

• Professional Forum •

Expert Introduction



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Expert Introduction



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The "Language-Social Communication-Cognition" three-dimensional language assessment and intervention model: Clinical application of Theory of Mind in language assessment and intervention

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Abstract: This paper explores the establishment of a "Language-Social Communication-Cognition" three-dimensional model for children's language assessment and intervention, grounded in the clinical reasoning framework for broadly defined language disorders. First, it lists the common language and communication issues in children with neurodevelopmental disorders and outlines evidence-based early language intervention approaches that align with this three-dimensional model. As children enter the preschool and school-age years, this model aids in the differential diagnosis process by analyzing the distinct root causes of language disorders, autism spectrum disorder (ASD), attention-deficit/hyperactivity disorder (ADHD), and intellectual disability. Neither early language intervention approaches nor linear language intervention processes are effective in advancing the critical skills these children need for academic learning and social participation. This paper emphasizes the crucial role of "Theory of Mind" ability within the three-dimensional model during this stage and dedicates a section to its detailed elaboration. Finally, the paper proposes a narrative-based language intervention system that implements the "Language-Social Communication-Cognition" model in practice, with three dimensions advancing together and synergistically, and explains its evidence-based foundation and clinical procedures.

Keywords: broadly defined language disorders; neurodevelopmental disorders; clinical reasoning framework; language intervention model; differential diagnosis; Theory of Mind; narrative; language therapy

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1 The "Language-Social Communication-Cognition" Three-Dimensional Language Intervention Model

1.1 Clinical Application of the Clinical Reasoning Framework for Broadly Defined Language Disorders in Developmental Disorders Before the age of four, when children visit pediatric primary care, developmental-behavioral pediatrics, or psychiatric clinics, parents' chief complaints often center on concerns such as "late talking", "not talking" or "poor social communication skills". After the diagnostic and differential diagnostic workups, the most common diagnoses include: Language delay or language disorder, autism spectrum disorder (ASD), global developmental delay (with potential etiologies including rare genetic diseases like metabolic disorders, structural neurological abnormalities, and perinatal/prenatal high-risk factors), and hearing impairment.

Among these common diagnoses, according to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5)^[1], a language disorder is defined as language abilities that are significantly below age-level expectations, causing functional impairment in social contexts, while ruling out hearing impairment, intellectual disability (referred to as global developmental delay in early childhood), and other neurodevelopmental disorders like ASD. In the International Classification of Diseases, 11th Revision (ICD-11)^[2], this condition is termed "Developmental Language Disorder" (DLD). According to the DSM-5, the diagnosis of a language disorder before the age of four is not considered stable. At this stage, if language is significantly delayed, the clinical term "language delay" is often used. Approximately half of these children catch up with their peers by ages 4 - 7, but long-term follow-up is necessary, as many may still experience difficulties with narrative and reading in their school years. In addition to the language disorder defined by the DSM-5, the CATALISE international expert consensus suggests that language deficits occurring in other conditions such as ASD, global developmental delay or intellectual disability, and hearing impairment should be termed "language disorder associated with other conditions," also known as secondary language disorder. Taken together, these two categories are collectively referred to as broadly defined language disorders^[3-4].

The primary conditions underlying broadly defined language disorders require differential diagnosis; therefore, clinical history taking, assessment, and intervention cannot be limited to "whether the child has started talking" and "whether the child is speaking well". Liu et al., in the Pediatric Clinics of North America^[5], proposed a clinical reasoning framework for broadly defined language disorders (Figure 1), emphasizing that comprehensive assessment and intervention should cover the following domains:

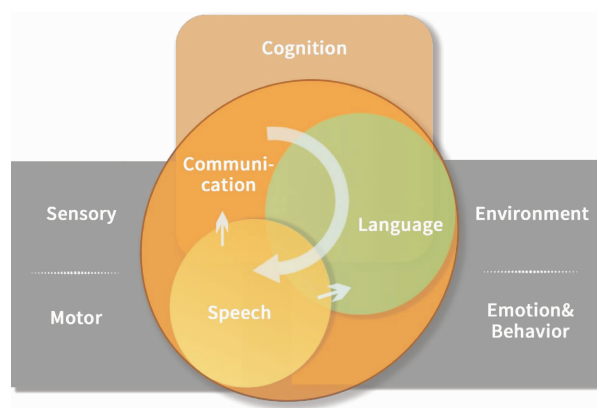


Fig. 1 Clinical reasoning framework for broadly defined language disorders

1) Social Communication Skills: Including ① Early social communication skills: a. Basic communication skills, such as prelinguistic skills: Joint attention and turn-taking. b. Communicative intent (Speech acts), such as requesting objects, requesting actions, sharing, and asking questions. ② Extension to school-age period: Development of Theory of Mind and the ability to follow appropriate social rules.

2) Language Skills: Including ① Early phonological repertoire development, use of functional vocabulary, and understanding of commands; ② Extension to school-age period: Comprehensive semantic and syntactic skills, narrative and pragmatic skills and higher-order pragmatic skills in the school years, such as understanding and using non-literal language.

3) Cognitive Skills: Including ① Early play skills, such as constructional play and symbolic play. ② Basic cognitive functions like understanding fundamental concepts. ③ Extension to school-age period: Higher-order cognitive functions in the school years, such as executive functions (i.e. memory, attention, and problem-solving skills, etc.).

4) Speech Skills: Including speech accuracy and fluency.

Simultaneously, from a holistic developmental perspective, it is essential to assess other developmental domains closely related to language, such as: Sensory Skills (auditory, visual, and overall sensory processing abilities); Motor Skills (gross motor, fine motor, muscle tone); Emotion & Behavior functioning (e.g., the presence of healthy attachment with caregivers early in life and overall emotional regulation). Finally, external factors, namely the Environment (caregivers' effective interaction, language input, parenting styles), must also be considered.

According to this clinical reasoning framework, the three core components of early language intervention for children with broadly defined language disorders before the age of 4 include: 1) Early basic communication and communicative intent skills within Social Communication Ability. 2) Early phonological repertoire, functional vocabulary use, command comprehension, and simple semantic and syntactic skills within Language Ability. 3) Early play skills and understanding of basic concepts within Cognitive Ability. At the same time, in early intervention, caregiver involvement as an external factor is particularly crucial. Therefore, evidence-based intervention methods almost universally include parent education and coaching. Evidence-based interventions in common clinical practices include: the *It Takes Two to Talk* early language intervention program for children with language delay; the Early Start Denver Model (ESDM), JASPER (Joint Attention, Symbolic Play, Engagement & Regulation) intervention, Pivotal Response Treatment (PRT), and other Naturalistic Developmental Behavioral Interventions (NDBI)^[6], as well as Applied Behavioral Analysis - Verbal Behavior (ABA-VB) training mainly for children with ASD; and the "Observe, Play, and Talk - Bethel Family Training Program" based on the Enhanced Milieu Teaching for children with language delay, global developmental delay, and ASD^[7-8]. These evidence-based early intervention models all address "Language-Social Communication-Cognition" three-dimensionally and simultaneously.

In recent years, the neurodiversity perspective has been increasingly emphasized in interventions for language disorders and related developmental

conditions^[9-10]. This perspective views neurodevelopmental differences not merely as pathological deficits but part of natural human diversity. Intervention should therefore balance functional improvement with respect for individual differences, emphasizing environmental adaptations and communication accessibility, rather than just "correcting" deviations. This perspective further supports the "Language-Social Communication-Cognition" three-dimensional model based on the clinical reasoning framework for broadly defined language disorders, which emphasizes multi-dimensional synergistic intervention and collaboration across family, school, and healthcare systems.

1.2 Clinical Challenges in Language Intervention for Preschool and School-Age Children

After the age of 6, when children visit pediatric primary care, developmental-behavioral pediatrics, or psychiatric clinics, parents' chief complaints often revolve around concerns such as "poor attention", "very poor academic performance, difficult to teach skills" or "poor social communication at school". After the diagnostic and differential diagnostic workups, the most common diagnoses include: Attention-deficit/hyperactivity disorder (ADHD), specific learning disorder (including impairment in reading, impairment in written expression, and impairment in mathematics), ASD, intellectual disability, and language disorder.

