

# Language Disorders across the Lifespan: From Childhood to Adulthood

## Gulsen Filazoglu Cokluk<sup>1</sup>, Mehmet Yakup Can Butur<sup>2</sup>

<sup>1</sup>Department of Psychology, Toros University, Mersin, Türkiye <sup>2</sup>Department of Psychology, Istanbul Gelişim University, Istanbul, Türkiye Email: gulsenfilazoglu@gmail.com

How to cite this paper: Cokluk, G. F., & Butur, M. Y. C. (2025). Language Disorders across the Lifespan: From Childhood to Adulthood. *Open Journal of Social Sciences, 13,* 190-201.

https://doi.org/10.4236/jss.2025.132013

Received: September 29, 2024 Accepted: February 18, 2025 Published: February 21, 2025

Copyright © 2025 by author(s) and Scientific Research Publishing Inc. This work is licensed under the Creative Commons Attribution International License (CC BY 4.0). http://creativecommons.org/licenses/by/4.0/

cc 🛈 Open Access

## Abstract

This study offers a comparative analysis of language disorders in both children and adults, exploring the impact on communication and overall well-being. It investigates Developmental Language Disorders (DLD) in children and acquired language disorders in adults, emphasizing the neurophysiological, genetic, and cognitive aspects. The research highlights the significance of early detection and intervention, alongside the utilization of assessment tools for timely assistance. Additionally, the prevalence and epidemiology of these disorders are examined, stressing the necessity for effective management strategies. The paper also reviews various challenges associated with language disorders, including phonological, semantic, syntactic, and pragmatic difficulties, as well as narrative issues in children, and acquired aphasia, Specific Language Impairment (SLI), Traumatic Brain Injury (TBI), and dementia related language disorders in adults. The significance of multidisciplinary evaluations and evidence based interventions, such as speech therapy and language enrichment programs, is emphasized. Through a systematic literature search and critical analysis of selected studies, this study synthesizes findings to present a comprehensive view of language disorders across age groups, addressing gaps in the literature and suggesting future research directions for improved outcomes.

# **Keywords**

Language Disorders, Developmental Language Disorders, Acquired Language Disorders, Neurophysiological Factors, Cognitive Factors, Early Intervention, Speech Therapy

# **1. Introduction**

Language development is a fundamental aspect of cognitive, social, and emotional growth, and disruptions in this process can have significant consequences for both

children and adults. Language disorders encompass a wide range of conditions, including Developmental Language Disorder (DLD) and acquired language impairments, each presenting unique challenges in communication, education, and social integration. These disorders can hinder expressive and receptive language abilities, affecting vocabulary, syntax, and pragmatic skills, and can lead to difficulties in academic achievement and interpersonal relationships. In children, early signs such as delayed language milestones often signal underlying language disorders, emphasizing the need for prompt identification and support. Similarly, adults may face language impairments due to neurological incidents like strokes or brain injuries, impacting their everyday communication and quality of life. Understanding the prevalence, causes, and characteristics of language disorders across the lifespan is essential for developing targeted, evidence-based interventions. By examining the neurophysiological, genetic, and cognitive factors involved in language acquisition and processing, researchers can gain insights into the etiology of these disorders and work toward innovative strategies to enhance language skills and overall well-being for affected individuals.

