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CROSS-SECTIONAL STUDY OF RISK FACTORS FOR CHILDREN'S LANGUAGE AND SPEECH DELAYS

Abstract

Backgropund: Teaching children to talk in both directions and to comprehend speech appropriate for their age is an important part of their language development process. There is a direct correlation between a child's language development and brain growth. Parents and the surrounding environment have an impact on a child's growth. The purpose of this study is to identify the risk factors for children's language and speech delays. This cross-sectional study was conducted at PAUD Kindergarten in the Grogol District between November 2022 and January 2023. Purposive sampling was used to get samples. A questionnaire was used to obtain the data. The DENVER sheet is used to measure development. SPSS was used to examine the data. The results showed that the father was employed (40.8%), the mother had a high school degree (55.1%), and the family's income was below the minimum wage (51%). With a standard deviation of 5.65 years, the average age of the first respondents who used gadgets was 3.27. Most of them used them for 30 to 60 minutes each day. The average children (59%), who is younger than 4 years old, utilizes a device for the first time for 30 to 60 minutes each day. Children perform this 1-2 times a day (65%). 20% of children fall into the questionable group in terms of language development. According to statistical study, maternal education (p value = 0.021) and family income (p value = 0.005) are related. Conclusion: Family income and maternal education are related to children's language and speech delays

Key words: children, development , language, speech,

Introduction

Currently, Indonesia has entered a new phase in terms of interaction with digital technology, especially gadgets. This condition cannot always be interpreted positively. Sometimes technology that was not used properly can also backfire on the user. (Subagijo, 2020)

In this era, gadgets were an inseparable part of children's lives. (Nurhafani Erna et al., 2023) Children accept the use of gadgets because of their utility and convenience. However, there are some negative impacts of gadget use in terms of children's social life, health, speech delays, and cognitive skills, which can also affect their education in the long term. (Kurniawati & Sutharjana, 2023; Pasaribu et al., 2023)

Language ability is an indicator of a child's overall development, because language ability is sensitive to delays or abnormalities in other systems, such as sensorimotor, psychological, emotional cognitive abilities and the environment around the child. Sensory stimulation from hearing and sight is very important in language development. A child will not be able to talk without support from his environment. they must hear and see conversations related to everyday life as well as knowledge about the world around them. They must learn to express themselves, share their experiences with others and express their wishes. (Soetjiningsih & Ranuh, 2012)

A child's growth and development is influenced by the environment, which can be temporary or permanent and can influence the speed and quality of a child's growth and development. The effect can slow down or increase the speed of a child's

growth and development. The environment can be biophysical-psychosocial which includes the family, the community around the child, the physical environment, social-cultural and political economy of a country (Soetjiningsih & Ranuh, 2012)
Many factors influence a child's language skills. Delayed gross motor development, exclusive breastfeeding for less than 6 months, media exposure for more than 2 hours daily, and poor social interaction are risk factors for delayed speech development in children. (Tan, et al., 2019). In addition, low parental education, a multilingual environment and inadequate stimulation increase speech delays in children. (Sunderajan & Kanhere, 2019)
Male gender, parental age, use of electronic devices, gestational age at birth and low birth weight are the most common risk factors for speech and language delays in children. The knowledge of several risk factors should be a concern for parents to carry out early screening, assessment and intervention (Hoque, et al., 2021).
Currently, many parents have given gadgets to their children early to make them behave better in public (self control). (Zain et al., 2022) Parents want to ensure that their children don't fall behind in the age of technology. But parents often forget the fact that, depending on how their kids use them, devices can be damaging or helpful, so it's important to consider both sides of the argument before gifting them.
Having a gadget can be good for youngsters since it allows them to express themselves creatively through games on their phones or imaginative apps that stimulate their senses. On the other hand, if children use electronics excessively and without parental supervision, it can lead to addiction and dependence, as well as interfere with their social development.
Gadget usage among children is worrisome because the Malaysian Communications and Multimedia Commission (MCMC) found that 83.2 percent of Internet users are children between the ages of 5 to 17 years old (Malaysian Communications and Multimedia Commission (MCMC), 2017). To illustrate, 93 percent of Internet users are children using smartphones to access WhatsApp, Telegram, and any other applications that have a communication element. Furthermore, studies found that 75 percent of children do not get enough sleep in their daily activities, which would affect their development due to the impact of the use of gadgets (Esther, 2013)
Even at the age of one, a child should be able to speak, even if it's just babbling with their parents' assistance. Children who are preoccupied with gadgets tend to respond slowly to every question they are asked, as if they cannot digest the questions quickly. (Zain et al., 2022) This can also affect their vocabulary, as they only know a few words in relation to repetitive words in cartoons and video games.

Method

Cross-sectional study was conducted in Kindergarten in Grogol District, Sukoharjo. The study population included all children aged 4-6 years. Data collection took place in November 2022 to January 2023. Parents of all these children were asked to answer a pre-designed, pre-tested and validated questionnaire. The questionnaire consists of questions related to demographic data. Development was checked at the time of contact and recorded on a data collection sheet.
Data were collected using a well-structured questionnaire after obtaining informed consent. The questionnaire consists of a sociodemographic profile, family-based risk factors, and gadget factors

SPSS software, version 23 was used to enter, analyze and calculate data. For quantitative variables, the mean, median and standard deviation are calculated. For qualitative variables, frequency and percentage distribution tables were generated. Data is presented using frequency tables, charts and graphs. Descriptive analysis was used for sociodemographic and categorical data. Variables related to speech and language delays were analyzed using bivariate analysis. P *value* of less than 0.05 and a 95% confidence interval were considered statistically significant

Result

A cross-sectional study was conducted in November 2022 to January 2023 in children aged 4-6 years. Data was collected from 49 children who met the inclusion criteria using a structured questionnaire with purposive sampling technique. From the sociodemographic profile of the sample, the following results were obtained. Table 1 shows the demographic profile of respondents. The mother has completed high school (55.1%), the father works as an employee (40.8%), and the family income is less than the minimum wage (51%).