Comorbidity among these conditions is common. For example, the comorbidity rate of ADHD and language disorder is as high as 50%^[11], yet the co-occurring language disorder is often overlooked in this age group. Within specific learning disorders, reading impairment can be further divided into decoding problems and comprehension problems. It is noteworthy that comprehension problems may result either from an inability to understand text due to decoding issues, or underlying language comprehension deficits within a language disorder, requiring careful differential diagnosis.

In China, common treatments and interventions for these children, aside from medication for ADHD, include: Parent behavior management training for children with ADHD, reading intervention for children with reading impairment, writing intervention including occupational therapy for children with writing impairment, and intervention for higher-level social skills for children with high-

functioning ASD (e. g. social thinking training). However, a substantial proportion of these children have a comorbid language disorder and also require systematic assessment and intervention.

In addition, it is worth noting that a common challenge in clinical practice is that traditional behaviorally based language interventions often reach a bottleneck once children begin producing phrases or simple sentences. To solve this clinical problem, we must first debunk a common misconception: That language intervention is linear—that is, teaching long sentences and later longer sentences to those at the short-sentence stage, and from two-picture stories, progressing to three-picture stories, and eventually to full narratives. This intervention process seemingly follows the trajectory of normal language development, but in clinical practice, it yields minimal results for children with neurodevelopmental disorders in this stage. For children with broadly defined language disorders, integrated interventions that target early language, social communication, and cognition—such as the Early Start Denver Model (ESDM) or traditional ABA-VB approaches—may help children progress from "nonverbal" or "late talkers" to using short phrases and sentences. The goal is to build the rich semantic and syntactic knowledge needed for social communication and learning in preschool and school settings, such as supporting narrative skills, reading, and writing. Merely teaching longer sentences and stories with more pictures through behavioral methods only achieves rote memorization. These children still fail to generalize complex sentence structures and narrative skills in school and daily life. For language intervention at this stage, it is still necessary to first establish the multi-dimensional "Language-Social Communication-Cognition" model from the clinical reasoning framework to support differential diagnosis. Subsequently, individualized and multidimensional intervention plans should be designed and implemented according to the underlying and derivative problems identified for each specific diagnosis.

1.3 Proposing the "Language-Social Communication-Cognition" Three-Dimensional Language Assessment and Intervention Model for Preschool and School-Age Children Based on the Clinical Reasoning Framework According to the clinical reasoning framework, the "Language-Social Communication-Cognition" three-dimensional model for children

aged 3 - 4 years and older who have started talking and can use phrases and short sentences, language skills are no longer centered on understanding simple commands and using functional vocabulary, but rather on enriching comprehensive semantic and syntactic skills and the ability to use diverse sentence structures for social communication. Cognitive skills also must extend beyond play skills and basic concept understanding to include sustained attention and higher-order cognitive functions, particularly executive functions. Similarly, social communication skills need to progress beyond early skills such as eye contact and joint attention. The development of Theory of Mind (ToM) ought to become central at this stage. Narrative and pragmatic skills are the integrated manifestation of these "Language-Social Communication-Cognition" skills in both learning and social participation contexts. Children with language disorders, ADHD, ASD, or intellectual disability may all exhibit deficits in narrative and pragmatic skills during their preschool and school years. Differential diagnosis requires a detailed analysis of which domain(s) within the "Language-Social Communication-Cognition" model underlie these deficits. However, in the medical community, there is currently a lack of systematic analysis and discussion on ToM, from its theoretical foundations to clinical applications—for example, the developmental trajectory of ToM skills, how ToM and cognition influence each other, and the core function of ToM in the social use of language, especially in narrative, reading, and writing. The second part of this article will focus on ToM from theory to clinical application.

2 Theory of Mind Within the "Language-Social Communication-Cognition" Triad: Theory and Clinical Applications

2.1 Origins of the ToM Construct The idea that children develop a "Theory of Mind" has been widely discussed in developmental psychology for about forty years^[12]. Theory of Mind refers to our tendency to predict and explain others' behavior on the basis of their internal workings: Their feelings, intentions, desires, attitudes, beliefs, knowledge and point of view. Take an everyday example in which we see a person doing something foolish, such as pouring orange juice in his coffee. We understand it by saying, "Oh, he thinks

that carton is the milk!" We need to talk about the person's mental state, in this case a false belief, to explain the aberrant behavior. When do children begin to think like us about others' mental states like false beliefs? Meta-analyses find astonishing convergence across hundreds of studies that false beliefs are understood by children at around 4 - 5 years of age^[13-14].

2.2 The Developmental Course of ToM But Theory of Mind development is a long path that begins in early infancy. Certain types of Theory of Mind skills reliably precede others in a well-documented progression, which culminates in false belief understanding and even higher order developments like intentional deception^[15].

2.2.1 Infancy Infants notice the difference between purposive action and action that is accidental or unintended^[16-17]. Among the first things babies become attuned to is someone's goal behavior, and babies as young as a year might even help someone get what they are trying to reach. In the first year of life babies learn to follow someone else's pointing to an object^[18]. They also learn to "share attention", looking back and forth between the object and the other person to check the line of their gaze. This stage has been considered crucial for word learning, because it helps to anchor the sound of a word to a possible referent^[19]. In the absence of shared attention, a word could mean an infinity of different things in the environment^[20].

2.2.2 Two-year-old stage By two years of age, children attend to other people's approach, avoidance, and reactions of liking or distaste^[21-22]. Children learn and use the word *want* from an early age, first to express their own desires, and later to capture their observations of others^[23]. An equally critical manifestation is in the domain of symbolic or pretend play. When children appreciate that others can hold intentions or emotions that diverge from their own, they begin to coordinate imaginative roles (e. g. , "you be the doctor, I'll be the patient") and later even negotiate alternative perspectives within play^[24-25].

2.2.3 Three-year-old stage Around three years of age, children become aware of the possibility that other people might not have seen the same thing that they saw. They become increasingly aware of what someone else might have seen, heard, or touched, and use that to figure out what

that person knows^[26].

All of these observations are used by the child to build a model, a theory, of what makes people act the way they do. It is a slow development that seems to arise in stages, and the evidence so far suggests it may be a universal pattern^[27]. This is what psychologists mean by saying the child is building a theory of other minds: Attending to their intentions, their feelings, their desires, their sensory experiences, and their knowledge. The theory that children build is rooted in observations of behavior, but aided greatly by hearing the words that caregivers use to highlight the inner states^[28].

Forty years ago, the first studies found that young children do not seem to grasp others' false beliefs^[11]. A commonly used task for children is about unexpected contents, in which children see a familiar container, perhaps one that usually holds their favorite candy^[29]. They are asked what they think is inside, and when they say "candy", the box is opened to reveal something unexpected, like pencils. When asked "what did you first think was in the box?", children aged 3 or 4 often will not admit that they ever thought candy was in the box. When asked what a new person will think is in the box when they first see it, the young child will say the person will think pencils are in it. It is as if the new knowledge of the child has replaced belief, and that idea cannot be retrieved.

A second classic task is about unseen displacement^[30]. The child watches one person puts an object, say a ball, in a basket, then leaves. A second person moves the ball to a new location, perhaps into a box, then leaves. The first person comes back, and the child is asked where the person will first look for the ball. As adults, we predict that they will look in the place where they put it, that is in the basket. But again, once a young child knows the real location of the ball, they cannot recover the false belief. They predict that the person will look in the box.

2.2.4 Four to five-year-old stage When the child passes the false belief tasks at age 4 or 5^[13], it is evidence that they can separate what they themselves know from what someone else might believe. They can distinguish between reality in the shared world, and the world that someone else has created, a world that might be temporarily wrong. Since the 1980s, there have been hundreds

of careful studies using a very wide range of tasks and materials. The studies extend across widely divergent cultures and conditions of child rearing^[14].