Language disorders are critically important to study due to their significant effects on communication, education, and overall quality of life. These disorders can occur in both children and adults, impacting various aspects of language processing and production. Gaining insight into the prevalence, characteristics, and underlying causes of language disorders is essential for effective intervention and support (Baker & Cantwell, 1987). These disorders include a range of conditions such as Developmental Language Disorders (DLD) and acquired language disorders, each having unique causes and presentations (Leonard & Eckert, 2005). The development and expression of language disorders are influenced by neurophysiological, genetic, and cognitive factors (Bhattacharyya, 2014). The prevalence of language disorders in children and adults varies, with statistics highlighting the importance of early detection and intervention (Bishop et al., 2017). In children, deviations from typical language development milestones can serve as indicators of potential language disorders, necessitating timely assessment and support (Bishop, 2014). Different types of language disorders in children, such as phonological disorders, semantic difficulties, and pragmatic impairments, present unique challenges in communication and social interaction (Black, Vahratian, & Hoffman, 2015). Similarly, language disorders in adults, including acquired aphasia, Specific Language Impairment (SLI), Traumatic Brain Injury (TBI), and dementia related language disorders, have distinct characteristics and implications for daily functioning (Clegg, Hollis, Mawhood, & Rutter, 2005). Assessing and diagnosing language disorders necessitates the use of comprehensive evaluation tools and multidisciplinary approaches to accurately identify and address these conditions (Clegg, Hollis, Mawhood, & Rutter, 2005). Evidence based interventions, such as speech therapy and language enrichment programs, are essential for managing language disorders and enhancing communication skills in both children and adults (Hill, 2001). This article aims to explore the similarities and differences in the manifestation and management of language disorders in children and adults by summarizing key findings from relevant studies and comparing these disorders across various age groups (Jones, Choi, Conture, & Walden, 2014). By identifying gaps in the current literature and proposing future research directions, this work aims to improve our understanding of language disorders and contribute to the development of more effective interventions and support systems (Jones, Choi, Conture, & Walden, 2014).

# 2. Literature Review

Language disorders encompass a spectrum of impairments affecting the acquisition and use of language, impacting communication abilities and overall quality of life. These disorders can be broadly categorized into Developmental Language Disorders (DLD) and acquired language disorders. DLD refers to persistent language difficulties that manifest early in life, affecting various aspects of language such as phonology, semantics, syntax, and pragmatics. On the other hand, acquired language disorders result from brain injury or neurological conditions in adulthood, leading to conditions like aphasia, Specific Language Impairment (SLI), Traumatic Brain Injury (TBI), and dementia related language disorders (Krishnan, Watkins, & Bishop, 2016). Neurophysiological, genetic, and cognitive factors play crucial roles in the development and manifestation of language disorders. Studies have highlighted the involvement of brain regions like Broca's area in the frontal cortex and the caudate nucleus in the basal ganglia in language processing and production. Additionally, cognitive abilities such as inhibitory control, working memory, and updating have been linked to definitional skills in individuals with developmental language disorders, emphasizing the intricate relationship between cognitive functions and language impairments. Defining language disorders poses challenges due to terminological inconsistencies and varying diagnostic criteria. The debate surrounding the term "Specific Language Impairment" (SLI) exemplifies this issue, with discussions on its exclusion from diagnostic manuals like DSM-5 due to arbitrary classification concerns (Clegg, Hollis, Mawhood, & Rutter, 2005). Achieving consensus on terminology and diagnostic frameworks is essential for advancing research, clinical practice, and intervention strategies for individuals with language disorders (Bhattacharyya, 2014). Understanding the prevalence and epidemiology of language disorders is crucial for effective management and support. Studies have shown that language disorders are not limited by gender or cultural factors, emphasizing the universal nature of these impairments across diverse populations. Identifying individual and cumulative risk factors associated with developmental language disorders aids in early detection and targeted interventions to improve outcomes for affected individuals.

## 2.1. Prevalence and Epidemiology

Language disorders are a significant concern throughout life, with their prevalence influenced by various demographic factors. According to the National Institute on

