

ORIGINAL ARTICLE

Factors Related to Speech and Language Development in Children 18-72 Months of Age

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ABSTRACT

Introduction: Speech delay is a prevalent problem in toddlers and needs to be addressed immediately. Factors associated with children's language and speech development include parenting patterns, gadgets use, nutritional status, maternal knowledge, and prematurity. However, there is still limited research that comprehensively analyses these various factors simultaneously, especially in the 18–72 month age group. The purpose of this study was to determine the factors that influence the language and speech development of children aged 18-72 months. **Methods:** This study used a quantitative design with a cross-sectional approach, involving 215 respondents selected through cluster random sampling technique. Data collection was conducted for parenting patterns using the Parenting Styles and Dimensions Questionnaire (PSDQ), maternal knowledge using a questionnaire referring to the guttmann scale, language and speech development using the Early Language Milestone Scale-2 instrument, and nutritional status of toddlers using observation sheets, scales, and microtoise referring to the WHO weight increment. Statistical analysis used chi square analysis and logistic regression. **Results:** The results showed that parenting ($p = 0.030$, $OR = 3.395$), gadget use ($p = < 0.001$, $OR = 5.685$), nutritional status ($p = < 0.001$, $OR = 6.499$), maternal knowledge ($p = < 0.001$, $OR = 6.291$), and preterm birth ($p = 0.040$, $OR = 2.684$) were significantly associated with speech and language development of children aged 18-72 months. **Conclusion:** There is an association between parenting, device use, nutritional status, maternal knowledge, and speech and language development of children aged 18-72 months.

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many as 5-10% of children are allegedly experiencing developmental delays, it is also stated that as many as 1-3% of children under five experience developmental delays (2).

INTRODUCTION

Speech delay is a common problem in toddlers, with 15% of 2-year-olds experiencing speech delay and 7% of preschool children experiencing other language development disorders. Speech and language delay is classified as delay, dissociation or deviation. The global prevalence of speech and language delay disorders in the primary school age group varies between 3% and 20%. Whereas in primary school-age children the prevalence of language delays is estimated to range from 3% to 16%, this is known through research conducted in various countries such as the United Kingdom, New Zealand, Canada, Hong Kong and the United States (1). The Indonesian Pediatric Society states that 5-8% of preschool children experience speech and language delays. IDAI data also shows that in Indonesia as

Children under five can be identified as having speech delay for the first time at the age of 12 to 18 months. Toddlers are considered to have a delay if by the age of 2 years they are not able to speak fluently, cannot follow instructions given, can only say less than 25 words and do not understand the questions asked (3). Speech and language delay is influenced by parenting patterns, use of gadgets, nutrition status, mother's knowledge and preterm birth. The problem of speech delay in children is a serious problem that needs to be addressed, it is one of the most common causes of developmental disorders found in children. Speech delay can be identified through the accuracy of word use, which is characterized by unclear speech articulation and only being able to communicate using sign language, so that parents and people around them do not understand what is conveyed by the child, even though the child

can understand what people around him are talking about (4).

Basically, the way parents and families nurture their children can influence children's language development. Parents' attitudes and behaviors reflect parenting patterns and how children interact and communicate during parenting. Parents' attitudes, behaviors and habits will be observed, assessed and imitated by children who are then absorbed into their habits intentionally or unintentionally. Democratic parenting will encourage children to find creative ideas according to their developmental stage. Meanwhile, permissive and authoritarian parenting tends to make children less aware of their surroundings (5).

Another aspect that affects children's speech and language development is the use of gadgets. This is influenced by parents who have other responsibilities besides taking care of their children so that they fill their children's free time with the use of gadgets. Excessive exposure to screen time can inhibit the development of verbal communication, leading to a high risk of delayed language development (6).

Nutrition is crucial in the processes of cell proliferation, DNA synthesis, metabolism, and the functioning of neurotransmitters, hormones, and enzyme systems that can influence brain development. Breastfeeding and deficiencies in certain nutrients such as protein, FE, and iodine can affect children's cognitive development (7). This research is supported by Pang et al., (2020) which states that the nutritional content of breast milk can improve children's cognition, language skills, and motor skills (4).

Parents' knowledge, especially mothers, plays an important role in supporting children's language development. The greater the parents' understanding of the importance of proper stimulation for language development, the better language skills the child can achieve. Effective language stimulation includes daily activities such as communicating with the child, modeling the correct use of words, and applying various creative methods such as reading stories, singing songs, or role-playing with tools (8).

