MPPKI (November, 2024) Vol. 7 No. 11

ISSN 2597– 6052

DOI: https://doi.org/10.56338/mppki.v7i11.6137

MPPKI

Media Publikasi Promosi Kesehatan Indonesia

The Indonesian Journal of Health Promotion

Research Articles *Open Access*

The Relationship between Intensity of Gadget Use and Speech and Language Development in Toddlers

Wa Ode Nurl Ainun Asgaf[1*], Rauly Ramadhani[2],Trisnawaty[3]

[1]Pendidikan Dokter FKIK UIN Alauddin, Makassar| email : kedokteran@uin-alauddin.ac.id

[2]Pendidikan Dokter FKIK UIN Alauddin, Makassar| email : kedokteran@uin-alauddin.ac.id

[3]Pendidikan Dokter FKIK UIN Alauddin, Makassar| email : kedokteran@uin-alauddin.ac.id

*Corresponding Author: nurul.ainunks@gmail.com

ABSTRACT

Background: Excessive use of gadgets will reduce toddler interaction with the environment and toddlers rarely communicate with people around them, this of course disrupts the process of speech and language development of toddlers. In 2016 52.9 million children in the world experienced developmental delays. The prevalence of developmental delays from each aspect, namely cognitive 1-1.5%, learning disabilities 8%, speech and language 2-19%, and other delays 15%.

Objective: This study aims to analyze the relationship between the intensity of gadget use and the development of speech and language aspects in toddlers in Wameo Village, Baubau City.

Method: This study is an observational analytic type with a cross-sectional approach. This study used 77 samples taken using a purposive sampling technique which were then measured using a questionnaire.

Result: The results showed that toddlers who used gadgets with mild intensity experienced normal speech and language development, 10.4% of toddlers who used gadgets with moderate intensity experienced delays, and 33.8% who used gadgets with severe intensity experienced delays. Hypothesis testing using the Chi-Square Test obtained a p-value value of 0.000 (P <0.05).

Conclusion: In conclusion, there is a significant relationship between the intensity of gadget use and delayed speech and language development in toddlers in Wameo Village, Baubau City.

Keywords: Toddlers; Speech and Language Development; Developmental Delays; Gadgets

INTRODUCTION

Children are important assets for a nation that will be the successors in the future. (1) Children born after 2010 are referred to as the alpha generation, they live side by side with rapidly developing technology and information. Compared to previous generations, they are claimed to be the smartest generation because they interact directly with the internet so that in their daily lives they cannot be separated from gadgets. (2)

According to the Central Bureau of Statistics in 2020 there were 32.96 million early childhood in Indonesia and 56, 43% of them were toddlers. Toddler age is a very important period because there is a very rapid increase in the growth and development of brain cells so at this time every aspect of development continues to increase. However, when deviations occur at this time, it will greatly affect the future. (3)

At the age of toddlers, parents and caregivers must continue to fulfil their children's stimulus so that they can receive optimal input for their development. However, there have been changes in the provision of stimulus in recent years, especially during the Covid-19 pandemic when the government limited community interaction. This has caused children to receive less stimulation, affecting the speed of child development. When compared to previous years, children today in doing play or learning activities not only through various tools or games such as picture books or puzzle games but also with a technological device, namely gadgets. Gadgets, which can be in the form of cellphones or smartphones, computers, laptops and so on, are the latest technology designed as a means for many daily interests. (4)

Data from the Central Statistics Agency (2020) shows that 29% of all total gadget use is in early childhood and 25.9% of them are toddlers. Meanwhile, children who use the internet are 0.93% of infants and 10.71% of toddlers.(3) According to Byeon & Saemi (2015), children aged 1-2 years who watch TV for more than 3 hours have a three times greater risk of experiencing language delays. (5) Based on research from Fajriah et al (2018) that toddlers who use devices with high intensity have dubious developmental outcomes. (6) In line with Fajriah, there is a significant influence between the use of gadgets on speech and language development in children aged 3-5 years. (7)

The rate of child developmental delays is still quite high. Data from UNICEF in 2011 stated that 27.5% of children in the world experience developmental delays, in other words, around 3 million children in the world experience developmental delays. Meanwhile, in 2016, child delays experienced a rapid increase reaching 52.9 million children in the world with 95% of them in developing countries. (8)

