

Verbal Speech Outcomes of Caregiver-Mediated Interventions for Autistic Children: A Meta-Analysis

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Introduction

- Autism spectrum disorder (ASD) is a neurodevelopmental condition characterized by differences in social communication and behavior.
- Approximately one-third of autistic individuals remain minimally verbal or non-speaking across development (Anderson et al., 2007; Tager-Flusberg & Kasari, 2013).
- Early speech and language development are strongly associated with later social functioning, adaptive behavior, and academic outcomes.
- Many minimally verbal autistic children rely on augmentative or alternative communication methods, though verbal language development remains an important target of early intervention.
- Caregiver-mediated interventions involve training parents or caregivers to implement communication strategies during everyday interactions with their children.
- These interventions may increase the frequency and natural context of language learning opportunities, extending communication support beyond clinical settings.
- Despite growing research in this area, findings across studies remain inconsistent and difficult to synthesize, particularly for minimally verbal populations.
- A systematic review and meta-analysis may help clarify the overall effectiveness of caregiver-mediated interventions on verbal speech outcomes.

Research Objective

- The purpose of this study is to examine the impact of caregiver-mediated interventions on verbal speech outcomes in autistic children.
- This project aims to identify and synthesize studies that evaluate parent-implemented or caregiver-supported communication interventions.
- A systematic review process is being used to identify relevant literature examining speech development outcomes among minimally verbal or non-speaking autistic children.
- Meta-analytic procedures will be used to estimate the overall effect of caregiver-mediated interventions across studies.
- This research also seeks to identify patterns across interventions, including differences in intervention structure, caregiver involvement, and participant characteristics.

Methods

Search Strategy

- A systematic literature search was conducted to identify studies examining caregiver-mediated communication interventions for autistic children.
- Searches were conducted across multiple academic databases to identify relevant peer-reviewed research articles.
- Search terms included combinations of keywords related to:
 - autism spectrum disorder
 - caregiver-mediated or parent-implemented interventions
 - communication or speech outcomes
 - minimally verbal or non-speaking populations
- Identified records were imported into Covidence, a systematic review management platform used to organize, screen, and manage studies.

Duplicate Removal

- Duplicate records were identified and removed before the screening process.
- Covidence was used to automatically detect duplicate citations.
- Additional manual review was conducted to ensure that duplicate records were fully removed before screening.

Study Screening

- Study screening was conducted in multiple stages to determine eligibility.
- First, titles and abstracts were reviewed to identify potentially relevant studies.
- Studies meeting initial screening criteria were then evaluated during full-text review.
- Screening decisions were based on predefined inclusion and exclusion criteria.