2.3 Impacts of ToM Development on Language, School Social Interactions, and Education If the child does not develop an adequate Theory of Mind, what are the consequences? In the early stages, a child who fails in the area of joint attention will have great difficulty linking sound to meaning, and therefore learning words^[31]. Children with limited awareness that other people can have different intentions and desires often fail to produce pretend play that involves imagining others' ideas^[32-33]. Children who cannot judge others' intentions or desires, or fail to consider emotional reactions, will not be able to join their peers in play or be out of step with the people around them in many ways. As children get older, their social relationships outside the family, with peers and teachers, are increasingly important, and children with poor Theory of Mind skills can be victims of teasing and bullying^[34] and be less able to negotiate friendships^[35].

Educationally, Theory of Mind development also has implications for how children succeed in school. A central part of early schooling is the achievement of literacy, which in turn rests on the ability to understand and produce oral narratives^[36]. Telling a narrative is a considerable accomplishment for a young child, as it draws on both their understanding of the world and complex language. In narrative, the child must plan a much larger sequence and keep it complete and coherent. Even when the plot is sensible, the stories of preschool children are based on what Jerome Bruner^[37] called the "landscape of action". They describe the physical events that happened, in a rough sequence. With the development of ToM, children begin to talk about the reasons why the characters acted, what their motives were, what they wanted, expected, and what they were thinking. Bruner called this the "landscape of consciousness", and this is the manifestation in talk of the child's developing theory of mind. To tell an adequate story, the narrator needs to give the characters goals, intentions, desires, emotions, and beliefs. They have to be animated as human figures with minds in addition to actions. This is a profound change, and opens the door to new academic horizons in literacy.

2.4 Clinical Significance of ToM The importance of theory of mind in clinical groups is also well documented. ToM is also a key component in the "language-social communication-cognition" three-dimensional model. It has been established that children on the autism spectrum may have particular difficulties with theory of mind^[32], and some continue to fail the classic tasks even into adolescence^[38]. The more severely affected children are also more likely to have trouble with reading faces, understanding emotions, and understanding joint attention^[32]. For children with high functioning ASD, persistent difficulties with second-order belief, irony/sarcasm, deception, and faux pas comprehension undermine the interpretation of subtle intentions and social norms, which in turn severely affects friendship quality, conflict resolution, and classroom participation. These ToM difficulties can shape hallmark ASD symptoms in social communication/pragmatics, peer relations, adaptive functioning, and academic discourse, amplifying challenges beyond a single, unitary deficit.

Other children with delayed language but normal cognition, for example some children with hearing impairment^[39], or language disorders not linked to ASD such as developmental language disorder^[40], have particular difficulty with the stage of false beliefs, suggesting that language may be critical for this step. Children with DLD exhibit difficulties in complex syntax and pragmatic language use that limit their ability to represent multiple perspectives simultaneously, a cornerstone of false-belief reasoning.

In addition, children with ADHD display difficulties in "executive function" skills^[41] and emotional regulation, resulting in difficulties in false belief tasks that demand sustained concentration^[42]. Also, well-documented executive function vulnerabilities—particularly working memory, response inhibition, and cognitive flexibility—limit children's ability to hold in mind conflicting representations (what I know vs. what the other believes), inhibit prepotent reality-based responses, and flexibly shift between perspectives during belief reasoning^[43-45]. Further, ADHD is frequently associated with pragmatic language vulnerabilities such as reduced sensitivity to subtle mental-state cues, irony, or conversational implicatures, which further predict variance in ToM beyond core EF

deficits.

3 Clinical Practice of the "Language-Social Communication-Cognition" Three-Dimensional Model for Preschool and School-Age Children

3.1 Clinical Process Step 1 is diagnosis and differential diagnosis. First, within the diagnostic and differential diagnostic process, the child's most core domain of difficulty must be identified by conducting clinical interview and observation guided by the "Language-Social Communication-Cognition" three-dimensional model for preschool and school-age children (Figure 2). For children with language disorder, ASD, ADHD, and intellectual disability, although the parents' chief complaints may include "poor narrative skills in kindergarten, can't get to the point across when telling things, poor social skills", the underlying problems differ across disorders: For language disorder, the root problem often lies in semantic and syntactic language difficulties; for ASD, the primary challenge are social communication issues particularly related to ToM; for ADHD, the core difficulties often center on attention and executive functions within the cognitive domain; and intellectual disability, the root problem is usually basic and broad cognitive function issues such as basic concepts, which in turn affect semantic and syntactic abilities, ToM, and executive functions, although these are usually not the primary causes. The challenge in differential diagnosis is that all these root problems affect other areas. Moreover, a child may have comorbidities, meaning that multiple areas may be the underlying issues simultaneously. Nevertheless, an important clue in the differential diagnosis process is that the most prominent and troubling issues reported by parents often point to the root problem. Finally, the differential diagnosis must also consider other relevant domains within the clinical reasoning framework beyond "Language-Social Communication-Cognition," such as speech skills, sensory skills, motor skills, emotion/behavior functioning, and environment.

In the diagnostic and differential diagnostic process, assessments within the "Language-Social Communication-Cognition" three-dimensional model includes:

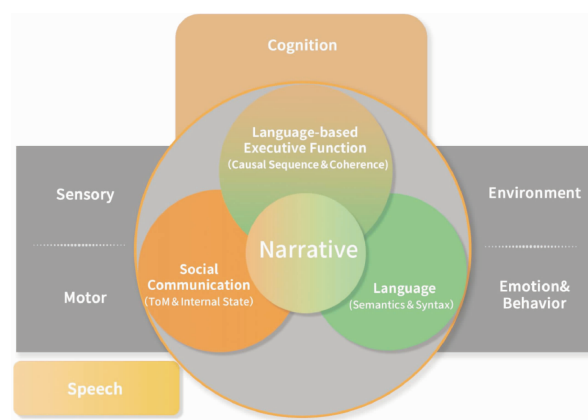


Fig. 2 "Language-Social Communication-Cognition" three-dimensional model for preschool and school-age children

1) In language, assessments focusing on semantic and syntactic abilities should include standardized assessment tools such as the *Diagnostic Receptive Expressive Assessment of Mandarin - Comprehensive* (DREAM-C)^[46] combined with non-standardized interactive evaluations. In addition, children's narrative and pragmatic abilities should be assessed in detail. Common tools include the *Frog, Where Are You? Narrative Retell Protocol* (FWAY), the *Multilingual Assessment Instrument for Narratives* (MAIN), and the *Mandarin Expressive Narrative Test* (MENT)^[47].

2) In social communication, in addition to early basic social communication skills such as joint attention, the assessment of ToM ability is crucial. The most commonly used measures include classic false-belief tasks such as "unseen displacement" or "unexpected contents". The MENT simultaneously assesses a child's narrative skills and ToM abilities, covering three important levels in the developmental trajectory of ToM, including understanding false belief.

3) In cognition, beyond early cognitive play skills, assessments should include basic cognitive function, executive function, and attention. Assessments commonly used clinically include the Wechsler Intelligence Scale for Children (WISC), Cognitive Assessment System - Second Edition (CAS2), Behavior Rating Inventory of Executive Function, Second Edition (BRIEF-2), and Conners Continuous Performance Test, Third Edition (Conners CPT-3). In executive function assessment, narrative tasks can evaluate a child's language-based executive functions. For example, in

the MENT, the story grammar section reveals organization and planning skills through the causal and temporal sequence of the plot, while character management and the macro-coherence of the story reflect the child's working memory, cognitive flexibility, and ability to inhibit irrelevant information.

Step 2 is to formulate a clear, individualized "Language-Social Communication-Cognition" three-dimensional intervention plan based on the child's diagnostic and differential diagnostic results. At this stage, narrative and pragmatic ability reflects the child's integrated function across these three dimensions. Moreover, research shows that narrative-based language training can organically weave together training in language, social communication, and cognition to form a multi-dimensional, progressive, and alternating intervention path.

