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THE EFFECT OF GADGET USE INTENSITY ON TEMPER TANTRUM BEHAVIOR IN EARLY CHILDHOOD

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Abstract

Gadget use among young children has increased along with the development of digital technology in family life and education. Although gadgets can be used as entertainment and learning media, excessive use may affect children's socio-emotional development, including the emergence of temper tantrum behavior. This study aimed to analyze the effect of gadget use intensity on temper tantrum behavior in early childhood. This research employed a quantitative approach with a causal design. The respondents were 113 parents or guardians of children aged 4–6 years in Cakung District, East Jakarta, selected using purposive sampling. Data were collected through a closed-ended questionnaire using a five-point Likert scale. Gadget use intensity was measured through indicators of duration, frequency, and types of content accessed by children, while temper tantrum behavior was measured through indicators of tantrum frequency, tantrum duration, and verbal and physical tantrum behaviors. The data were analyzed using descriptive statistics and simple linear regression with SPSS version 26. The results showed that gadget use intensity had a positive and significant effect on temper tantrum behavior in early childhood, with a significance value of 0.000 < 0.05. The correlation coefficient value of 0.807 indicated a strong relationship between the two variables, while the coefficient of determination value of 0.651 indicated that 65.1% of the variation in temper tantrum behavior could be explained by gadget use intensity. These findings indicate that the higher the intensity of gadget use, the higher the tendency for temper tantrum behavior to occur in young children. This study recommends the importance of parental and teacher supervision in regulating the duration, frequency, and types of digital content accessed by children to support healthy socio-emotional development.

Keywords: Early Childhood, Gadget Use Intensity, Socio-Emotional Development, Temper Tantrum

INTRODUCTION

The rapid development of digital technology has made electronic devices increasingly integrated into the daily activities of young children, both at home and in educational settings. Gadgets such as smartphones, tablets, and other screen-based devices are increasingly used by young children for entertainment, communication, and learning activities. In early childhood education, digital media may provide interactive learning experiences, introduce children to letters, numbers, colors, songs, and stories, and support parental involvement in home-based learning. However, the increasing use of gadgets among young children also raises serious concerns, particularly when the use is excessive, unmonitored, or used as a strategy to calm children's negative emotions.

Early childhood is a sensitive period for social-emotional development. At the age of 4–6 years, children are developing the ability to recognize emotions, express feelings appropriately, delay gratification, follow rules, and manage frustration. Social-emotional development includes children's ability to understand, regulate, and express emotions appropriately, develop self-control, and build positive social relationships. These competencies are important foundations for emotional regulation and behavioral adjustment in early childhood (Ndari et al., 2019).These abilities are closely related to emotional regulation and self-regulation. Screen time in early childhood has been associated with later dysregulation symptoms and academic outcomes, indicating that early digital exposure needs to be viewed in relation to children's emotional and cognitive development (Cerniglia et al., 2021). Early

television exposure has also been linked to toddler behavioral and emotional dysregulation across cultural contexts (Desmarais et al., 2021). Screen-based activities may influence children's capacity to regulate emotions when they are not balanced with direct social interaction and meaningful play (Cerniglia et al., 2021; Desmarais et al., 2021).

The root of the problem is not the existence of gadgets themselves, but the intensity and pattern of their use. Gadget use intensity can be understood through duration, frequency, and the type of content accessed by children. Long duration of use, high frequency of daily access, and exposure to highly stimulating content may affect children's emotional responses. Screen time may influence several developmental domains, including cognitive, language, physical, and social-emotional development (Muppalla et al., 2023). The impact of screen time on children depends on several factors, including duration, content, context of use, and parental involvement (Panjeti-madan & Ranganathan, 2023). Therefore, gadget use in early childhood should not only be discussed from the perspective of access to technology, but also from the perspective of developmental appropriateness, parental mediation, content quality, and emotional well-being(Muppalla et al., 2023; Panjeti-madan & Ranganathan, 2023).

One of the behavioral problems that may be associated with poor emotional regulation in early childhood is temper tantrum. Temper tantrum refers to emotional outbursts expressed through crying, screaming, anger, refusing instructions, throwing objects, hitting, kicking, or other verbal and physical behaviors when children's wishes are not fulfilled. In certain developmental stages, tantrums can be considered a normal expression of frustration. However, when tantrums occur frequently, last for a long duration, or appear in intense verbal and physical forms, they may interfere with children's social-emotional adjustment and family routines. In the context of gadget use, tantrums may emerge when children become accustomed to instant stimulation from digital devices and experience frustration when gadget access is stopped, restricted, or replaced by non-digital activities.

