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# A Study on the Clinical Efficacy of Psychological Treatment for Childhood Autism Spectrum Disorder

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## ABSTRACT

*Autism Spectrum Disorder (ASD) is a severe neurodevelopmental disorder characterized by social communication deficits, restricted interests, and stereotyped behaviors [1]. Psychological treatment is an important component of rehabilitation for children with ASD. This paper reviews the currently commonly used psychological treatment methods, including Applied Behavior Analysis (ABA), Treatment and Education ofAutistic and related Communication-handicapped Children (TEACCH), Social Stories, Cognitive Behavioral Therapy (CBT), Play Therapy, and Family Therapy, and discusses the efficacy and applicability of each method. With the deepening understanding of ASD and the development of evidence-based practice, psychological treatment plays an increasingly important role in improving the core symptoms of children with ASD.*

## Keywords

Autism Spectrum Disorder, Psychological treatment, Applied Behavior Analysis, TEACCH, Cognitive Behavioral Therapy.

## Introduction

Autism Spectrum Disorder (ASD) is a group of neurodevelopmental disorders characterized by core symptoms of social communication deficits, restricted interests, and stereotyped behaviors. In recent years, the prevalence of ASD has shown an upward trend. Data from the U.S. CDC in 2023 shows that 1 in 36 children is diagnosed with ASD. According to 2022 statistics from the China Disabled Persons' Federation, the number of children with ASD aged 0–18 years in China has exceeded 2 million [2]. ASD has become a major public health issue affecting children's health and family well-being.

The etiology of ASD is not yet fully understood; it is currently believed to be neurodevelopmental abnormalities caused by the combined effects of genetic and environmental factors. The core symptoms of ASD include social communication deficits, stereotyped behaviors, restricted interests, and abnormal sensory perception. These symptoms severely impair children's learning, daily living, and social adaptation abilities. As an important part of comprehensive intervention for ASD, psychological treatment aims to improve children's core symptoms and enhance their social adaptation and quality of life. This paper reviews the commonly used psychological treatment methods to provide references for clinical practice.

## Overview of Childhood Autism Spectrum Disorder

### Clinical Features

Children with ASD show high heterogeneity in clinical manifestations, with main features including: (1) Social communication deficits: lack of eye contact, difficulty understanding others' emotional expressions, trouble establishing and maintaining peer relationships, and not actively seeking to share joy or interests; (2) Delayed or abnormal language development: language development lagging behind peers, repetitive language, abnormal intonation, and difficulty understanding literal meaning; (3) Restricted interests and stereotyped behaviors: excessive attachment to specific objects or activities, insistence on fixed daily or learning routines, and strong emotional reactions to changes; (4) Abnormal sensory perception: over-sensitivity or under-sensitivity to certain sounds, textures, or lights, and seeking specific sensory stimuli.

### Diagnostic Criteria

According to the DSM-5 (Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition), a diagnosis of ASD requires meeting symptoms in two domains: A and B.A: Persistent deficits in social communication and social interaction across multiple contexts, manifested as: deficits in social-emotional reciprocity; deficits in nonverbal communicative behaviors used for social interaction; and deficits in developing, maintaining, and understanding relationships. B: Restricted, repetitive patterns of behavior, interests, or activities, manifested as: stereotyped or repetitive motor movements, use of objects, or speech; excessive insistence on sameness, inflexible adherence to routines, or ritualized patterns of verbal or nonverbal behavior; highly restricted, fixated interests that are abnormal in intensity or focus; and hyper- or hyporeactivity to sensory input or unusual interest in sensory aspects of the environment.

Symptoms must be present in the early developmental period and cause clinically significant impairment in social, occupational, or other important areas of functioning.

## Psychological Treatment Methods

### Applied Behavior Analysis (ABA) [3]

Applied Behavior Analysis (ABA) is one of the most widely used and best evidence-based intervention methods for ASD. Based on behaviorist principles, ABA shapes and reinforces target behaviors and reduces problem behaviors in a systematic and structured manner.