3.2 Evidence-Based Support It is increasingly well-documented that language aids in guiding the child towards a Theory of Mind, for intentions, desires, sensory experiences, and knowledge^[48]. But it may play an especially important role in helping to separate false beliefs as anomalies. Surprisingly, it is not so much the words as the grammar. Words like *want*, *see*, *know*, may help organize the child's multitude of observations of the world into concepts. But *think* and *believe* introduce a new complexity, because they introduce further clauses that can be false^[49]. Children's ability is tested on complex sentences that contain false clauses, such as this one from the DREAM assessment for Mandarin^[46]: *The girl thought she found her slipper, but it was really a mouse under the bed. What did the girl think she found?* Note that to answer, the child must ignore what they know and answer "her slipper". Children who cannot answer these questions usually cannot pass false belief tasks. The result has also been found for deaf children^[50] for children with ASD^[51] and those with DLD^[52]. Further research has indicated that training children to understand embedded complement clauses with verbs such as "say/think" improves both syntax and false-belief understanding^[53]. Parent-implemented rich mental-state storybook interactive reading promotes ToM generalization.

At the same time, children with strong ToM produce narratives with proper mental-state language, clear causal-motivational links, and good

global coherence. ToM uniquely predicts narrative quality beyond general language level^[54-55]. Training that targets mental-state talk and relevant syntax has been shown to improve both ToM and narrative competencies, underscoring their reciprocal development^[56].

Narrative-based language intervention, especially dialogic shared reading that incorporates mental state language and prompting questions, can simultaneously engage sustained attention and executive functions in real communicative contexts. During storytelling, children must maintain and update information about events and characters (working memory), inhibit off-topic and reality-based automatic responses to stay on track (inhibitory control), and flexibly shift perspectives and causal relationships between multiple characters or timelines (cognitive flexibility), thereby ensuring the causal coherence and overall consistency of the narrative^[57-58].

Therefore, language training integrating the various micro and macro components of narrative can simultaneously promote executive functions (planning and sequencing, working memory, inhibitory control, and cognitive flexibility), Theory of Mind (especially false-belief reasoning), and higher-level language (discourse comprehension and summary, overall coherence, causal connections, character management), as well as the structure and coherence of written narratives in school-age children, thereby supporting the transfer to literacy skills. This evidence further supports the multidimensional synergy emphasized in the "Language-Social Communication-Cognition" intervention model. The Dream TALK-N (Training of Acquisition of Language and Knowledge-Narrative) language training program is an example of a system based on this three-dimensional intervention model. This narrative-based language intervention paradigm proceeds with alternating and progressive interventions across several modules: "Semantics and syntax" (language), "Theory of Mind" (social-communication), and "Reference and time coherence" (cognition especially language-based executive function), and "Narrative Integration" (integration of language, social communication and cognition skills).

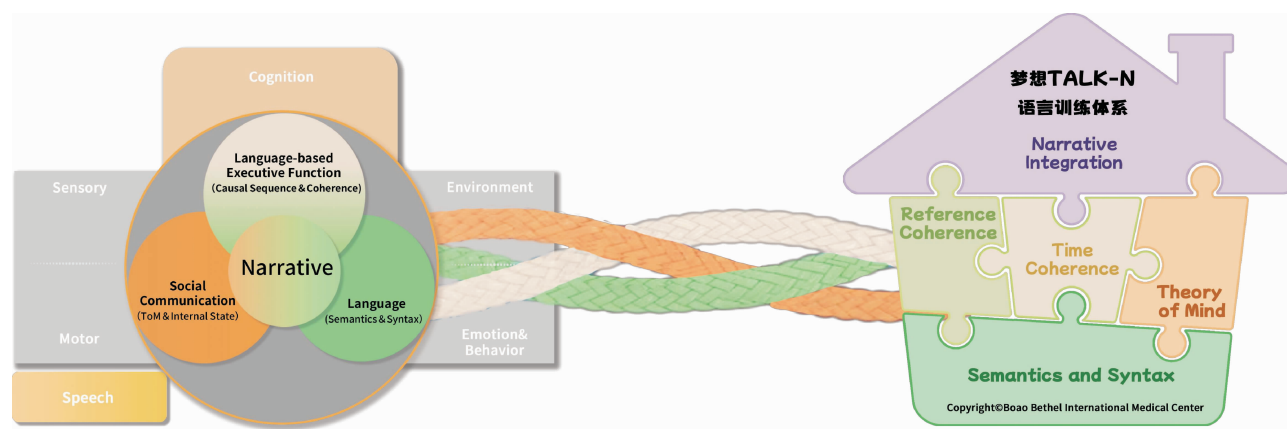


Fig. 3 DREAM TALK-N (Training of Acquisition of Language and Knowledge-Narrative) language training model

4 Conclusion

The clinical reasoning framework, the "Language-Social Communication-Cognition" three-dimensional language assessment and intervention model is supported by a substantial body of clinical research evidence. It not only provides evidence-based interventions for infants and toddlers — such as the "Observe, Play, and Talk-Bethel Family Training Program", but also subverts the ineffective, linear approaches to language intervention for preschool and school-age children who have persistent language and social communication difficulties. Instead of simply focusing on increasing sentence length or story picture complexity, this model integrates syntax, Theory of Mind, and language-based executive functions, forming a multidimensional, systematic, and progressive narrative-pragmatic language intervention framework that prepares children for academic language use and deeper social communication required in school settings. However, this model must be viewed within the broader clinical reasoning framework, as many children present with complex profiles beyond the three core domains, including multiple factors such as motor skills, sensory processing, and emotional/behavioral issues. These situations often require multidisciplinary collaboration (e.g., cooperation among developmental-behavioral pediatrics, speech-language therapy, psychology/neuropsychology, audiology, occupational/physical therapy, and education).

Secondly, a gap in awareness and implementa-

tion still exists across different systems (medical, school, family): ToM and narrative-pragmatic assessments and interventions need greater integration into healthcare and education systems, and capacity building for physicians, therapists, and teachers remains a priority.

Finally, future research should focus on promoting: 1) How artificial intelligence and digital technologies can empower language assessment and intervention within the "Language-Social Communication-Cognition" model; 2) Advancing intervention research for children with developmental disorders such as DLD, ASD, ADHD, and hearing impairment. This should incorporate neurodiversity perspectives, recognizing individual differences and communication preferences as integral to intervention design, avoiding one-size-fits-all goals, and promoting personalized and inclusive language intervention and education; 3) Establishing a closer longitudinal connection between language and literacy development—building a bridge from syntax, Theory of Mind, and narrative ability to reading comprehension, written expression, and academic language; 4) Exploring a hybrid intervention model that combines "home training with professional intervention", for example, by integrating natural interactions in family settings with structured training by professional therapists through parent coaching, dialogic reading, and AI-assisted language training games, to achieve true integration and generalization of the "Language-Social Communication-Cognition" three dimensions.

