

Excessive Gadget Exposure and Children Speech Delay: The Case of Autism Spectrum Risk Factor

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Abstract

Background:

Smartphones and other gadgets are considered as one of the main factors in children's speech delays, especially those under three years. This delay is also accompanied by a child's social impairment like the symptoms of the autism spectrum. This article attempts to demonstrate the statistical correlation between smartphone usage and children's speech delay.

Methodology:

Employing a mixed method design by combining statistical inference and qualitative descriptive methods with 70 respondents who were parents of children 1 - 5 years old in Indonesia, the researchers collected data using questionnaires and interviews and further thematically analyzed the responses.

Findings:


This article could show a negatively significant correlation between the duration of gadget use and speech habits, which means that the longer a child spends time playing with gadgets, the worse his/her early-stage language proficiency will be.

Conclusion:

The researcher concluded that the excessive usage of gadgets has a detrimental impact on children's cognitive and verbal growth. In addition, the researcher found that children with autism spectrum attributes had a relationship with the lengthy duration of gadget usage.

Originality:

There are numerous fundamental assumptions that scrutinize the non-linguistic as one of the major factors in the speech delay phenomena. However, there is still limited evidence and observations that concern how gadgets become a major factor in speech delays in early childhood and the autistic spectrum. Due to the limited knowledge in this area, this research was conducted to provide evidence-based explanations on the matter.

Keywords	: Children speech delay; Gadget usage; Autism risk factor; First language acquisition
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1. INTRODUCTION

The ability to speak is a vital communication component (Dargue et al., 2019), and humans are designed to produce and utilize language. In acquiring the first language, children can get linguistic exposure from their environment and parents. When entering a toddler age, a child has entered a golden period of language acquisition (Sulistyaningtyas & Fauziah, 2019). It is due to a child's acuity to language and the surrounding environment, which is seen as an early stimulation (Feldman, 2019). Parents need to pay attention to the development of children's language to support speech development. Parents must provide positive stimulation to improve children's cognitive proficiency (Knauer et al., 2020).

However, some parents sometimes forget that children need good access to learning stimulation. They do not provide an atmosphere that supports the child's language acquisition process. Moreover, parents sometimes give gadgets because they cannot stand their children's crying. Survey data from Kementerian Komunikasi dan Informatika Republik Indonesia (2016) demonstrate that Indonesia has a large number of internet users, estimated to be around 80-100 million people. 68% of that number are people aged 15-40 years. This is exacerbated because, in 2020, internet users aged 5-12 are 9.55%, more significant than teenage users (8.88%) (Badan Pusat Statistik, 2020). It has consequences that parents need to pay dearly for, such as children who will experience visual disturbances caused by radiation (Kurniati et al., 2021). In addition, children often find it difficult to concentrate on learning and tend to withdraw from relationships (Xie et al., 2019). In early childhood, excessive use of gadgets can negatively impact children because they may do phubbing (David & Roberts, 2017) that is an attitude of withdrawing from social relationships.

Furthermore, this withdrawing behavior makes it difficult for children to concentrate. They may tend to ignore linguistic exposure or directions from their parents because they are focused on gadget stimulation (Sari, 2016). The stimulation of gadgets will make children addicted and spend hours just enjoying device entertainment. This excessive unsupervised usage slows children to learn and interact with their peers (Putri & Eliza, 2019). Worse, the child will not understand and not empathize with the surrounding environment.

Varadarajan et al. (2021) emphasize that gadget users severely impact children's development. The excessive and unsupervised use of gadgets can slow the cognitive growth of children under the age of 5 years. Kim et al. (2020) admit that the use of smartphones can make children tired due to reduced rest hours, and there is the potential for children to be difficult to concentrate on studying. In addition, excessive smartphone usage has a reasonably dangerous impact on the development of children's speech. Typically, children should have a holophrastic

