



RELATIONSHIP BETWEEN BIRTH WEIGHT AND SPEECH DELAY IN CHILDREN

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ABSTRACT

Speech Delay is a condition where the quality of children's speech development is not appropriate or is below their age, children have difficulty expressing their feelings and lack of vocabulary mastery in children. According to the Indonesian Ministry of Health, it is explained that the toddler period is an important period in the growth and development of the next child, speech and language delays (Speech Delay) in Indonesia as much as 5%-10% in preschool children. Speech Delay is estimated to occur by several factors, namely intelligence, language use, speech style/model imitated, family relationships, health, genetics, physical disability, neurological malfunctions, gender, maternal education, socioeconomic status, family function, and number of children. This study aims to determine the effect and risk of speech delay in children with a history of being born with normal weight and those born with abnormal weight. By knowing the risk factors for speech delay in children, it is hoped that prevention efforts can be made so as to reduce the incidence of speech delay in children in the community. This type of research is analytic observational using a cross-sectional design, with a quantitative approach. The population in this study were parents who had children aged 2-5 years. The sample in this study were parents who had children aged 2-5 years experiencing speech delay disorders and who did not experience speech disorders as controls. Selection of research subjects using purposive sampling. The analysis test used was chi square test. Quantitative research data collection was carried out by filling out questionnaires through questionnaires and google form. Research results shows there is a relationship between birth weight and the incidence of speech delay (p value=0.045). The results of the OR calculation show that respondents who have a history of birth weight <2500 grams and > 4000 grams are at risk of 2.286 experiencing speech delay in children compared to respondents who have a history of birth weight 2500gram - 4000gram.

Keywords: child; birth weight; speech delay

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INTRODUCTION

The most reliable and powerful means of communication in society is language. Language is so important in the whole of human life. If the minimal use of language can be understood according to the intent and purpose of the speaker, then the language has achieved the goal of conveying a message in communication. Children as social beings will socialize and interact with the surrounding environment through language. There are four language skills that children need to master, namely writing, listening, reading and speaking skills..(Mailani et al., 2022).

Speech Delay is a condition where the quality of a child's speech development is not appropriate or is below their age, where the child becomes difficult to express their feelings and lack of vocabulary mastery in children. Based on data from research in the United States reported that the number of children's speech delays is around 5-8%. According to the Indonesian Ministry of Health on the situation of child health in Indonesia, it is explained that the toddler period is an important period in the child's further growth and development, speech and language delays (Speech Delay) in Indonesia as much as 5%-10% in preschool children.(Kunta Wibawa Dasa Nugraha, Tiomaida Seviana, eEvida Veronika Manullang, Wardah & Supriyono Pangribowo, Marlina Indah Susanti, Annisa Harpini, Khairani, Ratri Aprianda, 2022)

Toddlers who experience speech and language delays (speech delay) are related to the way toddlers interact with the surrounding environment that is not good, parenting patterns given to toddlers are not effective will have an impact on the behavior of toddlers. This is due to lack of information and proper parenting given by parents in caring for toddlers who have disorders in development. The impact of speech delay is a decrease in intellectual function and the level of intelligence of children, unable to keep up with their friends, difficulty communicating and interacting due to abnormalities in the child's language organs, and difficulty in understanding and socializing. Tend to be reluctant to change. The person you are talking to has a limited vocabulary or has difficulty expressing what you want. own(Hasiana, 2020).

Speech Delay is thought to occur by several factors, namely intelligence, language use, speech style/models imitated, family relationships, health, genetics, physical disability, neurological malfunction, gender, maternal education, socioeconomic status, family function, and number of children.[4] Based on the results of the article search, various factors were found that could affect the occurrence of speech delay in children, including exposure to gadgets, breastfeeding duration, nutritional status, family attitudes, family economy, interaction, preterm birth, and gender.(Nashirah & Frety, 2024).