Recent international studies strengthen the relevance of examining gadget use and tantrum-related behavior in early childhood. Parents often use media to regulate young children's difficult emotions, and this practice is related to problematic media use in early childhood (Coyne et al., 2021). Tablet use in early childhood has been associated with more expressions of anger and frustration in the following year (Fitzpatrick et al., 2024). Children's anger and frustration may also increase later tablet use, indicating a possible bidirectional relationship between digital media use and emotional outbursts (Fitzpatrick et al., 2024). Parental digital emotion regulation may hinder children's self-regulatory skills and contribute to poorer anger management (Konok et al., 2024). Using gadgets to stop tantrums may provide short-term calmness, but it may also reduce children's opportunities to develop internal emotional regulation strategies (Coyne et al., 2021; Fitzpatrick et al., 2024; Konok et al., 2024).

The relationship between gadget use and children's social-emotional development can also be understood through the reduction of direct interaction. Screen time has been negatively associated with parent-child talk among children aged 12 to 36 months (Brushe et al., 2024). Parent-child communication is important for language development, emotional understanding, and self-regulation in early childhood. Screen time can also reflect broader family distress and should be interpreted within the family environment (Hartshorne et al., 2021). Thus, the effect of gadget use on children's behavior cannot be separated from parenting practices, family routines, and the way adults respond to children's emotional needs (Brushe et al., 2024; Hartshorne et al., 2021).

In addition, emotional dysregulation in preschool children may predict later media use and gaming-related problems. Emotional dysregulation in preschool age has been found to predict later media use and gaming disorder symptoms in childhood (Paulus et al., 2021). This finding supports the idea that the relationship between gadget use and emotional problems may be reciprocal. Children with weak emotional regulation may be more likely to use gadgets excessively, while excessive gadget use may further reduce opportunities to strengthen emotional regulation (Paulus et al., 2021). Therefore, gadget use intensity and temper tantrum behavior need to be examined as part of a developmental process involving children's self-regulation, parental responses, and digital habits.

Theoretically, this study is supported by the Uses and Gratifications Theory. This theory views media users as active individuals who use media to fulfill certain needs and obtain satisfaction (Katz et al., 1973). In the context of young children, gadgets provide immediate gratification through colorful visuals, sounds, animation, games, and videos. These features attract children's attention and offer quick pleasure. However, because young children are still developing self-control, they may have difficulty stopping gadget use independently. When access to the gadget is limited, children may respond with

anger or frustration because the source of gratification is removed. This theoretical perspective is also related to the concept of emotional regulation, which emphasizes the ability to recognize, manage, and express emotions appropriately (Goleman, 1995).

Although studies on screen time, digital media use, and children's social-emotional development have increased in recent years, several gaps remain. First, many studies discuss screen time in general, while fewer studies examine gadget use intensity through specific indicators such as duration, frequency, and type of content accessed by children. Second, studies focusing specifically on temper tantrum behavior among children aged 4–6 years remain limited, particularly in the Indonesian early childhood education context. Third, empirical evidence from local communities is still needed because children's gadget use is influenced by family routines, parenting practices, parental work demands, access to digital devices, and cultural expectations regarding child behavior. Therefore, updated evidence is necessary to keep the topic relevant and to provide practical implications for parents and early childhood educators.

Based on these gaps, this study investigates the effect of gadget use intensity on temper tantrum behavior among young children. The independent variable is gadget use intensity, which includes duration of use, frequency of use, and type of content accessed by children. The dependent variable is temper tantrum behavior, which includes tantrum frequency, tantrum duration, and verbal and physical forms of tantrum. The research question addressed in this study is: Does gadget use intensity affect temper tantrum behavior in early childhood? The hypothesis proposed in this study is that gadget use intensity has a positive and significant effect on temper tantrum behavior in early childhood. In other words, the higher the intensity of gadget use, the higher the tendency of temper tantrum behavior among young children.

RESEARCH METHODS

This study used a quantitative approach with a causal research design to examine the effect of gadget use intensity on temper tantrum behavior in early childhood. This design was considered appropriate because the study focused on measuring the influence of one independent variable on one dependent variable through numerical data and statistical analysis.