vocabulary estimated to reach ten words at eight months. The vocabulary can still develop up to 50 words at the first year of acquisition. When approaching the age of 2, children already have 200-400 words (Kara & Acikel 2020). Kusmanto et al. (2021) found that the exposure of gadgets in early childhood causes speech delays. It does not stop there; exposure to devices in early childhood also causes autism syndrome and intellectual disorders (Kara & Acikel 2020). In addition, Indonesia has experienced an increase in the number of people with Autism (Nani et al., 2019) caused by congenital diseases and excessive use of smartphones. In Indonesia, the number of autistic patients is increasing in several cities. According to Prasetia & Andri (2018), the number of cases of patients with autism (age 0-14 years) has increased by 222% from 2015-2016 in Palu, Central Celebes. Gresik, East Java also experienced a proliferation in autism cases by 71% from 2016 to 2018 (Twistiandayani & Ferawati, 2019). These cases are increasingly customary amid the enormous use of gadgets without supervision and restrictions on children. Therefore, it is worthy of our attention to study and provide solutions based on measurable observations.

To date, there has been limited investigation on the excessive usage of gadgets and their impact on children's speech delay and autism risk factors. Several studies only confirm that gadget usage could bring negative influences for 3-4 years old toddlers (Nirwana et al. 2018). This study found that the subjects had less desire to move and socialize. Such expositions are unsatisfactory because a social withdrawal is one of the symptoms of autism and that aspect has not been explored yet. Thus, the researchers focus on gathering evidence on gadget usage and the risk of autism.

It is necessary to explore whether there is a genuine relationship between the duration of gadget use and children's language behavior. This article explores how the duration of smartphone use in children impacts children's speech development under four years of age. To expand the observations, the researchers identified whether children with speech delays were diagnosed with autism syndrome. The description includes research procedures and data analysis methods. The results of this study are based on research questions to provide a detailed and up-to-date understanding to provide benefits to language practitioners and parents.

1.1 Speech Delay & Autism

Children usually use holophrastic words to refer to objects in the first year of acquisition. Children can utter a single word that refers to phrases or sentences (Fromkin, 1983). For instance, when children see their mother cooking, they pronounce 'bubu'. That word

means that the mother is cooking. When children see their mother's shoes, they will also say 'bubu', meaning the shoes belong to their mothers.

Furthermore, children utilized the holophrastic word to express their specific emotional conditions (Safitri, 2020). However, some children have entered the age of 1 or 2 years but do not show these signs. Clinically, it is also influenced by the development of the articulation organ, and each child has a different pace of growth. Asaridou et al. (2017) confirm an association between the difference in children's language growth and children's articulation. The delay in the early vocalization stages is seen as a speech delay which has a detrimental impact on children's communication skills. It is not unusual for children with speech delays to have associations with autism syndrome (Zengin-Akkus et al. 2018). Mukherjee (2017) reveals that children with autism tend to suffer impaired social interaction. With screening tests, children with autism will fail because there is attrition in language usage and behavior.

In general, Autism is a nervous system disorder characterized by emotional imbalance, difficulty building social relationships, and difficulty communicating. The autism spectrum can be identified from the age of 6 months (Chang et al., 2021). Children with Autism will limit eye contact and social contact and experience deficiencies in communicative abilities (Webb et al. 2014). So, when parents try to communicate, children with Autism are less likely to make eye contact or engage in conversation (Zhao et al., 2007). Therefore, it is difficult for parents to develop their children's communication skills, leading to speech delays.

Many people mistakenly think autism is an incurable syndrome. Ordinary people also often judge that autism is equivalent to retardation. In contrast, a child with autism is a unique case where autistic children are very comfortable with being alone and apathetic to their environment (Irawan et al., 2022). We can identify this syndrome since the child is still a toddler. When the child has little response to the environment, it can be assumed he has autism at this age. Then when the child experiences speech delays or unclear articulation while his age has entered the period of perfect speech, it can be ascertained that a child has autism. In addition, motorically, children with autism tend to do the same activities repeatedly (Desoky et al., 2017) and enter a repetitive world with obsessive interests (Setyaningsih, 2016; Schuh & Eigsti, 2012).

