



The Impact of Gadget Use intensity on Emotional Control in 12 Years Old Children

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ABSTRACT

The age of 12 marks a crucial transition from childhood to early adolescence. During this stage, children experience significant physical, cognitive, social, and emotional changes that influence their behavior and emotional responses. As they begin to develop greater independence, they often struggle to regulate their emotions effectively, making them more vulnerable to external influences. In today's digital era, gadgets such as smartphones, tablets, and computers have become an essential part of children's daily lives. These devices provide educational resources, entertainment, and opportunities for communication. However, excessive or uncontrolled gadget use has been associated with various behavioral and emotional problems, particularly difficulties in emotional regulation. This study aims to analyze the relationship between the intensity of gadget use and emotional regulation abilities among 12-year-old children while identifying factors that may moderate this relationship, including parental supervision, content quality, and the purpose of gadget use. The findings indicate that children who spend more than three hours per day on gadgets outside academic activities and who frequently access unfiltered digital content are more likely to display impulsive behavior, emotional instability, and reduced self-control. In contrast, balanced gadget use accompanied by active parental guidance appears to reduce these negative effects. The study concludes that uncontrolled gadget use may hinder emotional maturity during this critical developmental stage. Therefore, parents, educators, and caregivers should establish clear rules regarding screen time, encourage healthy digital habits, and provide consistent supervision to support children's emotional development and overall well-being.

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INTRODUCTION

Intensive gadget use among children is associated with various negative effects on mental health, particularly in terms of emotional regulation. Excessive exposure to digital devices can trigger dysregulation of the brain's dopaminergic system, which

plays a role in the reward system and impulse control. This condition makes it harder for children to control the urge to continue using gadgets and makes them more prone to emotional outbursts when access is restricted [1][2]. From a neurobiological perspective, screen addiction in children has been shown to cause various structural and functional changes in the brain. Continuous use of digital devices creates a dopamine-driven “feedback loop” – dopamine being the primary neurotransmitter in the brain’s reward system. This sustained release of dopamine reinforces obsessive behaviors and disrupts motivational regulation, which in turn can lead to symptoms of impulsivity, inattention, and an inability to control emotions—symptoms that resemble those of Attention Deficit Hyperactivity Disorder (ADHD)[3].

The digital age has increased children’s use of gadgets globally, with approximately 38% of children using gadgets regularly – with usage time rising from 2 hours per day in 2015 to more than 5 hours per day in 2024[4] and in Indonesia, a survey conducted across 34 provinces revealed that more than 19% of adolescents are addicted to gadgets and 33.44% of young children are already using gadgets[5], while in East Java, the East Java Provincial Commission for Child Protection (KPAI) (2024) released survey results indicating that 79% of elementary school-aged children use gadgets for purposes other than learning, whereas 21% of parents prohibit their children from using gadgets for any purpose other than learning[6], and in Sidoarjo specifically in Tulangan research indicates that in the “very severe” category, gadget use exceeding 5 hours per day is characterized by social isolation, impaired emotional regulation, behavioral changes, and a decline in discipline regarding studies and religious activities.

Consequently, 12-year-olds – who constitute the most vulnerable group as they are in the transitional phase from late childhood to early adolescence, during which emotional regulation has not yet fully developed optimally are particularly at risk may experience emotional control difficulties, high impulsivity, anxiety, and mild depressive symptoms; intensive gadget use with screen time exceeding 3 hours per day is significantly associated with increased emotional and behavioral problems in school-aged children ($p < 0.001$). Therefore, this study aims to analyze the impact of the intensity of gadget use on emotional control in 12-year-olds[7].

The Central Statistics Agency (BPS) 2024 reports that 39.71 percent of young children in Indonesia have used cell phones, while another 35.57 percent have accessed the internet[8]. Social media use via gadgets can trigger unhealthy social comparisons, increase social pressure, and lower self-esteem. The phenomena of FOMO (Fear of Missing Out) and cyberbullying are also contributing factors to increased stress and depression among active users of digital media. Social isolation resulting from reduced face-to-face interaction further exacerbates individuals’ mental health, a situation that often goes unrecognized until it leads to long-term consequences. Therefore, it is

important to raise awareness about healthy gadget use, both within the family and in educational institutions. Education on digital literacy, screen time management, and the promotion of physical and social activities in the real world need to be encouraged as preventive measures against mental health disorders[9]. Excessive gadget use has been shown to be strongly correlated with various psychological disorders such as anxiety, stress, depression, and social isolation[10].