#### Core Principles

The core components of ABA include positive reinforcement, prompting and fading, task analysis, and chaining. Positive reinforcement refers to delivering rewards after a target behavior to increase its recurrence. Prompting and fading involve gradually transitioning from assistance to independent task completion. Task analysis breaks complex skills into smaller, teachable steps.

#### Commonly Used Techniques

Discrete Trial Teaching (DTT) is a core technique of ABA, involving one-on-one teaching trials consisting of an antecedent (instruction), response (child's behavior), and consequence (reinforcement). Natural Environment Teaching (NET) teaches skills in more natural settings. DTT is highly structured and targeted, suitable for skill acquisition; NET better promotes skill generalization and maintenance.

#### Evidence of Efficacy

Multiple randomized controlled trials and meta-analyses show that high-quality early intensive ABA intervention significantly improves language, cognitive, and adaptive behaviors in children with ASD. Many guidelines strongly recommend ABA as an evidence-based intervention. The 2020 guidelines from the American Academy of Pediatrics (AAP) recommend ABA as a core component of intervention for children with ASD.

### TEACCH [4]

TEACCH (Treatment and Education of Autistic and related Communication-handicapped Children) is a comprehensive intervention program established by Eric Schopler et al. in 1972, emphasizing structured environments and visual supports to help children with ASD understand tasks and expectations.

#### Core Elements

TEACCH structure includes physical structure (clear spatial zoning), temporal structure (visual schedules and flowcharts), work systems (clear task organization and completion markers), and visual structure (picture or text supports for comprehension). These structured strategies help children with ASD understand expectations and reduce anxiety and stereotyped behaviors.

#### Evidence of Efficacy

Studies show that TEACCH improves cognitive function, communication, and daily living skills in children with ASD. A systematic review by Probst and Balchin showed moderate effects of TEACCH on language, cognition, and adaptive behaviors. The National Autism Center classified TEACCH as an established evidence-based practice.

### Social Stories [5]

Social Stories were developed by Carol Gray in 1991 to help children with ASD understand specific social situations and expected behaviors. Social Stories use personalized narratives to describe key cues and appropriate responses in social contexts.

#### Writing Principles

Social Stories typically include descriptive sentences (describing the situation), perspective sentences (describing others' thoughts), and directive sentences (providing behavioral guidance). Stories use positive, concrete language in the first or second person, tailored to the child's language and cognitive level.

#### Clinical Application

Social Stories can be applied in various settings, such as classroom rules, social interactions, and emotion management. For example, a sharing story might include: "When a friend wants to play with my toy, I can let them take turns". Studies show that Social Stories improve social skills and reduce problem behaviors in children with ASD.

### Cognitive Behavioral Therapy (CBT) [6]

Cognitive Behavioral Therapy (CBT) is a structured psychological treatment that improves emotional and behavioral problems by identifying and modifying maladaptive thought patterns and behavioral responses. Traditional CBT is mainly used for high-functioning or older children with ASD, but adapted versions have been developed for younger or lower-functioning children.

#### Adaptations

Adaptations for children with ASD include increased visual supports (e.g., visualizing thoughts), simplified concepts, added play and activity elements, more practice and repetition, and

greater emphasis on behavioral techniques over pure cognitive work. Cool Kids is a CBT program designed specifically for ASD and has shown good efficacy in multiple studies.

### Scope of Application
CBT is especially suitable for children with ASD who have anxiety, depression, or emotional dysregulation. Studies show that CBT effectively reduces anxiety symptoms and improves emotion regulation. The National Autism Center classifies CBT as an established evidence-based practice.

### Play Therapy
Play is the natural language of children. Play Therapy promotes communication, social interaction, and emotional development in children with ASD through purposeful play activities to help them express and process emotions.