In addition, parents need to be able to identify the symptoms of autism in children so that parents can take steps to provide therapy to children before their child's cognitive development is hampered too far by this syndrome (Irawan et al. 2022). If it is too late to treat, it will be difficult for us to treat this syndrome. Furthermore, the evidence above indicates that

gadget usage might play a vital role in inducing autism risk factors in toddlers. Thus, the researchers are determined to examine the intercorrelation between those variables by conducting the current investigation.

2. METHODOLOGY

This study utilized a mixed method that combined statistical inference and qualitative descriptive methods so that it could provide an explanation according to the phenomena that have been observed. Therefore, 257 parents were invited to be participants and 70 children met the requirements based on the data set's eligibility requirements. The eligibility criteria applied by researchers was that children who participated as subjects must be between 6 months to 5 years old. The participants were selected purposively to provide detailed, representative information to explain the phenomena (Lodico et al. (2010). The data sources were taken from children aged 1-5 years exposed to gadgets to give evidence-based explanations about speech delay and the autism spectrum.

The questionnaire in this study used a Likert scale to measure children's linguistic behavior and the duration of gadget usage. The questionnaire consisted of 8 items that measured proficiency in early vocalizations such as babbling, holophrases, and early vocabulary. In addition, those items were designed to look for early signs of autism syndrome, such as a lack of eye contact and a tendency to withdraw from social interactions. Items were designed in straightforward terminology so that parents were not burdened and confused when filling out the questionnaire because each parent came from a different level of education. Before the instrument is used, the researchers ensured in advance the validity and reliability of the data. In addition, the researchers ensured the readability and clarity of language (Taherdoost, 2016), which was applied in the questionnaire.

In addition, five parents were interviewed because they had unique problems related to speech delays and autism. The researchers recorded the interview process with the participants' permission and transcribed it. After the researchers analyzed the data collected using the main instrument, the researchers described it using statistical analysis to provide a rich and easy-to-understand description (Ananda & Ashadi, 2021). Then, the researchers presented a description of the interpretation of the data using tables and other visuals.

2.1 Validity and Reliability Test

The validity test results when tested on 40 respondents showed that the calculated *r* value of the *Pearson Product Moment* correlation test was more significant than 0.312 (*r*-table) with a significance level of 5%. Thus, this proves that the instrument that will be used to obtain

the data is considered valid. In addition, the calculation results of the *Alpha model* to determine the reliability of each questionnaire item. The Alpha value of the questionnaire items was 0.873. So that the Alpha value obtained is more significant than 0.7. We can conclude that the questionnaire used is valid and reliable.

3. FINDINGS

This section explains the results of the analysis of the questionnaire data and the transcription of parents' interviews. This includes an illustration of an unforeseen case, such as the respondents on the autism spectrum.

3.1 First Contact with the Gadget

In addition, when using a questionnaire to measure early childhood language habits, the researchers also uncovered data related to initial contact with gadgets, duration of gadget usage, and information about the education level of children's parents. All of these aspects were related if analyzed further using statistical calculations.

Table 1. The crosstabulation between child age & children first contact with gadget

		Firstcontact				Total
		< 1 Year	1 - 2 Years	> 3 Years	Haven't exposed	
Age	< 1	2	1	0	1	4
	1 - 2 Years	6	14	1	3	24
	2 - 3 Years	5	20	1	0	26
	> 3 Years	3	5	8	0	16
Total		16	40	10	4	70

Table 1 shows data distribution based on age and children's first contact with gadgets. The data shows that 57% of children had contact with gadgets at 1-2 years old. Moreover, there is 22% received early stimulation with gadgets at under one year, and 14% received stimulation at three years old. This is quite worrying because the age of 1-3 years is one of the paramount periods of children's language acquisition.