Adolescents who spend more than four hours a day using gadgets exhibit higher levels of social anxiety compared to those who use gadgets in moderation. One of the main causes of this phenomenon is excessive exposure to social media, which creates a psychological condition known as “social comparison”. Various studies report that screen use of 3 hours or more per day is associated with changes in the structure of the brain’s white matter, while use of more than 4 hours per day is associated with increased levels of social anxiety compared to users with shorter durations [11].

When individuals constantly view the idealized lives portrayed by others, they experience feelings of inferiority, self-dissatisfaction, and pressure to present a perfect image online. In the long term, this condition can develop into symptoms of mild to severe depression[12][13]. Management of An. H’s case requires more than just reducing screen time and taking a firm stance; it necessitates a comprehensive approach involving the family, school, and professionals. Within the family environment, consistently enforcing rules regarding gadget use and redirecting the child’s attention to alternative activities—such as sports or playing together—have proven effective in reducing screen time in children[14]. Research shows that family-based interventions that actively involve parents can reduce problematic gadget use and improve children’s emotional regulation[15].

Regarding emotional control, simple relaxation techniques (such as breathing exercises) and positive reinforcement—for example, praise or small rewards when a child successfully manages their emotions or adheres to a schedule—have proven effective in modifying children’s behavior. This has also found that excessive screen time negatively impacts children’s emotional regulation and impulse control[3].

METHOD

Data collection was conducted through interviews with respondents and their close associates. The case study conducted in-depth interviews with respondents to explore their daily emotional states. Interviews were also conducted with close associates, such as family members or friends, to obtain additional information regarding changes in the respondents’ emotions, expressions, and behavioral responses. To measure the respondents’ emotional levels, the SRQ-20 (State-Rate

Scale-20) questionnaire was used. After the questionnaires were completed and the interviews concluded, the results from both were analyzed to determine the respondents' emotional states. Subsequently, discussed the findings with the respondents and provided interventions in the form of education and simple emotion management techniques tailored to their needs.

RESULT AND DISCUSSION

Result

This case study describes the psychological state of a child who has been using gadgets for more than 5 years. A general overview of the client's condition in this case study can be seen in Table 1.

Table 1. Description of the Client's Condition

Name (Age)	General Characteristics	Handling History	Study Results
An.H (12 Years Old)	An. H is an elementary school student who has been using gadgets since the age of 7 and has unstable emotions.	Firm guidance from those around them and firm action aim to control the child's emotions.	As of 2026, An. H's emotions were still not well under control, so the family continued to try to help An. H reduce the amount of time he spent using gadgets and gain emotional control.

Further assessment of the psychological condition/state of An. H. The description of the client's psychological condition in the case study can be seen in Table 2.

Table 2 Description of Client's Mental State through DASS 42 (summary of those who experienced)

No.	Questions (shown as felt)	Point	Category
1.	Easily angered or offended when asked to put down gadgets	2	Stress
2.	Feeling restless or anxious when you can't use your gadget	2	Anxiety
3.	Difficulty sleeping due to thinking about games/activities on gadgets	2	Stress
4.	Crying or exploding emotionally when gadget access is restricted	1	Emotional Regulation

5.	Loss of interest in physical activities in the home	1	Depression
6.	It is difficult to concentrate on tasks as when gadgets are available.	2	Anxiety
7.	Tempted to use gadgets longer than planned	3	Impulsivity
8.	Experiencing changes in appetite (less/more) Since increased use	1	Depression
9.	Complaining of headaches/feeling tired after using gadgets for a long time	2	Stress
10.	Demonstrates withdrawn/avoidant behavior from family	1	Depression
11.	Difficulty controlling emotions when playing/losing	2	Emotional Regulation
12.	Easy feel boring without gadgets	2	Anxiety
13.	Using gadgets to relieve feelings of sadness or loneliness	2	Depression

Anxiety: 6, Stress: 6, Depression: 5, Emotional Regulation: 3, Impulsivity: 3

Based on the results of the DASS-42 assessment, An. H exhibited moderate levels of anxiety and stress, mild to moderate levels of depression, moderate difficulty regulating emotions, and high impulsivity related to the intensity of gadget use. These results are consistent with various studies indicating that excessive screen time is significantly associated with increased emotional and behavioral disturbances in school-aged children [11]. The scores obtained indicate that An. H.'s psychological condition has reached a level requiring attention, particularly regarding anxiety and stress. This condition is also consistent with findings regarding the long-term effects of gadget exposure on the brain's dopaminergic system.

