

Research Article

Analysis of Online Game Addiction with Emotional Disorders in Grade IV, V, and VI Children at Mangunsari 01 Elementary School, Semarang City

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Abstract: Online game addiction in elementary school children is a growing problem along with technological developments. This condition can have a negative impact on children's emotional development, such as difficulty controlling emotions and decreased social interaction skills. This study was conducted with the aim of determining the relationship between online game addiction and emotional disorders in children at Mangunsari 01 Elementary School, Semarang City. Researchers used a quantitative method with a cross-sectional approach. The sample of this study was 45 respondents using a total sampling technique. The results showed a p-value of 0.000 ($p < 0.05$), which means there is a significant relationship between game addiction and emotional disorders in Mangunsari 01 Elementary School, Semarang City. The correlation coefficient (r) value is 0.774. This value indicates that there is a very strong and unidirectional relationship between online game addiction and emotional disorders. Which means the higher the level of game addiction, the more abnormal the emotional disorders.

Keywords: Children; Emotional Disorders; Elementary School; Game Addiction; Online Games.

1. Introduction

Elementary school-age children are children aged 6 to 12 years. At this age, children experience comprehensive growth and development, including physical, motor, social-emotional, language, and cognitive development. This age group is often referred to as the "play age," referring to the stage of childhood when children's interests and abilities develop significantly. Play means voluntarily engaging in an activity for its own intrinsic value, without regard for potential outcomes (Lestariningsih et al., 2023).

Online games are games that are played using an internet network. Online games are also very popular with many people, from children, teenagers to adults, but unfortunately not all of them are able to control them well, resulting in addiction (Rahman et al., 2022).

Several people have conducted research, such as a study in Finland that conducted research on game addiction occurring in 12-year-old children and showed that 4.7% of girls and 5.3% of boys. In 2018, WHO also wrote that addiction to playing online games is included in the classification of mental health disorders, including mental health. The International Classification of Disease (ICD 11) defines game addiction as a pattern of playing behavior (both online and offline, games and video games) that shows several indicators such as the inability to control the desire to continue playing and prioritizing playing games over doing other activities (Darvesh et al., 2020).

Based on the 2024 Indonesian Internet Service Providers Socialization Survey (APJII), it is known that the number of internet users in Indonesia itself has increased from previous years, from 2023 which was only 78.19%, now in 2024 it has reached 79.50%. Although it only increased by 1.31%, if it continues to increase every year it will have a very bad impact on health, especially for students, such as the continuous use of online games, They will stare at computer screens for hours without rest which will have a bad impact on the eyes, and can

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also cause mental disorders such as antisocial, anxiety, insomnia and stress (Wulandari & Assalamiyah, 2022).

Based on observations and interviews during the initial data collection on September 17, 2025 at Mangunsari 01 Public Elementary School, it was found that the number of students from grade one to grade six was 100 students. Based on information from parents, academic achievement results from homeroom teachers and the results of interviews with grade VI students of Mangunsari 01 Public Elementary School as many as 13 students, 12 of the 13 students played online games every day, with a duration of 1-3 hours / day and sometimes even more during holidays (Saturday and Sunday). It was found that 10 of the 13 students were addicted to playing online games, the online games played by these students included Mobile Legend, Free Fire, Roblox, those who were addicted to playing games tended to have a decline in academic achievement such as, not concentrating while studying, feeling sleepy during class hours. Many parents also complain to homeroom teachers that their children who often play online games are very difficult to talk to, sometimes they also get angry and cry when told to stop or reduce the duration of playing time, their sleep is disturbed, not infrequently they also get angry for no reason, hit and throw objects around them and swear when they lose playing games. Online game addiction if left unchecked will result in abnormal emotional disorders, and show emotional behavior such as difficulty concentrating, frequent anger, lack of self-confidence, often feeling anxious and they even prefer playing alone rather than socializing with their peers. Based on the results of observations and interviews, researchers are interested in conducting research with the title Knowing the relationship between addiction to playing online games and emotional disorders in children at Mangunsari 01 Public Elementary School, Semarang City.