Table 2. The cross tabulation between parents' educational degree & children's screen time

		Duration					Haven't Exposed	Total
		30-60 minutes	1 - 2 hours	3 - 5 hours	6 - 8 hours	> 8 hours		
Degree	Senior High School	10	3	3	4	0	1	21
	Bachelor	17	9	4	2	1	2	35
	Master	5	2	2	0	0	0	9
	Etc.	3	0	1	0	0	1	5
Total		35	14	10	6	1	4	70

Table 2 shows how the duration of gadget use is related to the level of parental education. Based on the data above, parents with high school education tended to allow their

children to use gadgets for 3 to 8 hours. Meanwhile, at the master's level, children tended to limit the use of devices to children to only 1-2 hours. The researchers assumed that the higher the parent's education, the more they will restrict the use of gadgets.

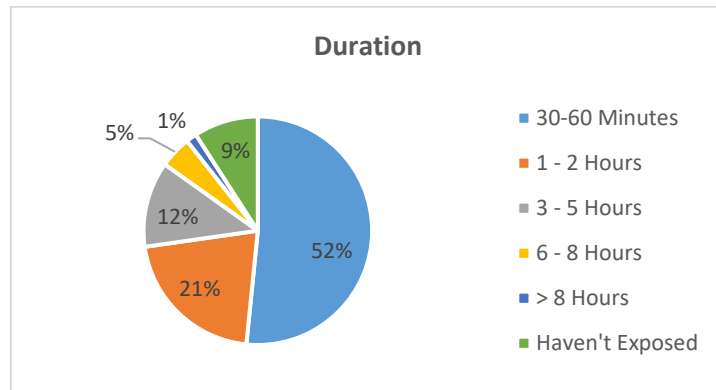


Chart 1 Pie chart of gadget screen time

Further analysis demonstrated that most parents permitted their children to use gadgets for 1 hour (52%). 21% of parents allowed their children to interact with their gadgets for 1 to 2 hours. In addition, 5% of parents even allowed their children to use gadgets for 6-8 hours.

Table 3. The result of *Pearson Product Moment Test* on Duration (x) and First Contact (y)

Correlations			
		Firstcontact	Duration
First Contact	Pearson Correlation	1	,452**
	Sig. (2-tailed)		,000
	N	70	70
Duration	Pearson Correlation	,452**	1
	Sig. (2-tailed)	,000	
	N	70	70

** . Correlation is significant at the 0.01 level (2-tailed).

As displayed in Table 3, the results indicate a positive correlation between the first contact variable and the duration variable. The significance value of the *r-value* was 0.452, which is more significant than the *r* table 0.235 at a significance level of 5%. The calculated *r-value* was still significant at the 1% significance level when examined further. From these results, we can conclude that the slower the child's exposure to gadgets, the longer the duration of using gadgets. It is because, at the age of 2-3 years, children understand enough to operate gadgets, while children aged one year still do not understand using gadgets and tend to be under the full supervision of their parents.

3.2 Correlation between children's speech habits and the duration of gadget usage

Table 4. The result of *Pearson Product Moment Test* on Speech (x) and First Duration (y)

Correlations			
		Duration	Speech
Duration	Pearson Correlation	1	-,428**
	Sig. (2-tailed)		,000

	N	70	70
Speech	Pearson Correlation	-,428**	1
	Sig. (2-tailed)	,000	
	N	70	70

** . Correlation is significant at the 0.01 level (2-tailed).

A bivariate correlation revealed a significant relationship, but this relationship was negatively significant. Based on table 4, the *r-value* obtained from the analysis results was -0.428. Even though the results of this calculation were negative, they were considered significant because the value obtained was greater than the significance level of 5% or even 1%. The researchers concluded that the longer the use of gadgets, the more negative impact on children's interaction and speech developments.

