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## Gadget Use Correlated with Emotional Development in Preschool Children



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### Abstract

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Children who often use gadgets at home have a bad impact, children become unwilling to play outside the house and interact with others to behave aggressively. Nowadays, children's emotional development is a problem that is often conveyed by parents to teachers at school. This study aimed to examine the correlation between gadget use and the emotional development of preschool children at Tunas Jaya Kindergarten, Surabaya. This study used an observational analytic design with a cross-sectional approach. From the population of 59, 53 respondents were selected as the sample through a simple random sampling technique. The variables being studied were gadget use and emotional development in which data were collected using a gadget use questionnaire and ASQ: SE-2 questionnaire. Data processing was conducted by editing, scoring, coding, tabulating, processing, and cleaning. Moreover, the data were analyzed using the Spearman Rho Correlation Test in SPSS with a significance level of  $\alpha = 0.05$ . The results revealed the high use of gadgets by the majority of the preschool children (96%), while 45.3% experienced emotional development categorized as "refer." The p-value = 0.000 indicated that there was a correlation between gadget use and emotional development in preschool children. This study concluded that there is a relationship between gadget use and the emotional development of preschool children. It is recommended that preschool children should not use gadgets more than 3 times a day and avoid using them daily. so as not to bring negative impacts on them.

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## INTRODUCTION

The development of preschool children in the current era has been declining, particularly in terms of concentration and emotional development. Children with poor social-emotional development are certainly unable to socialize with people around them and cannot even control various emotional and social problems ([Nuraini & Wardhani, 2023](#)). At Tunas Jaya Kindergarten in Surabaya, some children exhibit temperamental behavior, difficulty in following instructions, reluctance to study, and refusal when requested to perform tasks at school. Emotional and social developmental delays in early childhood have become a global phenomenon.

The Ministry of Health of the Republic of Indonesia stated that approximately 16% or 0.4 million children aged 0-5 years in Indonesia face developmental problems ([Siregar, 2022](#)). Moreover, the World Health Organization (WHO) stated 5-25% of children in early childhood are reported to have developmental disorders ([Siregar, 2022](#)). In recent years, various developmental disorders in early childhood, including movement, language, and social behavior delays, have been increasing. The incidence of developmental disorders in Indonesian children is 13% to 18% ([Sulastrri & Rin, 2022](#)). Data from the 2018 Basic Health Research ([RI, 2018](#)) reveals that the social and emotional development of Indonesian children has increased by 69.9%. This figure is still below Vietnam's 91.2%, Kazakhstan's 82.1%, and Thailand's 79.4% ([RI, 2018](#)). Other researchers claim that around 8% - 9% of children aged 3-6 years experience psychosocial disorders, especially social-emotional problems, such as difficulty in adapting, feeling anxious, difficulty controlling, and behaving aggressively ([Nuraini & Wardhani, 2023](#)). A preliminary study conducted at Tunas Jaya Kindergarten in Surabaya, reveals that 8 children had temperamental behavior, 7 children were difficult to control, 3 children were to study, and 2 children refused when requested to perform tasks at school.

Factors that affect children's emotional development include: physical condition and health of children. A healthy child will have stable and

positive emotions. Conversely, poor health conditions can trigger stress and anxiety. Learning process factors. Children learn through various means, such as experimentation, imitation, identification, and conditioning, as well as guidance and supervision ([Hanna & Nuryanti, 2024](#)). The learning process in children will shape emotional experiences and awareness. Conflicts in the developmental process also affect children's emotions. This conflict can arise from the difference between hope and reality, or the mismatch between desire and reality. This can trigger feelings of frustration, resentment, or disappointment. The last factor is the environment and family Interactions with family members, communication, and emotional support will shape how children manage and express emotions. The family environment is influenced by parenting patterns and parental habits; one of which is when parents provide gadgets to children. Without parental supervision, children may become overly reliant on gadgets ([Azwi et al., 2022](#)). Many parents get used to providing gadgets to their children to prevent fussiness. Starting from this habit, they become dependent on gadgets resulting in a reluctance to play outside the house and interact with other people, hence the family environment also affects the child's emotions ([Siregar, 2022](#)). This leads to prolonged use of gadgets that affect the level of aggression in children because they cannot understand the differences in perspectives of other people's minds ([Elsi Rahmadani et al., 2022](#)).