Deafness and Other Communication Disorders (NIDCD), approximately 1 in 12 (7.7%) children in the U.S. aged 3 - 17 experienced a disorder related to voice, speech, language, or swallowing within the past year. The highest prevalence is found among children aged 3 - 6 at 11.0%, followed by those aged 7 - 10 at 9.3%, and those aged 11 - 17 at 4.9%. Boys are more likely to have these disorders than girls, with rates of 9.6% and 5.7% respectively. Additionally, a higher prevalence is observed in Black children at 9.6%, compared to 7.8% in White children and 6.9% in Hispanic children. These findings are echoed in studies showing that Specific Language Impairment (SLI) in kindergarten children is affected by parental education and correlates with racial and cultural backgrounds (Krishnan, Watkins, & Bishop, 2016). Gender differences are also evident, with females generally showing a slight linguistic advantage. In adults, the prevalence of language disorders varies, with 7.6% of U.S. adults aged 18 or older reporting voice related problems in the past 12 months. Among children, 1.4% have a voice disorder lasting a week or longer. Spasmodic dysphonia, affecting individuals aged 30 - 50, shows a higher prevalence among women. The relationship between speech and language disorders and cognitive functions, such as working memory, is particularly notable in children with attention deficit and hyperactivity disorder. Moreover, a significant percentage of older adults may experience psychiatric disorders that correlate with language disorders. Comprehensive assessments and multidisciplinary evaluations are crucial for accurate diagnosis and effective management of language disorders. Early detection in children is essential, as deviations from typical language development milestones can indicate potential language impairments. In summary, the prevalence and epidemiology of language disorders highlight the need for recognizing these impairments' universal nature across diverse populations. This necessitates tailored interventions and support, underlining the importance of research and intervention services in addressing the challenges posed by language disorders.

## 2.2. Language Development in Children

Language development in children is a crucial aspect of their overall cognitive and social growth. Milestones in language acquisition serve as important indicators of typical development and potential language disorders. Research by Tamis-LeMonda et al. emphasizes the role of maternal responsiveness in children's achievement of language milestones, highlighting that children with more responsive mothers tend to reach vocabulary and speech milestones earlier. Flensborg-Madsen et al., conducted a study to identify predictors of early life milestones, shedding light on factors influencing milestone attainment in children. These studies underscore the significance of environmental and parental influences on language development. Furthermore, Altinkamis and Simon explored the impact of family background and language exposure on bilingual children's language abilities, emphasizing the multifaceted nature of language development. Understanding the interplay between genetic, cognitive, and environmental factors is crucial in comprehending the complexities of language acquisition in children. Studies by Flensborg-Madsen and Mortensen and Flensborg-Madsen et al., suggest a potential link between early language milestones and later cognitive outcomes and personality traits, indicating the long-term implications of language development in childhood. Assessment tools and procedures play a vital role in identifying language disorders early. Sheldrick and Perrin highlight the importance of evidence-based milestones for surveillance of cognitive, language, and motor development, aiding in the early detection of developmental delays. Additionally, Ben-Sasson et al., discuss the correspondence between crowd based developmental percentiles and clinical tools, providing insights into tracking language milestones effectively. In conclusion, language development in children is a dynamic process influenced by various factors. Early identification of language milestones and deviations from typical development is crucial for timely intervention and support. By understanding the intricate interplay between genetic, environmental, and cognitive factors, researchers and practitioners can enhance early detection strategies and improve outcomes for children with language disorders.

## 2.3. Language Disorders in Children

Language disorders in children encompass a range of impairments that affect the acquisition and use of language, impacting various aspects of communication and social interaction. This section will delve into specific types of language disorders in children, focusing on phonological disorders, semantic and syntactic difficulties, pragmatic impairments, and narrative and discourse issues.

#### 2.3.1. Phonological Disorders

Phonological disorders in children are characterized by difficulties in producing speech sounds accurately, leading to speech sound errors that can impede intelligibility. Children with phonological disorders may exhibit challenges in articulating specific sounds or phoneme patterns, affecting their overall speech clarity and communication effectiveness (Lowe, O'Brian, & Onslow, 2013). Interventions for phonological disorders often involve speech therapy techniques aimed at improving sound production accuracy through auditory discrimination and articulatory exercises.