Preterm babies often face problems in brain and emotional development. Some of the risks of developmental disorders that preterm babies can experience include: hearing and vision impairment, difficulty in language skills, psychomotor and behavioral disorders, problems in cognitive abilities, and impaired emotional development (9). Children born prematurely often show lower language development outcomes. According to Cassiano, children's language ability is influenced by non-linguistic development, temperamental traits and typical nurturing environment. Preterm birth indirectly affects children's expressive language skills through

cognitive and socio-personal development at 9 months of age (but not through motor skills, or mother-child and father-child relationships at the same age) (10).

Sukabumi is one of the second-level administrative regions in West Java Province, divided into 7 districts and 15 community health centres. One particular concern in this region, especially in the Kadudampit Community Health Centre Working Area, is the presence of a number of children experiencing speech delays. A study by (11) on toddlers aged 1–5 years in the area revealed that the majority of children (65%) showed development appropriate for their age. Meanwhile, nearly half (30%) of the toddlers were in the questionable category, and a small proportion (5%) had developmental disorders. Children with motor development disorders or suboptimal development are at risk of facing various challenges, including in communication and social interaction (11). Despite the concerning nature of this condition, most existing research has only examined one or two factors in isolation in relation to children's speech and language development. This fragmented approach has not been able to provide a comprehensive picture of the interaction of various factors that influence speech delay, especially in children aged 18–72 months. Therefore, this study aims to investigate the relationship between parenting patterns, gadget usage, nutritional status, maternal knowledge, and preterm birth on speech and language development in children aged 18–72 months in the Kadudampit Community Health Centre working area in Sukabumi Regency.

MATERIALS AND METHODS

Study Design

This study is a correlational study with a cross-sectional approach conducted in the Kadudampit Health Center Working Area, Sukabumi Regency. Before data collection, ethical permission has been obtained from ethical Sekolah Tinggi Ilmu Kesehatan Sukabumi (No: 000887/KEP STIKES SUKABUMI/2024).

Sample

The population of this study was all mothers who had children aged 18-72 months in the Working Area of the Kadudampit Health Center, Sukabumi Regency with a sample determined through cluster random sampling technique, namely 215 respondents. The inclusion criteria were mothers who were willing to be respondents and were domiciled in the Working Area of the Kadudampit Health Center, Sukabumi Regency. The exclusion criteria were children who had chronic diseases.

Instrument

The data collection method uses a questionnaire, where the instrument for parenting is The Parenting Styles and Dimensions Questionnaire (PSDQ). Reliability according to Cronbach's alpha is 0.661 and correlation

coefficient for validity r table 0.184 (12), mother's knowledge variables using a questionnaire that refers to the guttmann scale with Cronbach's coefficient α 0.752 and correlation coefficient for validity r table 0.361. speech and language development variables using a questionnaire that refers to the likert scale Cronbach's coefficient α 0.677 and correlation coefficient for validity r table 0.242. While the variables of gadget use and preterm birth using a questionnaire with closed questions, and the variable of nutritional status of toddlers using observation sheets, scales, and microtoise have been controlled for accuracy through the calibration process.

Data Analysis

Data were analyzed using univariate calculations, including frequency distribution, bivariate analysis chi square analysis, and multivariate analysis using logistic regression. All of the statistical analyses were performed using the SPSS statistical software package (version 26).

RESULTS

Table I shows that most of the characteristics of respondents child's age 37-55 months as many as 92 people (42.8%), child gender is female as many as 129 people (60%), mother's age is 20-35 years as many as 189 people (87.9%), mother's doesn't work as many as 177 people (82.3%), mother's education is high school as many as 109 people (50.7%) and marry as many as 188 (87.4%).

Based on table II, most of the variables is parenting patterns is authoritarian as many as 133 people (61.9%), gadget usage is > 1 hours as many as 122 people (56.7%), nutritional status is abnormal as many as 119 people (55.3%), mother's knowledge isn't good as many as 126 people (58.6%), preterm as many as 132 people (61.4%) and late in language an speech developments as many as 127 (59.1%).