### Types and Methods
Common Play Therapy approaches include: Child-Centered Play Therapy, where the therapist follows the child's lead; Structured Play Therapy with goal-directed activities; and Floortime, developed by Greenspan, which emphasizes engaging with the child in play to promote development. The core principle of Floortime is following the child's lead to build joyful interaction and connection.

### Evidence of Efficacy
Research supports the effectiveness of Play Therapy for children with ASD. A meta-analysis by Sinah showed that Play Therapy significantly improves social and communication abilities. Floortime is classified as an established evidence-based practice by the National Autism Center.

### Family Therapy
ASD affects not only the child but also the entire family. Family Therapy promotes child development by supporting and training parents and improving family interaction patterns.

### Parent Training
Parent-mediated intervention is a key component of Family Therapy. Parents learn intervention techniques to naturally promote child development in daily life. Studies show that parent-implemented interventions improve children's language and social skills while reducing parental stress.

### Family Support
Families of children with ASD face significant psychological and financial burdens. Family Therapy also provides psychological support and coping strategies to help parents manage anxiety, depression, and burnout. A strong family support system is critical for long-term prognosis.

## Comprehensive Intervention and Future Directions
### Principles of Comprehensive Intervention
Optimal intervention for ASD is comprehensive, individualized, and evidence-based. It should include early identification and intervention, individualized treatment plans, family involvement, interdisciplinary teamwork (Acupuncture and Tuina in Traditional Chinese Medicine), and ongoing assessment and adjustment. Studies show that earlier, high-quality intervention yields better outcomes.

### Future Development Directions
Key directions for future research include identifying biomarkers predicting treatment response, developing targeted interventions for core ASD symptoms, using technology (e.g., AI and virtual reality) to enhance intervention effects, and exploring the neural mechanisms of intervention. With deeper understanding of the neurobiology of ASD, more precise and effective treatments will be developed.

## Typical Case
### Case Information
Patient XXX, male, 5 years old, presented in March 2024 with "delayed language development and social withdrawal" [7]. Since infancy, he did not respond to his mother's calls, avoided eye contact, spoke only "daddy" and "mommy" at age 2 with no further progress. After entering kindergarten at age 3, teachers reported social isolation, solitary play, refusal to join group activities, repetitive manipulation of specific toys, and extreme resistance to environmental changes.

Personal history: Full-term cesarean section, Apgar score 9 at birth, no history of asphyxia. Developmental milestones: head control at 3 months, independent sitting at 6 months, independent walking at 12 months; language development delayed. Family history: no family history of autism, epilepsy, or mental illness.

Physical examination: general condition normal, no abnormalities in cardiopulmonary or abdominal examination, no positive neurological signs. Mental status: conscious, well-oriented, poor rapport, non-verbal to questions, lack of interest in surroundings, no emotional exchange, no hallucinations or delusions.

Auxiliary examinations: (1) CARS score: 38 (>30 indicates severe autism); (2) ABC Autism Behavior Checklist score: 87; (3) Childhood Autism Rating Scale (CARS): severely abnormal; (4) Wechsler Preschool and Primary Scale of Intelligence (WPPSI): IQ = 68, borderline intellectual functioning; (5) Cranial CT/MRI: no abnormalities; (6) Electroencephalogram: no abnormal discharges.

### Diagnosis
Based on DSM-5 diagnostic criteria, combined with medical history, clinical manifestations, and auxiliary examinations, the diagnosis was: Autism Spectrum Disorder (severe).

### Treatment Plan
(1) ABA Discrete Trial Teaching: 20 hours per week, focusing on eye contact, name response, and language training; (2) TEACCH: personalized visual schedule and support system; (3) Social Stories: stories such as "A Day in Kindergarten" to improve social

understanding; (4) Sensory Integration Training: 3 times per week to improve sensory modulation; (5) Parent training: teaching parents to generalize skills at home; (6) Traditional Chinese Medicine Acupuncture and Tuina1: cun filiform needles were used for acupuncture, selecting points including: Zhi Nine Needles on the head, speech area, emotional area, Nie Three Needles, visual area seven needles, Hegu (LI4), Zusanli (ST36), Sanyinjiao (SP6), etc.Head and facial tuina therapy was applied: grasping the five meridians, pressing, kneading and tapping Baihui (GV20), Touwei (ST8), and other acupoints.