专家介绍



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专家介绍



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“语言-社交沟通-认知”三维度语言评估干预模式—— 心智解读理论在语言评估和干预中的临床应用

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摘要: 探讨基于广义语言障碍临床思考框架建立的“语言-社交沟通-认知”三维度儿童语言评估与干预模式。首先,梳理神经发育性障碍儿童的常见语言与沟通问题,列举了符合三维度模式的循证早期语言干预体系。随着儿童进入学龄前期和学龄期,在鉴别诊断的过程中通过此模型分析出语言障碍、孤独症谱系障碍、注意缺陷多动障碍、智力障碍等不同根源问题。早期语言干预体系和单线的语言干预流程都不能有效推进儿童在学校学习和社交所需的关键技能。本文强调了三维模型中的“心智解读”(Theory of Mind)能力在这一阶段的重要作用,并专设章节进行详细阐述。最后,提出了将“语言-社交沟通-认知”三维度模式落实于实践的基于叙事的,三个维度协同推进的语言干预体系,并阐述了其循证基础和临床流程。

关键词: 广义语言障碍;神经发育性障碍;临床思考框架;语言干预模式;鉴别诊断;心智解读;叙事;语言训练

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1 “语言-社交沟通-认知”三维度的语言干预模式

1.1 广义语言障碍的临床思考框架在发育性疾病中的临床应用 儿童4岁之前,在儿童保健科、发育行为儿科和精神科就诊时,家长主诉聚焦于“开口晚”、“不开口”、“社交沟通能力差”等,经过诊断和

鉴别诊断后,最常见的诊断结果包括:语言发育迟缓或语言障碍、孤独症谱系障碍(autism spectrum disorder, ASD)、全面发育迟缓(病因可能涉及包括遗传代谢疾病在内的罕见基因病、神经系统结构异常及围生期和产前高危因素等)以及听力障碍等。

这些常见的诊断中,根据《精神障碍诊断与统计

手册(第 5 版)》(Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, DSM-5)^[1], 语言障碍是指语言能力显著低于同龄水平并造成社交功能受损,同时需排除听力障碍、智力障碍(早期为全面发育迟缓)和 ASD 等神经发育障碍。在《国际疾病分类第十一版》(International Classification of Diseases, 11th Revision, ICD-11)^[2]中,该障碍被称为“发育性语言障碍”(developmental language disorder, DLD)。根据 DSM-5,在 4 岁以前语言障碍诊断不够稳定。此阶段若语言明显落后,临床上多使用“语言发育迟缓”。约半数患儿能在 4~7 岁时追赶同龄,但仍需长期随访,因为其中多数在学龄期仍可能出现叙事与阅读困难。另外,除 DSM-5 所界定的语言障碍外,CATALISE 国际专家共识提出,对 ASD、全面发育迟缓或智力障碍、听力障碍等其他疾病中出现的语言功能缺损,应称为“与其他障碍相关的语言障碍”,又称继发性语言障碍。两者合并被称为广义语言障碍^[3-4]。

广义语言障碍的原发疾病需要进行鉴别诊断,因此其问诊、评估和干预就不能仅限于“开口”和“说话”。刘雪曼等^[5]在《北美儿科学杂志》中提出广义语言障碍的临床思考框架(见图 1),强调全面的评估和干预应该覆盖以下方面:

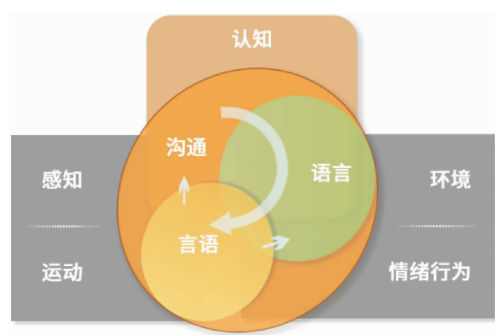


图 1 广义语言障碍的临床思考框架

Fig. 1 Clinical reasoning framework for broadly defined language disorders

1) 社交沟通能力:包括 ①早期的社交沟通能力:a 基本沟通能力,比如常见语前技能:共同关注,轮流;b 沟通动机能力,比如要求物品,主动要求动作,分享,提问题等;②延伸到学龄期的社交沟通能力:心智解读能力和遵守恰当社交规则能力;

2) 语言能力:包括①早期音库建立,以及早期功能性词汇使用和指令理解;②延伸到学龄期的语言

能力:语义和句法综合能力,叙事语用能力和更高阶的语用能力,比如言外之意的理解和运用等;

3) 认知:包括①早期玩耍技能,比如建构性玩耍技能和象征性玩耍技能等;②基本概念理解等基本认知功能;③延伸到学龄期的更高阶的认知功能,比如执行功能中的记忆力、专注力、解决问题能力等。

4) 言语能力:包括口语发音的清晰度和流畅度。

同时,从整体发育的角度还必须同时评估与语言紧密相关的其他发育,比如:感知(听觉、视觉和整体的感觉处理能力等)、运动(大运动,精细运动,肌张力等);情绪行为(比如是否在早期与照护者形成了健康的依恋关系,以及整体的情绪调节能力等)。最后,还需要考虑外部因素,即环境(照料者的有效互动与语言输入和照料者的带养方式等)。

根据这个临床思考框架,针对 4 岁前患有广义语言障碍儿童的早期语言干预最核心的 3 个部分是:1) 社交沟通能力中的早期基本沟通能力和沟通动机能力;2) 语言能力中的早期音库建立,功能性词汇运用和指令理解,以及一些简单语义和句法能力;3) 认知能力中的早期玩耍技能和基本概念理解能力。

同时,早期干预中的外部因素,即照料者尤为重要。所以循证的干预方法基本都包含家庭教育和家庭指导。临床常见的循证干预方法包括:适合语言发育迟缓儿童的 It Takes Two to Talk 早期语言干预项目;主要适合 ASD 儿童的早期丹佛模式(Early Start Denver Model, ESDM)、JASPER (Joint Attention, Symbolic Play, Engagement & Regulation) 干预、关键反应干预(Pivotal Response Treatment, PRT)等自然情境发展行为干预(Naturalistic Developmental Behavioral Interventions, NDBI)^[6],以及应用行为分析-语言行为(Applied Behavioral Analysis - Verbal Behavior, ABA-VB)训练等;适合语言发育迟缓、全面发育迟缓、ASD 儿童的基于强化式情景干预法(Enhanced Milieu Teaching)的“同看同玩同说家庭训练”^[7-8]。这些循证的早期干预模式都是“语言-社交沟通-认知”三维同时进行的。

近年来,神经多样性(neurodiversity)视角在语言障碍及相关发育性障碍的干预中被广泛强调^[9-10]。这一视角认为,神经发育差异并非单纯病理缺陷,而是多样性的一部分,干预应兼顾功能提升与尊重个体差异,关注环境适配与沟通可及性(communication accessibility),而不仅仅是“纠正”偏差。

这也进一步支持基于广义语言障碍临床思考框架的“语言-社交沟通-认知”三维模型强调多维度协同促进与家庭-学校-医疗系统的合作。

1.2 学龄前期和学龄期儿童语言干预的临床挑战

儿童 6 岁之后,到儿童保健科、发育行为儿科或精神科就诊时,家长主诉聚焦于“注意力不集中”、“学习差,教不会”、“学校社交沟通不好”等,经过诊断和鉴别诊断后,最常见的诊断结果包括:注意缺陷多动障碍 (attention-deficit/hyperactivity disorder, ADHD)、特定学习障碍(包括伴有阅读障碍,伴有书写障碍和伴有计算障碍)、ASD、智力障碍和语言障碍等。

这些诊断中常常会有共病,比如 ADHD 和语言障碍的共病率高达 50%^[11],但是语言障碍的共病往往在这个年龄段容易被忽视。特定学习障碍中阅读障碍又分为解码问题和理解问题。需注意的是,理解问题有可能是因为解码问题而看不懂文字导致的,也可能是因为语言障碍的语言理解问题导致的,需要进行鉴别诊断。

针对这些患儿,我国现有常见的治疗和干预方法除了针对 ADHD 儿童的药物治疗之外,还包括:针对 ADHD 儿童的家长行为管理培训、针对阅读障碍儿童的阅读干预、针对书写障碍儿童的作业治疗等书写干预,以及针对高功能 ASD 儿童的高阶社交能力的干预(如社交思维训练)等。然而,这些患儿中很大一部分共病语言障碍,也需要语言障碍的评估和干预。

