

The Impact of Social Skills Training on Social Behavior in Children with Autism Spectrum Disorders: A Systematic Review

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Abstract

Background: Autism Spectrum Disorder (ASD) is marked by significant impairments in social interaction and communication. Social Skill Training (SST) is a structured behavioral intervention widely used to address these deficits in children with ASD.

Objective: The primary aim of this review is to evaluate the existing evidence on the effectiveness of Social Skill Training in improving social behavior in children with ASD.

Methods: A comprehensive search of databases, including PubMed, PsycINFO, Scopus, ScienceDirect, and Google Scholar, was conducted for studies published between 2010 and 2025. 10 studies met the inclusion criteria—randomized controlled trials involving children aged 4–18 with ASD and quantitative assessments of social behavior post-SST. Quality assessment was performed using the Cochrane Risk of Bias tool.

Results: Most studies reported significant improvements in social behavior, including enhanced peer interaction, emotional understanding, and communication skills. Group-based SST with peer involvement and parent training showed stronger effects. However, the generalization of learned skills to natural environments and long-term retention varied across studies.

Conclusion: SST is generally effective in improving social behaviors in children with ASD, particularly when interventions are contextually embedded and include peer or parent components. Future research should address long-term effectiveness and skill generalization to enhance clinical applicability.

Keywords: Autism Spectrum Disorder, Social Skills Training, Social Behavior, Children, Systematic Review

How to cite this article: Swain A, Meena SK, Buragohain S, Namrata. The Impact of Social Skills Training on Social Behavior in Children with Autism Spectrum Disorders: A Systematic Review. *Int J Drug Deliv Technol.* 2026;16(49s): 809-814. DOI: 10.25258/ijddt.16.49s.88

Introduction

Autism Spectrum Disorder (ASD) is a lifelong neurodevelopmental condition marked by persistent deficits in social communication and interaction, as well as restricted, repetitive patterns of behavior and interests. ⁽¹⁾ Globally, the prevalence of ASD has increased substantially, currently affecting approximately 1 in 100 children. ⁽²⁾ One of the most challenging and core deficits in children with ASD is impaired social behavior, which includes difficulties in initiating conversations, interpreting social cues, sustaining peer relationships, and demonstrating appropriate emotional responses. ^(3,4)

These social difficulties can significantly hinder academic performance, peer acceptance, and long-term psychological well-being. ⁽⁵⁾ As a result, developing interventions that address these deficits is crucial for enhancing the quality of life in children with ASD. Among the various interventions available, Social Skills Training (SST) has gained prominence as an evidence-based approach that aims to teach children the necessary skills for effective social functioning, such as initiating conversations, understanding emotions, turn-taking, and conflict resolution. ⁽⁶⁾

SST is delivered through a variety of methods, including role-playing, video modeling, behavioral rehearsal, and peer-mediated instruction. ⁽⁷⁾ It may be conducted in individual or group formats and often includes parent involvement to reinforce learned skills at home. ⁽⁸⁾ Several studies have demonstrated the potential of SST in improving social behavior in children with ASD, though the findings vary based on study design, intervention model, and outcome measures. ^(9,10) This variability underlines the need for a systematic review to synthesize the available evidence on the impact of SST in improving social behavior among children with ASD.

Method

A systematic review was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines.

Search Strategy

To ensure a comprehensive evaluation of relevant literature, a systematic search was conducted across five major electronic databases: PubMed, Scopus, PsycINFO, Web of Science, and Google Scholar. The search targeted studies published in English from 2010

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to 2025, focusing on the impact of Social Skills Training (SST) on social behavior in children diagnosed with Autism Spectrum Disorders (ASD). A combination of Medical Subject Headings (MeSH) and free-text keywords was employed to optimize search sensitivity and specificity. The primary keywords included “Social Skills Training,” “SST,” “social communication training,” “autism spectrum disorder,” “ASD,” “autism,” “children,” “adolescents,” “social behavior,” “social competence,” “intervention,” “therapy,” “treatment,” “randomized controlled trial,” and “RCT;” Boolean operators such as AND and OR were applied to refine the search queries.