Table 5. The result of *Kendall'Tau & Spearman's Correlation Test* on Speech (x) and First Duration (y)

		Correlations		
			Duration	Speech
Kendall's tau_b	Duration	Correlation Coefficient	1,000	-,292**
		Sig. (2-tailed)	.	,002
		N	70	70
	Speech	Correlation Coefficient	-,292**	1,000
		Sig. (2-tailed)	,002	.
		N	70	70
Spearman's rho	Duration	Correlation Coefficient	1,000	-,362**
		Sig. (2-tailed)	.	,002
		N	70	70
	Speech	Correlation Coefficient	-,362**	1,000
		Sig. (2-tailed)	,002	.
		N	70	70

** . Correlation is significant at the 0.01 level (2-tailed).

In addition, the researchers also confirmed the results of the correlation measurement using *Kendall'Tau's & Spearman's* model correlation analysis. Table 5 shows that the two variables still had a considerable negative correlation. This finding aligns with the correlation analysis using the Pearson Product Moment model in the previous table.

3.3 A meaningful relationship between the traits of the autistic spectrum and the duration of gadget usage

Table 6. The result of *Pearson Product Moment Test* on Duration and Questionnaires item 1, 5, and 6

		Correlations			
		Q1At	Q5At	Q6At	Duration
Q1At	Pearson Correlation	1	,577**	,584**	-,206
	Sig. (2-tailed)		,000	,000	,087
	N	70	70	70	70
Q5At	Pearson Correlation	,577**	1	,609**	-,317**
	Sig. (2-tailed)	,000		,000	,008
	N	70	70	70	70

Q6At	Pearson Correlation	,584**	,609**	1	-,399**
	Sig. (2-tailed)	,000	,000		,001
	N	70	70	70	70
Duration	Pearson Correlation	-,206	-,317**	-,399**	1
	Sig. (2-tailed)	,087	,008	,001	
	N	70	70	70	70

** . Correlation is significant at the 0.01 level (2-tailed).

The researchers prepared eight questionnaires, and there were three items (Q1At, Q5At, and Q6At) purposely designed to identify early features of the autism spectrum. Those questionnaires were designed with a *Likert* scale of 4 options. When the sum score of this questionnaire is low, the respondent's child can be identified as having early characteristics of autism.

In addition, Q1At item measured a child's response when called by his parents. This questionnaire examined the response to the stimulus given by the parents. The Q5At item identified a child's interest in initiating conversations or interactions with peers. Item Q6At identified responses when a child is asked a simple question. This item wanted to measure whether it was difficult for those children to formulate a simple answer.

The results of the correlation analysis showed that the relationship between the Q1At, Q5At, and Q6At questionnaire items was significant even at the 1% significance level. The researcher concluded that if the child has an excellent response to the environment's stimulus, the child is interested in interacting with their peers and can respond to simple questions.

In addition, when the duration variable was measured with the three items, it was unexpected that the results showed a relationship between the duration variable and the Q1At item with an *r-value* of -0.206. It shows that there was a weak negative correlation between the two variables. Thus, it can be concluded that the longer the duration spent by children using gadgets can reduce the child's response when invited to interact, but this relationship is weak.

Further, the variable duration of gadget usage and Q5At & Q6At items had a very significant negative relationship even at the 1% significance level. Thus, it can be concluded that the longer a child spends their time using gadgets will harm the child's desire to interact with the environment and cognitive abilities when given simple questions.

Table 7. ANOVA of Speech, Autism & Duration variables

	Sum of Squares	df	Mean Square	F	Sig
Autism * Duration	48.690	1	48.690	10.131	0.002
Speech * Duration	361.180	1	361.180	15.273	0.000

Table 7 shows the results of the Analysis of Variance (ANOVA), which aimed to see whether there was an association between children's speech habits (Speech), Autism tendencies (Autism) and the duration of gadget usage. Based on the table, autism and duration variables had a relationship because the P-value of 0.002 was more diminutive than the 0.05. The researcher concluded that the two variables have a relationship.

In addition, the speech and duration variables had very significant relationship because the P-value obtained was 0.000, which was more diminutive than the 0.01%. Therefore, the researcher concluded that both variables could affect each other.

3.4 Coping with autism syndrome

This finding discusses the results of interviews with parents of children with autism characteristics. The researcher deliberately discussed it to provide a more detailed explanation of the condition of children with special needs.