The research was conducted in Cakung District, East Jakarta. The population consisted of children aged 4–6 years in Cakung District, with a total population of 25,497 children based on data from the Population and Civil Registration Office of East Jakarta Administrative City. The minimum sample size was determined using the Slovin formula with a 10% margin of error, resulting in a minimum requirement of 100 respondents. In its implementation, this study obtained 113 respondents who met the research criteria. Determining an adequate sample size is important in survey research because it affects the accuracy, reliability, and generalizability of the findings (Adam, 2020).

The respondents were parents or guardians of children aged 4–6 years. The sampling technique used was purposive sampling, with inclusion criteria including parents or guardians who had children aged 4–6 years, lived in Cakung District, and were willing to complete the questionnaire. Purposive sampling is appropriate when researchers select participants based on specific characteristics that are relevant to the research objectives (Andrade, 2021).

Data were collected using a closed-ended questionnaire distributed to parents or guardians. The questionnaire consisted of two variables: gadget use intensity and temper tantrum behavior. Gadget use intensity was measured through 11 items based on three indicators, namely duration of use, frequency of use, and type of digital content accessed by children. Temper tantrum behavior was measured through 21 items based on four indicators, namely tantrum frequency, tantrum duration, verbal tantrum behavior, and physical tantrum behavior. A questionnaire is suitable for collecting structured data from respondents because it allows researchers to obtain comparable responses efficiently (Taherdoost, 2022).

All items were arranged using a five-point Likert scale: 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, and 5 = Always. The Likert scale was used because it is commonly applied to measure attitudes, perceptions, frequencies, and behavioral tendencies in social science research.

Before the instrument was used in the main study, expert judgment was conducted to assess the relevance, clarity, and suitability of each item with the research variables. The instrument was then tested on 30 respondents to examine item validity and reliability. Content validity and reliability testing

are important stages in questionnaire development because they help ensure that the instrument measures the intended construct consistently (Ranganathan et al., 2024).

Data were analyzed using SPSS version 26. The analysis included descriptive statistics, assumption testing, and simple linear regression. Descriptive statistics were used to describe respondent characteristics and variable tendencies. Assumption testing included normality, linearity, and heteroscedasticity tests. Simple linear regression was used to determine the effect of gadget use intensity on temper tantrum behavior. The hypothesis was tested at a significance level of 0.05, and the coefficient of determination was used to identify the contribution of gadget use intensity in explaining temper tantrum behavior.

Ethical considerations were applied throughout the research process. Respondents were informed about the purpose of the study, the voluntary nature of participation, and the confidentiality of the data. The data were used only for research purposes and reported in aggregate form without revealing the identity of children, parents, or guardians.

RESULTS AND FINDINGS

This study involved 113 parents or guardians of children aged 4–6 years in Cakung District, East Jakarta. The data obtained from the respondents were analyzed to describe respondent characteristics, instrument reliability, and the effect of gadget use intensity on temper tantrum behavior in early childhood. The findings are presented descriptively and supported by tables.

Respondent Characteristics

The characteristics of respondents in this study included children's gender, children's age, parents' education level, and children's daily gadget use duration. These characteristics were important to provide an overview of the background of the research participants.

Table 1. Respondent Characteristics

No.	Characteristic	Dominant Category	Frequency	Percentage
1	Children's gender	Female	63	55.8%
2	Children's age	5 years old	50	44.2%
3	Parents' education level	Diploma/Bachelor's degree	57	50.4%
4	Daily gadget use duration	2–3 hours per day	40	35.4%

Table 1 indicates that female children represented the largest proportion of participants, accounting for 55.8% of all respondents (n=63). In terms of age, the largest group was children aged 5 years, with 50 children or 44.2%. The parents' education level was dominated by Diploma/Bachelor's degree graduates, with 57 respondents or 50.4%. Furthermore, the most common daily gadget use duration was 2–3 hours per day, reported by 40 children or 35.4%. These findings indicate that gadget use among young children has become part of daily routines and needs attention from parents and educators.

Instrument Reliability

The research instrument consisted of two variables: gadget use intensity and temper tantrum behavior. The gadget use intensity scale consisted of 11 items, while the temper tantrum behavior scale consisted of 21 items. Reliability testing was conducted to determine the consistency of the instrument used in measuring each variable.