Based on table III shows the results of chi-square analysis. The results showed that parenting pattern ($p = < 0.001$, OR = 12.758), gadget usage ($p = < 0.001$, OR = 12.394), nutritional status ($p = < 0.001$, OR = 13.450), mother's knowledge ($p = < 0.001$, OR = 12.129) and preterm birth ($p = < 0.001$, OR = 13.482) had the effect on the speech and language development of children aged 18-72 months in Working Area of the Kadudampit Health Center, Sukabumi Regency. Out of the five factors preterm birth were the most significantly related to the speech and language development of children aged 18-72 months with odds ratio of 13.482.

Based Table IV shows the results of multiple logistic regression using the enter method. All five factors such as parenting pattern ($p = 0.030$, OR = 3.935, gadget use ($p = < 0.001$, OR = 5.685), nutritional status ($p = < 0.001$, OR = 6.499), mother's knowledge ($p = <$

Table I : Characteristics of Respondents (n=215)

Respondent Characteristics	N	Percentage (%)
Child's Age		
18 - 36 months	65	30.2
37 - 55 months	92	42.8
56 - 72 months	58	27.0
Child's Gender		
Male	86	40.0
Female	129	60.0
Mother's Age		
< 20	12	5.6
20 - 35	189	87.9
> 35	14	6.5
Mother's Job		
Work	38	17.7
Doesn't Work	177	82.3
Mother's Education		
Elementary School	39	18.1
Junior High School	37	17.2
High School	109	50.7
College	30	14.0
Marriage Status		
Marry	188	87.4
Divorce	27	12.6

Table II : Univariate Analysis (n=215)

Variables	N	Percentage (%)
Parenting Patterns		
Authoritarian	133	61.9
Authoritative	82	38.1
Gadget Use		
< 1 Hour	93	43.3
> 1 Hours	122	56.7
Nutritional Status		
Normal	96	44.7
Abnormal	119	55.3
Mother's Knowledge		
Good	89	41.4
Not Good	126	58.6
Premature Birth		
Premature	132	61.4
Not Premature	83	38.6
Speech and Language Developments		
Late	127	59.1
Normal	88	40.9

0.001, OR = 6.291) and preterm birth ($p = 0.040$, OR = 2.684) were significantly related to speech and language development of children aged 18-72 months in Working Area of the Kadudampit Health Center, Sukabumi Regency. Out of the five factors nutritional status were the most significantly related to speech and language development of children aged 18-72 months with odds ratio of 6.499.

DISCUSSION

The results showed that there was a significant relationship between parenting patterns and speech and language development of children aged 18-72 months in the Kadudampit Health Centre Working Area. The influence of good parenting can help children grow

Table III : Bivariat Analysis

Variables	Category	Speech and Language Development				Total		P Value	OR
		Late		Normal					
		n	%	n	%	n	%		
Parenting Patterns	Authoritarian	107	80.5	26	19.5	133	100	0.000	12.758
	Authoritative	20	24.4	62	75.6	82	100		
	Total	127	59.2	88	40.9	215	100		
Gadget Use	> 1 Hours	101	82.8	21	17.2	122	100	0.000	12.394
	< 1 Hour	26	28.0	67	72.0	93	100		
	Total	127	59.1	88	40.9	215	100		
Nutritional Status	Abnormal	100	84.0	19	16.0	119	100	0.000	13.450
	Normal	27	28.1	69	71.9	96	100		
	Total	127	59.1	88	40.9	215	100		
Mother's Knowledge	Not Good	103	81.7	23	18.3	126	100	0.000	12.129
	Good	24	27.0	65	73.0	89	100		
	Total	127	59.1	88	40.9	215	100		
Preterm Birth	Premature	107	81.1	25	18.9	132	100	0.000	13.482
	Not Premature	20	24.1	63	75.9	83	100		
	Total	127	59.1	88	40.9	215	100		

Table IV : Multivariate Analysis

Variables	P-Value	B	OR
Parenting Patterns	0.030	-1.370	0.254
Gadget Use	0.000	-1.738	0.176
Nutritional Status	0.000	-1.872	0.154
Mother's Knowledge	0.000	-1.839	0.159
Preterm Birth	0.040	-0.521	0.594

and develop well in all aspects of their lives, such as physical, emotional, social and cognitive development. Conversely, unhealthy or unsupportive parenting can have a prolonged negative impact on a child's future. Parenting refers to all the actions, behaviors, and decisions taken by parents or caregivers in nurturing and educating their children. Different types of parenting, ranging from strict authoritarian parenting to loose permissive parenting, have been recognized and identified in psychology and child development literature. Parenting will have an impact on cognitive development including language skills (13).