As parents, we will do the best for our children. We try to facilitate children to stay comfortable and happy. Nevertheless, what is fun for children is not necessarily suitable for their growth and development. This is a dilemma for parents, especially millennial parents. In excerpts, P refers to parents.

"Physically, my child is active. Like other children of his age, he enjoys spending time playing. However, when he was two years old, I was surprised that my son did not respond when his name was called. He was just busy with his activities. He also did not care about the people around him, as if he'd been in his own world." - P2.

In addition, P2 admitted that his son has been introduced to gadgets since he was under one year old. His child could spend more than 8 hours just using a smartphone. Parents gave gadgets because they were happy if their children were cheerful and not fussy. Now the child is approaching the age of 3 years but rarely produced speech. He only communicated with gestures when unable to do something (such as picking up things from a higher place). However, if he could do something, he would ignore others. After observing directly, the researcher also saw that this child ignored the instructions and prohibitions from his parents. So that researcher can confirm that the term *phubbing*, which makes individuals withdraw from social interactions, does exist.

"I consulted the doctor because my son was approaching the age of 3 years but could not speak yet. Doctors said that this delay is due to a lack of stimulation from the environment and parents as well as genetic factors." – P4.

P4 admitted that he was most worried when his child could not communicate. He believed his child could still be trained and stimulated. However, when his child decided to withdraw from social interaction, he worried his son would have autism. P4 admitted that he supervised and limited gadgets usage, but when his wife was pregnant, she had an auto-immune disease.

“Many people said my child is autistic, even so, my child is physically healthy and active. He rarely talks. I believe every child has a different development”- P29.

“My child can spend up to 6 hours playing with gadgets. As a result, he has a speech delay.” – P30.

“My son is a little different from other children. When his friend snatched his toy, he was not upset. He tended not to make eye contact and avoid interaction” – P67.

To follow up P29, the researcher interviewed the parents (mother and father). The mother honestly filled out the questionnaire and described her child's condition. However, the father did not seem to accept and did not believe his son suffered an autism spectrum. Thus, he did not provide an accurate explanation regarding his son, who had a speech delay. Thus, the researchers conducted interviews with the mother and the closest family to gain accurate descriptions. From the researchers' observations, the child of respondent P29 was addicted to gadgets. This child could spend up to 6 hours playing. In addition, the researcher tried to interact with this child, but he ignored the researcher's existence. According to his mother, when she confiscated the smartphone from the child, he would run around the room in circles until he was tired. He did this repeatedly every time his cell phone was confiscated.

4. DISCUSSION

4.1 *Speech delay and Gadget Usage*

This study has shown an intercorrelation between smartphone use and the potential detrimental effects that can interfere with a child's linguistic and motoric development. Excessive use of gadgets causes detrimental effects. In addition to children experiencing speech delays, children also have the potential to become passive language users (Hidayatul, 2018). Due to being passive language users, children will tend to take a long time to train the articulation organ, slowing down speech's perfection. These problems trigger speech delay. Tsuraya (2013) asserts that speech delay cannot be considered a trivial problem because children will experience problems in building interpersonal relationships. In addition, Van Tiel (2011) explains that verbal speech delay consists of 3 types: *Speech and Language Expressive Disorder, Specific Language Impairment, and Pure Dysphatic Development.*

One prominent result in this study is speech delay, which is related to the duration of using gadgets. Speech delay is often associated with an expressive language disorder. *Language expressive disorder* is when a child experiences delays in acquiring the first language. Not only productive, but this disorder also inhibits children's receptive language skills (Caultfield 1989). In addition, this study's results reveal that expressive language disorders limit and disrupt children's communication patterns.

Sharp & Hillenbrand (2008) explained that specific language impairment (SLI) hinders children's acquisition of expressive language. Usually, this disorder occurs in children who have hearing loss and nerve problems that interfere with non-verbal communication. The attributes of this disorder are seen in children with limited vocabulary, short speech, and often making grammatical errors compared to children their age.

