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A Multidisciplinary Approach to Children with Speech Delay and Its Implications for Primary Care: A Narrative Review

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Speech delay is a common developmental issue in early childhood that can impact communication skills, social interactions, and learning readiness. This article aims to review the basic concepts of speech delay, the principles of early intervention, the collaborative role of various professions in improving children's communication and social participation, and its implication to primary care. This study focused on a narrative review of several database sources, such as Google Scholar, PubMed, and Scopus. The results of the narrative review indicate that speech delay cannot be treated by a single professional. A collaborative approach involving pediatricians, physiatrist, speech therapists, occupational therapists, psychologists, and other rehabilitation professionals provides a more comprehensive picture of a child's needs. Speech delay can be triggered by a combination of biological factors, lack of stimulation, and increased use of gadgets. The role of healthcare professionals in conducting routine screenings, providing education, and determining referral needs is crucial because most cases are first identified in primary healthcare settings. Language stimulation at home with parental involvement has also been shown to be a strong supporting factor. Interventions initiated at a younger age, particularly before the age of five, yield better developmental outcomes due to the child's still-developing brain's ability to adapt.
Keywords: speech delay, children, early intervention, primary care.

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1. Introduction

Speech and language development disorders are common developmental issues in early childhood. One common clinical manifestation is speech delay, which is a delay in speech ability compared to development appropriate for chronological age. This condition is often the primary reason parents seek medical help in primary care. Speech delay is not a definitive diagnosis, but rather a symptom that can indicate various developmental disorders or underlying medical conditions [1].

Some children with early speech or language delays are at risk of long-term academic and social difficulties if they do not receive adequate intervention[2]. Often, speech delays are first detected during immunization visits or routine developmental checkups, making the role of primary care health workers crucial for early detection[1].

Language and speech development is a complex process involving the interaction of the central nervous system, auditory function, orofacial motor control, cognitive abilities, and the child's social environment. Speech production requires the integration of cortical language areas, neuromotor pathways, and articulatory muscle coordination[3]. In addition to biological factors, adequate environmental stimulation and consistent verbal interaction play a major role in shaping a child's communication skills[4]. Therefore, disruptions in one or more of these components can result in speech delays.

Conventional treatment for speech delay often focuses on speech therapy as the primary intervention. This single approach may be inadequate in cases involving broader developmental disorders, although speech therapy is effective in improving articulation and language expression[5]. The importance of a multidisciplinary approach involving pediatricians, speech therapists, occupational therapists, and child psychologists is emphasized[6]. In addition to these professional collaborations, collaboration with medical rehabilitation specialists is also necessary to ensure the child's overall function and participation are addressed in a multifaceted manner.

In cases of speech delay, the goal of intervention is not only to improve speaking skills, but also to optimize the child's participation in social and educational activities[7]. This approach is relevant to be implemented in an integrated referral system from primary care to specialist care.

The principle of neuroplasticity is the scientific basis for the importance of early intervention. The brain of young children has a high capacity for synaptic reorganization in response to environmental stimulation[3]. Language interventions initiated in preschool years yield better results than delayed interventions[5]. Delays in detection and referral can reduce the potential for optimal improvement. Therefore, the role of primary care in recognizing developmental warning signs is crucial.

In Indonesia, challenges in addressing speech delay include limited access to rehabilitation services, uneven distribution of medical professionals, and a lack of public awareness of the importance of early detection. This situation demands increased capacity in primary care to conduct screening, educate families, and coordinate timely referrals. An integrated, multidisciplinary approach is expected to improve the quality of care and long-term outcomes for children with speech delay[6],[7].

2. Literature Review and Problem Statement

Literature Review

There is a clinical distinction between speech delay and language delay. Speech delay relates to delays in sound production or articulation, while language delay encompasses impairments in both receptive and expressive language comprehension [5]. This influences diagnostic and intervention approaches. In some cases, speech delay is part of a global developmental delay (GDD), autism spectrum disorder, hearing loss, or other neurological conditions [6]. Therefore, a comprehensive evaluation is needed to determine the underlying cause.