Filters were used to limit the results to peer-reviewed, full-text articles involving human participants aged 4 to 18 years. To ensure no relevant studies were missed, the reference lists of included articles and existing systematic reviews were also manually screened. The records were screened in two stages: first by reviewing titles and abstracts, and then through full-text analysis based on predetermined inclusion and exclusion criteria. This process ensured that only methodologically sound and contextually relevant studies were included in the final synthesis.

Selection Criteria

The selection of studies for inclusion in this systematic review was guided by clearly defined inclusion and exclusion criteria, established prior to the literature screening process. Studies were eligible for inclusion if they met the following criteria: (1) the participants were children or adolescents aged between 4 and 18 years, diagnosed with Autism Spectrum Disorder (ASD) based on recognized diagnostic criteria such as the DSM-IV, DSM-5, or ICD-10; (2) the study implemented a structured Social Skills Training (SST) intervention, either in individual or group settings, with a clearly defined goal of improving social behavior or interaction; (3) the study reported quantifiable outcomes using validated assessment tools such as the Social Responsiveness Scale (SRS), Autism Social Skills Profile (ASSP), or similar measures of social competence and behavior; (4) the research design includes randomized controlled trials (RCTs); and (5) the full text of the study was available in English and published between January 2010 and May 2025 in peer-reviewed journals.

Studies were excluded if they did not focus explicitly on SST as the primary intervention, if they involved adults or children outside the specified age range, or if they lacked clear outcome measures related to social behavior. Additional exclusion criteria included qualitative studies, review articles, opinion pieces, case reports, and studies with insufficient methodological clarity or incomplete data. Conference abstracts, unpublished theses, and gray literature were also excluded to maintain a high standard of evidence. Following initial screening, studies that met all eligibility requirements were subjected to full-text review and were included in the final synthesis if they adhered to the defined selection framework.

Data Extraction and Quality Assessment

Following the identification and selection of eligible studies, a systematic data extraction process was undertaken to ensure the consistency and integrity of information gathered from each included article. Two independent reviewers performed the data extraction using a standardized form specifically designed for this review. The extracted data included the following key information: author name and year of publication, study design, intervention type, and the main findings and conclusions reported by the study.

To ensure accuracy and minimize bias, the data extracted by both reviewers were compared. Any discrepancies were resolved through discussion, and in cases where consensus could not be reached, a third reviewer was consulted. When necessary, corresponding authors were contacted for clarification or missing information.

The methodological quality of the included studies was independently assessed by the same reviewers using appropriate tools based on study design. Randomized controlled trials (RCTs) were evaluated using the Cochrane risk of bias scale, which assesses key quality indicators such as random allocation, concealed allocation, baseline comparability, blinding, adequate follow-up, intention-to-treat analysis, and statistical reporting. Studies scoring 6 or above were considered to have high methodological quality. The overall quality of the evidence was documented and factored into the interpretation of the findings. High-quality studies were given greater weight during synthesis, while the limitations of lower-quality studies were acknowledged in the discussion section.

Result

Following the comprehensive literature search and screening process, a total of 1,135 studies were initially identified. After removing duplicate records ($n = 298$), 837 studies remained for title and abstract screening. Of these, 712 studies were excluded based on irrelevance to the inclusion criteria, such as not focusing on SST or lacking ASD-specific populations. The full texts of the remaining 125 studies were reviewed in detail, leading to the final inclusion of 10 studies that met all predefined eligibility criteria and were included in this systematic review.

These 10 studies collectively involved 347 children and adolescents diagnosed with ASD, with sample sizes ranging from 11 to 60 participants. The studies were conducted across various geographical regions, including the United States, United Kingdom, Australia, Israel, and several European and Asian countries, reflecting the global interest in SST interventions.