Recent research on impaired emotional development in children shows some important findings. Based on research by Elsi Rahmadani et al. ([Elsi Rahmadani et al., 2022](#)), children with emotional disorders tend to experience a decrease in social interaction and self-isolation. This is supported by research by Mahendra Juandra which found a correlation between gadget use and social-emotional development of children aged 5-6 years ([Mahendra, 2023](#)). Several other studies also highlight the importance of emotional handling and control strategies in children, such as the influence of parenting on the emotional development of preschool children. Strategies for controlling

emotions in elementary school children ([Mahmud & Fajri, 2021](#)). To overcome these problems, a deeper review of the causal factors is needed. By knowing the causal factors, it will be easier to determine the solutions to use ([Andriyani et al., 2022](#)). The novelty of this study is to specifically measure the influence of gadget use on the emotional development of preschool children. by measuring duration and frequency in days.

The efforts that must be made by parents to reduce gadget use in early childhood are being selective in choosing game applications on gadgets and setting the limit in using gadgets. Based on the background of the study, the researchers are interested in conducting a study on "The Correlation between Gadget Use and Emotional Development in Preschool Children".

## METHOD

This study used observational analytic design with a cross-sectional design in which the results of this study were obtained by analyzing the correlation between gadget use and emotional development in preschool children at Tunas Jaya Kindergarten of Surabaya. Cross-sectional design is a measurement or observation of the dependent and independent variables conducted only once at one time. From the population of 59, 53 respondents were selected as the sample in this study with the age of children ranging 4-6 years at Tunas Jaya Kindergarten of Surabaya, located at Jl. Krembangan Jaya Utara I No.87 5, Kemayoran, Krembangan District, Surabaya. This study was conducted on April 2-3, 2024. The independent variable in this study was the use of gadgets, whereas the dependent variable was the emotional development of preschool children. The operational definition of gadget use is the use of electronic devices, including iPhones, iPads, and tablets, both online and offline, based on the duration and frequency of gadget use. Furthermore, the operational definition of emotional development is the child's maturity in managing emotions.

The instrument used to measure the use of gadgets is a questionnaire. Instruments based on similar research Tanner et al ([Tanner et al., 2022](#)),

contain questions about how many times children use gadgets (frequency) and how long they use gadgets (duration), whereas the instrument used to collect data on the child emotional disturbance was the Ages & Stages Questionnaires: Social-Emotional (ASQ: SE-2) questionnaire for children aged 54 to 72 months. Each questionnaire contains 16-36 scored items that filter seven main social-emotional areas: self-regulation, compliance, adaptive functioning, autonomy, influence, social communication, and interaction with others. Following these items, a section labeled "Overall" contains open-ended questions that allow parents to share anything about eating, sleeping, toileting, or general things and what they like about their children. The questionnaire items are written at a fourth to sixth-grade reading level and are alternately labeled with masculine and feminine pronouns to increase readability and parental identification of the form. With the score result categories: 0-70: it is below the cutoff (social-emotional development appears to be on schedule), 71-96: it is close to the cutoff (review behaviors of concern and monitor), and > 96: it is above the cutoff (further assessment with a professional may be needed).

Data collection was carried out by the researchers by previously conveying the goals and plans to achieve agreement and the same understanding and requesting a letter from Universitas Nahdlatul Ulama Surabaya (UNUSA) addressed to the headmaster of Tunas Jaya Kindergarten of Surabaya for collecting initial data. Data collection was conducted after obtaining permission from the headmaster of the kindergarten. The researchers provided a research permit letter from UNUSA to the headmaster of Tunas Jaya Kindergarten of Surabaya to obtain permission to conduct research and collect data at the location, approach the children and the parents to obtain approval to become respondents (informed consent) as proof of willingness to become respondents. After obtaining approval, the researchers provided a statement sheet of consent to become respondents. The questionnaires were distributed to the parents to fill out at home. Finally, the questionnaires were

returned on April 03, 2024. The respondents of this study are children.