Table 2. Instrument Reliability Results

No.	Variable	Number of Items	Cronbach's Alpha
1	Gadget use intensity	11	0.902
2	Temper tantrum behavior	21	0.963

Based on Table 2, the Cronbach's Alpha value for the gadget use intensity variable was 0.902, while the Cronbach's Alpha value for the temper tantrum behavior variable was 0.963. The obtained Cronbach's Alpha coefficients demonstrate that both measurement instruments possess excellent reliability and are suitable for further analysis. Therefore, the instruments were considered reliable and appropriate for measuring gadget use intensity and temper tantrum behavior in early childhood.

Instrument Validity

The instrument was tested on 30 respondents prior to the main study. Item validity was examined using the Pearson Product-Moment correlation with an r-table value of 0.361 at the 5% significance level. The results indicated that all items of the gadget use intensity variable and temper

tantrum behavior variable had r-count values greater than the r-table value. Therefore, all items were declared valid and appropriate for use in this study.

Table 3. Validity Test Results of Gadget Use Intensity Instrument (X)

No.	Item	r Count	r Table	Remark
1	G01	0,830	0,361	Valid
2	G02	0,838	0,361	Valid
3	G03	0,794	0,361	Valid
4	G04	0,819	0,361	Valid
5	G05	0,700	0,361	Valid
6	G06	0,737	0,361	Valid
7	G07	0,719	0,361	Valid
8	G08	0,768	0,361	Valid
9	G09	0,600	0,361	Valid
10	G10	0,436	0,361	Valid
11	G11	0,569	0,361	Valid

Table 4. Validity Test Results of Temper Tantrum Instrument (Y)

No.	Item	r Count	r Table	Remark
1	T01	0,761	0,361	Valid
2	T02	0,783	0,361	Valid
3	T03	0,661	0,361	Valid
4	T04	0,728	0,361	Valid
5	T05	0,469	0,361	Valid
6	T06	0,700	0,361	Valid
7	T07	0,595	0,361	Valid
8	T08	0,847	0,361	Valid
9	T09	0,859	0,361	Valid
10	T10	0,791	0,361	Valid
11	T11	0,848	0,361	Valid
12	T12	0,802	0,361	Valid
13	T13	0,718	0,361	Valid
14	T14	0,701	0,361	Valid
15	T15	0,784	0,361	Valid
16	T16	0,825	0,361	Valid
17	T17	0,777	0,361	Valid
18	T18	0,790	0,361	Valid
19	T19	0,801	0,361	Valid
20	T20	0,793	0,361	Valid
21	T21	0,828	0,361	Valid

Based on Tables 3 and 4, all statement items for both variables obtained r-count values higher than the r-table value (0.361). Consequently, every questionnaire item met the validity criteria and was retained for data collection.

Classical Assumption Tests

Before testing the hypothesis using simple linear regression, several classical assumption tests were conducted, including the normality test, linearity test, and heteroscedasticity test.

Table 5. Normality Test Results

Test	Statistic	Significance Value	Criterion	Conclusion
One-Sample Kolmogorov–Smirnov Test	0.120	0.067	Sig. > 0.05	Normally Distributed

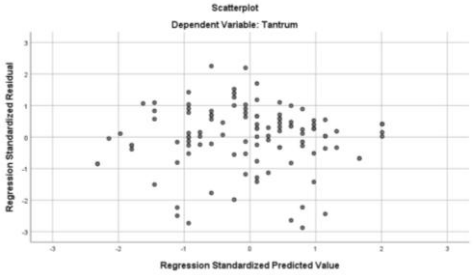
Based on Table 5, the normality test was conducted using the One-Sample Kolmogorov-Smirnov Test on the regression residuals. The Monte Carlo Sig. (2-tailed) value was 0.067. Since the significance value was greater than 0.05 (0.067 > 0.05), the residuals were normally distributed. Therefore, the normality assumption was fulfilled.

Table 6. Linearity Test Results

Variable Relationship	Linearity Sig.	Deviation from Linearity Sig.	Criterion	Conclusion
Gadget Use Intensity → Temper Tantrum Behavior	0.000	0.394	Deviation from Linearity > 0.05	Linear Relationship

Based on Table 6, the significance value of Deviation from Linearity was 0.394. Since this value was greater than 0.05 (0.394 > 0.05), the relationship between gadget use intensity and temper tantrum behavior was linear.