The duration of interventions ranged from 6 to 24 weeks, with session frequencies varying between 1 to 3 sessions per week, and each session lasting between 30 to 90 minutes. SST programs were delivered in all of the studies, with group-based interventions often incorporating peer-mediated strategies, role-play, and behavioral modeling. Many of the group interventions

also included a parental involvement component to reinforce learning at home.

Outcome measures used to assess changes in social behavior included validated tools such as the Social Responsiveness Scale (SRS), Autism Social Skills Profile (ASSP), Child Behavior Checklist (CBCL), and structured observational assessments. Group-based SST demonstrated superior outcomes compared to individual therapy in most of the studies, largely attributed to enhanced peer interaction and real-time feedback. Additionally, studies incorporating peer or parent involvement showed better skill generalization and long-term maintenance of social gains.

Despite the overall positive outcomes, some studies reported limited or non-significant changes, especially in populations with more severe ASD or co-occurring intellectual disabilities. A few studies also noted that while quantitative improvements were evident, qualitative aspects of social relationships (e.g., depth of friendships) were slower to improve. These findings underscore the complexity of social skill acquisition and the need for individualized intervention strategies.

Discussion

This systematic review synthesized evidence from ten high-quality studies evaluating the effectiveness of Social Skills Training (SST) in improving social behavior among children and adolescents with Autism Spectrum Disorder (ASD). Overall, the findings affirm the efficacy of SST in enhancing key aspects of social functioning, such as initiating conversations, maintaining peer interactions, and interpreting social cues. The interventions varied in format, duration, and intensity, yet a consistent pattern emerged—SST, especially in group formats and those involving peers or parents, yielded significant improvements in social behavior.

Group-based interventions outperformed individual therapy in most cases, likely due to the real-time peer interaction and feedback that naturally simulates real-world social situations. Furthermore, programs that included parent involvement demonstrated better generalization of skills beyond the training environment, highlighting the importance of reinforcing learned behaviors in home and community settings. These results align with prior research that emphasizes ecological validity and the role of caregivers in skill retention and transfer.

However, the review also identified several limitations. Some studies reported minimal effects in children with severe ASD symptoms or comorbid intellectual disabilities, indicating that SST may be less effective for this subgroup without additional supports or modifications. Additionally, while improvements were often evident in measurable social behaviors, more nuanced aspects of social relationships—such as emotional depth, sustained friendships, and adaptive coping in dynamic social contexts—showed slower progress. This points to the potential benefit of combining SST with other therapies, such as emotion regulation training or cognitive behavioral approaches.

The variability in intervention protocols, outcome measures, and follow-up durations across the studies also limits direct comparison and generalizability. Future research should prioritize standardized methodologies, include long-term follow-up, and explore the impact of SST in diverse populations, including those with varying levels of ASD severity and cognitive functioning.

Conclusion

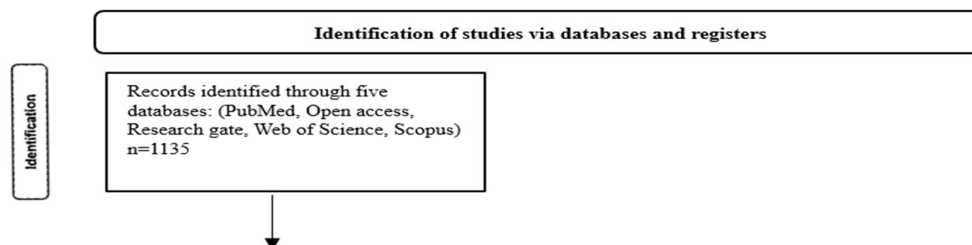
This systematic review provides robust evidence supporting the effectiveness of Social Skills Training (SST) in improving social behavior in children and adolescents with Autism Spectrum Disorder. Group-based SST programs, especially those incorporating peer interaction and parental support, appear to be particularly beneficial. While SST has demonstrated substantial gains in social communication and competence, its effects are influenced by participant characteristics, intervention delivery methods, and contextual supports. To maximize effectiveness, future interventions should be tailored to individual needs and integrated with other therapeutic approaches. Continued research with rigorous designs and long-term outcome evaluation is essential for optimizing SST's utility in clinical and educational settings.

