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Gadget Addiction and Emotion Regulation in Elementary School Children

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ABSTRAK

Penelitian ini menyelidiki hubungan antara kecanduan gadget dan regulasi emosional pada anak-anak sekolah dasar. Dengan menggunakan pendekatan kuantitatif, data dikumpulkan dari 150 peserta menggunakan kuesioner terstruktur dan dianalisis dengan SPSS versi 25. Hasilnya mengungkapkan korelasi negatif yang signifikan antara kecanduan gadget dan regulasi emosional ($r = -0,65$, $p < 0,01$). Analisis regresi menunjukkan bahwa kecanduan gadget secara signifikan memprediksi regulasi emosional ($\beta = -0,65$, $R^2 = 0,423$, $p < 0,01$), menunjukkan bahwa ketergantungan gadget yang lebih tinggi merusak kemampuan manajemen emosi anak-anak. Temuan ini menggarisbawahi pentingnya mengatur penggunaan gadget untuk meningkatkan kesejahteraan emosional di kalangan anak-anak. Rekomendasi diberikan kepada orang tua, pendidik, dan pembuat kebijakan untuk mengurangi efek kecanduan gadget pada perkembangan emosional.

ABSTRACT

This study investigates the relationship between gadget addiction and emotional regulation among elementary school children. Employing a quantitative approach, data were collected from 150 participants using a structured questionnaire and analyzed with SPSS version 25. The results reveal a significant negative correlation between gadget addiction and emotional regulation ($r = -0.65$, $p < 0.01$). Regression analysis shows that gadget addiction significantly predicts emotional regulation ($\beta = -0.65$, $R^2 = 0.423$, $p < 0.01$), suggesting that higher gadget dependence impairs children's emotional management capabilities. The findings underscore the importance of regulating gadget use to promote emotional well-being among children. Recommendations are provided for parents, educators, and policymakers to mitigate the effects of gadget addiction on emotional development.

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1. INTRODUCTION

The rapid advancement of technology has significantly influenced children's behavior and habits, particularly through the widespread use of gadgets like smartphones and tablets. These devices offer educational and recreational benefits but also pose risks to children's emotional and psychological well-being when used excessively. The impact of technology on children is multifaceted, affecting literacy, cognitive development, social interactions, and mental health. Digital technologies can enhance literacy and reading development by fostering motivation and engagement in children; however, the role of teachers is crucial in mediating these tools to ensure they support rather than hinder cognitive abilities (Santos et al., 2024). Personalized learning through technology can improve academic performance, but excessive screen time may negatively affect communication skills and cognitive functions (Alibigloo, 2025). Emerging technologies, such as voice assistants and virtual reality, are transforming children's social interactions, offering new learning environments while also raising concerns about privacy and the need for ethical considerations (Danovitch, 2024). Excessive gadget use without supervision can inhibit verbal interaction and lead to speech delays in children, emphasizing the importance of parental involvement and controlled device usage (Lestari et al., 2024). Furthermore, the quality of digital device usage, rather than the duration, is crucial for mental health outcomes, making it essential to promote healthy usage patterns to avoid online harms like cyberbullying and addictive behaviors (Firth et al., 2025). Recommendations for healthy device usage include setting limits and ensuring balanced interactions with technology, which require collaboration among parents, educators, and policymakers (Firth et al., 2025).

Gadget addiction in elementary school children is a growing concern, particularly due to its potential impact on emotional regulation, which is crucial for their social and emotional development. Excessive reliance on electronic devices can interfere with children's ability to manage emotions, leading to issues in building healthy relationships and achieving academic success. Research indicates that gadget addiction can lead to a decline in social skills, empathy, and cooperation among children, as well as negatively affect their interest in learning and sleep quality, collectively contributing to challenges in emotional regulation. Excessive smartphone use has been linked to a shift from traditional play to screen-based activities, resulting in isolation and reduced social interactions among children, particularly those aged 8-10 years (Jain, 2025). This shift can lead to a decline in communication skills, empathy, and cooperation, which are essential for emotional regulation and social development (Jain, 2025). Additionally, prolonged screen exposure is associated with behavioral problems, hyperactivity, and impulsivity, which can further complicate emotional regulation in children (de Souza Mota et al., 2023). The lack of physical activity and social interaction due to screen time can adversely affect mental health and sleep quality, both of which are critical for emotional well-being (de Souza Mota et al., 2023). Effective parental communication and setting clear boundaries for gadget use can mitigate emotional reactions such as anger and frustration in children, promoting better emotional regulation (Adeni & Harahap, 2024). Educating parents about the dangers of excessive gadget use can lead to improved emotional behavior in children, highlighting the importance of parental involvement in managing gadget addiction (Purnalia & Ekayanti, 2025). Moreover, gadget addiction is significantly related to decreased interest in learning and poor sleep quality, both of which can hinder emotional regulation and academic performance (Saraswathi et al., 2018).

