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The Association Between Screen Time Duration and Languange Development Among Children Aged 2-5 Years: A Cross-Sectional Study

Maria Katharina Nini Papang[1*], Christina Olly Lada[2], Audrey Gracelia Riwu[3], Regina Marvina Hutasoit[4]

[1]Medical Education Study Program, Faculty of Medicine and Veterinary Medicine, Nusa Cendana University, Kupang, East Nusa Tenggara, Indonesia
[2]Department of Dryland and Archipelagic Medicine, Faculty of Medicine and Veterinary Medicine, Nusa Cendana University, Kupang, East Nusa Tenggara, Indonesia
[3]Department of Biomedicine, Faculty of Medicine and Veterinary Medicine, Nusa Cendana University, Kupang, East Nusa Tenggara, Indonesia
[4]Department of Anatomy, Faculty of Medicine and Veterinary Medicine, Nusa Cendana University, Kupang, East Nusa Tenggara, Indonesia
Email: mariakninipapang@gmail.com

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**Correspondence:*
Maria Katarina Nini Papang
mariakaninipapang@gmail.com
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Abstract

Language development is a crucial aspect of a child's growth and development. A child's language development can be influenced by the duration of screen time, particularly during the "golden age" of 2–5 years. This study aims to determine whether there is a relationship between screen time duration and language development in children aged 2–5 years. This study was conducted in the service areas of the Sikumana Community Health Center and the Tarus Community Health Center with a sample size of 60 participants using a sequential sampling method. The research method employed was quantitative with a cross-sectional design. Based on the results of the chi-square test, a p-value of 0.02 was obtained, indicating that there is a relationship between screen time duration and language development in children aged 2–5 years

Keywords: *screen time duration; language development, children aged 2-5 years*

INTRODUCTION

Screen time is the amount of time spent using a television, computer, tablet, or mobile phone (Syahidah & Wijayanti, 2017). Easy access to digital devices has led to young children becoming active users of digital media (Manfaatin & Aulia, 2024). However, excessive duration is associated with developmental disorders in children, especially in terms of language and cognitive (Sari et al., 2024). The significant relationship between screen time duration and language development in early childhood has also been proven by several international studies, which show that excessive screen time has a negative impact on communication and problem-solving skills (Takahashi et al., 2023), (Al Hosani et al., 2023); Geng et al., 2023)

The use of gadgets among young children in Indonesia continues to increase. According to data from the National Socioeconomic Survey (SUSENAS), one-third of young children in Indonesia have used gadgets and accessed the internet (Direktorat Statistika Kesejahteraan Rakyat, 2023) (Direktorat Statistika Kesejahteraan Rakyat, 2024) This condition indicates a change in children's activity patterns, which are becoming increasingly digitized. A number of domestic studies also show that children with high screen time tend to experience language development delays due to a lack of verbal stimulation and two-way interaction (Indrawangsa et al., 2024).

The period between the ages of two and five is a critical stage for children's language development (Murni, 2017). Language disorders at this age can have long-term effects on social and emotional abilities into adolescence (Dahlia, 2017). A study conducted at Wangaya Regional General Hospital showed that subjects with excessive screen time exhibited signs of language delay, as measured using the Denver II questionnaire (SITASI). A similar study was also conducted at a child development clinic, with the study subjects being children diagnosed with expressive language disorder who were undergoing therapy. The results revealed that this condition is influenced by excessive screen time (Pinilih, 2024).

Unlike previous studies, this research was conducted on children at Sikumana Community Health Center and other community health centers who had not been diagnosed with specific disorders or illnesses. Additionally, child development was assessed using the Developmental Pre-Screening Questionnaire (KPSP), a valid, reliable, and easy-to-use tool for monitoring child development in primary health care facilities, issued by the Ministry of Health of the Republic of Indonesia (Windiani et al., 2020).

METHODS

This study is quantitative, with an observational analytical design and cross-sectional approach. The study aims to determine the relationship between screen time (independent variable) and the development of children aged 2–5 years (dependent variable). The study was conducted in the service areas of the Sikumana and Tarus Community Health Centers from July to August 2025. This study has received ethical approval from the Ethics Committee of the Kupang Public Health Polytechnic (Poltekkes Kemenkes Kupang). The study sample consisted of 60 children aged 2–5 years selected using consecutive sampling in accordance with the inclusion criteria, namely: study subjects were children aged 2–5 years registered in the service areas of the Sikumana and Tarus Community Health Centers, had measurable screen time exposure, cooperative during data collection, and having obtained consent from parents or caregivers capable of providing accurate information regarding the children's activities.

The screen time questionnaire, adapted from the SMALLQ (Surveillance of Digital Media Habits in Early Childhood Questionnaire), was completed by parents during interviews conducted by the research team. Screen time categories were adjusted based on recommendations from the American Academy of Pediatrics (AAP), which classifies normal screen time as < 60 minutes per day and excessive screen time as > 60 minutes per day. Children's language development was measured using the 2022 Indonesian Ministry of Health Development Pre-Screening Questionnaire (KPSP), which was adapted to each child's age. If a child could follow all instructions, their language development was considered appropriate. However, if a child could not follow any instructions, their language development was categorized as inappropriate. The questionnaire used has successfully undergone validity and reliability testing.

