JURNAL AR RO'IS MANDALIKA (ARMADA)
Journal website: https://ojs.cahayamandalika.com/index.php/armada

ISSN: 2774-8499 Vol. 6 No. 2 (2026)

Research Article

The Effect of Gadget Use on Emotional Development in Early Childhood: A Health Education Approach

Siti Robi'atus Sholiha[1], Mery Angreani Safitri[2], Mufidatul Jariyah[3]

1. Politeknik Kesehatan Kerta Cendekia, Indonesia; sitirobiatus97@gmail.com
2. Politeknik Kesehatan Kerta Cendekia, Indonesia
3. Politeknik Kesehatan Kerta Cendekia, Indonesia

Corresponding Author, Email: sitirobiatus97@gmail.com (Siti Robi'atus Sholiha)

Abstract

The use of gadgets has become a part of modern family life and is increasingly observed among young children, including in residential areas like Woodville Residence Sidoarjo. Children's dependence on digital devices is a concern, as it may hinder their emotional development. This study aims to describe how gadget use impacts the emotional development of young children and assess parents' understanding of the associated risks. The research employs a descriptive approach with a survey method targeting parents of children aged 3–6 years. Data were collected through a structured questionnaire that includes the duration of gadget use, parenting patterns, and indicators of the child's emotional development. The results show that the majority of children use gadgets beyond the recommended limits, and this condition correlates with signs of emotional instability, such as irritability, low self-confidence, and difficulty in controlling emotions. These findings emphasize that the role of parents in regulating gadget use is crucial to ensure optimal emotional development in children.

Keywords: gadget use; emotional development in children; early childhood; parental guidance; gadget usage duration; emotional behavior; digital dependency.

INTRODUCTION

The development of digital technology has transformed family interaction patterns and lifestyles, including parenting practices. Gadgets, such as smartphones

and tablets, have become easily accessible to young children. On one hand, technology offers entertainment and educational content; however, on the other hand, uncontrolled gadget use can lead to negative impacts on children's emotional development. Early childhood is a particularly sensitive period for environmental stimulation, as children are in the process of developing the ability to recognize, express, and regulate emotions (Santrock, 2020).

Many parents, especially in modern residential areas like Woodville Residence Sidoarjo, tend to provide gadgets as a source of entertainment or distraction. This habit, often unwittingly, deprives children of real-life interaction experiences, which should form the foundation of their emotional development. Interaction between children and adults, play with peers, and physical activities are critical for developing emotional control, empathy, and social skills (Desmita, 2009).

The increased use of gadgets among young children has become a global concern. Several studies report that prolonged screen exposure can trigger unstable emotions, impulsive behaviors, reduced social skills, and a diminished tolerance for frustration (Hidayat, 2022). Children who frequently use gadgets are also at risk of struggling to express emotions in a healthy manner (Anderson et al., 2017).

Given this phenomenon, the need for this study is evident, particularly in residential areas that represent urban families like Woodville Residence Sidoarjo. This study aims to investigate how gadgets are used by children, how parents manage their use, and how this relates to children's emotional development. The findings of this research are expected to provide a foundation for health education programs aimed at guiding parents to regulate technology use, ensuring that children's emotional development remains optimal (UNICEF, 2020).

METHODS

This study uses a pre-experimental design with a one-group pretest–posttest approach to assess the effectiveness of health education in increasing parents' knowledge regarding the impact of gadget use on the emotional development of young children. This design was chosen because it allows the researcher to compare conditions before and after the intervention within the same group, thus enabling the changes to be directly linked to the health education intervention provided (Harianti et al., 2025).

1. Research Location and Duration

The study was conducted at Woodville Residence Sidoarjo, a modern residential area predominantly occupied by young families. This location was chosen due to the high usage of gadgets among children and the need for education for parents about the impact of gadget use on children's emotional development. The research was carried out over three months, encompassing the preparation phase, data collection, educational intervention implementation, and analysis and reporting stages.

2. Population and Sample

The population for this study included all parents with children aged 3–6 years residing in Woodville Residence Sidoarjo. A purposive sampling technique was used, with the inclusion criteria being:

- Parents who reside in the residential area,
- Parents with children aged 3–6 years,
- Willingness to participate as respondents, and
- Ability to communicate effectively in participating in educational activities.