另外,值得关注的是,临床中常见的一个难点,即儿童短语或简单句表达出来之后,传统的以行为教学为主的语言干预遇到瓶颈。要解决这个临床问题,首先要击破一个常见的误区:即语言干预是线性的——语言干预就是给这些短句阶段的儿童教长句和更长的句子,同时从两图故事过渡到三图故事,最后就会讲完整的故事。这个干预流程看似跟随了儿童的语言发育历程,其实在临床实践中对这个阶段患神经发育性疾病的儿童却收效甚微。对于患有广义语言障碍的儿童,在早期发育的过程中或经过早期语言-社交沟通-认知玩耍协同干预后,如早期丹佛模式、传统 ABA-VB 干预等,能够从“不开口”或“开口晚”发展到使用短语和短句进行表达。针对提升儿童在幼儿园和学校社交沟通和学习中所需要的丰富的语义和句法能力,帮助儿童进行更复杂的语言社交使用,比如叙事,以及准备儿童在学龄期需要

的阅读和书写能力等,仅通过行为教学教更长的句子或更多图的故事对广义语言障碍的患儿常常只达成了机械的记忆,他们仍然在幼儿园/学校和生活中不能泛化丰富的句式和叙事等技能。对于处于这个阶段儿童的语言干预,还是要先依据广义语言障碍临床思考框架建立“语言-社交沟通-认知”多维度模型来辅助鉴别诊断,然后根据诊断出的不同病种的根源问题和衍生问题来设计实施多维度个性化的干预方案。

1.3 根据临床思考框架提出学龄前期和学龄期儿童“语言-社交沟通-认知”三维语言评估干预模式

据临床思考框架形成的“语言-社交沟通-认知”三维模式,对于 3~4 岁以后已经开口,可以说短语和短句的儿童来说,语言能力不再停留在理解指令和运用功能性词汇,而是丰富语义和句法的能力,以及使用不同句式进行语言社交使用的能力;认知能力不再只是游戏玩耍能力和基本概念理解等基本认知能力,还延伸到专注力和高阶的认知功能,包括执行功能;社交沟通能力,也不再只是早期的目光对视和共同关注等能力,而心智解读(Theory of Mind, ToM)能力的发展是这个阶段的核心。叙事语用能力又是这些“语言-社交沟通-认知”能力在学习和社交中的综合体现。语言障碍、ADHD、ASD 和智力障碍等患儿都可能在幼儿园和学龄阶段表现出叙事语用能力的缺失。鉴别诊断需要详细分析缺失最根源的问题在“语言-社交沟通-认知”的哪个或哪些环节。然而,医学界目前关于心智解读从理论基础到临床应用的系统性分析仍较缺乏,例如:心智解读能力发育的历程、心智解读能力和认知之间如何互相影响,以及心智解读能力在语言的社交使用,特别是叙事、阅读和写作中的核心功能。本文的第二部分会侧重于心智解读的理论到临床应用。

2 “语言-社交沟通-认知”三维度中的心智解读-理论和临床应用

2.1 心智解读理论的提出

儿童会发展出心智解读能力的观点在发展心理学领域已经被研究了约 40 年^[12]。所谓心智解读,是指个体倾向于基于他人的内在心理状态(包括情绪、意图、愿望、态度、信念、知识以及视角)来预测和解释他人的行为。例如:当看到一个人做了某种出乎意料的事情,如把橙汁倒进咖啡,成人通常会这样解释:“哦,他以为那盒是牛奶!”而这个解释必须谈论这个人的心理状态,具体

而言,是一种“错误信念”,才能解释这种异常的行为。

儿童究竟在什么时候才会开始像成人一样,能够依据他人的心理状态(如错误信念)进行推理?综合多项研究的元分析发现,在几百项实验中都呈现出惊人的一致性:儿童大约在 4~5 岁左右才真正能够理解错误信念^[13-14]。

2.2 心智解读遵循一个发育历程 心智解读的发展是一个自婴儿早期便已开始、逐步展开的漫长过程。某些类型的心智解读技能会稳定地先于其他技能出现,并遵循一个被大量研究所证实的、较为固定的发展进程^[15]。心智解读能力的发展最终会达到对错误信念的理解,甚至进一步发展至更高阶的心智功能,如有意的欺骗行为。

2.2.1 婴儿期 婴儿能够区分有目的的动作与偶然或无意的动作^[16-17]。婴儿最早开始关注的事物中就包括他人具有目的性的行为。甚至在 1 岁时,就可能帮助大人去拿他们试图伸手要去够的目标物。此时,婴儿还学会跟随他人手指方向去看某个物品^[18]。婴儿会逐渐掌握“共同关注”,即在物体与他人之间来回注视,以确认他人的注视方向。这一发展阶段对词汇习得至关重要,因为它帮助儿童把一个词的声音锚定到一个可能指称的物品上^[19]。如果缺乏共同关注,一个词可能对应环境中的无数潜在对象^[20]。

2.2.2 2 岁阶段 2 岁时,儿童会注意到他人的接近、回避,以及喜好或厌恶的反应^[21-22]。儿童很早就学会并使用“想要”一词,最初用来表达其愿望,随后也用来描述他们对他人的观察^[23]。同样重要的是,这一阶段儿童在象征性或假扮游戏领域也出现了显著变化。当儿童开始理解他人可能拥有与自己不同的意图或情绪时,他们便能在游戏中安排想象角色(如,“你当医生,我当病人”),并逐渐发展到后期在游戏中协调不同角色的视角想法^[24-25]。

2.2.3 3 岁阶段 3 岁时,儿童逐渐意识到别人可能没有看到自己所看到的東西。他们愈加能够推断别人可能看过、听过或触摸过什么,并以此来判断那个人知道什么^[26]。

所有这些观察经验,都会被儿童用来逐渐建立一个“解读模型”,即一种关于人们为何会如此行动的心理理论。这个模型建立是一个缓慢的发展过程,似乎是分阶段出现的,现有证据表明它是儿童的一种普遍的发展模式^[27]。这就是心理学家所说的

“儿童在建构他人心智解读的理论”:即学习关于他人的意图、感受、欲望、感官经验和知识。这个建构过程源于对行为的观察,但是听到照护者对心理状态的语言标记会大大推动其发展^[28]。

大约 40 年前,最早的研究发现幼儿似乎并不能真正理解他人的错误信念^[11]。一个常见的实验是“意外的物品”任务:研究人员让儿童看到一个熟悉的容器,例如一个通常装有他们最喜欢的糖果的盒子^[29]。当被问到里面是什么时,儿童会回答“糖果”;但当盒子被打开,显示里面实际上是铅笔时,研究人员接着追问:“你一开始觉得里面是什么?”3 岁或 4 岁的儿童往往会矢口否认自己之前认为里面是糖果。进一步,当被问到“另一个第一次看到盒子的人会觉得里面是什么”时,儿童会回答“铅笔”。就好像儿童的新知识取代了原先的信念,而这些信念想法无法被儿童再想起。

另一个经典实验是“未见的转移”任务^[30]。在实验中儿童看见:第一个人把一个物品(如球)放进篮子里之后就离开了。接着第二个人将球移到新的位置,比如盒子里,然后也离开了。当第一个人回来时,研究者问儿童:这个人会先去哪里寻找球?成年人会预测:他会去篮子里找,因为那是他自己放球的位置。但 4 岁以前的儿童一旦知道球的真实位置,就无法再回溯错误信念,他们会预测那个人会去盒子里找。

2.2.4 4~5 岁阶段 当儿童在 4~5 岁能够通过错误信念任务时^[13],这就表明他们能够区分自己所知道的事实与他人可能相信的内容。他们能够区分“共享世界中的现实”与“他人心中创造出的世界”,即使后者是暂时错误的。自 20 世纪 80 年代以来,已经有上百项研究采用了各种各样的任务与材料来重复错误信念的实验。这些研究跨越了多种文化和教养方式,仍然显示出一致的结果^[14]。

2.3 心智解读发展对语言发育和学校社交及教育的影响 心智解读发展有缺损的儿童,可能会在社交互动、理解他人情感和意图方面遇到困难。会带来哪些后果?在早期阶段,缺乏共同关注的儿童将难以将声音与意义对应,从而影响词汇学习^[31]。假扮游戏中需要儿童想象他人的角色和想法。如果对于“他人可能拥有和自己不同意图与欲望”缺乏理解,通常也无法进行假扮性游戏^[32-33]。无法判断他人意图、愿望或情绪反应的儿童,在各种社交互动中表现出不能融入。随着年龄增长,儿童在家庭外与