Previous studies have highlighted the negative implications of prolonged gadget use, such as reduced attention span, social isolation, and increased susceptibility to emotional dysregulation. The relationship between gadget addiction and emotional regulation in elementary school children is a growing concern in the digital age, as prolonged gadget use has been linked to various negative outcomes, including emotional dysregulation, which can manifest as increased impulsivity, anxiety,

and social withdrawal. This is particularly concerning for elementary school children, who are in a critical stage of emotional and social development, highlighting the need for a deeper understanding of how gadget addiction specifically affects emotional regulation in this age group. Excessive screen time is associated with behavioral problems, hyperactivity, and impulsivity, which are indicative of emotional dysregulation (de Souza Mota et al., 2023). In a study of sixth-grade students, gadget addiction was found to have a medium impact on emotional states, affecting communication skills and empathy (Uttami & Fitriyeni, 2024). Furthermore, preschool children exposed to gadgets showed psychological changes and bad behavior, suggesting early signs of emotional dysregulation (Nurfurqoni et al., 2024). Gadget addiction can also lead to reduced social interactions, which are crucial for developing emotional skills such as empathy and social understanding (Nurfurqoni et al., 2024). The preference for gadgets over physical activities and social interactions can hinder emotional and social development, leading to increased isolation and emotional challenges (Satria et al., 2024). To address these issues, interventions such as play therapy, including Lego play, have been shown to effectively reduce gadget addiction and improve social interactions and emotional regulation in preschool children (Satria et al., 2024). Additionally, introducing traditional games and activities can help divert attention from gadgets and promote emotional skill development (Nurfurqoni et al., 2024). This study aims to fill this gap by investigating the correlation between gadget addiction and emotional regulation among elementary school children.

2. LITERATURE REVIEW

2.1 Gadget Addiction

Gadget addiction, characterized by excessive and compulsive use of electronic devices, poses significant risks to children's and adolescents' psychological and physical well-being. It correlates strongly with emotional disturbances such as anxiety, irritability, and difficulty controlling emotions ($r = 0.676$) (Wraspati et al., 2024) and increases the risk of mental disorders like depression and anxiety, especially with screen time exceeding two to three hours daily (Aguiar, 2024). Additionally, it negatively affects learning interest ($r = 0.902$) and sleep quality ($r = 0.843$), further exacerbating cognitive and emotional challenges (Saraswathi et al., 2018). In preschool children, excessive gadget use is linked to ADHD ($R = 1.000$) and disrupts prefrontal cortex development, impairing emotional regulation and decision-making (Ningtyas et al., 2024). These findings underscore the need for balanced gadget use to minimize risks while maximizing educational benefits.

2.2 Emotional Regulation

Emotional regulation is a critical skill that influences academic performance, social relationships, and mental health by enabling individuals to monitor, evaluate, and modify emotional responses according to situational demands. Effective emotional regulation fosters resilience, empathy, and social skills, while poor regulation can lead to behavioral issues and mental health disorders. Several factors, such as parental guidance, social environment, and individual temperament, shape emotional regulation abilities. High-achieving students demonstrate that stress resistance and perseverance significantly contribute to effective emotional regulation, helping them manage academic pressures and maintain emotional control (Pongsophon, 2025). Additionally, cognitive strategies such as cognitive reappraisal and restructuring are essential for managing emotional responses and are integral to cognitive behavioral therapy, which aids in reducing symptoms of mental health disorders and promoting emotional resilience (Savarimuthu et al., 2024). In educational settings, Social-Emotional Learning (SEL) programs play a crucial role in enhancing students' emotional regulation skills, though challenges such as cultural diversity and resource limitations must be addressed for effective implementation (Ling et al., 2025). During childhood, foundational emotional regulation skills emerge, making early interventions essential in helping children recognize emotions and apply simple strategies to manage them (Asmamaw, 2024).

Moreover, emotional regulation strategies and their effectiveness vary across different life stages, necessitating tailored interventions to foster emotional competencies throughout the lifespan (Asmamaw, 2024).