Tabel 1. Respondent Demographics

Variable	Category	Frequency	Percent (%)	*P Value*
Gender (Chilren)	Boy	25	51	0.524
	Girl	24	49	
Father's occupation				0.209
	Trader	3	6.1	
	Farmer	1	2	
	Laborer	11	22.4	
	Employee	20	40.8	
	Other	14	28.6	
Father’s Education				0.076
	Primary School	7	14.3	
	Junior High School	13	26.5	
	Senior High School	26	53.1	
	University	3	6.1	
Family income	< Minimum Wage	24	49	0.005*
	≥ Minimum Wage	25	51	
Mother’s education	Primary School	5	10.2	0.021*
	Junior High School	13	26.5	
	Senior High School	27	55.1	
	University	4	8.2	
Mother’s occupation				0.814
	Housewife	12	24.5	
	Government employee	13	26.5	
	Trader	24	49	
	Total	49	100	

* : *p value <0.05 is statistically significant*

The average age of the first using gadgets was 3.27 with a standard deviation of 5.65 years with the majority using gadgets for 30-60 minutes per day.

Table 2. Descriptive Analysis of Gadget Use Intensity

Variable	Category	Frequency	Percent (%)
Age of First Using Gadgets	2 years old	13	26.53
	3 years old	15	30.61
	4 years old	14	28.57
	5 years old	4	8.16
	6 years old	2	4.08
Intensity of Gadget Use Per Week	1 day/week	5	10.20
	2 day/week	3	6.12
	3 day/week	5	10.20
	4 day/week	2	4.08
	5 day/week	2	4.08
	6 day/week	1	2.04
	Everyday	31	63.27
Intensity of Gadget Use Per day	1 times/day	16	32.65
	2 times/day	16	32.65
	3 times/day	14	28.57
	4 times/day	2	4.08
	5 times/day	1	2.04
Gadget Usage Time Per Day	Less than 30 minute	13	26.53
	30-60 minute	29	59.18
	60-90 minute	1	2.04
	90-120 minute	6	12.24
Speech Development	Normal	39	79.6
	Suspect	10	20.4
Total		49	100.00

Research shows that the average child uses gadgets for the first time at less than 4 years old for 30-60 minutes per day (59%). Children do this 1-2 times per day (65%). The language development of children in the suspect category was 20%.

Table 3. Gadget and Speech Development

Variable	P value
Age of First Using Gadgets	0.717
Intensity of Gadget Use Per Week	0.522
Intensity of Gadget Use Per day	0.756
Gadget Usage Time Per Day	0.775

Statistical analysis shows that family income and maternal education are significantly related to children's language development, as indicated by a p value <0.05.

Discussion

DIn our study, speech-language delays were found in 20.4%. Other studies show a higher incidence of speech-language delays in male (Silva et al., 2013) and attributed it to slower language maturation. The central nervous system in boys and also by the influence of testosterone which stops cell death and makes proper connections difficult. However, our study found no gender differences.

The language experiences and consequences of toddlers vary greatly. (Law et al., 2017)In the past few decades, research has concentrated on determining how much family socioeconomic status (SES) influences parents' language input to their kids and, in turn, how much the kids learn to speak. (Schwab & Lew-Williams, 2016)

According to our research, a mother's level of education is a strong predictor of speech-language delay. The mother's involvement in the child's growth and development process has a significant impact on the child's developmental stage. Language development is one area of development that is impacted by the mother's presence. According to (Brito, 2017), a home with lots of stimulation is the best setting for language development. It shows that a mother's increased learning of languages frequency and higher levels of stimulation will positively impact her child's language development. (Dwi Lestari et al., 2020) In addition to the stimulation process, the presence of the mother plays a role in teaching communication patterns. (Pramono, 2020) A child will imitate the communication patterns of the people around him, one of which is his mother. (Dwi Lestari et al., 2020)

Even though infants are thought to pick up language quickly, there is a wide range in the way that language and communication skills develop in different kids. Socioeconomic status is a significant contributor to this variability (SES). Compared to their counterparts from higher-SES homes, children from lower-SES families typically exhibit poorer vocabulary growth. (Morgan et al., 2015)

Deficits in language learning psychological foundations, which heavily rely on executive functioning and memory, are similarly linked to poverty. (Perkins et al., 2013) Higher-income families engage in more communication with their kids and use speech to initiate conversations more frequently than they do for controlling behavior. (Brandes-Aitken et al., 2019; Evans & Schamberg, 2009) Furthermore, children who have higher family incomes are more proficient in language than children with lower family incomes. (Snowling et al., 2019; Triantoro et al., 2016)

Several studies have also examined how high-SES families talk to their toddlers differently from mid-SES families, finding that middle-class and upper-middle-class parents (in contrast to working-class parents) tend to talk more, use more word types and word tokens, respond to their children's utterances more frequently in a

topic-continuing manner, and pay less attention to controlling their behavior. (Hoff, 2003; Hoff-Ginsberg, 1986)

Conclusions

Family income and maternal education are related to children's language and speech delay. Children from households with lower socioeconomic status typically acquire their vocabulary more slowly than their counterparts from wealthier socioeconomic backgrounds, and these differences continue throughout school. Opportunities for children to learn language and literacy were favorably connected with their mother's educational background. Compared to children of moms with low levels of education, children of mothers with high levels of education have greater opportunity to acquire language and literacy.

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