Figure 1. Scatterplot of Heteroscedasticity Test



Based on Figure 1, the data points were randomly distributed above and below zero on the Y-axis and did not form any specific pattern. Therefore, no heteroscedasticity problem was detected, indicating that the regression model met the homoscedasticity assumption and was appropriate for further analysis.

The results of the normality, linearity, and heteroscedasticity tests indicated that all regression assumptions were satisfied. Therefore, the regression model was considered appropriate for hypothesis testing.

Descriptive Overview of Research Variables

The gadget use intensity variable in this study was measured based on three indicators: duration of use, frequency of use, and type of digital content accessed by children. The temper tantrum behavior variable was measured based on tantrum frequency, tantrum duration, verbal tantrum behavior, and physical tantrum behavior. The data showed that children with higher gadget use intensity tended to show stronger tantrum behavior, especially when gadget access was limited, stopped, or replaced by non-digital activities.

Table 7. Indicators of Research Variables

No.	Variable	Indicators	Number of Items
1	Gadget use intensity	Duration of use, frequency of use, type of digital content accessed	11
2	Temper tantrum behavior	Tantrum frequency, tantrum duration, verbal tantrum behavior, physical tantrum behavior	21

Table 7 shows that gadget use intensity was not only measured by how long children used gadgets, but also by how often they used them and what type of content they accessed. This measurement is important because children's digital experiences may differ depending on the frequency of use and the nature of the content. Meanwhile, temper tantrum behavior was measured through both verbal and physical forms, allowing the study to capture various expressions of emotional outbursts in early childhood.

Relationship between Gadget Use Intensity and Temper Tantrum Behavior

The results showed a strong relationship between gadget use intensity and temper tantrum behavior in early childhood. The summary of the relationship between the two variables is presented in Table 8.

Table 8. Summary of Relationship between Gadget Use Intensity and Temper Tantrum Behavior

Model	R	R Square	Interpretation
Gadget use intensity and temper tantrum behavior	0.807	0.651	Strong relationship

Based on Table 8, the correlation analysis produced an R value of 0.807, suggesting a strong positive association between children's gadget usage intensity and temper tantrum tendencies. The R Square value was 0.651, meaning that 65.1% of the variation in temper tantrum behavior could be explained by gadget use intensity. The remaining 34.9% was influenced by other factors outside this study, such as parenting style, child temperament, family routines, sleep quality, emotional regulation ability, and social interaction.

Effect of Gadget Use Intensity on Temper Tantrum Behavior

The effect of gadget use intensity on temper tantrum behavior was identified through simple linear regression analysis. The summary of the regression result is presented in Table 9.

Table 9. Effect of Gadget Use Intensity on Temper Tantrum Behavior

Variable	Regression Coefficient	Significance Value	Interpretation
Gadget use intensity	1.812	0.000	Positive and significant effect

Based on Table 9, gadget use intensity had a regression coefficient of 1.812 with a significance value of 0.000. This result indicates that gadget use intensity had a positive and significant effect on temper tantrum behavior in early childhood. The positive coefficient means that an increase in gadget use intensity was followed by an increase in the tendency of temper tantrum behavior. In other words, children who used gadgets more intensely were more likely to show tantrum behavior than children with lower gadget use intensity.

The findings of this study show that gadget use intensity is an important factor related to temper tantrum behavior in early childhood. The strong relationship between the two variables indicates that gadget use patterns need to be managed carefully, especially in children aged 4–6 years who are still developing emotional regulation and self-control. The results also show that gadget use intensity contributes substantially to the emergence of temper tantrum behavior. Therefore, parents and early childhood educators need to pay attention to children's gadget use duration, frequency, and digital content to support healthy social-emotional development.

RESULTS AND DISCUSSION

The analysis revealed that higher levels of gadget use among young children were significantly associated with an increased tendency to exhibit temper tantrum behaviors.The statistical results showed a strong relationship between the two variables, with gadget use intensity explaining 65.1% of the variation in temper tantrum behavior. This finding confirms that the way young children use gadgets, including duration, frequency, and the type of content accessed, is closely related to their emotional and behavioral responses.

This finding confirms that gadget use in early childhood should not be viewed merely as a technological habit, but as a developmental issue related to children's emotional regulation and behavioral control. Children aged 4–6 years are still learning to wait, accept limits, manage disappointment, and express emotions appropriately. When gadget use becomes frequent and intense, children may become accustomed to fast stimulation and immediate gratification. As a result, when gadget access is stopped, limited, or replaced by non-digital activities, children may respond with frustration and emotional outbursts.