Data analysis was a bivariate test, namely the Chi-Square test, to determine the relationship between screen time and children's language development, with a p-value < 0.05 indicating significance. In addition, the contingency coefficient was used to see the strength of the relationship between the two variables.

FINDINGS AND DISCUSSION

Result

Parent Characteristics

Data collected based on interviews conducted with parents/ caregivers who brought their children to the health center. The characteristics of the respondents are shown in Table 1 below.

Table 1. Characteristics of Parents

Characteristics	Category	Total (N=60)	(%)
Gender	Male	3	5,0
	Female	57	95
Highest level of education	Elementary	12	20,0
	Junior High School	9	15,0
	Senior High School/Vocational School	31	51,7
	D-III	1	1,7
	Bachelor's Degree	6	10,0
	Master's Degree	1	1,7
Occupation	Farmer	4	6,7
	Civil Servant	2	3,3
	Teacher	2	3,3
	Housewife	45	75,0
	Private Employee	4	6,7
	Laboree	2	3,3

Based on Table 1, data on the characteristics of the children's parents was obtained based on gender, highest level of education, and occupation. The results show that of the 60 respondents, the average parent who accompanied their child was female (95%), with a background of highest level of education dominated by high school/vocational school graduates (51.7%), and occupations dominated by housewives (75%).

Characteristics of Children

Data on child characteristics were obtained from interviews conducted with parents/caregivers. Based on the data obtained during the study, the characteristics of the research subjects are shown in the table below.

Table 2. Child Characteristics

Characteristics	Category	Total (N=60)	(%)
Gender	Male	28 (46,7)	46,7
	Female	32 (53,3)	53,3
Child's Age	2 Years (12-35 months)	21 (35,0)	35,0
	3 Years (36-47 months)	25 (41,7)	41,7
	4 Years (48-59 months)	12 (20,0)	20,0
	5 Years (59,5-60 bulan)	2 (3,3)	3,3
Number of Siblings	None	13 (21,7)	21,7
	1 siblings	21 (35,0)	35,0
	2 siblings	17 (28,3)	28,3
	>2 siblings	9 (15,1)	15,1

Table 2 shows that most of the research subjects were female (53.3%) and in the three- year-old age group (41.7%). The majority of children had one sibling (35.0%), followed by children with two siblings (28.3%), no siblings (21.7%), and more than two siblings (15.1%).

The Relationship Between Screen Time and Language Development in Children Aged 2-5 Years

To determine the relationship between screen time duration and language development, a chi-square test was used, and then the relationship was tested to determine the strength of the relationship.

Table 3. Bivariate Analysis

Screen Time Duration	Language Development		p-value	Contingency Coefficient
	Correct	Not in accordance		
Excessive	11	19	0.02	0.020
Normal	20	10		
Total	31	29		

Based on Table 3, there were 31 respondents with appropriate language development, consisting of 20 children with normal screen time and 11 children with excessive screen time. Then, 29 other children were categorized as having inappropriate language development, with 19 children having excessive screen time and 10 children in the normal screen time category. With a test result of p=0.02 ($p < 0.05$), there is a relationship between screen time duration and language development in children aged 2-5 years.

The duration of screen time and language development has a weak correlation, as indicated by a contingency coefficient value of 0.020. This indicates that although the relationship is statistically significant, children's language development is not only influenced by screen time duration, but also by other factors such as parental education, parenting patterns, the quality of verbal stimulation, and the type of content accessed by children.

DISCUSSION

Language development was assessed using the Developmental Screening Questionnaire (KPSP), a standard screening tool from the Ministry of Health of the Republic of Indonesia, which classifies development as “age-appropriate” or “not age-appropriate” based on age. It was found that the majority of children with normal screen time had age-appropriate language development.

Excessive exposure to electronic media causes children to become passive listeners and reduces two-way interaction due to a lack of multisensory stimulation, which is crucial for children’s language development (Amalia et al., 2019). Statistical analysis results showed a p-value of 0.02 ($p < 0.05$), indicating a significant relationship between screen time duration and language development, consistent with previous research stating that excessive exposure to electronic media can reduce vocabulary acquisition in childhood

(Asikainen et al., 2021), (Priyoambodo & Suminar, 2021). However, the strength of the relationship was weak (r = 0.020). This suggests that screen time duration is only one of several factors influencing children's language development. Other factors include the mother's higher educational background and broader knowledge, which tend to provide optimal stimulation (Rizka & Sunarti, 2024). The type of content selected is also a factor influencing children's language development. If the content viewed is educational and age-appropriate, it can enhance communication skills and enrich vocabulary. On the other hand, entertainment content can reduce communicative interaction, lead to language deviations, and hinder social-emotional development (Oktari, 2023). Parental guidance in the use of digital media plays a crucial role in ensuring appropriate screen time and content, as well as providing language stimulation through two-way interaction; conversely, a lack of such guidance can have a negative impact on children's language skills (Rakiyah, 2021).