2. Theoretical Study

Definition of Elementary School Children

According to Sinta Zakiyah et al., 2024, elementary school-aged children are a crucial age group in human development. Elementary school children, aged 6-12, are transitioning from preschool to elementary school.

Definition of Online Games

Online games are games that are played by many people simultaneously via the internet network, which allows interaction between 2 or more people at the same time simultaneously. To play them, a computer device with certain specifications and an internet connection are required (Trisnani & Wardani, 2018).

Definition of Emotional Disorder

Emotion comes from the Latin word *emovere* which means "to move away" which indicates an urge to act such as joy encourages people to laugh while sadness causes crying. James and Lange stated that emotions arise from an individual's perception of changes in the body due to stimulation, while Caplin defines emotions as an aroused condition that affects consciousness and behavior, in contrast to feelings that are subjective. So it can be concluded that emotional disorders are conditions when a person's emotional development and control do not function normally, resulting in excessive or inappropriate reactions of feelings, thoughts, and behavior. For example, easily angered, often excessively anxious, lingering in sadness, unreasonable fear and extreme mood swings (Dr. Idi Warsah & Mirzon Daheri, 2021).

3. Research Method

In this study, the author used a quantitative research design with a correlational associative method, which aims to determine whether or not there is a relationship between two variables. The researcher used a cross-sectional approach, namely observing the independent variable and the dependent variable at one time at a certain time, to assess them simultaneously. This study used a total sampling technique. With a sample size of 45 respondents. The data collection technique used a questionnaire sheet in the form of respondent identity, gender, age, class, duration of playing time, addiction to playing online games and emotional disorders. The data processing method in the study was through the results of respondents to be processed Excel data then processed using SPSS. Data analysis used was the Spearman Rank test. (Adiputra et al., 2021).

The results of the Game Addictive Scale (GAS) questionnaire validity test, the instrument has previously been translated into Indonesian and used in Malaysia by Rozlan (2024) the instrument shows acceptable content validity, with I-CVI values ranging from 0.73

to 0.94 and S-CVI/Ave values of 0.80. Overall, the internal consistency of the instrument is very good ($\alpha = 0.949$), and most items have high I-CVI values (Roslan MZ, Amran MS, 2024). The results of the Strength and Difficulties Questionnaire (SDQ) questionnaire measurement show good validity with a Cronbach alpha value of $\alpha = 0.773$, with $r = 0.188 < 0.05$ which means it is valid for use in research (Moeis et al., 2023).

The reliability test results of the Game Addictional Scale (GAS) questionnaire showed a Cronbach's Alpha value of $\alpha=0.671-0.903$ for all criteria, except for the relapse criteria ($\alpha=0.788$) and problems ($\alpha=0.671$). This indicates that the instrument has good reliability and can be used to examine the level of addiction to playing online games. (Roslan MZ, Amran MS, 2024). The reliability test results of the Strength and Difficulties Questionnaire (SDQ) questionnaire showed a Cronbach Alpha score of 0.773, indicating that this questionnaire is reliable for measuring emotionality in children (Moeis et al., 2023).

4. Results and Discussion

Results

a) Respondent characteristics

Table 1. Respondent Characteristics.

Gender	Frequency	Presentation (%)
Man	22	48.9
Woman	23	51.1
Total	45	100
Age	Frequency	Presentation (%)
9 Years	6	13.3
10 years	18	40.0
11 years old	19	42.2
12 years old	2	4.4
Total	45	100
Class	Frequency	Presentation (%)
Class IV	16	35.6
Class V	16	35.6
Grade VI	13	28.9
Total	45	100
Duration	Frequency	Presentation (%)
1-3 hours	29	64.4
4-6 hours	16	35.6
Total	45	100