The result of this study is consistent with broader evidence showing that screen time is associated with children's internalizing and externalizing behavior problems. A systematic review and meta-analysis reported that higher screen time was significantly related to externalizing problems such as aggression and inattention, as well as internalizing problems such as anxiety and depressive symptoms in children aged 12 years or younger (Eirich et al., 2022) This supports the present finding because temper tantrum behavior can be understood as one form of externalizing emotional response that appears when children have difficulty regulating frustration.

The relationship between gadget use and tantrum behavior can also be interpreted through children's emotional symptoms. Digital screen exposure has been linked to emotional symptoms in preschool children, and this relationship may be influenced by the quality of parent-child and peer relationships (Xu & Qiao, 2025). This suggests that gadget use does not affect children in isolation, but operates within the child's relational environment. In the present study, children who used gadgets more intensely may have had fewer opportunities to practice emotion regulation through direct interaction, negotiation, and social play.

The findings also indicate that the contribution of gadget use intensity to temper tantrum behavior may be connected to sleep and daily routines. Excessive screen time has been associated with emotional and behavioral problems among young children, with sleep disturbance identified as a mediating mechanism (You et al., 2025). This is relevant because poor sleep can reduce children's tolerance for frustration, weaken attention control, and increase irritability. Therefore, children who use gadgets for longer periods, especially without clear time boundaries, may become more vulnerable to emotional outbursts.

The strong effect found in this study is also understandable because children with behavioral difficulties may become involved in a reciprocal cycle with screen media. Screen media use and externalizing behavior problems can reinforce each other, particularly when caregivers use screens to manage difficult behavior or when children with behavioral challenges are given more screen access to keep them calm (Griffith et al., 2024). In this context, tantrum behavior may not only be an outcome of gadget use, but may also become a pathway through which children obtain gadget access. When this

pattern is repeated, children may learn that crying, screaming, or refusing instructions can become an effective strategy to gain access to gadgets.

This study further suggests that screen use needs to be interpreted in relation to parenting practices. Parents' regulation of their own and their children's screen-based device use is an important factor in understanding how screen media influences child development (Lunkenheimer et al., 2023). In families where gadget rules are inconsistent, children may experience confusion when access is suddenly restricted. This inconsistency may increase frustration and make tantrum behavior more likely to occur.

The findings of this study are also related to the broader well-being of young children. A population-based study of young children found that two hours or more of daily screen time was associated with lower psychological well-being among preschool-aged children (Kwon et al., 2024). This finding strengthens the interpretation that the intensity of gadget use should be carefully managed because it may be related not only to tantrum behavior but also to children's overall social-emotional adjustment. In the present study, the high contribution of gadget use intensity to tantrum behavior indicates that digital habits may become an important environmental factor in children's emotional development.

The results also show that duration alone is not sufficient to explain the effect of gadget use. A systematic review on correlates of screen time in children aged 0–5 years emphasized that screen time is shaped by multiple child, parent, household, and environmental factors (Veldman et al., 2023). This supports the present study because gadget use intensity was measured through duration, frequency, and type of content. Therefore, parents and teachers should not only ask how long children use gadgets, but also how often they use them, what they watch or play, and whether adults accompany them.

The interpretation of the findings also supports the need for family-based strategies. Parenting interventions for children under five need to address practical barriers, family routines, rule consistency, and parents' skills in managing children's screen use (Morawska et al., 2023). This is important because recommendations about reducing gadget use may be difficult to implement if parents do not receive practical guidance. Parents may understand that excessive gadget use is risky, but they may still rely on gadgets when children cry, refuse instructions, or demand attention.

The practical implication of this study is that parents and early childhood educators need to promote balanced gadget use. A review of randomized controlled trials showed that interventions to reduce preschoolers' screen time can be strengthened through parent involvement and structured strategies that change daily routines (Rico-gonzález et al., 2025). This finding supports the recommendation that gadget management should be part of parenting education and early childhood education programs. Teachers can help parents design routines that combine digital activities with storytelling, outdoor play, art activities, peer interaction, and guided emotional expression.

The findings also align with pediatric recommendations that screen use in preschool children should be guided by age-appropriate content, adult involvement, and the development of self-regulation rather than passive or uncontrolled exposure (Ponti, 2023). This is relevant to the present study because tantrum behavior often appears when children are not prepared to stop using gadgets or when they have not developed alternative strategies to manage frustration. Thus, gadget use should be accompanied by transition routines, consistent rules, and adult support.