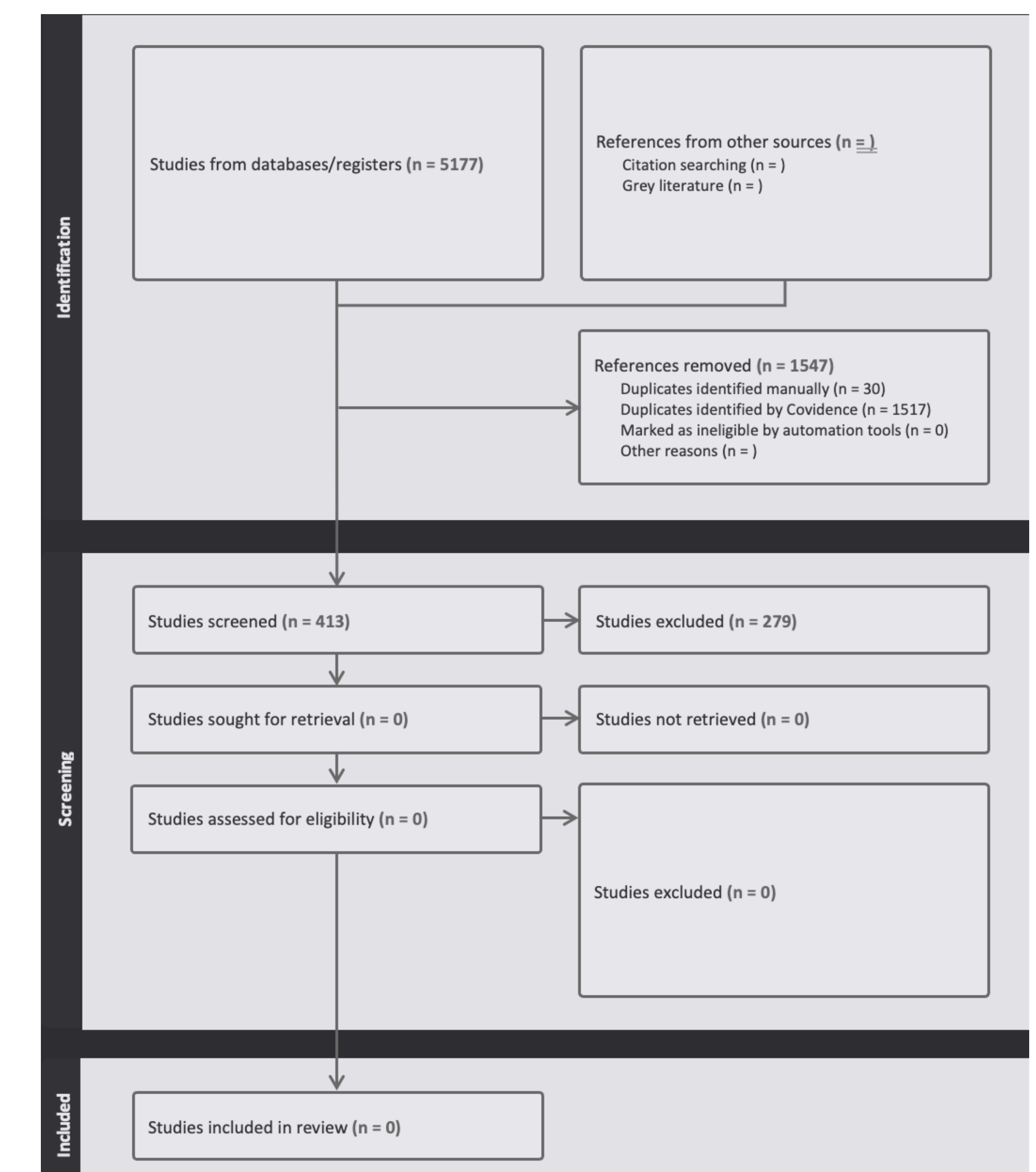
Inclusion Criteria

- Studies were considered eligible if they:
- Included participants diagnosed with autism spectrum disorder
 - Examined caregiver-mediated or parent-implemented communication interventions
 - Reported verbal speech or communication outcomes
 - Were published as peer-reviewed empirical research articles

Inter-Rater Reliability

- Study screening was conducted independently by two reviewers.
- To ensure consistency in screening decisions, inter-rater reliability was calculated between reviewers.
- Reliability was assessed using Cohen's kappa (κ), which measures agreement between reviewers beyond chance.
- Discrepancies between reviewers were resolved through discussion and clarification of screening criteria.
- Ongoing reviewer calibration procedures are used to maintain consistency during the screening process.

Results



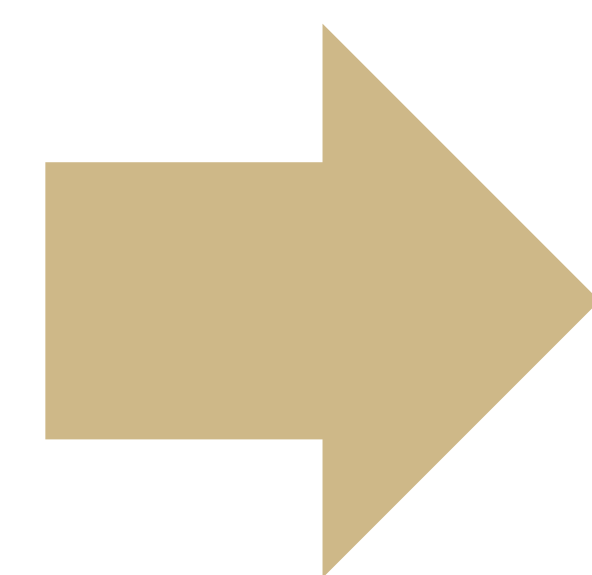
Discussion

- Preliminary screening demonstrated strong inter-rater reliability between reviewers ($\kappa = 0.79$; 91% agreement), indicating consistent application of screening criteria.
- Reliable study screening strengthens the methodological rigor of the systematic review and ensures that eligible studies are identified consistently.
- Screening procedures are ongoing, and additional reviewer calibration will continue with the goal of achieving $\kappa \geq 0.85$.
- Once screening is complete, eligible studies will undergo full-text review and data extraction.
- Extracted data will be used to calculate effect sizes and conduct meta-analytic analyses examining verbal speech outcomes.
- Findings may contribute to understanding the effectiveness of caregiver-mediated communication interventions for autistic children.
- Results may inform speech-language pathology practices and family-centered intervention approaches designed to support communication development.

Results

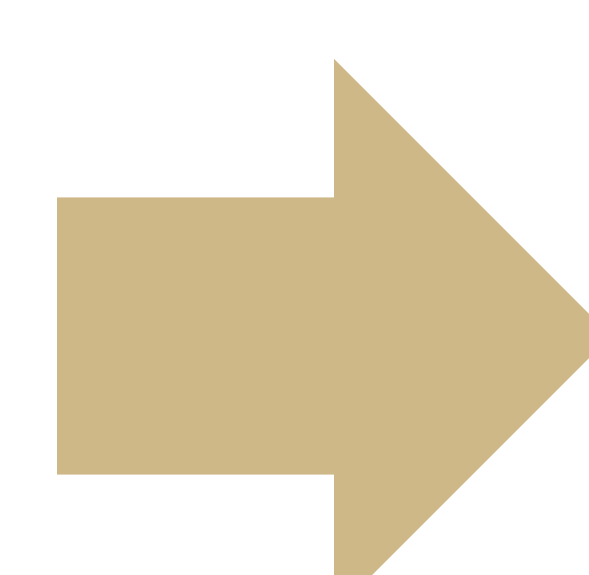
Study Identification and Screening

- 5,177 records identified through database searches.
- 1,547 duplicates removed
 - 1,517 automatic
 - 30 manual
- 413 studies screened at the title and abstract level.
- 279 studies were excluded based on screening criteria.
- Remaining studies will proceed to full-text eligibility review.



Inter-Rater Reliability

- Screening conducted independently by two reviewers.
- 91.0% overall agreement between reviewers.
- Cohen's $\kappa = 0.79$, indicating strong agreement.
- Discrepancies resolved through reviewer discussion.
- Screening calibration ongoing with target $\kappa \geq 0.85$.



Screening Status

- Study screening is currently ongoing.
- Eligible studies will proceed to full-text review and data extraction for meta-analysis.

91%

Reviewer A	Reviewer B	A Yes, B Yes	A Yes, B No	A No, B Yes	A No, B No	Proportionate Agreement	Yes Probability	No Probability	Random Agreement Probability	Cohen's Kappa
Ashley Sellers	Nivaya Montoya	107	22	15	269	0.91041	0.09227	0.48452	0.57679	0.78831
Ashley Sellers	Ashley Sellers	0	1	0	0	0.0	0.0	0.0	0.0	0.0

References & Acknowledgements

