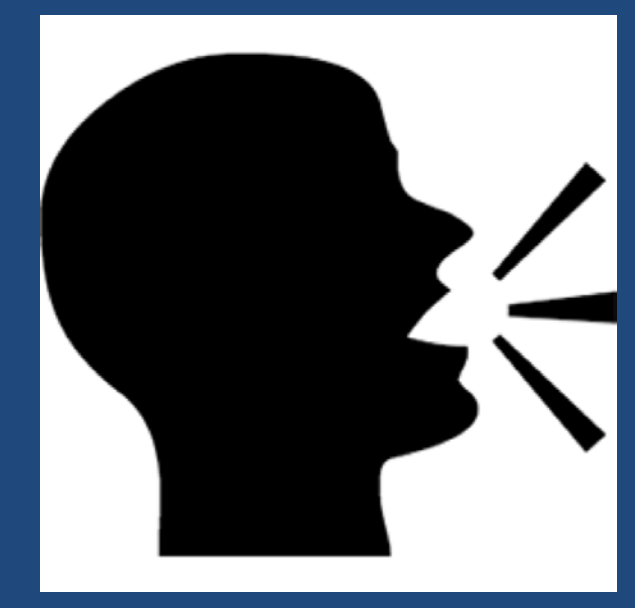


Reduction of Vocal Stereotypy in Children with Autism: A Systematic Review

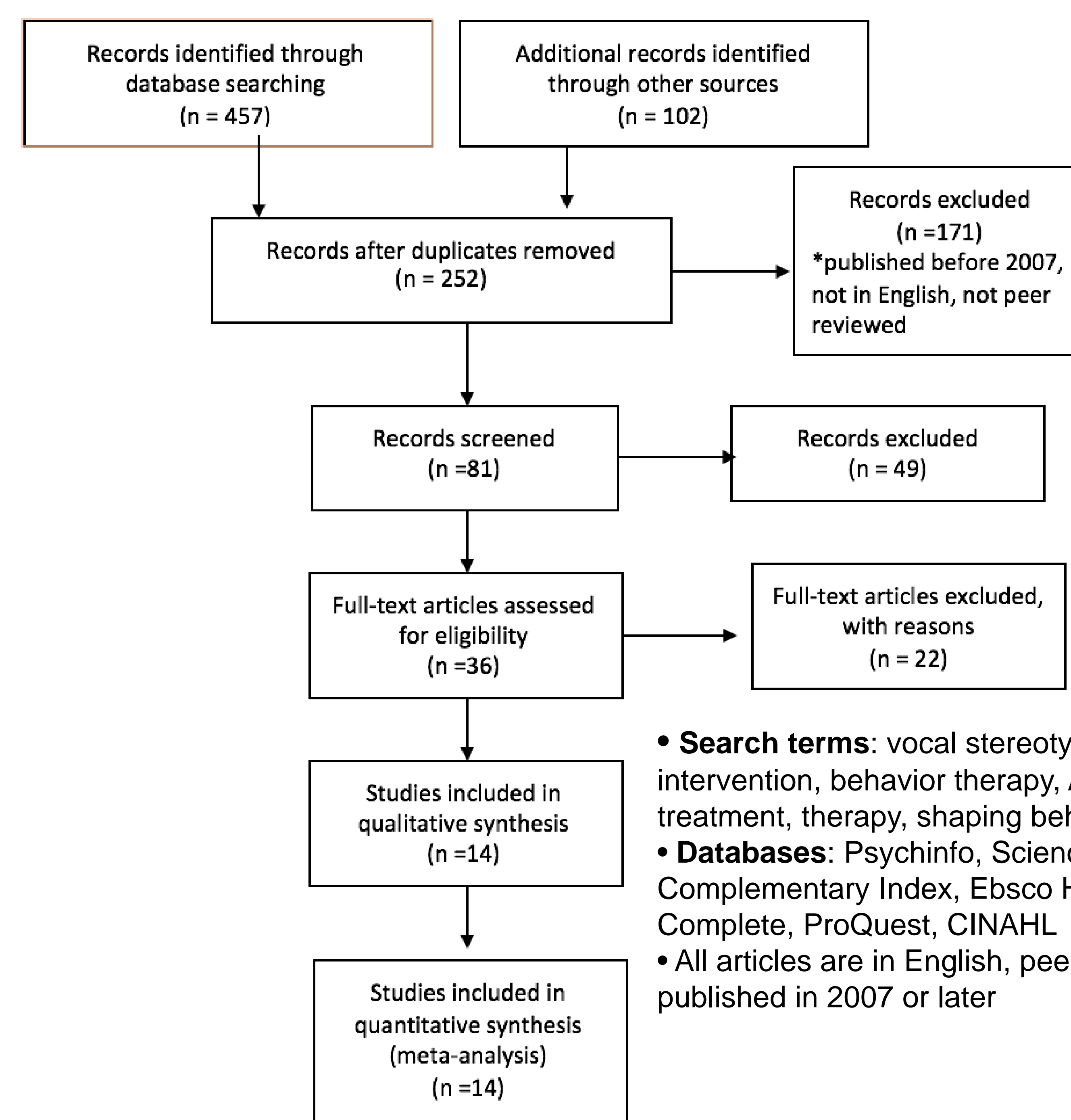
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Background