Children with language disorders are at higher risk of experiencing reading difficulties, declining academic achievement, and even difficulties in social interactions [7],[8]. Communication barriers impact emotional and behavioral regulation due to limitations in verbally expressing needs and feelings [2]. These multidimensional consequences reinforce the fact that speech delay is a child health issue that requires serious attention within the healthcare system.

In the context of health care, primary care serves as the primary entry point for detecting developmental disorders. The American Academy of Pediatrics recommends routine developmental screening at specific ages to detect delays as early as possible [9]. However, the implementation of screening in daily practice remains hampered by constraints, including limited consultation time and a lack of specific training in language development evaluation [1]. As a result, some cases of speech delay are not identified until later in life.

Problem Statement

Based on the comprehensive review of the multidisciplinary approach to children with speech delay is needed, particularly as it relates to primary care practice. This article aims to review the basic concepts of speech delay, the principles of early intervention, the collaborative role of various professions in improving children's communication and social participation, and its implication to primary care.

3. Method

This study is a narrative review aimed at providing a comprehensive overview of the multidisciplinary approach to children with speech and delay and its impact on primary healthcare. This method was chosen because it allows for combining findings from various types of studies to gain a broader understanding of clinical issues.

In searching the literature, researchers used a number of keywords and conducted online searches. The sources searched included Google Scholar, PubMed, and Scopus. These three databases were selected because they are primary references for scientific publications in the fields of medicine and health sciences, and provide a wide range of relevant research articles and systematic reviews. The keywords used included “speech delay, language delay, early intervention, multidisciplinary approach, pediatric rehabilitation, and primary care”.

The researchers then applied inclusion and exclusion criteria to determine eligible articles for review. Inclusion criteria included original research articles, systematic reviews, or review articles discussing speech delay or developmental language disorders in children; articles discussing early intervention, rehabilitation approaches, or multidisciplinary approaches in the management of speech delay; publications in English or Indonesian; and articles published within the last 10 years. Exclusion criteria included articles focusing on speech disorders in the adult population; articles that are not open access; and non-scientific writings such as opinion pieces without research based. Through a selection process based on keywords and inclusion and exclusion criteria, the researchers obtained 11 articles that were then used in this narrative review.

4. Results And Discussion

The researchers presented the results of their review of 11 literature reviews in a table for easier understanding. The table was structured according to several parameters, including the study title, author, year of publication, study subjects, age of subjects, influencing factors, impact of the intervention, impact on primary care, and conclusions (Table 1).

Table 1. Research Results from Literature Review

No.	Title	Author	Year	Research Subject	Age	Influece Factor	Intervention Impacts	Impact to Primary Care	Summary
1	The impact of nonverbal ability on prevalence and clinical presentation of language disorder	Norbury et al.	2016	Children with language disorders in population studies	5–6 years	Nonverbal cognitive abilities, developmental factors	(not specifically explained)	Developmental screening by a primary care physician is necessary even if nonverbal skills are normal	Language disorders can occur even if nonverbal abilities are normal
2	Speech and language delay in children: Prevalence and risk factors	Sunderajan & Kanhere	2019	Children with speech and language delay	0–6 years	Lack of language stimulation, use of gadgets, low parental education	Early intervention is highly recommended	Primary care physicians can identify risk factors during child visits.	Speech delay is influenced by biological and environmental factors
3	Screening for language and speech delay in children under five years	Jullien	2021	Children undergoing developmental screening	<5 years	Developmental and environmental factors	Screening allows for early intervention	Support routine developmental screening in primary care	Speech delay is effectively detected by screening
4	Developmental language disorder: Early predictors, diagnosis, and intervention	Sansavini, Guarini & Justice	2021	Children with language development disorders	2–6 years	Family history and early language delay	Language therapy improves communication	Identifying early predictors in primary care	Early diagnosis improves the impact of language development