Excessive use of gadgets should be a concern for parents because giving early childhood exposure to gadgets has a disruptive impact on the development of verbal and cognition skills. It is not recommended for parents to allow children under two years to access gadgets. Children aged 3-5 years should be limited in using gadgets (Nugraha et al., 2019). Parents must provide understanding to their children and build a discipline culture so that children can avoid the risk of autism and gadget addiction. In addition, parents can provide alternative amusement that is more useful, such as inviting them to do activities outside the home or going to a playground so that children will interact with their peers.

4.2 Excessive Gadget Usage and Autism Risk Factor

It is vital for parents to consult a doctor or speech pathologist if their child already has early signs of speech delay or autism. Parents must understand that these symptoms can still be treated as early as possible. Then parents must provide a supportive environment to support the child's therapeutic efforts. Indeed, this is quite difficult for most parents because they have to fight the shame, loss of hope, and dignity when a family member has this syndrome. However, parents who apprehend the condition of autism can provide relevant stimulus and care to support their child systemically (Solomon & Chung, 2012). This study found a link between the use of gadgets and the potential for autism. The researcher focuses on environmental impacts and unsupportive stimulation that led to autism in children. *An unsupportive environment* is an environment that does not provide satisfactory linguistic stimulation for the maturation of children's cognitive and verbal abilities. This environment should be created and provided by parents. The presence of gadgets in the environment of children under three years old will change the parenting and learning patterns of children.

Children will be more interested in gadget stimulation and fixated on one-way interactions, which tend not to provide a good stimulus for children. In addition, autism can also be caused by congenital diseases and nutritional factors. Some studies assume that artificial food coloring can trigger autism in children. However, recently, Bakthavachalu et al. (2020) have proven that the use of synthetic dyes is not the leading cause of the autism spectrum. However, they believe that there is a connection between the two. In addition, the researcher also found that among participants, there were parents with autoimmune diseases. Ashwood & Van de Water (2004) emphasize that abnormalities in immunity can lead to an autism spectrum because there is evidence that autoantibodies tend to attack the nervous system of children with autism syndrome (Connery et al., 2018; Singh et al., 1997). This creates a more expansive analytical space that allows cross-disciplinary research to create intercorrelated evidence.

4.3 Relationship Between Parental Education with Speech Delay and Autism Risk

Educational strata also play a role when children are addicted or have speech delays. Sharp & Hillenbrand (2008) asserted that children with language deficiency also have a relationship with educational problems. If it is associated with parents, the higher the education of parents, the more aware and knowledgeable they are about the risks that can occur if children are exposed to smartphones too early. In this study, most parents who only graduated from high school allowed their children to be exposed to gadgets from the age of 1 year. They considered that gadgets could be a distraction for children so that parents could carry out activities without worrying that their children would be fussy. Correspondingly, Kılıç et al. (2019) agreed that gadgets addiction in early childhood are strongly influenced by parents' educational backgrounds and household income. (Levine et al. 2019). Parents who care about their children's education will supervise and guide their children when using gadgets, while parents with non-educational backgrounds will let their children freely use gadgets. Jeniu et al. (2017) claimed that parents with higher education levels will oversee and support children with autism following the information and knowledge they gather. For that reason, it would affect parenting patterns because educated parents will provide a good and supportive parenting model according to the child's condition (Ma'rifah et al. 2018), for example when caring for children during first language acquisition or when they have been diagnosed with autism.

4.4 Pinpointing the silent period in First language acquisition and Second language acquisition

The acquisition of the first language plays a vital role in the formation of children's cognitive abilities, so the stimulus from parents has a vital role. Early vocalization in early

childhood is considered one of the critical periods determining children's mental growth in general (Kasman et al., 2014). Children with a continuous stimulus tend to experience rapid development in first language acquisition. Children learn their first language based on exposure and environment or on innately-primed learning (Pullum, 1996). The connection between innately-primed learning and exposure cannot be separated because children can learn independently based on the stimulus. Most cases of speech delay are caused by a lack of stimulus and parental indifference in providing a suitable stimulus.