The assessment results also showed that An. H experienced emotional distress when her parents began restricting her gadget use in early adolescence, around age 11. She described this as feelings of anxiety and irritability. These symptoms began to subside after her parents and she agreed on new rules regarding the duration of gadget use. This finding is consistent with research conducted by Liang et al., which states that suddenly restricting gadget use without an adjustment period can increase anxiety and frustration in children[16]. When asked about situations that trigger anxiety, An. H explained that waiting for one's turn in an online game, the sudden appearance of notifications, or losing while playing a game can increase feelings of anxiety and trigger emotional outbursts. This pattern illustrates the existence of a dopamine-influenced feedback mechanism that reinforces addictive behavior and impairs the ability to control motivation [17][18]. On the other hand, An. H views support from peers and parents—particularly her mother's attention and guidance—as factors that help mitigate these issues.

This interview also revealed that An. H uses electronic devices for an average of 5–7 hours each day, primarily to play online games and access social media. This duration far exceeds the screen time recommendations for children aged 6–12 years, which is a maximum of 2 hours per day for recreational use.

Based on the assessment results, the recommendations included limiting screen time, enforcing consistent rules for gadget use, and practicing emotional regulation through breathing techniques and physical activity. However, after implementing these recommendations for 1–2 weeks, An. H actually experienced increased anxiety and frustration because she still struggled to control her urge to use gadgets. This situation indicates a reciprocal relationship between gadget use and emotional regulation. The longer the screen time, the greater the risk of social and emotional problems. Conversely, children experiencing emotional difficulties tend to use gadgets as a coping mechanism, creating a recurring cycle. Therefore, the parents and An. H decided to continue the program with a more gradual approach, accompanied by redirecting activities and increased parental supervision.

Discussion

This case study shows that prolonged and intensive gadget use is associated with emotional regulation difficulties in a 12-year-old child. An. H has been using gadgets for more than five years, with an average screen time of 5–7 hours per day, primarily for online gaming and social media. Assessment results indicated moderate anxiety and stress, mild to moderate depression, emotional regulation difficulties, and high impulsivity. The child also reported emotional outbursts, irritability, and difficulty controlling emotions when gadget access was restricted or when experiencing failure while playing online games.

Excessive gadget use in early childhood is associated with a decline in emotional regulation skills, characterized by irritability, excessive crying, difficulty following instructions, and a tendency to withdraw from social environments[19]. Studies have found that children with high-intensity gadget use are more likely to experience emotional problems and exhibit lower emotional regulation abilities[20]. Furthermore, prolonged screen exposure has been linked to increased irritability and mood swings, reduced attention span, and social withdrawal. As observed in this case, the child often chooses to play video games or browse social media when feeling anxious, which can further reinforce their dependence on digital devices. This pattern is consistent with research indicating that difficulties in emotion regulation serve as a risk factor for problematic gaming, as games may be used as an escape strategy to avoid confronting intense emotions[21].

Sudden restrictions on gadget use can increase a child's anxiety and frustration because the child has difficulty adapting to new rules, especially if they have previously been accustomed to using gadgets for long periods of time[22]. Abruptly

taking screens away can trigger meltdowns, reduce trust, and turn devices into a source of conflict rather than helpful tools for learning and connecting[23]. Children may perceive the removal of their gadgets as a disruption to their sense of security, leading to irritability and emotional dysregulation[24]. However, the gradual implementation of screen time limits, combined with parental supervision, emotion regulation techniques, and alternative physical and social activities, helps the child adapt more positively. Research has demonstrated that screen time management strategies—such as setting time limits, determining goals, and considering the child's condition—can effectively support healthier emotional development[25].

These findings highlight that effective management of excessive gadget use requires a gradual, family-centered approach rather than strict prohibition alone. Active parental involvement plays an important role in helping children develop healthier digital habits and better emotional regulation during the transition from childhood to adolescence. Parental mediation, including active engagement through discussion and guidance, has been identified as a significant protective factor against excessive internet use, gaming dependence, and related mental health challenges. Additionally, parents who model healthy digital behaviors and maintain open communication with their children can foster emotional resilience and more adaptive digital habits[26]. Interventions that combine positive parenting practices with digital literacy and emotional regulation education are essential for mitigating the adverse impacts of digital addiction among children and adolescents.

CONCLUSION

A case study of An. H, a 12-year-old child who used electronic devices for 5–7 hours per day for more than 5 years, showed that excessive device use is associated with impaired emotional control, high impulsivity, moderate anxiety, moderate stress, and mild to moderate depression. These findings are consistent with the latest scientific evidence showing that excessive screen time is associated with increased emotional and behavioral problems in children and adolescents. This case also demonstrates that abruptly restricting gadget use can trigger anxiety and frustration, particularly in children who have come to rely on gadgets as a coping mechanism. Overall, this case contributes to clinical and public health understanding that addressing problematic gadget use in early adolescents requires a gradual, supportive, and family-centered approach, rather than direct and strict prohibitions.

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