Analysis was conducted to analyze two variables that were suspected of being related or correlated done using a statistical test. This study used the Spearman Rho Test in SPSS. The results of this test are if  $\rho < 0.05$  then H1 is accepted, which means there is a correlation between gadget use and emotional development in preschool children, whereas if  $\rho > 0.05$  then H1 is rejected, which means there is no correlation between gadget use and emotional development in preschool children at Tunas Jaya Kindergarten of Surabaya. The Ethics Committee of the Faculty of Nursing and Midwifery, Universitas Nahdlatul Ulama Surabaya, Indonesia, has stated that this research had passed the ethical clearance. The ethics certification number is 0148/EC/KEPK/UNUSA/2024, 02 April 2024.

## RESULTS

The results of this study the correlation between gadget use and preschool children's emotional development in 53 respondents illustrated that among 13 respondents with low gadget use, nearly all respondents (77%) experienced low-risk emotional development. Of 16 respondents with gadget use at a moderate level, most respondents (75%) experienced low-risk emotional development. Moreover, of 24 respondents with gadget use at a high level, almost all respondents (96%) experienced emotional development categorized as "refer".

The results of the Spearman Rho statistical test revealed a p-value of 0.000, indicating that  $p < 0.05$ . It demonstrated a statistically significant correlation between gadget use and emotional development in preschool children.

**Table 1.** Frequency Distribution of Respondents

Characteristic	Frequency (n)	Percent (%)
<b>Child Age (month)</b>		
60-70	20	38
71-72	33	62
<b>Child Gender</b>		
Male	33	62
Female	20	38
<b>Age of caregiver</b>		
Mature	44	83
Pre-elderly	9	17
<b>Relationship with children</b>		
Parent (mother/father)	51	96
Guardian	1	2
Grandparents/other relatives	1	2
<b>Gadget Use</b>		
Low	13	24.5
Moderate	16	30.2
High	24	45.3
<b>Emotional development of preschool children</b>		
Low risk	22	41.5
Monitor	8	15.1
Refer	23	43.4

**Correlation between gadget use and emotional development of preschool children**  
Spearman's Rho Statistical Test Value  $p = 0.000$ . R-Value = 0.864 (very high correlation)

*Source: Primary Data, 2024*

Based on the age characteristics of the respondents revealed that of 53 respondents, most of the respondents (62%) were aged 71-72 months. Most of the respondents (62%) were males. Almost all respondents (83%) were adults. Based on their relationship with children revealed that of 53 respondents, nearly all of the respondents (96%) were parents (mother/father). Nearly half of the respondents totaling 24 respondents (45.3%) were high. High category is the use of gadgets with a duration of > 60 minutes and with a frequency every day. Nearly half of the respondents totaling 23 respondents (43.4%) experienced emotional development categorized as "refer". The results of the Spearman Rho statistical test, the obtained value ( $p = 0.000$ ) indicated that ( $p < 0.05$ ), demonstrating a significant correlation between gadget use and emotional development in preschool children.

## DISCUSSION

According to the results presented in Table 4.7 examining the correlation between gadget use and emotional development among 54 preschool children at Tunas Jaya Kindergarten of Surabaya, it was found that among the 24 respondents with high gadget use, nearly all of the respondents (96%) experienced emotional development categorized as "refer". Whilst, the results of the Spearman Rho statistical test showing a value ( $p = 0.000$ ) indicated that ( $p < 0.05$ ), illustrating that there was a correlation between gadget use and emotional development in preschool children with a value of  $\alpha = 0.864$  which meant that the correlation between gadget use and emotional development was very high. It also revealed that  $H_0$  was rejected meaning that there was a correlation between gadget use and emotional development in preschool children.

Children who use gadgets with low categories (duration 1-30 minutes per day and frequency 1-3 days per week) then their emotional development is low risk, and children who use gadgets with a moderate category (duration 31-60 minutes per day and frequency 4-6 days per week) will experience emotional development monitor, and vice versa children who use gadgets with high categorical (duration >60 minutes per day and

frequency every day) refer to emotional development.

The researchers suggest that the use of gadgets that are not by recommendations will cause optimal emotional development in children (Tanner et al., 2022). The use of gadgets has positive and negative effects on children (Andriani, 2021). The positive effects are developing imagination, training intelligence, increasing self-confidence, creativity, and innovation. In contrast, the negative effects cause eye health problems, sleep problems, difficulty concentrating, decreased learning achievement, and physical, social, cognitive, language, and emotional development. If children use gadgets too frequently, they will also get angry easily when instructed to stop and show refusal when receiving orders from others.