Parents play an important role in optimal speech and language development. Sensitive or responsive parenting provides a safe base for exploration and assists the formation of operations in the zone of proximal development by building neural architecture for attention and language. Parenting patterns applied by parents will certainly affect the way parents give and choose education to their children. Sensitive and responsive parenting behavior involves parents responding to children's communication in a timely and appropriate manner. Sensitive and responsive parenting fosters the contingent nature of parents which encourages synchronous communication and focuses on the needs of the child thereby strengthening language skills and the ability to interact socially effectively (14).

Positive parenting from parents contributes to better language skills in children than less supportive parenting. It helps form important mental structures that allow children to interact with and learn from their social environment, which in turn accelerates their language development (14). Positive parenting is significantly associated with better outcomes than authoritarian parenting. Positive parenting provides more support and attention so that children are able to explore language actively (15). Authoritarian parenting will hinder children's language and speech development because children are afraid to communicate with their parents (16). Parenting styles that encourage active use of both languages in daily interactions support children's language development in both languages. These results underscore the importance of consistent language use in bilingual families. Parenting that supports both languages helps children develop good speaking and language comprehension skills. Good parenting that provides cognitive stimulation, such as reading books, talking to the child, and playing educational games, can help the development of thinking and language skills (13).

Researchers assume that non-democratic parenting styles, whether authoritarian or permissive, risk inhibiting children's responses to environmental stimuli around them. The choice of parenting style is often influenced by the socio-cultural conditions of society. This aligns with field findings that low levels of education, lack of information about child development, cultural norms that prioritize obedience over children's self-expression, economic pressures, and stress experienced by parents can also influence their ability to determine the parenting style they will adopt.

The results showed that there was a significant

relationship between gadget use and speech and language development in children aged 18-72 months in Working Area of the Kadudampit Health Center. Childhood is a period where children learn new things. If they rely too much on technology, their growth will be stunted as early experiences play a role in later development. Excessive use of technology can have a negative impact on children's development as it discourages them from moving, participating in activities, interacting less with their surroundings, and inhibits socialization (17). Interactive communication and mutual feedback is essential for language acquisition, as it supports cognitive functions such as attention, memory and thinking skills. However, the use of gadgets often provides one-way communication and too much stimulation that can distract and disrupt these cognitive processes. In addition, the rapid visual and sound stimuli from gadgets can interfere with the brain's ability to process and sequence language information resulting in difficulties in understanding sounds, enriching vocabulary and comprehending sentence structure (18). Excessive gadget use in children can adversely affect their social skills. For example, they may become introverted and prefer to be alone rather than interact with their friends. In addition, prolonged screen time can also affect how children learn, write and read, depending on their cognitive skills. When children are too focused on gadgets, they are less likely to be interested in learning and understanding basic knowledge at school, which can ultimately affect their cognitive skills (19). Children who spend too much time with gadgets usually have difficulty communicating with peers and family. This happens because when children are too focused on gadgets, their vocabulary becomes limited, leading to stuttering due to lack of practice talking to other people directly (19).

Based on field observations, it is known that most children in Working Area of the Kadudampit Health Center, Sukabumi Regency, have a high intensity of gadget use or use them frequently throughout the day, even when playing alone, as seen from the answers related to the frequency and duration of use. Researchers believe that the role of parents in managing time and supervising children's gadget use is crucial, as this helps prevent excessive use.

The results showed that there was a significant relationship between nutritional status and speech and language development in children aged 18-72 months in the Kadudampit Health Centre Working Area. Nutrition is an essential element that the body needs for growth and development, obtained from vitamins, proteins, carbohydrates and fats. Nutrition plays a role in influencing the structural capacity, function and development of the brain. Lack, excess or imbalance of nutrients can cause health problems in the body. This is due to irregular diet, lack of key components, impaired absorption or other metabolic diseases (20).

Nutritional status is an important factor in determining child development. Malnutrition can hinder children's growth and development, including their cognitive, motor, language, and skill aspects, so children with poor nutrition will be left behind compared to children who have good nutrition (21). In addition to increasing the risk of morbidity and mortality, malnutrition also reduces productivity and disrupts growth and development, including children's language skills (22). Good nutritional intake contributes to the functioning of the child's brain and nervous system which stimulates the child to learn, respond and interact with the environment effectively. Conversely, malnourished children have a direct impact on various aspects of child development. The impact can be significant, such as a decrease in IQ that impairs thinking and learning abilities, and increases the risk of mental disorders. Malnutrition also affects speech and language skills, which can prevent children from communicating and expressing themselves properly (23).