#### 2.3.2. Semantic and Syntactic Difficulties

Semantic and syntactic difficulties in children manifest as challenges in vocabulary acquisition and grammar usage, impacting their ability to comprehend and produce language effectively. Children with semantic difficulties may struggle with word meanings, categorization, and word retrieval, while those with syntactic impairments may have difficulties with sentence structure, verb tense, and word order. Interventions for semantic and syntactic difficulties typically involve language enrichment programs that target vocabulary expansion, sentence structure practice, and comprehension strategies to enhance language skills.

#### 2.3.3. Pragmatic Impairments

Pragmatic impairments in children refer to difficulties in using language appro-

priately in social contexts, leading to challenges in initiating and maintaining conversations, understanding nonverbal cues, and following conversational rules. Children with pragmatic impairments may exhibit deficits in turn-taking, topic maintenance, and perspective taking, affecting their social interactions and relationships. Interventions for pragmatic impairments often involve social communication training that focuses on teaching conversational skills, interpreting social cues, and understanding the nuances of communication in different contexts.

#### 2.3.4. Narrative and Discourse Issues

Narrative and discourse issues in children involve difficulties in organizing and conveying information cohesively in storytelling and conversation. Children with narrative and discourse issues may struggle with sequencing events, maintaining a coherent storyline, and incorporating relevant details in their narratives. Interventions for narrative and discourse issues typically target narrative structure, story grammar, and discourse cohesion through storytelling activities, graphic organizers, and storytelling exercises to improve narrative skills and communication effectiveness. In conclusion, language disorders in children encompass a diverse array of challenges that impact various aspects of language and communication. Understanding the specific characteristics and interventions for phonological disorders, semantic and syntactic difficulties, pragmatic impairments, and narrative and discourse issues is crucial for effective assessment and intervention strategies to support children with language difficulties. Further research focusing on individualized interventions and long-term outcomes for children with language disorders is essential for enhancing clinical practice and improving outcomes for affected individuals. Language disorders in adults encompass a diverse range of conditions resulting from brain injury, neurological disorders, or cognitive decline. Understanding these disorders is crucial for effective diagnosis, intervention, and support for affected individuals.

#### 2.3.5. Acquired Aphasia

Acquired aphasia is a language disorder that typically occurs following brain injury, such as stroke or traumatic brain injury. It is characterized by difficulties in language comprehension, expression, reading, and writing. Different types of aphasia exist, including Broca's aphasia, Wernicke's aphasia, and global aphasia, each presenting with distinct language deficits. Treatment for acquired aphasia often involves speech therapy focusing on language rehabilitation and communication strategies to improve functional communication skills.

#### 2.3.6. Specific Language Impairment (SLI)

Specific Language Impairment (SLI) refers to persistent language difficulties in adulthood without accompanying cognitive deficits or neurological conditions. Individuals with SLI may struggle with grammar, vocabulary, and comprehension, impacting their communication abilities. Research suggests that SLI in adults may have a genetic component, with a higher prevalence in families with a history of language disorders (Clegg, Hollis, Mawhood, & Rutter, 2005). Interventions for

SLI in adults typically involve language therapy targeting specific language deficits and enhancing communication skills.

### 2.3.7. Traumatic Brain Injury (TBI)

Traumatic Brain Injury (TBI) can result in language challenges in adults, affecting various aspects of communication and cognitive functions. Language impairments following TBI may include difficulties with word finding, sentence construction, and discourse organization. Cognitive communication therapy is often recommended for individuals with TBI to address language deficits and improve communication effectiveness. Additionally, cognitive rehabilitation programs focusing on attention, memory, and executive functions can support language recovery in individuals with TBI.