同伴、教师的关系变得越来越重要。缺乏心智解读技能的儿童容易成为被嘲笑和欺凌的对象^[34],也更难与同伴建立和维持良好的友谊^[35]。

在教育实践中,心智解读的成熟对儿童学业成就具有深远影响。学龄初期的核心学习任务是读写能力的获得,而这依赖于儿童对口语叙事的理解与产出^[36]。叙事表达是儿童的重要高阶语言能力,它既依赖于儿童对世界的理解,也依赖于对复杂语言的掌握。在叙事中,儿童必须能够规划一个比单个句子庞大更多的事件序列,并保持其完整性和连贯性。Bruner^[37]将儿童叙事的发展划分为两个阶段:早期是“行动形成的景观”,即叙事以实际发生的物理事件的顺序为核心;而随着心智解读的发展,儿童进入“意识形成的景观”,能够叙述人物的动机、愿望、信念和心理状态。为了讲述一个完整的故事,叙述者需要赋予角色目标、意图、愿望、情绪和信念,也就是说,这些角色必须不只是“行动者”,而是“有心智的人物”。这一转变不仅推动了叙事质量的飞跃,也为儿童在学校环境中读写技能开启了一个新篇章。

2.4 心智解读的临床意义 心智解读的重要性在临床研究中得到了充分证明,而且在“语言-社交沟通-认知”三维模型中是鉴别诊断需要分析的一个关键部分。有研究已经明确指出,ASD 儿童在心智解读方面存在持续的困难^[32]。一些患儿即使进入青春期,仍然无法通过经典的错误信念任务^[38]。受影响较重的儿童往往在识别面部表情、理解情绪甚至共同关注方面都存在显著困难^[32]。高功能 ASD 患儿在更高阶的错误信念任务中,例如理解讽刺与反语、识别欺骗行为、判断社交失礼等方面持续存在困难,导致他们无法理解他人的细微意图与社会规范,从而严重影响友谊质量、冲突解决能力,以及在课堂社交互动中的参与度。这些心智解读能力的困难,深刻影响 ASD 儿童核心功能缺损领域,即社会沟通和社会交往能力,而且波及到了儿童学业中需要的综合语言能力,比如叙事语用能力和在社交场景中解决问题能力等,使其困难不再局限于单一的社交沟通缺陷,而表现为多层次、广泛性的功能受损。

其他认知正常患广义语言障碍的儿童,例如 DLD 儿童^[39]和认知正常的听障儿童^[40],也在错误信念理解阶段表现出困难。这些研究结果提示,语言能力可能是迈入错误信念心智解读阶段的核心条件;DLD 儿童在复杂句法结构和社交语言使用

方面存在困难,这限制了他们同时表征多个视角的能力,而这种能力正是“错误信念”推理的核心基础。

ADHD 儿童同样表现出心智解读发展的障碍,他们在执行功能^[41]以及情绪调节方面的不足,导致其需要持续注意的错误信念任务中表现较差^[42]。此外,ADHD 儿童在执行功能方面存在显著的脆弱性,尤其是在工作记忆、反应抑制和认知灵活性方面,这些困难削弱了他们在推理过程中同时保留相互冲突的心理表征(如“我知道的”与“他人所相信的”)的能力,抑制基于现实的主导反应能力以及在不同视角之间灵活转换的能力^[43-45]。此外,ADHD 患儿常伴随高阶社交语用能力缺陷,如对微妙的心理状态线索、讽刺或暗示不敏感。除了核心执行功能缺陷的影响之外,ADHD 患儿心智解读能力差异性也受这些因素的影响。

3 学龄前期和学龄期儿童“语言-社交沟通-认知”三维模式的临床实践

3.1 临床流程 第一步,诊断和鉴别诊断。首先要在诊断和鉴别诊断的流程中,根据学龄前期和学龄期儿童“语言-社交沟通-认知”三维模式(见图 2),通过临床思考框架进行问诊和观察,找出儿童最主导的问题。对于语言障碍、ASD、ADHD 和智力障碍患儿,虽然家长主诉都可能包括“儿童在幼儿园叙事能力差、讲事情讲不到点子上、社交能力差”等,但是语言障碍患儿的最根源问题可能在语义和句法的语言问题上;ASD 患儿可能在于心智解读所在的社交沟通问题上;ADHD 患儿可能在认知的专注力和执行功能问题上;而智力障碍儿童可能在基本概念等

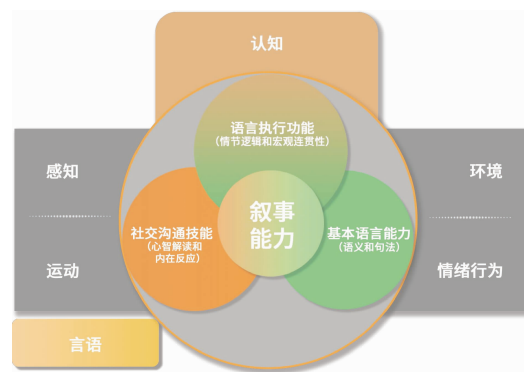


图 2 学龄前期和学龄期儿童“语言-社交沟通-认知”三维模式

Fig. 2 "Language-Social Communication-Cognition" three-dimensional model for preschool and school-age children

基本认知功能问题上,从而语义和句法能力,心智解读能力和执行功能都受影响,但都不是根源问题。鉴别诊断的难点是这些根源的问题都会影响其他方面。而且患儿可能还会有共病,即多个领域的问题都是根源问题。然而,在鉴别诊断过程中有一个重要的线索可以帮助到临床医生:根源问题往往是家长主诉中患儿最凸显,家长觉得最棘手又最难解决的问题。最后,鉴别诊断还需要考虑临床思考框架中的非“语言-社交沟通-认知”的其他相关能区,比如言语、感知觉、运动、情绪行为和环境。

在诊断和鉴别诊断的流程中,“语言-社交沟通-认知”三维模式中的评估包括:

1)在语言方面,对语义和句法能力进行评估,比如临床上常用的梦想普通话标准化语言评估(Diagnostic Receptive and Expressive Assessment of Mandarin-Comprehensive, DREAM-C)^[46]结合非标准化的互动评估;同时,需要对儿童的叙事语用能力进行详细的评估,比如常用的 FWAY (Frog, Where Are You?) Narrative Retell Protocol (“青蛙,你在哪里?”叙事复述量表)、多语言叙事评估(Multilingual Assessment Instrument for Narratives, MAIN)和梦想普通话叙事语用心智解读评估(Mandarin Expressive Narrative Test, MENT)^[47]。

2)在社交沟通方面,除了早期的基本社交沟通能力,比如共同关注等能力,心智解读能力的评估。最常用测评是有关错误信念任务的“未见的转移”或“意外的物品”经典测试。MENT 梦想普通话叙事语用心智解读评估同时评估儿童叙事和心智解读能力,包含错误信念在内的心智解读发育历程中 3 个重要的等级。

3)在认知方面,除了早期的认知玩耍能力以外,基本认知功能评估和执行功能和专注力评估。临床上常见的评估包括,韦氏智力量表、CAS2 (Cognitive Assessment System-Second Edition)、执行功能行为评定量表第二版(Behavior Rating Inventory of Executive Function, Second Edition, BRIEF-2)、康纳斯连续性操作测试第三版(Conners' Continuous Performance Test 3rd Edition, Conners CPT-3)等。在执行功能评估中,叙事评估可以测评儿童的语言执行功能,比如 MENT 梦想普通话叙事语用心智解读评估中的故事文法部分:情节的因果和时间顺序反应了组织与计划能力,人物角色管理和故事的宏观连贯性则反映了儿童工作记忆、认知灵活性和抑

