate,  $\text{Tau} = 0.72$ , 95% CI [0.67, 0.77], and heterogeneous. For the subset of data series where could be estimated, the overall average effect was  $\text{LRR} = 1.86$ , 95% CI [1.58, 2.13], and effects were highly heterogeneous. There were few statistically significant differences found between moderator categories, which included communication mode, communicative function, and type of AAC implemented.

**Conclusions:** This meta-analysis highlights the potential differences related to outcomes that were targeted for AAC interventions for individuals with ASD and IDD. AAC intervention has been shown to improve communication outcomes in this population. However, there was a lack of sufficient data to analyze for some potential moderators such as insufficient descriptive information on participant characteristics. This is likely due to the heterogeneity of the participants and implementation factors; however, these factors were frequently underreported by original study authors which disallowed systematic analysis. That said, there is a need for more detailed participant characteristic descriptions in original research reports to support future aggregation across the literature.

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**Protocol:** The review protocol was registered in the PROSPERO system (CRD42018112428).