## 2.3.8. Dementia Related Language Disorders

Dementia related language disorders are commonly associated with neurodegenerative conditions like Alzheimer's disease and other forms of dementia. These disorders manifest as progressive language decline, including word finding difficulties, comprehension deficits, and impaired communication skills. Speech language therapy plays a crucial role in managing language disorders in individuals with dementia, aiming to maintain functional communication abilities and quality of life. Multidisciplinary approaches involving speech-language pathologists, neurologists, and caregivers are essential in providing comprehensive care for individuals with dementia related language disorders. In conclusion, language disorders in adults present unique challenges that require tailored interventions and support. By addressing the specific language deficits associated with acquired aphasia, specific language impairment, traumatic brain injury, and dementia related language disorders, clinicians and researchers can enhance the quality of life for individuals affected by these conditions. Further research focusing on effective assessment tools, intervention strategies, and long-term outcomes is essential in advancing the field of adult language disorders.

# 3. Assessment and Diagnosis

Assessing and diagnosing language disorders is essential for identifying and managing these impairments in both children and adults. Numerous assessment tools and methods have been created to facilitate the early detection of language disorders. For instance, Weismer et al., propose that non-word repetition performance can be a valuable indicator in diagnosing language disorders in school-age children. This underscores the significance of using specific tasks, such as non-word repetition, to enhance the accuracy of diagnosing language disorders. Furthermore, Bishop discusses the challenges in terminology for children with unexplained language problems, emphasizing the importance of using linguistically demanding tasks to identify children with Specific Language Impairment (SLI). This underscores the significance of using appropriate linguistic measures to assess and diagnose language disorders accurately. Reilly et al. (2014) and Krishnan, Watkins, & Bishop (2016) raise questions about the convenience of the label "specific language impairment" and the challenges in defining and diagnosing language disorders. Achieving consensus on terminology and diagnostic frameworks is crucial for improving the accuracy of assessments and diagnoses in individuals with language disorders. Moreover, comprehensive assessments and multidisciplinary evaluations are essential for accurately diagnosing language disorders in both children and adults, as highlighted by Potapova and Pruitt-Lord (2020) and Norbury et al. (2016). Early detection of language disorders in children is particularly crucial, as deviations from typical language development milestones can serve as indicators of potential language impairments, as noted by Smith. In conclusion, assessing and diagnosing language disorders necessitates a nuanced approach that takes into account the complexities of language development and the varied presentations of language impairments across different age groups. Utilizing appropriate assessment tools, resolving terminological inconsistencies, and focusing on multidisciplinary evaluations can help healthcare professionals improve diagnostic accuracy and provide personalized interventions for individuals with language disorders.

## **Intervention and Treatment**

Intervention and treatment strategies for language disorders in children and adults are crucial for improving communication and overall well-being. Studies by Law et al. (2005) and Potapova & Pruitt-Lord (2020) emphasize the effectiveness of speech and language therapy for children with expressive phonological and expressive vocabulary difficulties. However, the evidence regarding interventions for expressive syntax is mixed, highlighting the need for further research in this area. Additionally, early identification of language milestones and deviations from typical development is essential for timely intervention and support, as discussed by Sheldrick and Perrin. Ben-Sasson et al., provide insights into tracking language milestones effectively through the correspondence between crowd-based developmental percentiles and clinical tools. In bilingual children with developmental language disorder, Li highlights the presence of language difficulties in both languages, emphasizing challenges in language perception, processing, and production. Cognitive behavioral play therapy has shown promise in improving expressive linguistic disorders in bilingual children, as demonstrated by Rezaeerezvan et al. (2021) and Ramos-Cabo, Vulchanov, & Vulchanova (2019). This intervention approach can significantly benefit children with language impairments by addressing cognitive and behavioral aspects. Furthermore, the role of parental responsiveness in language development, as discussed by Tamis-Lemonda et al., underscores the importance of environmental influences in children's language acquisition. Understanding the impact of family background and language exposure on bilingual children's language abilities, as explored by Altinkamis and Simon, can guide tailored interventions to support language development in diverse linguistic contexts. Overall, a multidisciplinary approach to assessment and diagnosis, as well as evidence-based interventions such as speech therapy, language enrichment programs, and cognitive behavioral play therapy, are essential in addressing language disorders in children and adults. By integrating research findings on effective interventions and considering individual and environmental factors, practitioners can enhance treatment outcomes and support individuals with language difficulties effectively.