The prevalence of developmental delays from each aspect, namely cognitive 1-1.5%, learning disability 8%, speech and language 2-19%, and other delays 15%. (9) In Indonesia itself, the number of developmental delays is still unknown, but it is estimated that around 5-10% of Indonesian children experience developmental delays and 1-3% of them are less than 5 years old. (10) In Baubau City in 2018, 1.2% of children had developmental delays and this increased in 2020 to 1.4%. Based on data from the Baubau City Health Office, most cases of developmental delays were at the Meo-Meo Health Center in the Wameo village area with a developmental delay rate of 8.23%. (11) In addition, the researcher also found several toddlers in the neighbourhood who played with gadgets excessively without parental supervision experiencing developmental delays compared to children their age.

Based on research conducted by Sandra (2019) entitled "The Relationship between the Intensity of Gadget Use with Personal Social and Language Development in Preschool Children (3-6 Years) at TK R.A AL-Jihad Malang City" shows that the intensity of gadget use has a significant relationship to personal social and language development.

Based on research conducted by anggun (2020) which examines the "Effect of Gadget Use on Speech and Language Development of Children 3-5 years of age" shows that there is an effect of gadget use on speech and language development in children aged 3-5 years. Gadgets that are used excessively, uncontrolled, and without supervision can cause less socializing or communicating with people around them.

This makes researchers feel interested in conducting research related to "The Relationship between the Intensity of Gadget Use and the Development of Speech and Language Aspects in Toddlers in Wameo Village in Baubau City".

METHOD

This study was conducted in the Wameo urban village of the Meo-Meo Community Health Center in Baubau City, Southeast Sulawesi. This research was conducted in December 2021-January 2022. The population in this study were all toddlers aged 2 - 5 years in Wameo Village who used gadgets. The sampling technique used the slovin formula with a sample size of 77 respondents. The dependent variable is the intensity of gadget use and the independent variable is toddler development.

The intensity of gadget use is divided into 3 criteria, namely Low, duration ≤ 30 minutes/day, with a frequency of 2x / day. Medium, duration of 40-60 minutes/day, with a frequency of 2 - 4x / day. High, duration > 75 minutes/day, with a frequency of > 4x / day. The data collection tools in this study were the research questionnaire

and the Developmental Pre-Screening Questionnaire (KPSP). IDAI together with the Ministry of Health arranged the use of KPSP as a developmental pre-screening tool until the age of 6 years, the examination is carried out every 3 months for under 2 years and every 6 months until the child is 6 years old. The purpose is to determine whether the child's development is normal/age-appropriate or whether there are deviations. KPSP examination is an assessment of child development in 4 developmental sectors, namely: gross motor, fine motor, speech/language and socialization/independence.(12)

The data analysis used is univariate data analysis using to see the frequency distribution of respondents' characteristics, while bivariate data analysis uses Chi Square test to see the relationship between the intensity of gadget use with speech and language development of toddlers.

This study has received permission from the Health Research Ethics Committee of the Faculty of Medicine and Health Sciences, UIN Alauddin Makassar with No. B.199/KEPK/FKIK/I/2022. It was declared ethically feasible according to 7 (seven) WHO Standards 2011, namely 1) Social Value, 2) Scientific Value, 3) Equalization of Burden and Benefits, 4) Risk, 5) Inducement / Exploitation, 6) Confidentiality and Privacy, and 7) Informed Consent, which refers to the 2016 CIOMS Guidelines. This is as indicated by the fulfillment of the indicators of each standard.