Based on the results of preliminary studies at the Quantum Tegal Psychological Service Center, information was obtained under the Quantu psychological service center serving speech therapy (speech therapy) and life skills therapy (occupational therapy). The children who undergo speech therapy in children with speech delay disorders start from the age of 2 years to school-age children with more than 40 people. Based on the data of children undergoing speech disorder therapy at the Quantum Psychology Service Center, this has the potential for a high incidence of children who experience speech delay disorders in the community, thus the authors are interested in conducting research on the Relationship between Birth Weight and the occurrence of Speech Delay in Children. This study aims to determine the influence and risk of speech delay in children with a history of being born with normal weight and those born with abnormal weight. By knowing the risk factors for speech delay in children, it is hoped that prevention efforts can be made so as to reduce the incidence of speech delay in children in the community.

METHOD

This study is a quantitative analytic study with an observational approach using a case control design. Among them, univariate analysis was used to analyze the average value in the study, see the description of frequency distribution and proportion. Bivariate analysis was used to determine the relationship between variables. The analysis test used is the chi square test which aims to determine the relationship between birth weight and the occurrence of Speech Delay in children. Population is all subjects (humans, laboratory data etc.) that will be studied and meet the specified characteristics. (Riyanto, 2011). The population in this study were parents who had children aged 2-5 years. Respondents in this study were parents who had children with speech delay disorders and parents who had toddlers who did not experience speech disorders as controls in Tegal Region. The sample is part of the population that is expected to represent or represent the population..(Silalahi, 2015) The samples in this study were parents who had children aged 2-6 years experiencing speech delay and parents who had children aged 2-6 years not experiencing speech disorders as controls in Tegal Region. The selection of research subjects using purposive sampling where the subject is taken intentionally in accordance with the requirements of the subject needed.(Nursalam, 2020) The number of samples in this study amounted to 110, namely children who experienced speech delay 55 children and children who did not experience speech delay 55 children.

RESULT

Table 1. Shows that male respondents/children are more in the group who experience speech delay (76.4%) than those who do not experience speech delay (49.1%). The results of the chi square test showed a significant relationship between the sex of the child and the incidence of speech delay (p=0.003). The results of the OR calculation show that children who are male have a risk of 3.350 experiencing speech delay compared to children who are female (95%CI 1.481-7.579). Based on the age of the child most of the incidence of speech delay in children aged 24-36 months as many as 26 (47.3%) while in children who did not occur speech delay mostly in children aged 48-59 months as many as 25 (45.5%) The results of the chi square test there is a significant relationship between the age of the child with the incidence of speech delay (p=0.00).

Tabel 1.
Characteristic factors of the child

Variable	Speech Delay		OR 95%CI	P value
	Yes	No		
Gender of child				
Male	42 (76,4%)	27 (49,1%)	3,350 (1,481-7,579)	0,003
Female	13 (23,6%)	28 (50,9%)		
Age of child				
24-36 months	26 (47,3%)	9 (16,4%)	0,000	
37-47 months	14 (25,5%)	7 (12,7%)		
48-59 months	9 (16,4%)	25 (45,5%)		
60-72 months	6 (10,9%)	14 (25,5%)		

Tabel 2.
Birth Weight Factor

Variable	Speech Delay		OR 95%CI	P value
	yes	no		
Gestational Age				
Birth Weight				
<2500 dan >3500	20 (36,4%)	11 (20,0%)	2,286 (0,968-5,398)	0,045
2500-3500	35 (63,6%)	44 (80,0%)		

Table 2 shows that respondents who had a history of gestational age <37 weeks or >40 weeks in the group who experienced speech delay (47.3%) than those who did not experience speech delay (20.0%). The results of the chi square test showed a relationship between gestational age and the incidence of speech delay (p value=0.045). The results of the OR calculation show that respondents who have a history of gestational age <37 weeks or >40 weeks are at risk of 2.042 experiencing speech delay in children compared to respondents who have a history of gestational age 37-40 weeks (95%CI 0.968-5.398).