## 4. Discussion

The examination of literature on language disorders has yielded specific findings regarding their prevalence and impact. Quantitative data indicate varying rates of language disorders among children, with developmental language disorders presenting challenges in cognitive functions that often extend into adulthood. The occurrence of language disorders is not uniform across demographics, showing variability influenced by factors such as parental education. In adults, language disorders manifest through various conditions, each presenting distinct challenges and exhibiting a link to broader cognitive functions. The dynamic nature of language development in children is marked by identifiable milestones, the tracking of which is crucial for early intervention. The factual data underscore the necessity for early detection and the implementation of appropriate assessment tools to monitor and support language development. The exploration of language disorders through a neurobiological lens has provided a deeper understanding of the complexities involved in language acquisition and the challenges faced by individuals with these disorders. The findings from Krishnan et al. align with the broader body of research that associates structural and functional brain differences with language impairments, reinforcing the notion that language disorders are not solely behavioral but have a significant biological component (Rezaeerezvan, Kareshki, & Pakdaman, 2021). This perspective is crucial for developing interventions that are not only behavioral but also consider the neurobiological aspects of language disorders. The persistence of language difficulties into adulthood, as discussed by Clegg et al. (2005) and Hill (2001) suggests that developmental language disorders are not transient issues but can have long-lasting effects on an individual's communication abilities. This contrasts with the common perception that language disorders are predominantly childhood conditions and highlights the need for long-term support systems for affected individuals. Comparatively, the chronic nature of language disorders revealed in this review mirrors findings in other studies, emphasizing the importance of sustained intervention strategies Furthermore, the role of comprehensive assessments in identifying language disorders, as emphasized by Baker and Cantwell is a critical component of effective management (Rice, 2016). The use of standardized tests and spontaneous speech samples provides a multifaceted view of an individual's language abilities, allowing for more personalized and targeted intervention plans. This approach is supported by the multidisciplinary evaluations that are increasingly recognized as best practice in both research and clinical settings (Schweinfurth, Billante, & Courey, 2002). Overall, the results within this literature review underscore the complexity of language disorders across different age groups and emphasize the importance of early detection, intervention, and support for individuals with language difficulties. By integrating neurobiological insights, longitudinal perspectives, and comprehensive assessments, researchers and practitioners can enhance the understanding and management of language disorders across different age groups (Shriberg, Tomblin, & McSweeny, 1999). In summary, the discussion of language disorders within this literature review aims to contribute to the academic conversation by affirming the significance of neurobiological research, acknowledging the long-term nature of these disorders, and advocating for comprehensive assessment methods. By integrating these elements, the field can move towards more effective management of language disorders, ensuring that interventions are informed by a thorough understanding of the condition's biological underpinnings and developmental trajectory. This holistic approach is essential for providing individuals with language disorders the support they need to navigate the challenges they face throughout their lives (Tomblin et al., 1997).