RESULTS

Based on the research that has been done, the following data is obtained:

Table 1 Frequency Distribution of Respondents in Wameo Village, Baubau City

Characteristics	Frequency	Percent (%)
1. Age of toddler		
a. 24 - < 30	11	14.3
b. 30 - < 36	14	18.2
c. 36 - < 48	19	24.7
d. 48 - < 54	15	19.5
e. 54 - < 60	7	9.1
f. 60	11	14.3
2. Gender		
a. Male	37	48.1
b. Female	40	51.9
3. Education Level		
a. Elementary School / Junior High School	29	37.7
b. High School	25	32.5
c. College	23	29.9
4. Mother's Occupation		
a. Not working (housewife)	50	64.9
b. Working	27	35.1
Total	77	100

Table 1 shows that the age of respondents mostly ranged in the age group of 36 - 48 months as many as 15 respondents. The number of male respondents was more dominant as many as 40 respondents. The last education of the respondent's parents was mostly elementary/junior high school with 29 respondents. And most mothers who do not work / housewives as many as 50 respondents

.

Table 2 Frequency Distribution of Gadget Use among Toddlers in Wameo Village, Baubau City

	Frequency	Percent (%)
1. Usage Per Week		
a. 1-3 days	18	23.4
b. 4-6 days	18	23.4
c. 7 days	41	53.2
2. Usage per Day		
a. 1-2 times/day	33	42.9
b. 3-4 times/day	31	40.3
c. > 4 times / day	13	16.9
3. Duration of Gadget Use		
a. ≤30	26	33.8
b. > 30 - 60	29	37.7
c. > 60	22	28.6
4. Intensity of Gadget Use		
a. Low	15	19.5

b. Medium	29	37.7
c. High	33	42.9
Total	77	100

Table 2 shows that the average toddler in Wameo Village uses gadgets with moderate to heavy intensity. More than half of the toddlers in Wameo Village use gadgets every day with 41 respondents. Most respondents use gadgets 1-2 times/day, as many as 33 respondents. Some respondents use gadgets with a duration of >30 - 60 minutes in one gadget use as many as 29 respondents. And the intensity of respondents who use gadgets is mostly heavy intensity as many as 33 respondents.

Table 3 Distribution of Speech and Language Development of Toddlers in Wameo Village, Baubau City

	Frequency	Percent (%)
Normal	43	55.8
Late	34	44.2
Total	77	100

Based on table 3 shows that more than half of toddlers in Wameo Village have normal speech and language development, namely 43 respondents (55.8%). While respondents who experienced delays were 34 respondents (44.2%).

Table 4 Chi Square Test Results of Intensity of Gadget Use on the Development of Speech and Language Aspects in Toddlers in Wameo Village, Baubau City

Intensity of Gadget Use		Toddler Speech and Language Development		Total	P-Value
		Normal	Late		
Low	n	15	0	15	0.000
	%	19.5	0	19.5	
Medium	n	21	8	29	
	%	27.3	10.4	37.7	
High	n	7	26	33	
	%	9.1	33.8	42.9	
Total	**n**	**43**	**34**	**77**	
	%	**55.9**	**44.2**	**100.00%**	

Based on table 4 shows that toddlers with various intensities of gadget use, the majority of respondents have normal speech and language development 15 respondents (19.5%). While toddlers whose intensity of gadget use is heavy the majority experience delays in speech and language development by 26 respondents (33.8%). From the results of data analysis, the p value = 0.000 was obtained. The results of this data analysis show that the value of P < 0.05, which means that there is a significant relationship between the intensity of gadget use with delays in the development of speech and language aspects in toddlers in the Wameo village of Baubau City.

DISCUSSION

This study was conducted in Wameo Village which is the working area of the Meo-Meo Health Center. The sample obtained in this study was 77 respondents according to the inclusion and exclusion criteria who were toddlers aged 2-5 years.

The results showed that the majority of respondents were aged 36 - <48 months (3 years - <4 years) and were preschool age. The average age of respondents was 43 months. The age grouping of respondents was adjusted to the age on the KPSP used for the study. KPSP examination at the age of 24-72 months is carried out every 6 months. In this study, the 42-month KPSP was not used because there were no aspects of speech and language, so there was an age range of 12 months at the age of 36 months to the age of 48 months.