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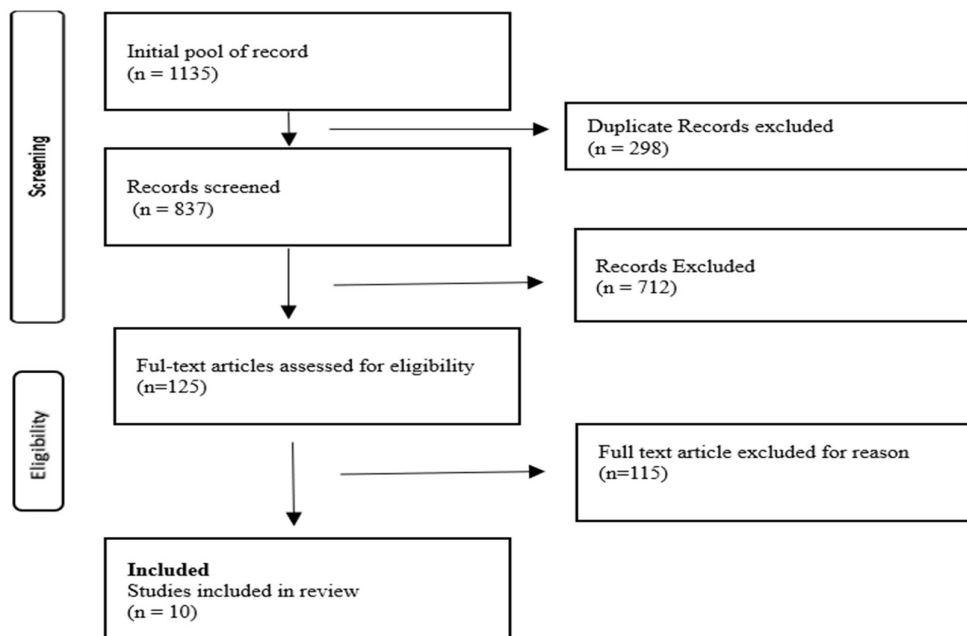
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PRISMA Flowchart of the Search Process



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Here is the literature that has been reviewed according to the inclusion criteria:

S. No.	Author (Year)	Study Design	Sample Size	Age group	Intervention Type	Key Findings
1	Christopher Lopata et al. (2010)	RCT	36	7 -12 years	Manualized social intervention	High satisfaction of parents with high-functioning autism
2	Connie kasari et.al (2011)	RCT	60	6-11 years	PEER and child-assisted approach	Significant improvement in the peer social connection for ASD
3	A. Baghdadli et.al (2013)	RCT	14	8-12 years	(SST-GP) and (LA_GP)	SST-GP had higher efficacy than the LA-GP
4	Kayoko Ichikawa et.al (2013)	RCT	11	5-6 year	(TEACCH)	High-functioning autism can develop social skills
5	Hee-Jeong Yoo et.al (2014)	RCT	47	12-18 year	PEERS a parent assisted social skill training	Showed significant improvement in social skill, interpersonal skill.
6	Matthew D. Lerner et.al (2015)	RCT	13	8-12 years	Sociodramatic affective relational Intervention and Skill streaming	Had a positive effect on interaction and reciprocated friendship
7	Ulf Jonsson et.al (2017)	RCT	50	8-17 years	Social skill group training	larger gains in social skills
8	JooHyun Lee et.al (2022)	RCT	24	7-12 year	Metaverse-Based Social Skills Training Program	Improvement in the social skill of the ASD child
9	Beihua Zhang et.al (2022)	RCT	55	4-12 years	Peer-mediated intervention	Improve overall social skills and enhance effective social communication with others.
10	Laura Maria Fatta et.al (2025)	RCT	37	12-18 year	(PEERS)	Improvement in social relation skills

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