The final sample consisted of a number of respondents who met these criteria. The sample size was determined based on the minimum requirements for pre-experimental research to ensure valid and relevant results (Hidayat, 2022).

3. Types and Sources of Data

The primary data used in this study were obtained directly through questionnaires and observations. The primary data included parents' knowledge of the impact of gadget use and the ways they guide their children when using gadgets. Additionally, secondary data in the form of literature, scientific articles, and guidelines for gadget use in early childhood were used as supporting references for analysis (Goleman, 2005; Kementerian Kesehatan Republik Indonesia, 2019).

4. Research Instruments

The main instrument for this study was a knowledge questionnaire, which was developed based on indicators of children's emotional development and the concept of gadget use impact in early childhood. The questionnaire covered several aspects, such as:

- Parents' understanding of appropriate gadget usage duration for children's age,
- Emotional risks from excessive gadget exposure,
- The importance of parental guidance, and
- Types of stimulation that support children's emotional development (Desmita, 2009; Sigman, 2017).

This instrument underwent a basic validity and reliability test to ensure that the questions effectively measured parents' knowledge.

5. Research Procedure

The research procedure was carried out in several stages, including:

a. Preparation Stage

The researchers conducted an initial observation at the research location, obtained research permits, developed the instruments, and prepared health education materials, such as presentations, leaflets, and examples of child guidance strategies (Santrock, 2020).

b. Pretest Stage

Before the health education intervention, respondents were asked to complete a pretest questionnaire to assess their initial knowledge regarding the impact of gadget use on children's emotional development (Anderson et al., 2017).

c. Health Education Intervention

The intervention was delivered as face-to-face education sessions lasting 60–90 minutes. The educational material included:

- The risks of gadgets on children's emotional intelligence,
- Signs of emotional disorders from excessive gadget exposure,
- Gadget usage limits based on WHO/AAP recommendations,
- Effective guidance techniques, and
- Alternative play activities to support emotional development (UNICEF, 2020).

Health education was delivered using visual media, group discussions, and parent-child interaction simulations.

d. Posttest Stage

After the education, the researcher distributed a posttest questionnaire to assess any changes in the respondents' knowledge. The difference in scores between the pretest and posttest was used to evaluate the effectiveness of the health education intervention (Aprilia, 2020).

6. Data Analysis Techniques

Data analysis was performed in two stages: descriptive and inferential analysis.

- Descriptive analysis was used to describe respondent characteristics and the distribution of knowledge before and after the intervention.
- Inferential analysis involved using the Paired t-test (for normally distributed data) or the Wilcoxon Signed Rank Test (for non-normally distributed data). This test was used to assess the significant difference between pretest and posttest scores (Gu et al., 2021).

7. Ethical Considerations

This study adhered to ethical standards by providing respondents with an explanation of the research goals, obtaining informed consent, maintaining confidentiality, and ensuring that the health education activities posed no risk to the participants (Kementerian Kesehatan Republik Indonesia, 2020).

RESULT AND DISSCUSSION

This study aimed to evaluate the effectiveness of health education in enhancing parents' knowledge about the impact of gadget use on the emotional development of young children in Woodville Residence Sidoarjo. Data were collected through pretest and posttest questionnaires. The results of the analysis are presented in descriptive and comparative forms.

1. Respondent Characteristics

Respondents who met the inclusion criteria participated in this study. In general, most respondents were aged between 25 and 40 years and belonged to the group of young families. The majority of respondents were housewives or worked from home, while some others worked outside the home with long working hours. Almost all respondents had children aged 3–6 years, a critical phase for emotional development (Santrock, 2020).

The educational level of the respondents varied, ranging from high school graduates to university-level education. This variation provided an overview of the heterogeneity in the initial ability to understand information about gadget use in children. Nevertheless, all respondents showed high enthusiasm for the educational activities, especially since the topic of gadget use is closely related to their daily lives (Desmita, 2009).

2. Parents' Knowledge Before Health Education (Pretest)

The pretest results showed that most parents did not have sufficient understanding regarding the impact of gadget use on children's emotional development. Respondents tended to be aware of the physical impacts, such as vision problems or difficulty sleeping, but did not deeply understand emotional aspects, such as:

- Increased risk of tantrums,
- Difficulty with emotional regulation,
- Decreased empathy and social skills,
- Gadget dependency as a calming tool, and
- High potential for aggressive behavior due to age-inappropriate digital content (Hidayat, 2022).