Researchers assume that nutritional status is one of the important factors that play a role in children's growth and development, particularly in terms of speech and language development. This assumption is based on the belief that adequate nutritional intake will support children's physical growth as well as their cognitive, emotional, and motor development in an optimal manner. Based on observations during the study, children with good nutritional status tend to demonstrate more active verbal skills, respond quickly to questions, and exhibit greater confidence when speaking.

The results showed that there was a significant relationship between maternal knowledge and speech and language development in children aged 18-72 months in the Kadudampit Health Centre Working Area. Mothers with high social status tend to create an environment that supports strong language development for children. This can be explained because the mother's level of education affects the quality of language input provided, where better parental skills especially mothers result in more stimulative interactions in parent-child conversations (24). Attachment between parents and children also plays a crucial role in language development. Research shows that attachment security is closely related to children's speech and language, even under challenging conditions. Particularly in mother-child relationships, secure attachment influences the use of the Expanding-Elaborating communication pattern, which is related to other communication modes such as Pointing-Labeling and Inquiring-Clarifying.

Maternal input shows a positive relationship with children's speech and language comprehension, where a mother's patient and gentle approach tends to produce children with strong language skills (3). There are differences in communication patterns between mothers and fathers, mothers generally communicate

more with children than fathers (24). Children's early language and communication development is primarily supported by the primary caregiver, which in most cases is the mother. This suggests a central role for mothers in shaping children's speech and language skills in the early stages of development (2).

Based on field observations, researchers found that most mothers with low levels of knowledge tended not to actively provide appropriate language stimulation to their children, such as reading stories, talking directly, or playing with their children while communicating. The researchers assume that the low level of knowledge among mothers is not solely due to low formal education, but is also influenced by limited access to information, environmental habits, and a lack of support from family or health workers in terms of language stimulation.

The results showed that there was a significant relationship between preterm birth and speech and language development in Kadudampit Health Center Working Area. Preterm birth is a condition when a baby is born before the gestational age reaches 37 weeks. Based on gestational age, preterm birth can be further divided into moderate to advanced preterm birth (32-36 weeks gestation, GW), very (28-31 GW), and extremely (<28 GW). Preterm birth is associated with increased mortality, hospital morbidity, long-term neurodevelopmental delays, and problems in language development. Compared to children born at term, preterm children have a higher risk of delays in several areas of language development (25). Problems in language development can be caused by structural and functional abnormalities in the brain (26).

Preterm infants have been shown to have greater difficulty in distinguishing native and non-native phonemes, lower gesture production, and weaker receptive lexical development compared to infants born at term (27). The lower the gestational age of the child at birth, the smaller the vocabulary and quality of word use after the first years of life. Preterm infants have also been shown to have weaker grammatical skills, e.g. shorter sentence length, compared to term-born children by the end of the second year of life (28).

Preterm children have been shown to have a higher prevalence of linguistic problems than full-term children even at school age (29). Therefore, long-term follow-up studies are needed to evaluate the persistence of intervention effects on children's language skills. In an optimal situation, the intervention has long-term positive effects on family practices that cumulatively and persistently improve language development. However, the possible effects of spontaneous language maturation and environmental effects should be considered in these studies (30).

Based on findings in the field, it appears that children

with poor nutritional status often show delays in speech and language development. Specifically, difficulties were found in the formation of first words and the use of simple phrases in the malnourished group. Researchers assume that poor nutritional status affects speech and language development in children, as inadequate nutrition during critical growth periods may impair brain development and hinder the child's communication abilities in subsequent stages of development.

Based on the results of the study, it is evident that factors such as parenting patterns, gadget use, nutritional status, mother's knowledge and preterm birth simultaneously contribute to the speech and language development of children aged 18-72 months in Working Area of the Kadudampit Health Center. Mother's knowledge is related to children's nutritional status because good knowledge can support the provision of nutrition according to children's needs. This can help in the development of language and speech. Qualified mother's knowledge also has an impact on the parenting provided. This is related to the speech and language stimulation that children receive. The more frequent stimulation is given, the more speech and language development will improve (3). Mother's knowledge is also related to gadget use. Mothers who invite their children to continue interacting through communication can be a way to reduce the use of gadgets and prevent children's language and speech delays (2). Mother's knowledge of the nutritional status of pregnancy can affect the incidence of preterm infants which results in the development of children's speech and language. Babies born prematurely have problems with brain development and emotional development. The unique human ability to acquire language is a result of the functioning of the nervous system. Imperfections in the nervous system will affect a person's language skills (9).

