

## RESEARCH ARTICLES

# There is a Critical Relationship Between Discourse Delay and Cerebral Paralysis in Cerebral Palsy Child Patients at Haji Medan Hospital in 2023

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**Abstract:** Speech delay in children can be a condition in which the child's expressive dialect development is inappropriate or underage. The frequency of speech delay in Indonesian children who do not attend school reaches 5–10%. Boys with speech disorders more than girls. The cause of speech delay can be hearing loss, cerebral palsy, low thinking ability, or autism. Cerebral palsy patients can experience wild movements and muscle spasms in the mouth. This will affect the child's speech development. This study aims to find out if there is a critical relationship between discourse delay and cerebral palsy in pediatric patients at Haji Medan Hospital in 2023. This research is an analytical descriptive research with a cross-sectional approach. The subjects of this study are cerebral palsy patients at Haji Medan Hospital, with an estimated total test of 132 people. Data analysis using Chi-square test. There is a significant relationship between speech delay and cerebral palsy in pediatric patients at Haji Medan Hospital. The results using Fisher's correct test showed a P value of less than 0.05, which supports the theory. There is a critical relationship between delay in discourse and cerebral palsy in pediatric patients at Haji Medan Hospital.

**Keywords:** Speech delay, cerebral palsy, child

## INTRODUCTION

Speech delay in children can be a condition when the development of the child's expressive dialect is not appropriate or underage.<sup>1</sup> Children will have difficulty communicating their feelings and the need for lexicons. The rate of speech delay in children who do not attend school in Indonesia reaches 5-10%.<sup>2</sup> We can see the development of children's speech and

dialects based on the child's age. Delays in speech and dialect development are compared to the child's age, gender, social background, and insight. Children with speech disorders are more likely to be male than female.<sup>3</sup>

Cerebral palsy patients may experience uncontrolled development and muscle spasms inside the mouth. As a result, functional ability decreases, endurance

decreases, and energy consumption becomes high.<sup>4</sup> This will affect the child's speech development. Another impact of cerebral palsy patients is poor health and limited physical development. Lack of healthy food intake is caused by children refusing to be fed and difficulty swallowing food.<sup>5</sup>

Researchers are particularly interested in examining how the relationship between cerebral palsy in children and speech delays. Considering that the incidence rate in children in Indonesia is very high. Researchers hope that with this study, parents can understand and provide appropriate treatment for children with cerebral palsy accompanied by speech delays.

## METHOD

This study will use an analytical descriptive research strategy with a cross sectional approach, namely factor estimation is only carried out with momentary perception or within a certain period of time and each study is only one observation.<sup>6</sup>

The population in this study is all pediatric patients with cerebral palsy who undergo examinations and receive services at Haji Medan Hospital. The subjects used in this study were children with cerebral palsy who came to the Medan Hajj Clinic and there were medical records from 2020 to 2022.

The number of subjects in this study was 132 people. The data collection strategy of this research uses official archives at the Medan Hajj Hospital. Reports in order to record the medical records of cerebral palsy patients who arrive late or not late.

The results of the examination will be analyzed by demonstrative tests. Investigate the information using the appropriate program. The results of the research are displayed in the form of content and tables.

Speculative testing evaluated the relationship between speech delay and cerebral palsy in children at Haji Medan Hospital using the Chi-Square test.

## RESULT

Question submission based on the characteristics of the questions included age, gender and speech delay (Hartanto, 2018). From the information delivery, the most age is children with an age range of 2-3 years.<sup>5</sup>

**Table 1. Data distribution based on sample characteristics.**

Age Characteristics	n
0-<12 Mouth	25 (18,9%)
12-<24 Mouth	22 (16,7%)
2-<4 Year	45 (34,1%)
4-<6 Year	17 (12,9%)
>6 Year	23 (17,4%)
<b>Total</b>	<b>100%</b>

  

Gender Characteristics	n
Man	74 (56,1%)
Woman	58 (43,9%)
<b>Total</b>	<b>100%</b>

  

Characteristics of Speech Delay	n
Positive	106 (80,4%)
Negative	26 (19,6%)
<b>Total</b>	<b>100%</b>

**Table 2. Data distribution based on cerebral palsy samples.**

Characteristics of Infectious and Non-Infectious Causes	n
Infection	93 (70,5%)
Non-infectious	37 (28%)