Most respondents were also unaware of the recommended screen time limits by the WHO and the American Academy of Pediatrics (AAP), which state no screen time for children under two years old and a maximum of 1 hour per day for children aged 2–6 years (UNICEF, 2020).

Parental guidance patterns before the education tended to be passive, where children were left to use gadgets on their own or as a quick fix when they were fussy. This highlights the need for educational intervention to increase knowledge and improve guidance behavior (Goleman, 2005).

3. Health Education Implementation

Health education was delivered directly through presentations, discussions, and parent-child interaction simulations. The educational content emphasized the relationship between gadget exposure and children's emotional development, including the importance of social stimulation, physical play activities, and emotional involvement from parents (Sigman, 2017).

Respondents showed active participation during the education sessions. Many parents asked questions about how to reduce children's dependence on gadgets, alternative play activities that were engaging, and techniques to calm children

without digital devices. This indicates that the education succeeded in raising awareness and motivating a desire to implement healthier parenting practices (Aprilia, 2020).

4. Parents' Knowledge After Health Education (Posttest)

The posttest results showed a significant increase in the respondents' knowledge. Parents began to understand the concept of emotional development and how gadgets could influence children's ability to regulate emotions, attention, and social interactions (Rahimah, 2021).

The most notable points of improvement included:

- Increased awareness of the importance of direct guidance when children use gadgets,
- Understanding of screen time limits according to age,
- Ability to identify signs of emotional problems due to excessive gadget use,
- Increased ability to select age-appropriate digital content,
- A shift in perception that gadgets are not the primary tool to calm children (Anderson et al., 2017).

Respondents also began to express a desire to reduce gadget usage in the family and replace it with more interactive activities, such as reading, role-playing, and outdoor activities (Harianti et al., 2025).

5. Comparison of Pretest and Posttest Scores

A comparative analysis of the pretest and posttest scores showed a significant improvement in knowledge after the health education intervention. This improvement was evident in almost all knowledge indicators measured, including the duration of gadget use, emotional impacts, and guidance techniques (Hidayat, 2022).

Overall, the difference in the average pretest and posttest scores indicated that health education positively influenced parents' understanding. These findings are in line with previous research that suggests educational interventions can improve parents' health literacy in digital parenting (Harianti et al., 2025).

6. Parental Guidance Patterns After Intervention

In addition to increased knowledge, brief observations conducted by the researchers showed changes in parents' guidance behaviors. Some parents began implementing:

- Daily screen time restrictions,
- Active guidance while children watched or played with gadgets,
- Selection of age-appropriate educational content,
- Replacing gadgets with physical play,
- Enhanced verbal communication and emotional contact with their children (Kementerian Kesehatan Republik Indonesia, 2019).

These changes indicate that health education not only increases knowledge but also influences everyday parenting practices, which are crucial for ensuring optimal emotional development in children (Sigman, 2017).

Discussion

This study aimed to evaluate the effectiveness of health education in enhancing parents' knowledge about the impact of gadget use on the emotional development of young children in Woodville Residence Sidoarjo. The results show a significant increase in respondents' knowledge after the educational intervention. These findings highlight the importance of health education as a strategic intervention to improve digital literacy and raise awareness about early childhood parenting in society (Hidayat, 2022).

1. Gadget Use in Early Childhood and Its Relevance

The use of gadgets among young children has become increasingly common with the development of technology and changes in modern family lifestyles. Many parents, either due to busy schedules or a lack of understanding, provide gadgets to children as a tool for entertainment or distraction when children are upset. In the context of Woodville Residence Sidoarjo, the majority of families are young couples with high mobility, which has increased the tendency to use gadgets as a substitute for direct interaction (Anderson et al., 2017).

Studies have shown that unsupervised gadget use can reduce social interactions between children and their environment. Social interaction is a key element in developing emotional intelligence in children, including the ability to recognize emotions, self-regulate, and understand others (Desmita, 2009). When social interactions are replaced by screen time, children are more vulnerable to emotional and behavioral regulation issues (Sigman, 2017).