Table 1. Research Results from Literature Review

No.	Title	Author	Year	Research Subject	Age	Influece Factor	Intervention Impacts	Impact to Primary Care	Summary
5	Speech and language delay in children: A practical framework for primary care physicians	Liang, Lim & Tan	2023	Children with speech and language delays	<5 years	Genetics, hearing loss, lack of stimulation	Early detection and referral for speech therapy	Providing a clinical framework for primary care physicians	A systematic approach improves early detection
6	Association between screen time and children's language development: A systematic review	Madigan et al.	2024	Children in various screen time studies	0–12 years	Screen time duration and parental interaction	Reducing screen time improves language development	Screen time limitation education for parents in primary care	Excessive screen time is correlated with language delays.
7	The role of home nurturing environment on early childhood neurodevelopment	Jiang et al.	2024	Children in a neurodevelopmental cohort study	0–3 years	Home environment and parental stimulation	A good nurturing environment enhances language development	Primary care physicians can provide developmental stimulation counseling.	The home environment influences neuro and language development.
8	Early interventions with parental participation and their implications on the	Bernabe-Zuñiga et al.	2025	Children in family-based interventions	0–5 years	Parental involvement and family environment	Family interventions enhance language development	Primary services can involve families in developmental stimulation.	Effective family interventions improve neurodevelopment

Table 1. Research Results from Literature Review

No.	Title	Author	Year	Research Subject	Age	Influece Factor	Intervention Impacts	Impact to Primary Care	Summary
	neurodevelopment of premature children								
9	Influence Factors, Impact and Interventions for Speech Delay and Language Delay in Early Childhood	Palipung et al.	2024	Anak usia dini dengan *speech delay*	0–6 years	Biological factors, environment, parenting patterns	Speech therapy and family stimulation	Parental screening and education in primary care	Speech delay is multifactorial
10	Parent-implemented early intervention for improving speech and language skills	Lai, Chen & Huang	2025	Children with language delay	1–6 years	Parental participation in therapy	Intervention programs by parents improve language	Primary care physicians can train parents to perform stimulation.	Parent-based interventions have been shown to be effective
11	Early rehabilitation interventions for children with global developmental delay	Liu, Zhang & Chen	2025	Children with global developmental delay	<5 years	Neurological, genetic, environmental factors	Early rehabilitation improves language function	Early detection and rehabilitation referral by primary care	Early intervention improves child development

Speech delay is a common developmental disorder found in early childhood. According to several studies, the prevalence of speech delay in school-age children is around 9.92% of the child population [8]. Speech delay is often associated with various risk factors, including a lack of language stimulation at home, parental education level, and environmental factors[9]. In addition, excessive exposure to gadgets/screen time in early childhood is associated with delayed language development because it reduces verbal interaction between children and parents[10].

In children who have no other comorbid developmental disorders, the impact of technological developments and the rapid use of digital media in children is associated with an increased risk of speech and language delays. Therefore, identifying risk factors and early detection are crucial to prevent the long-term impacts of speech delay, especially in primary healt care.

The Role of Primary Services in Early Detection

Speech delays in children can be detected early through primary healthcare services. Within the healthcare system, primary care physicians are often the first line of contact for children experiencing developmental issues. Routine child development screenings in primary care can help identify language delays at an early age[11]. The screening process typically involves interviews with parents, observations of the child's development, and the use of developmental screening tools.

Furthermore, implementing language development screening programs for children under five years of age in primary healthcare facilities is crucial[12]. Screening programs can improve early detection of language disorders and expedite referrals to specialist services, such as physiatrist, developmental pediatricians, and speech therapists. Primary care workers can educate parents about the importance of language stimulation at home[13]. Interventions can be implemented by parents at home, such as verbal interaction, reading books with children, and limiting digital media use.

Primary healthcare workers play a key role in early screening, education, and referral. Early screening in children can use screening tools, identify risk factors, and provide solutions to parental concerns. Parents can educate children through effective talking techniques and simple activities at home. Referral is a last option. It’s needed when there are comorbidities or when parents struggle to help with their child's speech delays. Ultimately, the key to successful early intervention in primary healthcare is parental consistency.

Multidisciplinary Approach

Speech delays in children cannot be treated by a single professional but require a multidisciplinary approach. This approach involves various healthcare professionals with varying expertise to provide comprehensive care.