# **5.** Conclusion

Language disorders pose significant challenges affecting communication and overall well-being in both children and adults. These disorders include Developmental Language Disorders (DLD) in children and acquired language disorders in adults, with neurophysiological, genetic, and cognitive factors playing crucial roles in their manifestation. Understanding the prevalence and epidemiology of language disorders is essential for effective management and support across different age groups. In children, language development significantly influences cognitive and social growth, with early identification of language milestones being crucial for timely intervention and support. Assessment tools and procedures are vital for the early identification of language disorders, aiding in surveillance and detection of developmental delays. Language disorders in children encompass phonological disorders, semantic and syntactic difficulties, pragmatic impairments, and narrative issues, while in adults, they include acquired aphasia, Specific Language Impairment (SLI), Traumatic Brain Injury (TBI), and dementia related language disorders. Assessment and diagnosis procedures are crucial for identifying and managing language disorders effectively, emphasizing the importance of multidisciplinary evaluations. Interventions for language disorders involve evidence based approaches such as speech therapy and language enrichment programs. By comparing and contrasting language disorders in different age groups, researchers can address gaps in the literature and propose future research directions to enhance outcomes for individuals with language disorders. A comprehensive understanding of language disorders in children and adults is essential for developing effective interventions and support systems. By integrating neurobiological insights, longitudinal perspectives, and evidence based interventions, researchers and practitioners can enhance the understanding and management of language disorders in children and adults. In conclusion, early detection, intervention, and support are essential for individuals with language disorders to improve outcomes and quality of life. By addressing the complexities of language disorders through a multidisciplinary approach and evidence based interventions, researchers and practitioners can contribute to better outcomes for individuals with language difficulties.

In considering the future of children's language development, several social and practical implications emerge. Fostering a supportive environment enriched with diverse language exposure can significantly enhance linguistic growth. Encouraging early interaction in both home and community settings can aid vocabulary expansion and cognitive flexibility, equipping children with essential communication skills for later life. Additionally, incorporating technology mindfully into language learning—through interactive and educational tools—can provide a modern avenue for engagement. Supporting parental involvement in language activities and ensuring access to quality educational resources will be essential in shaping a future where children's language development thrives in increasingly diverse and digitally connected societies.

# **Conflicts of Interest**

The authors declare no conflicts of interest regarding the publication of this paper.

## References

- Baker, L., & Cantwell, D. P. (1987). A Prospective Psychiatric Follow-Up of Children with Speech/Language Disorders. *Journal of the American Academy of Child & Adolescent Psychiatry, 26*, 546-553. <u>https://doi.org/10.1097/00004583-198707000-00015</u>
- Bhattacharyya, N. (2014). The Prevalence of Voice Problems among Adults in the United States. *The Laryngoscope*, 124, 2359-2362. <u>https://doi.org/10.1002/lary.24740</u>
- Bishop, D. V. M. (2014). Ten Questions about Terminology for Children with Unexplained Language Problems. *International Journal of Language & Communication Disorders*, 49, 381-415. <u>https://doi.org/10.1111/1460-6984.12101</u>
- Bishop, D. V. M., Snowling, M. J., Thompson, P. A., & Greenhalgh, T. (2017). Phase 2 of CATALISE: A Multinational and Multidisciplinary Delphi Consensus Study of Problems with Language Development: Terminology. *Journal of Child Psychology and Psychiatry*, 58, 1068-1080. <u>https://doi.org/10.1111/jcpp.12721</u>
- Black, L. I., Vahratian, A., & Hoffman, H. J. (2015). Communication Disorders and Use of Intervention Services among Children Aged 3-17 Years: United States, 2012 (pp. 1-8). NCHS Da-ta Brief, No. 205. <u>https://doi.org/10.15620/cdc:31202</u>
- Clegg, J., Hollis, C., Mawhood, L., & Rutter, M. (2005). Developmental Language Disorders—A Follow-Up in Later Adult Life. Cognitive, Language and Psychosocial Outcomes. *Journal of Child Psychology and Psychiatry*, 46, 128-149. https://doi.org/10.1111/j.1469-7610.2004.00342.x
- Hill, E. L. (2001). Non-Specific Nature of Specific Language Impairment: A Review of the Literature with Regard to Concomitant Motor Impairments. *International Journal of Language & Communication Disorders*, *36*, 149-171. <u>https://doi.org/10.1080/13682820010019874</u>

Jones, R. M., Choi, D., Conture, E. G., & Walden, T. A. (2014). Temperament, Emotion,

and Childhood Stuttering. *Seminars in Speech and Language, 35,* 114-131. https://doi.org/10.1055/s-0034-1371755