2.3 Impact of Gadget Use on Emotional Regulation

Emerging research highlights a negative correlation between excessive gadget use and emotional regulation in children, emphasizing its detrimental effects on social interactions and emotional development. Prolonged screen time is linked to diminished face-to-face interactions, crucial for developing empathy and understanding emotional cues, while the instant gratification offered by gadgets may reduce children's patience and ability to delay gratification, essential for emotional regulation. Excessive screen time is associated with behavioral problems, hyperactivity, and impulsivity, adversely affecting emotional regulation (de Souza Mota et al., 2023), with children aged 3-10 experiencing declines in communication, empathy, and cooperation due to prolonged gadget use (Jain, 2025). The overstimulation from digital activities contributes to mood swings, irritability, and difficulty managing stress (de Souza Mota et al., 2023). Additionally, screen time displaces traditional outdoor and group play, leading to isolation and reduced social skills (Jain, 2025), while diminished face-to-face interactions hinder the development of empathy and understanding of emotional cues (Rashid, 2025). Parental factors also play a crucial role, as parents' smartphone addiction and emotional regulation difficulties can disrupt parent-child interactions, further affecting children's emotional development (Selak et al., 2024). The absence of structured time limits and parental monitoring exacerbates these effects, leading to a decline in emotional self-regulation (de Souza Mota et al., 2023).

2.4 Research Gap

Although existing studies have examined the negative consequences of gadget addiction on various behavioral and psychological outcomes, there is a paucity of research specifically addressing the relationship between gadget addiction and emotional regulation in elementary school children. Most studies have focused on adolescents and young adults, neglecting the critical developmental stage of early childhood. Additionally, limited attention has been given to how cultural and contextual factors influence this relationship in diverse settings, such as schools in the digital age.

2.5 Theoretical Framework

This study draws upon the Self-Regulation Theory (Baumeister & Heatherton, 1996), which emphasizes the role of self-control in managing behaviors and emotions. The theory posits that individuals with poor self-regulation are more susceptible to impulsive behaviors, such as excessive gadget use, which can disrupt emotional stability. By applying this framework, the study investigates how gadget addiction may undermine children's capacity to regulate their emotions effectively.

3. RESEARCH METHODS

3.1 Research Design

This study employed a quantitative research design to examine the relationship between gadget addiction and emotional regulation among elementary school children. The approach was selected to provide measurable and statistical insights into the nature and strength of the relationship between the variables. A cross-sectional survey method was utilized to collect data from participants at a single point in time.

3.2 Population and Sample

The population for this study comprised elementary school children aged 8–12 years. Using a purposive sampling technique, a total of 150 students were selected from multiple schools. The inclusion criteria required participants to have access to gadgets and use them regularly for leisure or academic purposes. Parental consent was obtained to ensure ethical compliance and participation.

3.3 Variables and Instrumentation

The study examined two primary variables: gadget addiction as the independent variable and emotional regulation as the dependent variable. Data were collected using a structured questionnaire divided into two sections. The Gadget Addiction Scale, adapted from Young's Internet Addiction Test (1998) and modified to focus on gadget usage, consisted of 10 items measuring the extent of gadget dependence, with responses recorded on a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The Emotional Regulation Scale, based on Gross's Emotional Regulation Questionnaire (2003), included 10 items assessing the ability to manage and control emotions, using the same 5-point Likert scale. The questionnaire was pretested with a pilot group of 20 students to ensure clarity and reliability, and Cronbach's alpha coefficients for both scales exceeded 0.70, indicating satisfactory internal consistency.

3.4 Data Collection Procedure

Data collection was conducted over a two-week period in collaboration with participating schools. Researchers visited the schools to administer the questionnaire in a controlled environment to minimize external influences. Instructions were provided to the children to ensure they understood the questions and answered honestly. The average completion time for the survey was approximately 20 minutes.

3.5 Data Analysis

The collected data were analyzed using SPSS version 25, with descriptive statistics, including mean and standard deviation, calculated to summarize the levels of gadget addiction and emotional regulation among participants. Pearson's correlation coefficient was used to examine the relationship between these two variables, while linear regression analysis was conducted to assess the predictive power of gadget addiction on emotional regulation. Statistical significance was determined at a 95% confidence interval ($p < 0.05$).

4. RESULTS AND DISCUSSION

4.1 Descriptive Statistics

The demographic profile of the participants (N = 150) was contrasted to provide the overall picture of the sample composition. The gender distribution included 85 male participants (56.7%) and 65 female participants (43.3%), which yielded a fairly even gender representation with a discernible male predominance. Participants were distributed across three age groups: 8–9 years (45 students, 30%), 10–11 years (70 students, 46.7%), and 12 years (35 students, 23.3%), where the majority were 10–11 years. Daily gadget usage was categorized into four groups, with 25 students (16.7%) using gadgets for fewer than 1 hour, 55 students (36.7%) using gadgets for 1–3 hours, 50 students (33.3%) using gadgets for 4–6 hours, and 20 students (13.3%) using gadgets for more than 6 hours. Higher percentage (46.6%) said they utilize gadgets for 4 or more hours daily, indicating high exposure. Parental supervision levels were also compared, and 30 students (20%) experienced strict supervision, 70 students (46.7%) experienced moderate supervision, and 50 students (33.3%) experienced no or negligible supervision, which indicates the need for higher responsibility of the parents in monitoring gadget use.