CONCLUSION

There is a relationship between parenting, gadget use, nutritional status, mother's knowledge and preterm birth which is significantly related with speech and language development of children aged 18-72 months in Working Area of the Kadudampit Health Center. Preterm birth is the most dominant variable related with speech and language development of children aged 18-72 months in Working Area of the Kadudampit Health Center.

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REFERENCES

1. Salunkhe S, Bharaswadkar R, Patil M, Agarkhedkar

- S, Pande V, Mane S. Influence of electronic media on speech and language delay in children. *Med J Dr DY Patil Vidyapeeth*. 2021;14(6):656-661. doi:10.4103/mjdrdypu.mjdrdypu_636_20
2. Tunliu F, Amseke FV. Early intervention of language and speech in children with speech delay. *Al-Qalbu J Pendidikan Sosial Sains*. 2024;2(2):58-66. doi:10.59896/qalbu.v2i2.104
3. Sheba SH, Arum ER, Ekasari T. Qualitative evaluation of a toddlers' speech delay early detection poster. *Int J Ethno-Sciences Educ Res*. 2023;3(4):127-130. doi:10.46336/ijeer.v3i4.507
4. Pang WW, Tan PT, Cai S, Fok D, Chua MC, Lim SB, et al. Nutrients or nursing? Understanding how breast milk feeding affects child cognition. *Eur J Nutr*. 2020;59(2):609-619. doi:10.1007/s00394-019-01930-0
5. Palipung RY, Paramita S, Ni'matuzahroh. Influence factors, impact and interventions for speech delay and language delay in early childhood: systematic review. *Int J Sci Res Manag*. 2024;12(7):64-78. doi:10.18535/ijrm/v12i07.gp03
6. Rithipukdee N, Kusol K. Factors associated with the suspected delay in the language development of early childhood in Southern Thailand. *Children*. 2022;9(5):662. doi:10.3390/children9050662
7. Omand JA, Janus M, Maguire JL, Parkin PC, Simpson JR, Keown-Stoneman CDG, et al. Nutritional risk in early childhood and parent-reported school concerns. *Public Health Nutr*. 2021;24(18):6169-6177. doi:10.1017/S1368980021001725
8. Anasril, Husaini M, Bustami B, Amiruddin A. Relationship of knowledge of mother with the level of language development in children aged 2-3 years in Puskesmas Padang Panyang, Nagan Raya. *J-Kesmas*. 2021;8(1):36-41. doi:10.35308/j-kesmas.v8i1.3118
9. Sutanto AV, Tamtomo DG, Murti B. The effect of premature births on language delay in children: a meta-analysis. *J Matern Child Health*. 2021;6(1):67-76. doi:10.26911/thejmch.2021.06.01.07
10. Coughlan S, Quigley J, Nixon E. Preterm birth and expressive language development across the first 5 years of life: a nationally-representative longitudinal path analysis. *Early Child Res Q*. 2023;65:417-427. doi:10.1016/j.ecresq.2023.08.004
11. Wati RP, Rachmawati M. Hubungan status gizi dengan perkembangan balita usia 1-5 tahun di wilayah kerja Puskesmas Kadudampit Kabupaten Sukabumi. *J Ilm Kesehat Kebidanan*. 2022;1(3):14-20. doi:10.044211/gjx62v94
12. Fahiroh SA, Tairas MMW, Retnowati S. Validation of Parenting Styles and Dimensions Questionnaire (PSDQ) on adolescents. *J Educ Health Community Psychol*. 2019;8(2):157-168. doi:10.12928/jehcp.v8i2.12958
13. Simangunsong H, Sihotang M. Exploring parenting styles and their impact on child development in the community. *J Sosial Sains Terapan Riset*. 2022;10(1):105-119.
14. Madigan S, Prime H, Graham SA, Rodrigues M, Anderson N, Khoury J, et al. Parenting behavior and child language: a meta-analysis. *Pediatrics*. 2019;144(4):e20183556. doi:10.1542/peds.2018-3556
15. Levickis P, Conway L, Smith J, Bennetts S. Parent-child interaction and its impact on language development. In: Law J, editor. *Language development: individual differences in a social context*. Cambridge: Cambridge University Press; 2022. p. 147-168. doi:10.1017/9781108643719.009
16. Sadiq S, Farooq N, Mansoor R, Shoukat S, Saqlain G. Association between parenting style and language development in children: parenting style and language development. *Pak J Health Sci*. 2024;5(3):23-28. doi:10.54393/pjhs.v5i03.1319
17. Panjeti-Madan VN, Ranganathan P. Impact of screen time on children's development: cognitive, language, physical, and social and emotional domains. *Multimodal Technol Interact*. 2023;7(5):52. doi:10.3390/mti7050052
18. Sindhutomo JC. Speech delay and excessive gadget usage: understanding pathophysiology mechanism and prevention target among children population. *Eduvest J Univers Stud*. 2024;4(9):7932-7940. doi:10.59188/eduvest.v4i9.1265
19. Zain ZM, Jasmani FNN, Haris NH, Nurudin SM. Gadgets and their impact on child development. *Proceedings*. 2022;82(1):47. doi:10.3390/proceedings2022082047
20. Ali M, Khan E, Khan MN, Khan AU. Association of malnutrition with delayed speech among children 2-6 years undergoing speech therapy at rehabilitation center. *J Liaquat Univ Med Health Sci*. 2021;20(5):324-328. doi:10.22442/jlumhs.2021.00834
21. Windiani IGAT, Agustini NKW, Adnyana IGANS, Soetjiningsih S, Murti NLSP. The association between nutritional status and risk of developmental disorder in children in Denpasar Bali Indonesia. *Open Access Maced J Med Sci*. 2021;9(B):687-691. doi:10.3889/oamjms.2021.6474
22. Adelia S, Andriani R, Wilson W. Correlation between nutritional status and head circumference in children with special needs with speech delay. *Indones J Health Sci*. 2022;6(1):17-22. doi:10.24269/ijhs.v6i1.4147
23. Ayukarningsih Y, Mutiara D, Febrianti A. The relationship between nutritional status and development of children age 0-24 months at Cimahi Selatan Health Center. *J Health Dent Sci*. 2023;3(2):183-196. doi:10.54052/jhds.v3n2.p183.196
24. Teufl L, Deichmann F, Supper B, Ahnert L. How fathers' attachment security and education contribute to early child language skills above and beyond mothers: parent-child conversation under