Based on table 1 with the number of respondents as many as 45 students, the distribution of gender shows the majority of females as many as 23 respondents (51.1%) and males as many as (48.9%). Based on the distribution of age respondents are divided into 4, namely, 9 years as many as 6 respondents (13.3%), 10 years as many as 18 respondents (40.0%) and the majority of respondents are at the age of (11 years), namely as many as 19 respondents (42.2%), for the age of 12 years as many as 2 respondents (4.4%). Based on the class distribution shows the majority of respondents are in classes (IV and V), namely 16 respondents (35.6%) each, and class VI as many as 13 respondents (28.9%). Based on the distribution of the frequency of the duration of playing online games shows the majority of respondents play 1-3 hours, namely as many as 29 respondents (64.4%) and as many as 16 respondents (36.6%) play online games with a duration of 3-6 hours per day.

b) Univariate Analysis

Table 2. Univariate Analysis.

Online Game Addiction	Frequency	Presentation (%)
Light	6	13.3
Currently	12	26.7
Heavy	27	60.0
Total	45	100
Emotional disturbance	Frequency	Presentation (%)
Normal	6	13.3
Border	13	28.9
Abnormal	26	57.8
Total	45	100

Based on the results of a study conducted with 45 respondents, the distribution of online gaming addiction in children at Mangunsari 01 Elementary School, Semarang City. With a total of 45 students, the results showed that respondents with the "mild" category were 6 people (13.3%), the "moderate" category was 12 people (26.7%), and also "severe" were 27 people (60.0%). Based on the distribution of emotional disorders with a total of 45 students, the results showed that respondents with the "Normal" category were 6 people (13.3%), the "borderline" category was 13 people (28.9%), and also "Abnormal" were 26 people (57.8%).

c) Bivariate Analysis

Table 3. Bivariate Analysis.

Addiction to playing online games	Emotional disturbance								<i>P</i>	
	Normal		Border		Abnormal		Total			
	f	%	f	%	f	%	F	%		
Low	6	100.	0	0.0	0	0.0	6	100.0	0,0	0.774
Currently	0								00	
Tall	0	0.0	9	75.	3	25.	12	100.0		
Total	0	0.0	4	14.	23	85.	27	100.0		
			8		2					
	6	13.3	13	28.	26	57.	45	100.0		
			9		8					

Based on the results of the analysis of the relationship between game addiction and emotional disorders in children at Mangunsari 01 Elementary School, Semarang City, it was found that students with mild online game addiction were 6 students (100.0%) with normal emotional disorders/no disorders, while students with moderate online game addiction were 9 students (75.0%) followed by emotional disorders that were borderline, while abnormal were 3 students (25.0%). Students with severe online game addiction and experiencing abnormal emotional disorders were 23 respondents (85.2%). Meanwhile, students who had severe online game addiction but had emotional disorders within the borderline were 4 students (14.8%).

The Spearman Rank correlation test results showed a significant value (p-value) of 0.000 ($p < 0.05$), which means the alternative hypothesis (H_a) is accepted and the null hypothesis (H_o) is rejected. Thus, it can be concluded that there is a significant relationship between online gaming addiction and emotional disorders in children at Mangunsari 01 Elementary School, Semarang City. Meanwhile, the correlation coefficient (r) value is 0.774. This value indicates that there is a very strong and positive relationship. A positive coefficient value indicates that the relationship between the two variables is unidirectional, so it can be concluded that the higher the level of online gaming addiction, the more abnormal the emotional disorders.

Discussion

a) Gender

Based on the results of the study, the distribution of respondents' gender showed that the majority were female, namely 23 respondents (51.1%) and male respondents as many as 22 respondents (48.9%). However, from the total of 45 respondents, 15 respondents were obtained with a duration of playing online games for 4-6 hours, and 10 of them were male respondents. This is also like research conducted by (Elwalida et al., 2023), based on gender analysis, this researcher showed that most of the respondents were female, namely 28 (52.8%) and male as many as 25 (47.2%). However, almost all of those addicted to playing online games are men because they tend to like challenges and online games have different game modes.