Based on the discussion above, the novelty of this study lies in its focus on gadget use intensity as a multidimensional variable consisting of duration, frequency, and type of content accessed by young children. The findings show that gadget use intensity contributes substantially to temper tantrum behavior, suggesting that tantrums in early childhood may reflect not only individual emotional immaturity but also patterns of digital habit formation within the family environment. This interpretation expands the understanding of tantrum behavior by connecting children's emotional regulation, digital stimulation, parenting consistency, and opportunities for direct social interaction.

Although the findings show a strong contribution of gadget use intensity to temper tantrum behavior, other factors may also influence children's emotional outbursts. Parenting style, parental stress, child temperament, sleep quality, family routines, peer interaction, and consistency of rules at home may also shape children's ability to manage frustration. In addition, this study used parent-report questionnaires, so the findings depend on parents' perceptions of children's gadget use and tantrum behavior. Future research may use direct observation, teacher reports, longitudinal designs, or mixed-method approaches to obtain a deeper understanding of how gadget use intensity interacts with children's emotional development.

CONCLUSION AND SUGGESTIONS

Conclusions

The study demonstrates that the intensity of gadget use serves as an important predictor of temper tantrum behavior among preschool-aged children. The findings indicate that children who use gadgets with higher intensity, as reflected in longer duration, higher frequency, and certain types of accessed digital content, tend to show a higher tendency toward temper tantrum behavior. The correlation coefficient of 0.807 indicates a strong relationship between gadget use intensity and temper tantrum behavior, while the coefficient of determination of 0.651 shows that 65.1% of the variation in children's temper tantrum behavior can be explained by gadget use intensity. These findings answer the research question and support the hypothesis that gadget use intensity significantly contributes to temper tantrum behavior among children aged 4–6 years.

The main proposition of this article is that gadget use in early childhood should not only be understood as a technological or entertainment issue, but also as a social-emotional development issue. Excessive or poorly regulated gadget use may reduce children's opportunities to develop emotional regulation, patience, direct communication, and social interaction. When children become accustomed to instant stimulation and immediate gratification from digital devices, they may experience greater frustration when gadget access is limited or stopped. Therefore, temper tantrum behavior can be understood as one possible developmental response to the imbalance between high digital stimulation and immature self-regulation skills.

Practically, the results of this study imply that parents, teachers, and early childhood education institutions need to manage children's gadget use more wisely. Gadget use should be accompanied by clear rules, adult supervision, age-appropriate content selection, and balanced non-digital activities. The findings also emphasize the importance of strengthening children's social-emotional development through play, storytelling, outdoor activities, peer interaction, and responsive communication with adults. Thus, the management of gadget use should become part of digital parenting and early childhood education practices that support children's healthy emotional development.

Suggestions

Based on the findings of this study, parents are encouraged to regulate children's gadget use by limiting the duration and frequency of use, selecting age-appropriate digital content, and accompanying children during screen-based activities. Parents should avoid using gadgets as the main strategy to calm children's anger, crying, or tantrums because this habit may reduce children's opportunities to learn internal emotional regulation. Instead, parents can guide children to recognize emotions, express feelings verbally, wait for their turn, accept limits, and engage in alternative activities such as reading books, drawing, playing outdoors, or interacting with family members.

Teachers and early childhood education institutions are suggested to strengthen social-emotional learning programs that help children develop self-regulation, patience, communication skills, and adaptive behavior. Schools can also provide parenting education programs that discuss healthy gadget use, digital content selection, screen time rules, and strategies for handling tantrums without relying excessively on digital devices. Collaboration between parents and teachers is important so that children experience consistent rules regarding gadget use both at home and at school.

For future researchers, it is recommended to examine other factors that may influence temper tantrum behavior, such as parenting style, parental stress, child temperament, sleep quality, family routines, peer interaction, and emotional regulation skills. Future studies may also use a wider sample, different geographical areas, longitudinal designs, or mixed-method approaches to obtain a more comprehensive understanding of the relationship between gadget use and children's social-emotional development. In addition, future research can further develop a theoretical model that integrates gadget use intensity, parental digital emotion regulation, and children's self-regulation as key factors in explaining temper tantrum behavior in early childhood.

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