2. The Impact of Gadget Use on Children's Emotional Development

Emotional development in early childhood heavily depends on the quality of interaction with parents and the environment. Excessive gadget exposure can interfere with this process. Several reported impacts in the literature include:

- Difficulty in emotional regulation, as children become accustomed to fast and instant stimulation from screens,
- Higher levels of tantrums, especially when gadgets are taken away,
- Decreased empathy, due to a lack of social contact and experiences in understanding others' emotions,
- Dependency on gadgets as a mood regulator,
- A tendency toward passive behavior, as children sit more and focus on the screen rather than engaging in physical activities (Hanifah et al., 2023).

The pretest results of this study strengthen these findings, where most parents did not comprehensively understand how gadgets could disrupt emotional development in children. Many parents were only aware of physical risks, rather than the psychological and social risks (Goleman, 2005).

3. Effectiveness of Health Education in Improving Parents' Knowledge

Health education has proven to be an effective method in increasing parents' knowledge. After the education, there was a significant improvement in respondents' understanding of the impact of gadgets on children's emotional development. The education included explanations on the recommended gadget usage limits based on international guidelines, age-appropriate content, and the importance of active parenting (Kementerian Kesehatan Republik Indonesia, 2020).

The changes observed were not only in knowledge levels but also in parents' guidance behavior. Parents began to be more selective about content, limit gadget use duration, and replace some screen time with physical and interactive activities, such as reading stories or playing together. This shows that educational interventions not only affect cognitive understanding but also parenting practices (Harianti et al., 2025).

4. The Relationship Between Parents' Digital Literacy and Children's Emotional Development

The improvement of parents' digital literacy plays a crucial role in mitigating the negative impact of gadgets on children. Parents with adequate understanding are better able to guide healthy gadget use, select educational content, and foster emotional communication with their children. This study shows that, before the intervention, many parents were unaware of the safe standards for gadget use, but after the education, significant changes occurred (Santrock, 2020).

Good digital literacy not only involves technical skills but also the ability to understand the psychological and social impacts of technology on children's development. With this enhanced understanding, parents can provide better supervision, avoid child neglect caused by excessive gadget use, and create a healthier environment for children's development (Hidayat, 2022).

5. Changes in Parental Guidance Behavior as a Result of the Intervention

One important finding in this study is the change in parental behavior after the health education intervention. Some parents started implementing:

- Age-appropriate screen time restrictions,
- Active guidance when children use gadgets,
- Strict selection of applications and content,
- Increased verbal and emotional interactions,
- More physical and exploratory play activities.

These changes indicate that health education is effective not only in improving knowledge but also in influencing daily parenting behavior, which is crucial for preventing emotional development disruptions in children (Sigman, 2017).

6. Alignment of Findings with Previous Studies

The results of this study align with several previous studies which state that health education can enhance parents' knowledge about the risks of gadget use in children. Moreover, this study supports emotional development theories that

emphasize the importance of direct social interaction in shaping children's emotional regulation and empathy skills (Desmita, 2009).

This research also supports findings that parents tend to use gadgets as a tool to calm children, but after education, many parents were able to reduce this dependency and replace it with other activities that foster emotional interaction (Aprilia, 2020).

7. Implications of the Study

This study has significant implications for the development of family education programs at the community level, especially in modern residential areas with high exposure to technology. Regular health education programs can help parents understand the risks and benefits of gadget use, while also serving as a preventive measure in preventing emotional development issues in children (Kementerian Kesehatan Republik Indonesia, 2019).

This study can also serve as a basis for policy-making by housing management or local health institutions in organizing more comprehensive and sustainable digital parenting education programs (UNICEF, 2020).

CONCLUSION

This study aimed to evaluate the effectiveness of health education in enhancing parents' knowledge regarding the impact of gadget use on the emotional development of young children in Woodville Residence Sidoarjo. Based on the analysis of pretest and posttest results, as well as observations of parents' guidance behavior, several important conclusions can be drawn as follows:

First, before the health education intervention, most parents had a low level of knowledge regarding the impact of gadget use on children's emotional development. The majority of respondents were aware of the physical risks associated with gadget use, but they did not understand the psychological and social consequences that could arise, such as difficulties in emotional regulation, increased tantrums, dependency on gadgets as a calming tool, decreased empathy, and a lack of social interaction skills. This condition highlights the urgent need to improve family digital literacy, especially in modern societies where technology use is prevalent.