### Treatment Outcomes

After 6 months of treatment: significant improvement in name response, ability to follow simple one-step commands (e.g., "sit down", "clap hands"), CARS score decreased to 32, ABC score decreased to 65. After 12 months of treatment: simple conversational speech, brief interactions with peers, CARS score decreased to 28, ABC score decreased to 52, WPPSI IQ increased to 76. Continued rehabilitation and regular follow-up were recommended.

## Discussion

This patient represents typical childhood ASD with social deficits, delayed language, and stereotyped behaviors. Early comprehensive intervention is critical for improving prognosis. The combined ABA-TEACCH model is a widely used effective approach. Parent training and home generalization are key to sustaining treatment effects. This case also reminds clinicians to screen for autism early in children with language delay for early detection and intervention. In summary, multi-modal psychological treatment is essential for childhood ASD and worthy of clinical promotion.

### Clinical Case Analysis

### Analysis of Clinical Features

This case demonstrates typical clinical features of ASD. In social communication, the patient showed lack of eye contact, no response to name calling, and social withdrawal, consistent with core diagnostic criteria. Language development stagnated after age 2, a common presentation in ASD. Behaviorally, he showed excessive attachment to toys and resistance to change, another core feature.

Additionally, the patient had borderline intellectual functioning (WPPSI IQ 68), common in children with ASD. Intellectual levels in ASD range from intellectual disability to above average, with high heterogeneity. Thus, comprehensive, multidisciplinary assessment of cognition, language, behavior, and adaptive abilities is required.

### Analysis of Intervention Effects

After 12 months of comprehensive intervention, all assessment scores improved significantly: CARS from 38 to 28 (10-point reduction), ABC from 87 to 52 (35-point reduction), IQ from 68 to 76 (8-point increase). These results confirm the benefits of early, comprehensive, individualized intervention.

Factors contributing to good outcomes: (1) Early intervention: started at age 5, still within the critical preschool period for language and social development; (2) Comprehensive intervention: combined ABA, TEACCH, Social Stories, sensory integration, and parent training; (3) High-intensity intervention: 20 hours of weekly ABA, consistent with evidence linking intensity to efficacy; (4) Family involvement: parents participated in training and generalized skills at home.

### Prognosis Outlook

The patient achieved significant progress but requires continued rehabilitation. Prognosis depends on age at diagnosis/intervention, intellectual level, language ability, comorbidities, and family support. Favorable factors include timely intervention, high parental compliance, and good early response. Unfavorable factors include severe ASD and borderline intellectual functioning.

Continued rehabilitation, regular follow-up, and treatment adjustment are recommended. Emotional and behavioral problems should be monitored, with psychological or pharmacologic intervention as needed. Special education or resource room placement is advised for school support.

Long-term prognosis varies widely from independent living to lifelong care. Early diagnosis/intervention, higher intelligence, better language, and fewer comorbidities predict better outcomes. Sustained family and school support is essential for long-term development.

## Conclusion

Childhood Autism Spectrum Disorder is a complex neurodevelopmental disorder, and psychological treatment is a vital component of comprehensive intervention [8]. This paper reviews commonly used methods including ABA, TEACCH, Social Stories, CBT, Play Therapy, and Family Therapy, each with unique strengths and applications. Clinical practice should use individualized combinations based on the child's condition.

With advancing understanding and evidence-based practice, psychological treatment will increasingly improve core symptoms and functional development. Further high-quality randomized controlled trials are needed to develop more precise interventions and better support children with ASD and their families.

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