Age 36 - < 48 is the age of toddlers who are also pre-school age. At this age toddlers have a high curiosity about things, expressing a dynamic range of emotions ranging from joy, whining to tantrums. They begin to learn

many things including how to control their bodies, emotions and minds. They will form new understandings, and expand experiences with the surrounding world. (13) Toddlers' perceptions and experiences of the outside world want to continue to share with others by telling, telling, criticizing and telling. (14)

The preschool period is a time of refinement of language skills. Toddlers aged 3 years have a vocabulary of about 900 words. Preschool-age children can acquire about 10 to 20 new words per day, and by age 5 they usually have 2,100 vocabulary words. (13)

By the end of the preschool age period, children use structured sentences like adults. Children aged 3 to 5 begin to develop the ability to connect sounds, syllables and words when speaking. At this age the development of phonology can be said to have ended. Although sometimes there are still difficulties in the pronunciation of some compound and slightly complex consonants. (14) Initially, the child may stutter. The child may say repeated consonants or "um." Stuttering usually occurs between 2 and 4 years of age, and about 75% of children will recover from it without therapy. Parents should slow down their speech and should give the child time to speak without rushing or interrupting. Some sounds may still be difficult for pre-school aged toddlers to pronounce such as the mention of the letters : "f", "s", "v" and "z" which will usually be mastered after the age of 5 years. (13)

At this time parents have an important role to choose the right activities, so that toddlers can develop their potential to be more optimal. The pre-school period has an important role in preparing them for the pre-school stage; (13)

The characteristics of the research respondents provide an overview of the frequency distribution based on the gender of the respondents. From the results of the study, the number of male and female respondents was almost the same, there was only a difference of three respondents. The difference in brain maturation between boys and girls naturally affects the speed of language and speech development. According to Soetjiningsih (2013), normal language development in toddlers involves the left hemisphere in the brain. The brain development of boys and girls has differences. Boys' right hemisphere development is faster than their left hemisphere, which is influenced by the hormone testosterone. Meanwhile, the development of the left hemisphere and right hemisphere of girls tends to be more balanced, so their language development tends to be faster.

In addition to the age and gender of the child, the characteristics of the respondent are also seen from the respondent's parents, including the last level of education and the occupation of the parents. According to Law No.20 Article 1 paragraph 11, formal education is a structured and tiered education path consisting of basic education, secondary education and higher education. The results showed that most of the respondents' parents' last education (mother) was elementary / junior high school. High education of parents (mothers) will affect the mother's decision in terms of educating and caring for her child. Mothers with more education have a more open mind and are easier to accept new sources of information and can filter this information, easily change behavior, and can make the right decisions in providing education for their children and vice versa the lower the mother's education level, the less knowledge the mother has about child speech and language development. Mother's education is very important and has a role for child development. Parents' education can influence the education of children at the stages of development according to their age and developmental tasks optimally. Parents with low education have a lower level of knowledge about the problem of gadget addiction, so it is easier for parents to give gadgets to their toddlers. Parents can sort out what is best and does not interfere with their child's development. (15)

The results of research conducted by Waqidil & Andini (2017) show that the higher the level of parental education, the better the child's knowledge of toddler development. Conversely, the lower the knowledge of parents, the lower the knowledge about the development of toddlers. Parental education does not have a direct impact on child growth and development. However, maternal education has a relationship through other mechanisms such as productivity, efficiency of health care, affecting the growth and development of toddlers indirectly. (16)

Another characteristic of respondents from parents is parental employment. The results of this study showed that most of the respondents' parents did not work (housewives). Generally, working can take up time to meet economic needs in the family, so that the time owned by parents (mothers) to meet their children is reduced, while mothers who do not work (housewives) will have more free time so that they can know more, and supervise and pay attention to every activity of their toddlers. Parents (mothers) who do not work more often invite children to interact. (15)

Working is a sign of one's status in society which is a pathway to earning money so that the economy in the family can. Parents with moderate to high income will tend to have consumptive behavior. One example of consumptive behavior is that parents more easily facilitate children to use gadgets. Sufficient parental income can affect the provision of gadgets to toddlers. Some parents can even give gadgets specifically to their children. Parents who think that giving gadgets is a good and easy way to supervise children when at home, can make parents / caregivers easily give gadgets to toddlers. (15)