- scrutiny. *Attach Hum Dev.* 2020;22(1):71-84. doi: 10.1080/14616734.2019.1589063
25. Zambrana IM, Vollrath ME, Jacobsson B, Sengpiel V, Ystrom E. Preterm birth and risk for language delays before school entry: a sibling-control study. *Dev Psychopathol.* 2021;33(1):47-52. doi:10.1017/S0954579419001536
26. Yen C, Lin CL, Chiang MC. Exploring the frontiers of neuroimaging: a review of recent advances in understanding brain functioning and disorders. *Life.* 2023;13(7):1472. doi:10.3390/life13071472
27. Gonzalez-Gomez N, O'Brien F, Harris M. The effects of prematurity and socioeconomic deprivation on early speech perception: a story of two different delays. *Dev Sci.* 2021;24(2):e13020. doi:10.1111/desc.13020
28. Hokken-Koelega AC, van der Steen M, Boguszewski MC, Cianfarani S, Dahlgren J, Horikawa R, et al. International consensus guideline on small for gestational age: etiology and management from infancy to early adulthood. *Endocr Rev.* 2023;44(3):539-565. doi:10.1210/endrev/bnad002
29. Sansavini A, Zuccarini M, Gibertoni D, Bello A, Caselli MC, Corvaglia L, et al. Language profiles and their relation to cognitive and motor skills at 30 months of age: an online investigation of low-risk preterm and full-term children. *J Speech Lang Hear Res.* 2021;64(7):2715-2733. doi:10.1044/2021_JSLHR-20-00636
30. Pak NS, Chow JC, Dillehay KM, Kaiser AP. Long-term effects of early communication interventions: a systematic review and meta-analysis. *J Speech Lang Hear Res.* 2023;66(8):2884-2899. doi:10.1044/2023_JSLHR-22-00711