DISCUSSION

Based on the gender of the child, there is a significant relationship between the gender of the child and the incidence of speech delay (p=0.003). Children who are male have a risk of 3.350 experiencing speech delay compared to children who are female. This is in accordance with Roro's research which states that there is a relationship between gender and the incidence of speech delay in children.(Dhei Raro & Dhei Raro, 2023) .

Likewise, the results of Aurelia's research state that the internal factor that affects speech delay is gender. Children who are male often experience speech delay.(Aurelia et al., 2022) In contrast to the results of Susantri's research which states that there is no relationship between the sex of the child and the incidence of speech delay (p-value=0.48)(Susantri & Irwanto, 2021) Boys are more easily recognized by their parents that they have abnormalities in development and speech delay. This is in accordance with Nursalim's theory in Aurelia's research which states that the delay experienced by most boys is due to the influence of the hormone testosterone. The hormone can make boys more active. However, the hormone can actually slow down a child's physical development and speech development.(Hestiyana et al., 2021) Dewi's research results state that

there is a relationship between gender and the incidence of speech delay in children. Boys and girls have different levels of development. Girls have more vocabulary than boys this is due to the literalization process, in the brain of boys slower than girls so that maturity occurs more slowly which results in the development of boys' language slower than girls.(Putu Dianisa Rosari Dewi et al., 2023).

Based on the age of the child most of the incidence of speech delay in children aged 24-36 months as many as 26 (47.3%) while in children who did not occur speech delay mostly in children aged 48-59 months as many as 25 (45.5%). The results of the chi square test have a significant relationship between the age of the child and the incidence of speech delay ($p=0.00$). Dekian also conducted research nurhikmah incidence of speech delay mostly in children aged 3 years.(Nurhikmah et al., 2023) The results of research conducted by Aurelia on internal factors affecting the incidence of speech delay in children aged 5 years.(Aurelia et al., 2022) from several studies, the incidence of speech delay is mostly detected in children starting at the age of 3 years, which should be detected in children before the age of 2 years.(Indah Retno Wardani, 2024).

The results showed there was a relationship between birth weight and the incidence of speech delay (p value= 0.045). The results of the OR calculation show that respondents who have a history of birth weight <2500 grams and > 4000 grams are at risk of 2.286 experiencing speech delays in children compared to respondents who have a history of birth weight 2500gram - 4000gram (95%CI 0.968-5.398). This is in accordance with the results of Yulia's research which states that there is a relationship between birth weight and the incidence of toddler development. Toddlers with a history of LBW have a 4 times higher risk of experiencing suspect development.(Khayati & Sundari, 2019).

According to Soetjningsih in Wulandari (2012), factors that influence development include genetic factors and environmental factors, which include prenatal factors and post natal factors. Problems in the prenatal period can impact low birth weight babies, where low birth weight babies are at risk of short-term and long-term problems. One of the risks of long-term problems is growth and development problems, speech and communication disorders and visual impairment.(Khayati & Sundari, 2019),(Pratiwi et al., 2022) According to Nestria Budiasih, speech delay is mostly caused by prenatal and perinatal history such as premature and LBW. In children born prematurely, the risk of neurodevelopmental abnormalities increases. Brain development has an important role in supporting child development so that children will experience disorders, one of the disorders that can occur is speech delay. Children born with LBW are known to be at high risk of experiencing difficulties in speech development and poor motor skills. LBW children have a risk of experiencing growth and developmental disorders due to the maturity of brain cells that are feared to have been damaged during labor and have not been fully formed.(Budiasih et al., 2024)

CONCLUSION

The results showed there was a relationship between birth weight and the incidence of speech delay (p value= 0.045). The results of the OR calculation show that respondents who have a history of birth weight <2500 grams and > 4000 grams are at risk of 2.286 experiencing speech delays in children compared to respondents who have a history of birth weight 2500gram - 4000gram.

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