In addition, speech delay that occurs in children cannot be considered a silent period stage which usually occurs in second language acquisition. In the early vocalizations, children respond to their environment by crying or babbling (Morgan & Wren, 2018). The inability of children to produce perfect speech at under one year is caused by articulation organs that have not grown perfectly. Therefore, in this study, the researcher utilized questionnaires to measure whether the respondents' children were able to produce initial vocalizations or not. So far, the researcher has not found a silent period that occurs in the early vocalizations because if the child is not verbally active in the early vocalization period, it was inevitable that the child has impaired articulation and cognition development.

Previously, many researchers emphasized the role of parents in children's language acquisition, but researchers have not explained essential points about the role of parents and children's innate capacities. In contrast to acquiring a second language, children acquire first language not explicitly introduced by their parents. Children acquire language according to innate mentality. This mental innate is what many experts consider a language acquisition device (LAD) (Chomsky, 2006; Sampson, 2019). Children use LAD as a vehicle to adapt specific language structures to the basic concepts of universal grammar (UG). Therefore, exposure to the language that children want to access is essential. Based on cognitive psychology, children's language acquisition pattern is fixed on the stimulus and response system (Vaughan & Michael, 1982). Parents, when communicating with babies unconsciously, have provided a linguistic stimulus. At toddler age, children will respond by repeating what their parents said (Amano et al., 2002), and parents can strengthen the stimuli given by giving appreciation or correction if the stimulus is not spoken well. This acquisition scheme illustrates that first language acquisition in children differs from second language acquisition, and parents play a crucial role in the success of language acquisition. On the other hand, parents can also cause speech delay if the child is left without stimulation and does not get supervision in their developmental phase.

4.5 Possible Therapy for Speech Delay

In addition, parents should worry about the potential for speech delay in the children's growth and development process. In addition, speech delay is one of the early indications of autism that can be self-diagnosed. However, Law et al. (2003) confirmed that using phonological therapy methods for children who experience speech delays can significantly reduce the potential for speech delay. In addition, this method can be used to treat children with expressive impairment. Pastari & Syokumawena (2022) recently succeeded in finding a new approach to dealing with children with language development disorders. They proved that a combination of speech therapy and *oromotor* (Speech Therapy Massage) could positively impact the language development of children with autism syndrome and speech delays. Despite these beneficial findings, parents should not let their guard down and underestimate the negative impact of this phenomenon. Speech delay cannot be measured by its duration, but what detrimental effects can arise when treatment is not given. As previously explained, children with speech delay have the potential to have difficulty communicating with their peers. Because of the difficulty in communicating, the children are trimming off social relations in their environment. Then the language errors that arise due to speech delay have the potential to be fossilized so that their learning performance dwindles. In the end, parents are still expected to be able to oversee and sustain the cognitive and psychomotor maturation of children.

5. CONCLUSION

In this investigation, the aim was to assess the correlation between the duration of gadget usage and speech delay. Moreover, the researcher examined the extent to which the relationship was associated with autism symptoms. This article has succeeded in proving that there is a correlation between the duration of gadget use and speech habits. The correlation was negatively significant, which means that the longer a child spends time playing with gadgets, the worse his/her early-stage language skills will be. Thus, it can be concluded that the excessive usage of gadgets has a detrimental impact on children's cognitive and verbal growth. In addition, the researcher found that children with autism spectrum characteristics had a relationship with the duration of gadget use. This further strengthens the main finding regarding the correlation between the two variables.

The findings of this research provide insights for parents to pay more attention to and monitor their child's growth and development so that they are not at risk of experiencing speech delays. In addition, these finding benefits medical and language practitioner who study related

fields so that the public can access the importance of supervision in using gadgets and clear up misconceptions about autistic syndrome circulating in the community.

The most important limitation is that researchers have not involved national observations, so it would be good for other researchers to study this further. An additional uncontrolled factor is the possibility that researchers have not involved detailed medical observations in distinguishing whether the autism factor is caused by gadget use behaviour or due to disease and genetics. Thus, the study is open to replication with relevant variables to gain a more comprehensive description of the phenomenon.

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