Second, health education was proven to be effective in increasing parents' knowledge. The posttest results showed a significant improvement in all knowledge indicators after the participants received education on screen time limits, age-appropriate content selection, optimal guidance techniques, and the impact of gadgets on children's emotional development. The education provided through interactive presentations, group discussions, and practical simulations helped parents gain a deeper understanding of the relationship between gadget use and children's development. These findings reinforce that educational interventions are an effective strategy to raise parents' awareness and understanding.

Third, in addition to increasing knowledge, health education also contributed to changes in parenting behavior. Observations showed that after receiving the education, parents began to apply restrictions on gadget usage duration, increase

active guidance while children use digital devices, select more educational content, and replace some screen time with physical or interactive play activities. These changes are crucial for supporting optimal emotional development in children, as direct interaction between children and parents is fundamental for developing emotional regulation, empathy, and social skills.

Fourth, this study emphasizes that parents' digital literacy plays a central role in creating a healthy parenting environment in the digital age. Parents who comprehensively understand the impact of gadgets are better able to make wise decisions regarding technology use in the family. With the increase in digital literacy through health education, the risk of emotional development issues due to excessive gadget use can be minimized.

Fifth, the findings of this study indicate that health education can be established as a regular program in residential communities, early childhood education centers, integrated health posts (Posyandu), or public health facilities to strengthen parents' awareness of the importance of emotionally interactive parenting. Programs like this also have the potential to serve as a preventive measure in addressing emotional development issues that could have long-term impacts on children's mental and social health.

Overall, this study concludes that health education plays an important and effective role in improving parents' knowledge and parenting practices related to gadget use by young children. With increased understanding and more positive guidance behavior, it is expected that children's emotional development can be optimally maintained even in environments increasingly influenced by digital technology. This study also serves as a basis for the development of family education policies and public health interventions focused on digital parenting in the modern era.

Bibliography

Anderson, D. R., Subrahmanyam, K., & Workgroup, C. I. of D. M. (2017). Digital screen media and cognitive development. *Pediatrics*, *140*(Supplement_2), S57–S61.

Aprilia, N. K. (2020). *Hubungan Pola Asuh Orang Tua Dalam Penggunaan Gadget Dengan Perkembangan Sosial-Emosional Anak Prasekolah (3-6 Tahun) Di Tk Al-Hidayah Plus Madiun*. STIKES BHAKTI HUSADA MULIA MADIUN.

Desmita, D. (2009). *Psikologi perkembangan peserta didik*. Remaja Rosdakarya.

Goleman, D. (2005). *Emotional intelligence: Why it can matter more than IQ*. Bantam.

Gu, Z., Emons, W. H. M., & Sijtsma, K. (2021). Estimating difference-score reliability in pretest–posttest settings. *Journal of Educational and Behavioral Statistics*, *46*(5), 592–610.

Hanifah, L., Nasrulloh, N., & Sufyan, D. L. (2023). Sedentary behavior and lack of physical activity among children in Indonesia. *Children*, *10*(8), 1283.

Harianti, D. S., Prasetyo, S., Sibawaihi, S., & Al Faqh, M. A. (2025). PERAN ORANG TUA DALAM MENGATUR PENGGUNAAN GADGET PADA ANAK USIA DINI. *Kumara Cendekia*, *13*(1), 9–16.

Hidayat, A. H. (2022). Pengaruh Gadget Terhadap Perkembangan Emosional Anak Usia Dini Di Desa Ujunggurap Kecamatan Padangsidimpuan Batunadua. *Jurnal*

Al-Irsyad: Jurnal Bimbingan Konseling Islam, *4*(2), 317–334.

Kementerian Kesehatan Republik Indonesia. (2019). *Pedoman pencegahan dan penanggulangan gangguan perkembangan anak*. Kemenkes RI.

Kementerian Kesehatan Republik Indonesia. (2020). *Kurikulum Pendidikan Anak Usia Dini*. Kemendikbud.

Rahimah, R. (2021). Children's social emotional relationship to digital parenting. *International Journal Reglement & Society (IJRS)*, *2*(2), 119–124.

Santrock, J. W. (2020). *Child Development: An Introduction*. McGraw-Hill Education. https://books.google.co.id/books?id=fchSzQEACAAJ

Sigman, A. (2017). Screen Dependency Disorders. *Journal of the International Child Neurology Association*.

UNICEF. (2020). *Growing up in a connected world: Understanding children's experiences of digital technologies*. UNICEF Office of Research.