A multidisciplinary team in handling speech or language disorders in children usually consists of a pediatrician, speech therapist, psychologist, and audiologist[14]. This interprofessional collaboration allows for a more comprehensive evaluation of the biological, psychological, and environmental factors that influence a child's language development.

In addition, pediatric rehabilitation approaches often involve occupational therapy and physiotherapy, especially in children who have other comorbid developmental disorders[15]. This approach allows for more integrated treatment, thereby increasing the effectiveness of therapy. Speech delays are more difficult to manage in children with congenital conditions such as hearing loss, cerebral palsy, autism spectrum disorder, down syndrome, global developmental delay, developmental coordination disorder, childhood apraxia of speech, and orofacial structural abnormalities. These conditions affect sensory, motor, cognitive, and anatomical aspects that play a crucial role in language production and comprehension. Therefore,

managing speech delays in children with congenital comorbidities requires a multidisciplinary approach and early intervention to achieve optimal communication outcomes.

Family involvement is the key in the multidisciplinary approach model[16]. Parents' role is not merely as caregivers, but also as part of the intervention team, helping to provide language stimulation to children at home. Furthermore, the development of the digital age is unavoidable. The role of parents in limiting exposure to devices/screen time is crucial.

Early Intervention Effectiveness

Various studies have shown that early intervention is a crucial factor in the success of speech delay therapy. Interventions initiated at an early age can significantly improve a child's language development.

Language therapy programs administered to early childhood can improve receptive and expressive language skills[17]. Interventions initiated before the age of three produce better results than those initiated at a later age. Mothers play a crucial role in a child's speech and language development.

Furthermore, family-based early intervention programs can improve the communication skills of children with speech delay [18]. These programs involve training parents in language stimulation techniques that can be incorporated into daily activities.

These findings indicate that the success of interventions depends not only on the therapy provided by healthcare professionals but also on the active role of parents in providing language stimulation to their children at home.

Primary healthcare workers can teach parents ways to provide verbal stimulation. Starting when a child wakes up, they can greet their child with some questions of their sleep. Questions stimulate their thinking and encourage them to express themselves. Parents can also encourage kids to play guessing games. They can guess colours, name animals or fruits, and imitate animal sounds. Using images or flashcards in a focused setting helps kids name and remember pictures more quickly. Talking during family time can involve asking about favourite foods, toys, and activities at home. Before bed, you can read stories to children or ask them to share what they did from morning until bedtime.

Implications for Primary Health Care

Health care services play a key role in managing speech delays in childrens. Various studies support this idea. Key implications for primary healthcare practices include:

1. Implementing routine language development screening during well-child visits.
2. Increasing educational outreach for parents about language stimulation and communication development in children.
3. Strengthening the referral system to pediatric rehabilitation or speech therapy services;
4. Multidisciplinary collaboration between primary healthcare professionals and child development specialists.

Using these strategies helps spot and treat speech delays early. This boosts children's language skills and enhances their quality of life.

5. Conclusion

Speech delay causes fall into two main categories: with comorbidities and without. Speech delay with extra conditions takes more time and effort to treat than those without. Speech delay can impact communication skills, social interactions, and even future academic achievement. Environmental factors, lack of stimulation, and excessive gadget use increase the risk of this condition.

Speech delays, with or without comorbidities, require consistent parental management. Treating speech delay involves multiple aspects. To boost the success of speech delay treatment, key steps include initial screening at a primary healthcare facility and early intervention by healthcare workers and parents.

Healthcare workers in primary care can spot and tackle issues early. They do this through routine screenings, educating parents, and making the right referrals. Treating speech delay needs teamwork from different experts. This includes pediatricians, physiatrists, speech therapists, psychologists, and other developmental specialists. Parents are key in this process. The stimulation they provide at home is vital for therapy success. Early intervention, especially before age five, leads to much better developmental results. More research is needed to understand how steady parental involvement helps therapy for children with speech delays. This article doesn't cover the topic in detail. Furthermore, more detailed interventions that parents can implement at home for children with speech delay require further research to quantify the success of parental interventions.

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