The appropriate time for children to apply gadgets is 30 minutes to an hour in one day. The use of gadgets in children must be controlled because it will make it difficult for children to stop applying gadgets. The American and Canadian Pediatrician Associations recommend that children aged 0-2 should not be exposed to gadgets, children aged 3-5 years are given a limit of one hour a day, and children aged 6 to 18 years are given a limit of two hours per day. However, the fact is that in Indonesia many children apply gadgets 4 to 5 times more than recommended (Tekeci et al., 2024). In the Research Journal "The American Academy of Pediatrics (AAP)" states that when children spend time playing with gadgets or are always exposed to screens, there must be a time limit, which is one or two hours per day and prevent screen exposure in children under two years old. The measure that is the basis for assessing the use of gadgets in children aged 3-5 years is called addiction if the use is more than an hour (Tanner et al., 2022). In this case, the researchers argue that preschool children should not use gadgets more than 3 times a day and avoid using them daily. Leisure time when not using gadgets can be used for positive things, such as learning religion, stimulating gross motor skills such as drawing, coloring, and playing outside the house to recognize the surrounding environment so that they do not spend their time only playing gadgets. Children who

don't play with gadgets tend to look for playmates who can improve social development ([Peni et al., 2022](#)).

The reserach from Anwar et al claims that the use of gadgets will have an impact on the emotional development of preschool children ([Anwar & Buton, 2025](#)). It suggests that children who spend over an hour on gadgets in total may still be affected emotionally, even if they use gadgets for only short periods of 1–30 minutes at a time each day because the use of gadgets for too long can affect the level of aggression in children for being unable to understand the differences in perspectives of other people's minds. In addition, they become insensitive to the environment around them. Children who are too busy using gadgets have difficulty to interact with their surroundings. At this stage, they prioritize themselves and are not yet able to socialize well with others.

This study is in line with a study conducted by Juandra revealing the low correlation between gadget use and emotional development in preschool children ([Mahendra, 2023](#)). It is also in line with a study conducted by Sulastrri revealing that there is a correlation between the duration of gadget use and emotional development in school-age children ([Sulastrri & Rin, 2022](#)). Proper parenting from parents is very important to be given to children because children are still too young and do not have the experience to guide their own development toward maturity ([Zuhra et al., 2022](#)). Some alternative solutions to distract children from gadgets are to give children time to play outdoors ([Kamaluddin et al., 2024](#)) and do some physical activities ([Wibowo et al., 2023](#)). One solution to overcome emotional development disorders is coloring healing. Coloring healing is a healing process that is carried out by creating a creative work of art. Another one is a puzzle game done by arranging a picture or object that has been broken into several pieces ([ARPAN et al., 2022](#)). Moreover, *congklak* game, a traditional game from ancient times. The game starts by making small holes as containers or places to store seeds to be collected. Children make these small holes on the ground. In its development, *congklak* game finally

has its own game equipment, no longer making holes on the ground ([Adwiah & Diana, 2023](#)).

## CONCLUSION

Based on the results of this study and the discussion in the previous section regarding the correlation between gadget use and emotional development in preschool children at Tunas Jaya Kindergarten of Surabaya, it can be concluded that most preschool children at Tunas Jaya Kindergarten, Surabaya use gadgets at a high level, the majority of preschool children at Tunas Jaya Kindergarten, Surabaya experience emotional development in the "refer" category and gadget use is related to emotional development in preschool children at Tunas Jaya Kindergarten, Surabaya.

## SUGGESTION

It is recommended that preschool children should not use gadgets more than 3 times a day and avoid using them daily. so as not to bring negative impacts on them. Parents spend more time taking their children to play outdoors.

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## CONFLICTS OF INTEREST

This research has no conflict of interest.

## AUTHOR CONTRIBUTIONS

AM conceptualization, formal analysis, methodology, validation; SND writing original draft, collecting data, analysis, editing; YA and EDM resources, visualization, investigation, and writing review and editing



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