The descriptive analysis revealed that the mean score for gadget addiction of the 150 participants was 3.62 (SD = 0.81) on a 5-point Likert scale, showing a moderate to high level of gadget dependence. For emotional regulation, the mean score was 2.87 (SD = 0.75), reflecting a moderate level of emotional regulation ability of the children.

4.2 Correlation Analysis

Pearson's correlation test revealed a negative significant correlation between gadget addiction and emotional regulation ($r = -0.65$, $p < 0.01$). This is to say that the higher the level of gadget addiction, the lower the capacity for emotional regulation.

4.3 Regression Analysis

Linear regression analysis was conducted to test the extent to which gadget addiction is a predictor of emotional regulation. The results showed that gadget addiction was a predictor of emotional regulation ($\beta = -0.654$, $t = -9.841$, $p < 0.01$). The model explained 42.3% of the variance in emotional regulation ($R^2 = 0.423$), indicating a large effect of gadget addiction on children's emotional regulation.

DISCUSSION

The findings of the current study validate earlier research highlighting the damaging effect of excessive use of gadgets on emotional development. The significant negative correlation reported between gadget addiction and emotional regulation highlights the probable challenges that persistent use of gadgets poses to the emotional management ability of children.

The high to moderate rate of gadget dependency among the respondents is consistent with past research that reported the increasing rate of gadget dependency among kids (Moradiya, 2025; Wraspati et al., 2024). The accessibility and entertaining nature of gadgets could be a cause of overuse, particularly in a technologically advanced world where gadgets are involved in entertainment and learning.

The moderate emotional regulation scores in this study suggest that it is challenging for most children to regulate their emotions. The negative correlation between gadget addiction and emotional regulation supports the case that excessive screen time reduces the likelihood of face-to-face interactions, which are vital in empathy development and identification of emotional cues (Neophytou et al., 2021; Nurfurqoni et al., 2024)

The regression findings also indicate that gadget addiction is a significant predictor of emotional regulation. This is in accordance with (Jain, 2025; Purnalia & Ekayanti, 2025), which showed that the more children use gadgets intensively, the higher the chances of having mood swings and difficulties with managing stress. Overactivation by gadgets may impair the cognitive processes responsible for managing emotions such as attention control and delayed gratification.

Implications of the Findings

The implications for policymakers, parents, and educators are far-reaching. For parents, the results highlight a need to observe and control children's use of gadgets to ensure balanced practice that eliminates negative impacts on emotional well-being. Schools can incorporate initiatives that promote digital literacy and self-regulation, allowing children to see the importance of controlling screen time.

In the policy arena, educational institutions and governments can collaborate to create guidelines for gadget usage among children. There can also be awareness campaigns among the public regarding potential risks of gadget dependency and ensuring emotional growth.

Limitations and Future Research

Although this research provides valuable results, certain limitations must be mentioned. The cross-sectional design prevents causal relationships between gadget addiction and emotional regulation from being determined. Longitudinal designs can be employed in future studies to examine the long-term effects of gadget use on emotional development.

In addition, the study relied on self-reported data, which is susceptible to social desirability bias. Including observational measures or parent and teacher reports would make the results more credible. Expanding the sample size and exploring cultural and contextual differences would also provide a clearer picture of the issue.

5. CONCLUSION

This study creates a high negative correlation between gadget addiction and emotional regulation among elementary school children, as greater gadget addiction relates to poorer

emotional regulation skills. The results verify the strong call for intervention to remedy gadget addiction among children.

Parents have a key responsibility in regulating and overseeing children's use of gadgets to promote a balanced use of digital space. Teachers must integrate lessons in digital literacy and emotional intelligence, enabling students to understand how to use a technology-based world. Policymakers can help by crafting guidelines for safe gadget usage and sponsoring public awareness campaigns to enlighten communities on the dangers of excessive screen time.

Causal mechanisms need to be explored further through longitudinal studies and broader demographic and cultural contexts in order to better determine how gadget addiction impacts emotional development. Through collaborative efforts at resolving such issues, stakeholders can create an environment that promotes healthier emotional and behavioral development in children. Together, they can do it.

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