The cross-sectional design should be noted as a limitation of this study, as it only measures variables at a single point in time; therefore, it is recommended that future studies employ alternative methods over a specified period of time.

Based on the explanation above, parents play a crucial role in supporting a child's language development. Therefore, parents are advised to set limits on their children's screen time, select age-appropriate content, and supervise their children's screen time activities to foster two-way interaction. Primary care providers can play a greater role in enhancing child development services by providing educational guidance and conducting language development screenings as part of early detection efforts.

CONCLUSIONS

There is a relationship between screen time duration and language development in children aged 2-5 years in the service areas of the Sikumana and Tarus Community Health Centers. Therefore, it is recommended that parents regulate their children's screen time and increase two-way interaction through verbal communication and playing with their children. Furthermore, future researchers are expected to examine other factors that may also influence children's language development, such as the family environment, videos watched by children, parenting styles, as well as expanding the geographical coverage and increasing the sample size.

REFERENCES

Al Hosani, S. S., Darwish, E. A., Ayanikalath, S., AlMazroei, R. S., AlMaashari, R. S., & Wedyan, A. T. (2023). Screen time and speech and language delay in children aged 12–48 months in UAE: a case–control study. *Middle East Current Psychiatry*, *30*(1). https://doi.org/10.1186/s43045-023-00318-0

Amalia, H. F., Rahmadi, F. A., & Anantyo, D. T. (2019). The Relationship Between Exposure to Electronic Screen Media and Language and Speech Development. *Diponegoro Medical Journal*, *8*(3), 986–988.

Asikainen, M., Kylliäinen, A., Mäkelä, T. E., Saarenpää-Heikkilä, O., & Paavonen, E. J. (2021). Exposure to electronic media was negatively associated with speech and language development at 18 and 24 months. *Acta Paediatrica, International Journal of Paediatrics*, *110*(11), 3046–3053. https://doi.org/10.1111/apa.16021

Dahlia, J. K. (2017). *Long-term effects of speech-language delay or disorder*. Indonesian Pediatric Society. https://www.idai.or.id/artikel/klinik/pengasuhan-anak/dampak-jangka-panjang-keterlambatan-atau-gangguan-bicara-bahasa-hal-yang-perlu-diketahui-orangtua

Direktorat Statistika Kesejahteraan Rakyat. (2023). Profil Anak Usia Dini 2023. In *Direktorat Statistik Kesejahteraan Rakyat*. Badan Pusat Statistika.

Direktorat Statistika Kesejahteraan Rakyat. (2024). Profil Anak Usia Dini 2024. In *Profil Anak Usia Dini 2024*. Badan Pusat Statistika.

Manfaatin Eva, & Aulia Mita. (2024). The Effect of Screen Time on Early Childhood Development. *Journal of Early Childhood Islamic Education*, *01*(01), 18–31. https://jurnal.staidaf.ac.id/almuhadzab/article/view/273

Geng, S., Wang, W., Huang, L., Xie, J., Williams, G. J., Baker, C., Du, W., & Hua, J. (2023). Association between screen time and suspected developmental coordination disorder in preschoolers: A national population-based study in China. *Frontiers in Public Health*. https://doi.org/10.3389/fpubh.2023.1152321

Grace Amortia Erliana Priyoambodo, D. R. S. (2021). The relationship between screen time and language development in early childhood: A literature review. *Journal of Social Sciences and Education*, *2*(5), 390–394. https://doi.org/10.36418/syntax-imperatif.v2i5.119

Indrawangsa, I. putu S., Putra, I. G. I. P., Mustika, P. P., & Suryawan, I. W. B. (2024). The relationship between gadget usage intensity and language development in pediatric patients at Wangaya Regional General Hospital. *Medical Science Abstract*, *15*(1), 344–348. https://doi.org/10.15562/ism.v15i1.1994

Murni. (2017). Physical, cognitive, and psychosocial development in early childhood 2–6 years. *Bunayya Publishing. Journal of Children's Education,* *3*(1), 19–33. https://doi.org/https://doi.org/http://dx.doi.org/10.22373/bunayya.v3i1.2042

Oktari, R. (2023). The Impact of YouTube Content on children's language development. *Journal of Teaching and Education*, *5*(1), 577–581.

Pinilih, A. (2024). The Relationship Between Screen Time Duration and Expressive Language Disorders in Children at the Pelangi Hati Child Development Clinic. *Journal of Medical and Health Sciences*, *11*(6), 2549–4864. http://ejurnalmalahayati.ac.id/index.php/kesehatan

Rakiyah, S. (2021). Strategies for Improving the Speaking Skills of 3-year-old Children through YouTube. *Komunikologi: Journal of Communication and Social Science Development*, *5*(1), 56. https://doi.org/10.30829/komunikologi.v5i1.9467