- Krishnan, S., Watkins, K. E., & Bishop, D. V. M. (2016). Neurobiological Basis of Language Learning Difficulties. *Trends in Cognitive Sciences*, 20, 701-714. <u>https://doi.org/10.1016/j.tics.2016.06.012</u>
- Law, J., Garrett, Z., & Nye, C. (2005). Speech and Language Therapy Interventions for Children with Primary Speech and Language Delay or Disorder. *Campbell Systematic Reviews*, *1*, 1-85. <u>https://doi.org/10.4073/csr.2005.5</u>
- Leonard, C. M., & Eckert, M. A. (2005). Asymmetry and Dyslexia. Developmental Neuropsychology, 33, 663-681. <u>https://doi.org/10.1080/87565640802418597</u>
- Lowe, R., O'Brian, S., & Onslow, M. (2013). Review of Telehealth Stuttering Management. *Folia Phoniatrica et Logopaedica, 65*, 223-238.
- Norbury, C. F., Gooch, D., Wray, C., Baird, G., Charman, T., Simonoff, E. et al. (2016). The Impact of Nonverbal Ability on Prevalence and Clinical Presentation of Language Disorder: Evidence from a Population Study. *Journal of Child Psychology and Psychiatry*, 57, 1247-1257. <u>https://doi.org/10.1111/jcpp.12573</u>
- Potapova, I., & Pruitt-Lord, S. L. (2020). Towards Understanding the Bilingual Profile in Typical and Atypical Language Development: A Tutorial. *International Journal of Speech-Language Pathology*, 22, 106-116. <u>https://doi.org/10.1080/17549507.2019.1598492</u>
- Ramos-Cabo, S., Vulchanov, V., & Vulchanova, M. (2019). Gesture and Language Trajectories in Early Development: An Overview from the Autism Spectrum Disorder Perspective. *Frontiers in Psychology, 10,* Article No. 1211. https://doi.org/10.3389/fpsyg.2019.01211
- Reilly, S., Tomblin, B., Law, J., McKean, C., Mensah, F. K., Morgan, A. et al. (2014). Specific Language Impairment: A Convenient Label for Whom? *International Journal of Language & Communication Disorders, 49,* 416-451. https://doi.org/10.1111/1460-6984.12102
- Rezaeerezvan, S., Kareshki, H., & Pakdaman, M. (2021). The Effect of Cognitive-Behavioral Play Therapy on Improvements in Expressive Linguistic Disorders of Bilingual Children. *Frontiers in Psychology, 12,* Article ID: 626422. https://doi.org/10.3389/fpsyg.2021.626422
- Rice, M. L. (2016). Specific Language Impairment, Nonverbal IQ, Attention-Deficit/Hyperactivity Disorder, Autism Spectrum Disorder, Cochlear Implants, Bilingualism, and Dialectal Variants: Defining the Boundaries, Clarifying Clinical Conditions, and Sorting Out Causes. *Journal of Speech, Language, and Hearing Research, 59*, 122-132. https://doi.org/10.1044/2015\_jslhr-l-15-0255
- Schweinfurth, J. M., Billante, M., & Courey, M. S. (2002). Risk Factors and Demographics in Patients with Spasmodic Dysphonia. *The Laryngoscope*, *112*, 220-223.
- Shriberg, L. D., Tomblin, J. B., & McSweeny, J. L. (1999). Prevalence of Speech Delay in 6-Year-Old Children and Comorbidity with Language Impairment. *Journal of Speech, Language, and Hearing Research, 42*, 1461-1481. <u>https://doi.org/10.1044/jslhr.4206.1461</u>
- Tomblin, J. B., Records, N. L., Buckwalter, P., Zhang, X., Smith, E., & O'Brien, M. (1997). Prevalence of Specific Language Impairment in Kindergarten Children. *Journal of Speech, Language, and Hearing Research, 40*, 1245-1260. <u>https://doi.org/10.1044/jslhr.4006.1245</u>