- About 1 in 68 children have been identified with autism spectrum disorder (ASD) according to estimates from CDC's Autism and Developmental Disabilities Monitoring (ADDM) network (CDC, 2016).
- Stereotypic behavior [vocal stereotypy] is one of the diagnostic criteria for autism spectrum disorder (Ahearn, Clark, & MacDonald, 2007).
- Based on collective research, vocal stereotypy can be defined as repetitive vocal output that is not functional for daily communication.
- It is considered to be disruptive and fulfills no language function (Ahearn, Clark, & MacDonald, 2007).
- Since vocal stereotypy is considered disruptive and not functional, an important outcome for this population is a reduction of decontextualized vocal stereotypy. The purpose of this systematic review is to find the most effective intervention(s) to reduce vocal stereotypy.
- The research question explored: What is the most effective behavioral intervention to reduce decontextualized vocal stereotypy in children with autism?

Literature Search

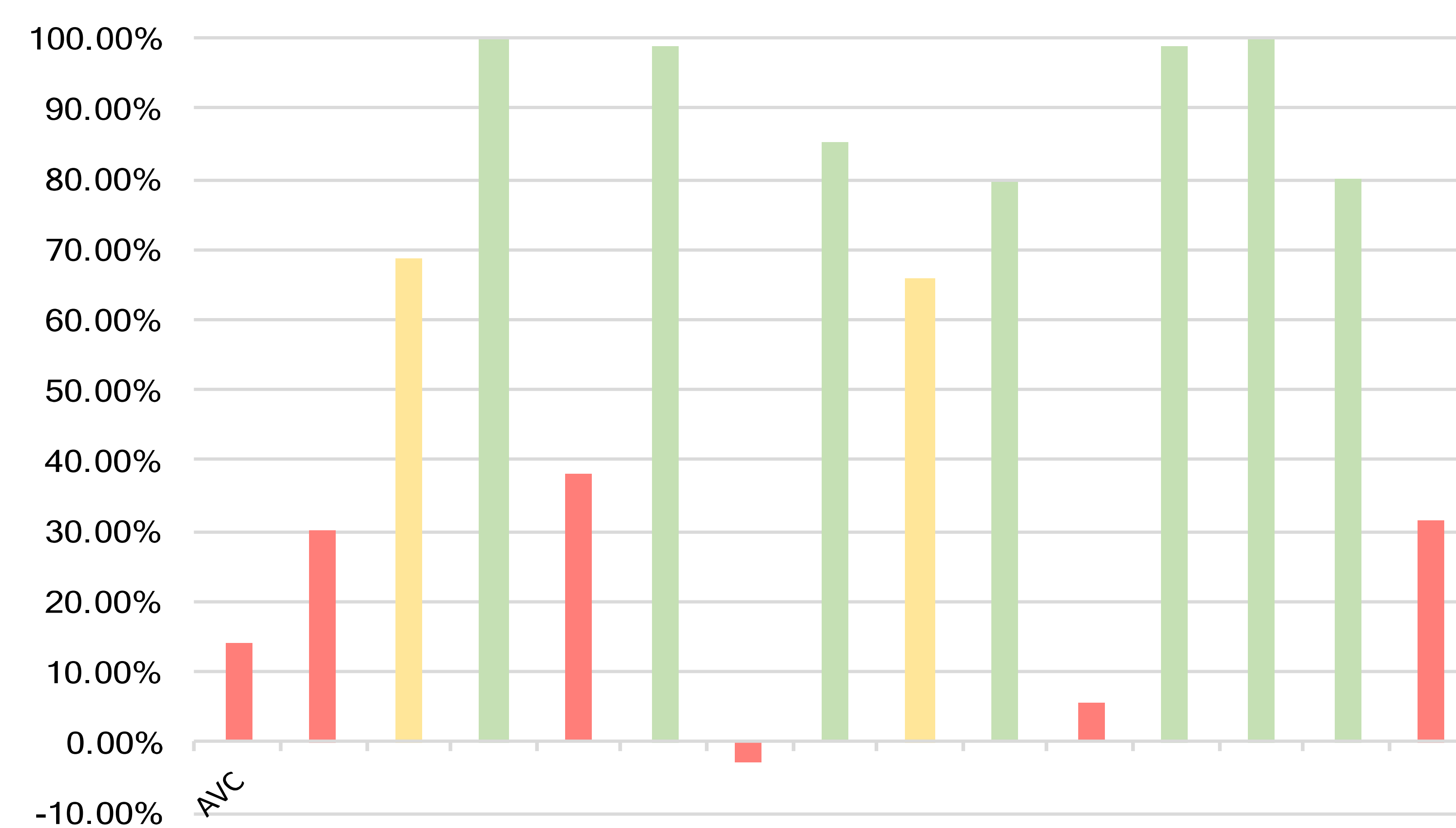


- Search terms:** vocal stereotypy, children, intervention, behavior therapy, ASD, treatment, therapy, shaping behavior, and autism
- Databases:** Psychinfo, ScienceDirect, ERIC, Complementary Index, Ebsco Host, Academic Search Complete, ProQuest, CINAHL
- All articles are in English, peer reviewed, and published in 2007 or later

Results

Intervention	Number of Studies	n	Duration	Mean PRD
AVC	1	1	25 sessions; 30 minutes	13.97%
DR	1	1	12 sessions; 20 minutes	29.89%
MS	1	1	120 sessions; 30 minutes	68.70%
NCR+RC	1	1	52 sessions; 15-45 minutes	100%
NCR+RC+D	1	1	52 sessions; 15-45 minutes	38.14%
OC	1	1	20 sessions; 20 minutes	98.89%
OC+DRI	1	1	21 sessions; 20 minutes	-2.95%
RC	2	3	40.3 (15-70) sessions; 13.3 (10-20) minutes	85.11%
RIRD	7	20	36.4 (10-72) sessions; 11.9 (5-30) minutes	66.04%
RIRD w/ DRI	1	1	36 sessions; 12 minutes	79.34%
SI	1	3	4.6 (4-5) sessions; 30 minutes	5.81%
TR+RC	1	1	148 sessions; 15-45 minutes	98.83%
TR+RC+DRI	1	1	160 sessions; 15-45 minutes	100%
TP	1	1	145 session; 1-10 minutes	79.99%
VOT	2	7	31.6 (7-65) sessions; 7.86 (5-10) minutes	31.52%

Percent Reduction Data (effect size) per Intervention



Scaled Number	Meaning of the Effect Size
