CORELLATION BETWEEN NUTRITIONAL STATUS AND HEAD CIRCUMFERENCE IN CHIRLDREN WITH SPECIAL NEEDS WITH SPEECH DELAY

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ABSTRAK

Abstract:
Growth and development of a child is influenced by several factors, including nutritional status and head circumference. Childreen who experience growth and developmental disorders are called children with special needs who have several categories, one of them is interference in speech and language. This study aims to determine the relationship between nutritional status and head circumference in children with special needs in Psychiatric Hospital Sungai Bangkong Pontianak. This study is an analytic survey with a cross sectional design on 40 children with special needs in Psychiatric Hospital Sungai Bangkong Pontianak. The results of the study were tested with the Somers'd test, chi-square test, and Fisher's test with the help of the computer program. The results of the bivariate analysis showed that there was no significant relationship between nutritional status and speech delay (p: 0,376). Bivariate analysis showed that there was no significant relationship between head circumference and speech delay (p: 0,537).

Abstrak:
Pertumbuhan dan perkembangan seorang anak dipengaruhi oleh beberapa faktor, diantaranya status gizi dan lingkar kepala. Anak yang mengalami gangguan pertumbuhan dan perkembangan disebut anak berkebutuhan khusus (ABK) yang memiliki beberapa kategori, salah satunya ialah gangguan dalam berbicara dan bahasa. Penelitian ini bertujuan untuk mengetahui hubungan antara status gizi dan lingkar kepala pada anak berkebutuhan khusus di Rumah Sakit Jiwa Daerah Sungai Bangkong Pontianak. Penelitian ini bersifat survei analitik dengan desain cross sectional pada 40 anak berkebutuhan khusus di Rumah Sakit Jiwa Daerah Sungai Bangkong. Hasil penelitian diuji dengan uji somers'd, uji chi-square, dan uji fisher dengan bantuan program komputer. Hasil Analisis bivariat menunjukkan tidak adanya hubungan bermakna antara status gizi terhadap keterlambatan bicara (p: 0,376). Analisis bivariat menunjukkan tidak adanya hubungan bermakna antara lingkar kepala terhadap keterlambatan bicara (p:0,537).

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INTRODUCTION

The growth and development of a child is influenced by several factors, including nutritional status and head circumference. Head circumference (HC) describes brain growth from the estimated volume in the head. Head circumference is influenced by the nutritional status of children up to 36 months of age. According to the Riskesdas report in 2013, there were 19,6% undernourished children under five, consisting of 5,7% under five with poor nutrition, 13,9% undernourished, 4,5% over-nutrition and 11,9% obese [1]. The nutritional status of children in West Kalimantan based on Riskesdas data in 2013 there were around 19% under-fives with malnutrition and severe malnutrition, as many as 69,2% under-fives with normal nutrition and 11,8% under-fives with over-nutrition [2]. Children with growth disorders developmental disorders, both growth disorders, developmental disorders or both are called children with special needs (ABK). Children with special needs have several categories, one of which is speech and language disorders. The prevalence of speech and language disorders varies between 1%-32% in the normal population, influenced by various factors such as the age of the child, and the method used to establish the diagnosis [3]. Data from the Medical Rehabilitation Department of RSCM in 2006, from 1125 visits by pediatric patients, there were 10, 13% of children were diagnosed with speech and language delays [4]. In a global developmental delay study conducted at the children's polyclinic at Sanglah Hospital, it was found that 24% of children had speech delays [5]. In a study at the Werdhi Kumara I day care center, Denpasar, using the Early Language Milestone Scale-2 (ELMS-2), the prevalence of speech delay was 8,6% [6].

RESEARCH METHOD

The design of this research is analytic with a cross sectional study approach. Sampling was carried out from patient medical record data and measurements of nutritional status of patients treated at RSJD Sungai Bangkong Pontianak, from September 2018 - January 2019. Data were collected from medical records and research forms that had to be filled in by respondents who had signed informed consent and measurements were taken. weight, height, and head circumference. The results of measurements of weight and height will be entered into the WHO weight/height curve to determine nutritional status, while head circumference will be entered into the Nellhauss curve. Children with speech delays who did not undergo therapy at the Children's Clinic of the Sungai Bangkong Hospital, Pontianak, would be excluded from the research subjects. The data taken was entered into the SPSS® 23 software program. The data were analyzed using non-parametric correlation tests in the form of Somers'd test, chi-square test and Fisher's test. The level of significance in this study was stated when $p < 0,05$.

RESULTS AND ANALYSIS

1. Result

Table 1.
Distribution of Nutritional Status Based on Weight/Height Index in Research Subjects

Nutritional status	Speech delay	No speech delay
Severely wasted	2	0
Wasted	1	0
Normal	20	16
Risk of overweight	0	0
Overweight	0	1
Obese	0	0
Total	23	17

Tabel 2.
Distribution of Head Circumference According to Age in Research Subjects

Head circumference	Speech delay	No speech delay
Normal	18	14
Microcephaly	5	3
Macrocephaly	0	0
Total	23	17

2. Analysis

Speech and language disorders are very common problems in children aged 2-5 years. The prevalence of speech and language delay in children aged 2-4,5 years is 5-8%, the prevalence of language delay is 2,3-19% [6]. The results of statistical analysis using the Somers'd test obtained a significance value or p value = 0,376 which shows that the correlation is not significant. The correlation value is 0,079 which indicates that the correlation is very weak. This is not in line with research conducted by Adenike et al in 2013 which stated that the nutritional status of a child affects child development, as well as the results of research conducted by Sitaresmi in 2008 which stated that nutritional status in children affected developmental delays [8][9]. The results of Siti Zulaikha's research show that there is a significant relationship between nutritional status and the development of children aged 2 to 3 years [10]. Malnutrition not only increases morbidity and mortality but also reduces productivity, inhibits growth and development of children so that their growth and development disturbed. In this study, there was no significant relationship between nutritional status and speech delay, because in this study nutritional status was not the main cause of speech delay, the delay experienced by the subjects in this study was caused by other factors or disorders experienced by patients such as autism, Down syndrome, ADHD and intellectual disability which are the main causes of children experiencing speech delays. The maturation of brain function and speech and language skills is not solely influenced by biological processes (nutritional intake), but is also strongly influenced by the quality of the experience of interaction with the nurturing and surrounding environment and nutritional status is not the main factor causing speech delay.