No Data	2 (1,5%)
<b>Total</b>	<b>100%</b>
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<b>Characteristics of Cerebral Palsy Types</b>	<b>n</b>
Quadriplegia	60(45,5%)
Diplegia	38(28,8%)
Hemiplegia	4(3,0%)
Spastic	24(18,2%)
Non Spastic	2(1,5%)
Hemiparese	2(1,5%)
Athetosis	1(0,8%)
Dyskinetic	1(0,8%)
<b>Total</b>	<b>100%</b>

**Table 3. The Relationship Between Speech Delay and Cerebral Palsy.**

	<b>Charact eristics of Cerebra l Palsy Types</b>	<b>Frequenc y of Speech Delay</b>	<b>Freque ncy of Not Being Late</b>	<b>Valid Perce ntage</b>
Valid p0.03	Quadripl egia	59	1	45,5
	Diplegia	26	12	28,8
	Hemiple gia	1	3	3,0
	Spastic	16	8	18,2
	Non Spastic	2	0	1,5
	Hemipar ese	0	2	1,5
	Athetosi s	1	0	0,8
	Dyskinet ic	1	0	0,8
	<b>Total</b>	106	26	100,0

## DISCUSSION

Submission of questions based on the characteristics of the questions including age, gender and speech delay.<sup>5</sup> From the information delivery, the most age is children with an age range of 2-3 years.

The results of this study found that the number of characteristics of subjects with an age range of 2 to less than 4 years reached 45 children. This number is more than the Tanjung AS study which amounted to 33 children. 3 The characteristics of subjects with male sexual orientation were more in this study. This is inversely proportional to previous research conducted with more women.<sup>15</sup>

Cerebral palsy patients may experience uncontrolled development and muscle spasms in the mouth.<sup>4</sup> So that the utility capacity becomes low, the central nervous system is damaged and energy consumption becomes high. This will have an impact on the child's speech development. 18 Research conducted by Schoelderle T et al showed that dysarthria that occurs in children with cerebral palsy is closely related to language development.<sup>11</sup>

Speech capacity research in children with cerebral palsy is complex because it occurs in several groups, including language development (verbalization), phonology, and dysarthria.<sup>1</sup> According to research by May Christina, et al. 82% of children aged 5 to 6 years with cerebral palsy have speech delays or speech disorders. Dysarthria is the most common speech disorder.

The results of this study found that 80.4% of children with cerebral palsy showed some type of speech disorder. Speech disorders include breathing along with the development of the larynx, velopharynx, and pronunciation, and all of these abilities can be impaired in cerebral

palsy. 19 Speech disorders that affect speech include dysarthria/anarthria and speech dyspraxia/apraxia. Diarthria is characterized by moderate, weak, loose, and/or awkward development of the speech muscles.

Variations of the norm of speech muscle tone have been recommended to contribute to dysarthria. Spasticity is characterized by anomalies in the tonic extension reflex. Because speech and eating have the same verbal structure, the strong association between oromotor disorders, dysphagia, and dysarthria in cerebral palsy is not surprising.

Impaired running, speed, tone, and coordination of the oral muscles can affect a child's ability to create clearly spoken speech. Dysarthria, an interfering influence of neuromuscular control and speech execution, is often associated with oromotor disorders. Children may exhibit inclusion in one or all of the motor speech subsystems (breathing, phonation, enunciation, echo, and prosody systems). Diarthria in cerebral palsy is caused by a lack of speech muscles (speech muscles). Enlarged muscle tone (spasticity). Primitive reflexes or obsessive responses that inhibit control of verbalization. Unbalanced verbal responses (positive or negative responses).

Diarthria that appears in children with mild cerebral palsy can be a problem with pronunciation and consonant letters. More specifically at the phoneme level, these pediatric patients exhibited incorrect front lingual arrangements, reduced fricative and african accuracy, and a failure to recognize the position and pronunciation of the vowels in a remarkable way. Discourse-disrupting influences can range from mild pronunciation disorders to anarthria, and are most commonly found in children with spastic quadriplegia or athetosis.<sup>3</sup>

## CONCLUSION

There is a relationship between speech delay and cerebral palsy in children at Haji Hospital Medan. The spread of speech delay generally occurs in cerebral palsy of the quadriplegia type. The spread of cerebral palsy recurrence is more common in quadriplegia-type cerebral palsy. The most common comorbidity in children with cerebral palsy is epilepsy.

## ACKNOWLEDGMENTS

Suggestions for researchers are then expected to increase the number of samples so that the expected results are more accurate. Given that research on the incidence of cerebral palsy children with speech delays is still very rare.

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