0	< 50% (small)
1	51-74% (medium)
2	75-100 (large)

*Color in scaled number corresponds to effect size in table

Intervention Types: Antecedent (AVC); Differential Reinforcement (DR); Matched Stimulation (MS); Non-contingent Reinforcement with Response Cost (NCR+RC); Non-contingent Reinforcement with Response Cost with Demands (NCR+RC+D); Over Correction (OC); Over Correction with Differential Reinforcement (OC+DRI); Response Cost (RC); RIRD; RIRD with Differential Reinforcement (RIRD+DRI); Social Interactions (SI); Token Reward with Response Cost (TR+RC); Token Reward with Response Cost with Differential Reinforcement (TR+RC+DRI); Treatment Package (TP); Verbal Operant Training (VOT); n: number of participants across studies

Participant Characteristics

- All participants included in this review had a primary diagnosis of ASD. Across studies, participants ranged in age from 3 years to 16 years. The mean age of participants was 7.9 years. The findings of this review were from single subject designs; total number of participants was 34. There were 7 females and 27 males.
- Inclusion Criteria:** primary diagnosis of ASD, school age (16 or younger), decontextualized vocal stereotypy present (affecting academics), verbal output
- Exclusion Criteria:** ASD and comorbid diagnosis, non-verbal, use of AAC and/or gesture

Clinical Recommendations

- Utilizing more than one intervention approach is most effective for reducing vocal stereotypy
- Client's preferences must be taken into account in order to successfully set up an effective reward system

Limitations/Future Research

- Limitations:** not a single consensus of what vocal stereotypies are, sessions are relatively short in duration compared to the span of when potential stereotypies could occur, participants per intervention were small, variability of autism spectrum disorder can affect the outcome of intervention
- Further Research:** to better understand vocal stereotypies and interventions (higher level of evidence), determine if reduction generalizes outside the clinical setting, and to investigate the conditions or environment which these interventions would be most successful

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