The toddler period is also known as the golden period because during this period growth and development occurs very quickly. At this time toddlers learn a lot by hearing, seeing, and feeling every thing that happens around

them. At this time toddlers have a high curiosity so that every time they see something that catches their attention they will spontaneously ask. High curiosity and enthusiasm from various things seen, heard, and felt will be shared with the people around them by talking. Toddlers' speech abilities are different, there are those whose speech abilities are in accordance with their age, some are faster than others, and some are delayed. Speech development is said to be normal when toddlers are able to produce sounds, sounds, or words according to their age level. Children are said to be late in speaking, if the child cannot perform developmental tasks according to their age. (17)

In essence, the aspect of speaking is one aspect of a child's development that begins at birth. The child's ability to communicate begins with his reaction to the sound or voice of his mother and father, even at the age of 2 months the child has shown a social smile to everyone he interacts with. At the age of 18 months, children are able to understand and produce about 20 meaningful vocabulary words. Whereas at the age of 2 years they are able to say 1 sentence consisting of 2 words, for example “mama went”, “I pee”. If the child does not experience this, it can be categorized as speech delayed. (17)

Language ability is an indicator of all child development. Language has an important role for children under five, including as a means of thinking, a means of listening, a means of speaking and a means for children to be able to read and write. Through language a person can convey their wishes and opinions to others. (18)

Toddlers who lack stimulation will cause speech and language disorders and even these disorders can persist. One indicator of language delay is the child's inability to speak at an age when they should be able to. Speech delay occurs in children when the child's level of speech development is below the level of quality of speech development of children who are generally the same. (19)

The prevalence of speech and language development delays in toddlers is high enough that it needs more attention, because the development of speech and language of toddlers can determine other aspects of development and determine the continuation of their future development. (19).

The results of this data analysis show that there is a significant relationship between the intensity of gadget use and developmental delays in the aspects of speech and language in toddlers in the Wameo village of Baubau City. The results of this study are in line with research conducted by Nurmasari (2016) showing that there are 43.47% of respondents who use gadgets with heavy intensity, experiencing delays in speech and language development. Children with high intensity of gadget use rarely or do not communicate at all with other people around them, children rarely socialize and play with friends their age. In addition, toddlers tend to use gadgets for entertainment, opening video applications and games. This causes children to not get stimulation and can cause speech and language delays. (20)

This research is also in line with research conducted by Sari & Purwati (2018), in their research found that pre-school children who use gadgets> 60 minutes experience language delays. In their research, they suggested that there is a significant relationship between the duration of gadget use and the language development of pre-school children. The more often children play gadgets, the higher the risk of developmental disorders. (21)

The results of this study are also in line with research conducted by Sari (2019) showing that there are 52.8% of respondents who use gadgets with heavy intensity experiencing delays in speech development. Children who lack interaction, rarely play with friends their age and lack of communication can cause children to experience speech and language delays. (15)

The results of this study are also in line with research conducted by Fajriah et al (2018), in their research stating that children aged 24-60 months who have a high intensity of gadget use mostly (75%) have dubious developmental examination results. When children are addicted to gadgets, they tend to be lazy to do activities and are not sensitive to the environment so that they can affect the level of aggressiveness, child behavior patterns and affect their development. This is evidenced by the developmental tasks at each stage of the child's age that are not complete.

Interaction and communication with the environment is one way that can stimulate speech-language development. Communication can help children increase their vocabulary. Children who actively interact will learn to imitate the things around them and train children to have self-confidence. (6)

CONCLUSION

The conclusions in this study include: 1) Most toddlers in Wameo Village use gadgets with moderate intensity. 2) Almost half of the respondents experienced developmental delays in the aspects of speech and language. 3) There is a significant relationship between the intensity of gadget use and delayed speech and language development of toddlers in Wameo Village, Baubau City.

ADVICE

Based on this study, it can be seen that the intensity of gadget use has a relationship with speech and language development in children, so these results are expected as recommendations for parents and the community to be able to limit the use of gadgets, namely no more than one hour a day, accompany and supervise even though children can

use it themselves without the help of others. This study is also expected to benefit parents and the community after knowing the results of the examination conducted by researchers on children, so that they can provide correct parenting in the use of gadgets and make and maintain efforts to detect early growth and development in children.

Interaction and communication with the environment is one way that can stimulate speech-language development. Communication can help children increase their vocabulary. Children who actively interact will learn to imitate the things around them and train children to have self-confidence.