制不相关信息的能力。

第二步是根据儿童的诊断和鉴别诊断结果,拟定出重点清晰的个性化“语言-社交沟通-认知”三维干预方案。叙事语用能力在这个阶段是“语言-社交沟通-认知”综合能力的一个体现。而且,研究显示,基于叙事语用的语言训练,能够将“语言-社交沟通-认知”训练有机地串联起来,形成多维度、循序渐进的交替干预路径。

3.2 循证支持 大量研究已充分表明,语言在儿童心智解读(Theory of Mind, ToM)发展的过程中起着关键的引导作用,使儿童能够逐渐理解他人的意图、欲望、感知经验以及知识状态^[48]。然而,语言在帮助儿童识别和区分“错误信念”这一特殊的心理状态方面,扮演着尤为重要的角色。令人意外的是,真正发挥关键作用的并非语言中的词汇本身,而是其语法结构。例如“想要”、“看到”、“知道”等词语,能够帮助儿童将他们对周围世界的大量观察组织成更为系统的概念;而儿童运用 think(认为)和 believe(相信)等词语时,他们必须面对一种新的复杂性,因为这些动词引出的从句可能表达的是与现实不一致的情境^[49]。儿童的这种句法能力通常通过包含“假象补语从句”的复杂句进行测验。例如, DREAM-C 梦想普通话标准化语言评估中的测试项目如下:“小姐姐以为她找到了拖鞋,其实她找到了床下的一只老鼠。小姐姐以为她找到了什么?”为了回答这个问题,儿童必须忽略自己所知道的事实,并回答“她的拖鞋”。无法正确回答此类句法问题的儿童,通常不能通过“错误信念”任务。这一结果在对听障患儿^[50]、ASD 患儿^[51]以及发育性语言障碍患儿^[52]的研究中得到验证。进一步研究显示,语言治疗师在微观句法训练中纳入包含“说”、“想”等动词的补语从句,不仅能提升儿童的句法能力,而且也可以促进其心智解读的错误信念理解能力^[53]。又比如,家长在这个阶段运用富含心理状态词汇的故事进行泛化训练,也会进一步促进儿童心智解读能力的提升。

另一方面,具有良好心智解读能力的儿童能够在叙事中恰当地运用心理状态词汇,构建清晰的因果与动机联系,并保持良好的整体连贯性。研究显示,对于语义句法能力相似的儿童,心智解读能力可以很好地预测综合叙事质量^[54-55]。此外,针对心理状态用语及相关句法结构的微观句法训练被证明能够同时提升儿童的心智解读与叙事能力,进一步印

证了二者之间的相互促进与共同发展关系^[56]。

基于叙事语用的语言干预,尤其是融入心理状态语言与提问脚本的对话式共读能在真实语境中同时拉动持续注意与执行功能:儿童需要在讲述过程中维持并更新事件与角色信息(工作记忆)、抑制离题与基于现实的自动反应以保持主线(抑制控制),并在多角色/多时间线之间灵活切换视角与因果关系(认知灵活性),从而保证叙事的因果连贯与整体一致性^[57-58]。

因此,基于叙事宏观和微观各个板块的分项和综合的语言训练,可以同时促进执行功能(计划排序、工作记忆、抑制控制与认知灵活性)、心智解读

(尤其错误信念推理)与高阶语言(语篇归纳总结、整体连贯性、因果衔接、角色管理),以及学龄儿童书面叙事的结构与连贯性,从而支持其向读写能力迁移。这也进一步支持了“语言-社交沟通-认知”三维语言干预模式中强调的多维度协同促进。梦想基于叙事的语言训练模式(Training of Acquisition of Language and Knowledge-Narrative, TALK-N)就是一个基于“语言-社交沟通-认知”三维干预体系的范例。这个基于叙事语用的语言干预范例从语言(微观句法和人物指代),心智解读(情绪心智)和语言执行功能(时序逻辑)和叙事综合(综合训练)几个板块交替循序渐进地进行干预。见图 3。

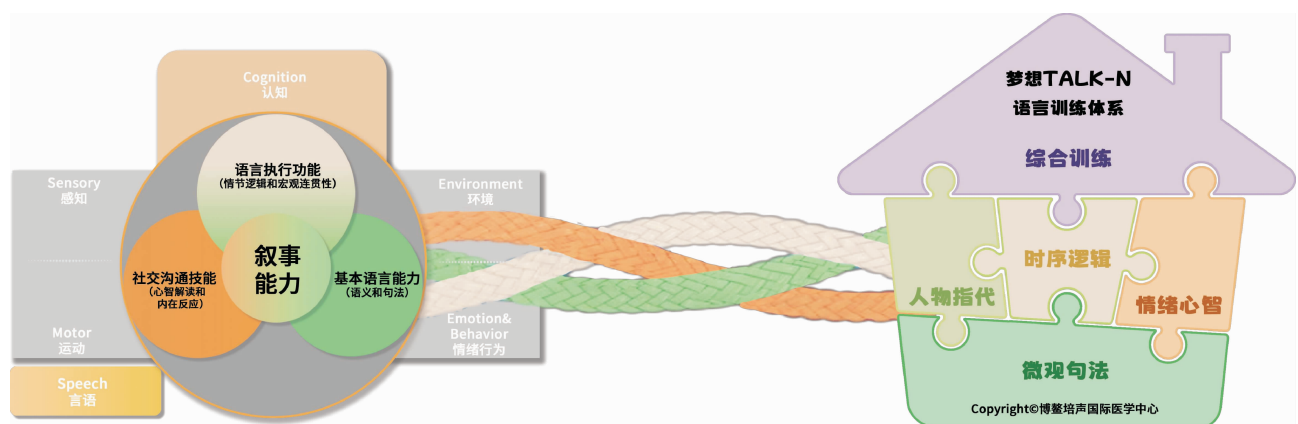


图 3 TALK-N 梦想语言训练模式

Fig. 3 DREAM TALK-N language training model

4 结论

根据临床思考框架提出的“语言-社交沟通-认知”三维语言评估和干预模式,综合大量的临床研究证据,不仅为婴幼儿期儿童提供了诸如“同看同玩同说家庭训练”这样循证有效的干预方法,也颠覆了学龄前期和学龄期有语言和社交持续困难儿童“单纯线性地增加句子长度或增加讲故事图片数量”的无效干预,将“句法-心智解读-语言执行功能”有机结合,形成多维度、循序渐进的语言与叙事语用干预,从而积极准备儿童入学需要的语言使用和深层社交沟通能力。然而,这一模型也必须放在更宏观的临床思考框架中来看,因为许多儿童的情况还包括三维核心范畴以外的复杂特征,包括运动、感觉处理、情绪行为等多重因素,这些情况往往需要多学科协作(如发育行为儿科、言语语言治疗、心理/神经心理学、听力学、作业/物理治疗及教育等领域的合作)。

其次,在不同系统(医疗、学校、家庭)之间仍存在意识与落实层面的差距:心智解读与叙事语用评估干预在临床上的应用需要在医教体系中得到更多的关注,医生、治疗师与教师的能力建设仍是重点方向。

最后,未来研究应着重推动:1)人工智能高科技如何在“语言-社交沟通-认知”模型中赋能语言评估和干预;2)针对不同病种,比如DLD、ASD、ADHD、听力障碍等发育性障碍的语言干预的研究。同时,这些研究应更加充分地纳入神经多样性视角,将儿童的个体差异和自我表达方式视为干预设计的重要依据,避免“同质化”目标设定,推动个性化、尊重多样性的语言康复与教育实践;3)建立更紧密的语言与读写发展的纵向连接——在句法、心智解读与叙事能力之上,搭建通向阅读理解、书面表达及学科语言的桥梁。4)探索“居家训练与专业干预结合”的混合式干预模式,例如通过家庭指导、对话式阅读、AI

游戏辅助语言任务等方式,将家庭场景的自然互动与专业治疗师的结构化训练相结合,以实现“语言-社交沟通-认知”三维的真正融合与泛化。

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