The size of the head circumference describes the contents of the head including the brain and cerebospinal fluid. The size of the skull growth follows the development of the brain, so that if there is an obstacle to the growth of the skull then the child's brain development is also hampered. Head circumference that is above or below normal tends to occur in children who are influenced by their nutritional status. Bivariate analysis of the other independent variable, namely head circumference using Fisher's test because it does not meet the requirements to use the chi-square test and obtained p value = 0,537 which indicates there is no statistically significant relationship between head circumference and speech delay. The results of this study are in line with research conducted by Dhennis et al where there was no significant relationship between head circumference and infant development [11]. This result is different from the results of research conducted by Uswatun & Wulandari conducted in Central Java where a statistically significant relationship was found between head circumference and infant development [12]. The differences that occur may be due to differences in research subjects and research sites. The differences that occur can also be influenced by nutritional status in this study where most of the children are well nourished, as many as 90% of children have good or normal nutritional status. Bivariate analysis of other independent variables or confounding factors such as gender, prematurity, LBW, pregnancy complications, parental education level, family history of speech and language disorders, and socioeconomic status, none of these factors had a significant relationship. statistically on speech delay. The results of the study for children with low birth weight (LBW), obtained as many as 4 children (10%) with LBW, and 36 children (90%) with normal birth weight. LBW is a risk factor that has a major contribution to perinatal mortality and is one of the factors that can affect developmental delays.

Low birth weight is an indication that the nutrients circulated into the body have

not been maximized so that the development of some parts is not optimal [13]. Based on the results of the study, there were 2 (6,7%) children with premature birth and 28 (93,3%) children born at term or not. premature. Another study showed that children with speech delays were generally associated with a history of preterm birth, but in this study only 2 children (6,7%) had a history of premature birth, so there was no significant association with speech delays. Complications during pregnancy showed a non-significant relationship with p value = 0,324, the results of this study are not in accordance with the theory which states that complications during pregnancy such as gestational diabetes are teratogenic so that they can cause congenital anomalies and central nervous system defects. Hypertension and pre-eclampsia/eclampsia also have a close relationship with morbidity and fetal death. Research conducted by T. Fatemeh in 2012 in Iran stated that complications of pregnancy or pregnancy with high risk, including gestational diabetes, hypertension, and pre-eclampsia/eclampsia have a significant relationship with developmental delays in children aged 4-60 months [14]. Which is not significant this may be due to the number of research subjects with a history of maternal complications during pregnancy is very small, namely there are only 2 (5%) children, this is also related to the number of subjects who are premature and LBW where these three things are closely related, in this study these are only a few subjects who were born prematurely and LBW.

Statistical analysis showed that there was no relationship between family history of speech and language disorders and speech delay, with p value greater than 0,05, namely p = 0,676. The results of this study are not in accordance with the theory which says that a family history of speech delay is a risk factor for speech delay. The level of education is one of the factors of the quality of child care, the education of

parents, especially mothers, plays a role in the factors that determine the development of children. The high level of maternal education supports the statement that parental attention to child development is thought to be related to the level of parental education. The level of parental education in this study did not show a significant relationship. The results of this study are not in accordance with the theory which says that mother's education affects the stimulation given to children, how to educate and how to raise children, and how to solve problems. The low level of parental education is a risk for delays in child development, this is due to the knowledge and ability to provide stimulation for the development of their children [7]. This is may be because the researchers took samples at the therapy center for children with special needs, which can be seen from the research data. Most of the subject's parents, especially mothers, have high education. Socio-economic status of research subjects mostly have a very high level of socioeconomic status (65%). In Noel et al's research which states that unfavorable family economic conditions with small incomes will increase pressure in the family, create psychological stress and affect the quality of interaction between parents and their children, so that it will affect the development of the child [15]. Bivariate analysis of socioeconomic status on speech delay also showed a statistically insignificant result, namely the p value = 0,895. The results of this study are not in accordance with the theory that socio-economic conditions are one of the factors associated with language and speech abilities, low socioeconomic levels increase the risk of child developmental delays and speech delays [15]. The different results of this study may be caused by status The socio-economic status of the subjects of this study were mostly above average or adequate, as many as 80% of the subjects had very high and high socioeconomic status. To get therapy at this clinic requires a fee, parents with adequate

or high socioeconomic status tend to be more aware and easy to provide and pay for therapy for their children and know what is best for their children, while parents with low incomes and low socioeconomic levels tend to be unable to pay for therapy so that in this study more children with high socioeconomic status were found.

CONCLUSION

There is a speech delay disorder in most of the research subjects, most of them have normal nutritional status and normal head circumference. Furthermore, there is no significant relationship between nutritional status and head circumference on delays in children with special needs at the Sungai Bangkong Mental Hospital Pontianak.

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