REFERENCES

1. Winnarti. Anak-Anak Sebagai Aset Bangsa Perlu Perlindungan Hak. LPM EDENTS. 2020.
2. Purnama S. Pengasuhan Digital untuk Anak Generasi Alpha. Al Hikmah Proc Islam Ear Child Educ. 2018 Apr;1.
3. Maylasari I, Agustina R, Sari NR, Dewi FWR. Profil Anak Usia Dini 2020. Badan Pusat Statistik; 2020.
4. NADHIRA S. GAMBARAN PERKEMBANGAN MOTORIK ANAK USIA DINI YANG MENGGUNAKAN GAWAI. Juranl Univ Tarumanagara. 2020;
5. Byeon H, Saemi H. Relationship between television viewing and language delay in toddlers: evidence from a Korea national cross-sectional survey. PLoS One. 2015 Mar;10(3).
6. Fajriah SM. Dampak Penggunaan Gadget Terhadap Perkembangan Anak. BEST J (Biology Educ Sains Technol. 2018;3(2):57–61.
7. Anggrasari AP, Rahagia R. Pengaruh Penggunaan Gadget Terhadap Perkembangan Bicara Dan Bahasa Anak Usia 3-5Tahun. Indones J Prof Nurs. 2020;1(1):18.
8. Khan I, Leventhal BL. Developmental Delay. Pract Pediatr Adolesc Gynecol. 2021 Aug;158–62.
9. Vitrikas K, Savard D, Bucaj M. Developmental Delay: When and How to Screen. Am Fam Physician. 2017 Jul;96(1):36–43.
10. Medise BE. IDAI | Mengenal Keterlambatan Perkembangan Umum pada Anak. 2013;
11. Dinkes Kota Baubau. Laporan SDIDTK. 2020.
12. Maddeppungeng M. Buku Panduan Kuesioner Pra Skrining Perkembangan (Kpsp). UNIVERSITAS HASANUDDIN. 2018.
13. Mansur AR. Tumbuh Kembang Anak Usia Prasekolah. Vol. 1, Andalas University Pres. 2019. 1–86 p.
14. Usman M. Perkembangan Bahasa dalam bermain dan Permainan. 1st ed. Yogyakarta: CV Budi Utama; 2019.
15. Sari SDP. Hubungan Antara Intensitas Penggunaan Gadget Dengan Perkembangan Personal Sosial Dan Bahasa Pada Anak Usia Prasekolah (3-6 Tahun) Di Tk R.A Al-Jihad Kota Malang. 2019.
16. Waqidil H, Andini CK. Hubungan antara Tingkat Pendidikan Ibu dengan Perkembangan Balita Usia 3-5 Tahun (Suatu Studi di Kelurahan Kadipaten Kecamatan Bojonegoro Kabupaten Bojonegoro Tahun 2014). Asuhan Kesehat. 2017;7(2):27–31.
17. Istiqlal AN. Gangguan Keterlambatan Berbicara (Speech Delay) Pada Anak Usia 6 Tahun. Preschool. 2021;2(2):206–16.
18. Pebriana HP. Analisis Kemampuan Berbahasa dan Penanaman Moral pada Anak Usia Dini melalui metode mendongeng. J Obs J Pendidik Anak Usia Dini. 2017;1.
19. Safitri Y. Faktor-Faktor yang Berhubungan dengan Perkembangan Bahasa Balita di UPTD Kesehatan Baserah Tahun 2016. J Obs J Pendidik Anak Usia Dini. 2017;1(2):148.
20. Nurmasari A. Hubungan Intensitas Penggunaan Gadget dengan Keterlambatan Perkembangan Pada Aspek Bicara dan Bahasa pada Balita di Kelurahan Tambakrejo Surabaya. Midwife Educ Study Progr Fac Medical, Airlangga Univ. 2016;
21. Sari GR, Purwati NH. Hubungan Durasi Penggunaan Gadget Dengan Perkembangan Bahasa Pada Anak Usia Prasekolah Di Paud Al Ilhamiyah Cakung Jakarta Timur Tahun 2018. J UMJ. 2018;000.