Faza's (2022) study, "Analysis of the Impact of Online Games on the Social Interactions of Elementary School-Aged Children in Bawu Village, RT 06 RW 01," explains that online game addiction in boys can be seen through the addictive component of excessive use. This use causes children to tend to neglect other activities because online games dominate their thoughts, feelings, and behavior. The results showed that online game users were mostly boys with an average percentage of 49%. The impact of online game use on children's social interactions includes both positive and negative impacts. Therefore, the role of parents is very necessary in limiting game playing time and providing advice to children about the importance of social interaction with others.

Furthermore, researchers found that male respondents were more likely to play online games than female respondents. This is because boys are more interested in online games, allowing them to spend extended periods of time playing them, potentially leading to addiction and wasting time. Boys enjoy online games because they offer a variety of game modes with varying levels of difficulty and intensity, and are supported by adequate internet access (Faza, 2022).

b) Age

Based on the research results, the age distribution of respondents shows that the majority of respondents were pre-teens (11 years old), namely 19 respondents (42.2%). This study is similar to that conducted by (Simatupang et al., 2023), where the majority of respondents were 11 years old, namely 31 respondents (47.7%), because children at this school age play is a very important activity for their growth and development. Through this play activity, they can achieve physical, intellectual, emotional, and social abilities. Children also tend to prefer games that are fun and challenging, one of which is online games.

This is in line with research conducted by Nuradi (2025) entitled the relationship between addiction to playing online games and the emotional health of children in Medan. The results obtained from 87 respondents, the majority of whom were 11 years old (58 respondents (66.7%). Because at this age children tend to prefer playing online games rather than playing with their peers. The study showed that addiction to playing online games has a significant relationship with children's emotional health conditions. Children who experience addiction to online games tend to show changes in behavior and emotions, such as irritability, difficulty controlling emotions, feeling restless when not playing games, and experiencing decreased interest in social and academic activities. This occurs because children are more focused on the virtual world compared to social interactions in the real environment (Nuradi et al., 2025).

c) Class

Based on the research results, the distribution of respondents' classes showed that the majority of respondents were in grades IV and V, with 16 respondents (35.6%) each. This indicates that in grade 5, children enter pre-adolescence, an age when children are growing and developing and tend to play with their friends more often than staying at home.

This research aligns with research conducted by (Saskia, 2023) entitled "The Relationship between Online Game Addiction and the Psychosocial Development of School-Aged Children in SDN 1 Sasetan." The results of this study indicate that the majority of respondents were in grades V and VI, namely 87 respondents (45%). The dominance of respondents in grades V and VI indicates that children in their final year of school are more involved in online gaming activities compared to those in lower grades. This can be caused by several factors, such as increased access to digital devices, more developed cognitive abilities, and stronger peer influence at that age. In addition, children in grades V and VI generally have more free time and a higher level of independence in using technology, so they have a greater potential to become addicted to online gaming.

Children in grades 4–6 of elementary school are generally in the pre-adolescent stage, characterized by rapid cognitive, social, and emotional development. At this age, children begin to think logically and understand cause-and-effect relationships, but still require concrete examples and guidance in learning. Socially, children enjoy interacting and collaborating with peers and require recognition from those around them. Emotionally, children tend to get bored easily, are emotionally unstable, and require support and motivation to develop confidence in learning. Children also begin to understand rules, responsibilities, and moral values, so cultivating discipline and role models are crucial. Therefore, appropriate learning activities for children in grades 4–6 of elementary school are interactive, fun, use engaging media, and involve teacher and parental guidance to optimally develop children's learning potential (Putri et al., 2022).

d) Duration of time

online game playing duration among students of Mangunsari 01 Elementary School shows that the majority of respondents play 1-3 hours per day, namely 29 respondents (64.4%). This research is in line with research conducted by (Simatupang et al., 2023) entitled The relationship between online game addiction and the psychosocial development of elementary school-aged children. It was found that out of 65 respondents, 44 respondents (67.7%) played online games 1-3 hours per day. Children who enjoy playing online games tend to spend longer playing time, especially when they have free time. This is influenced by various factors, such as visual appeal and challenges in the game, ease of access to digital devices, and peer influence. If not controlled, the habit of playing online games for a long period of time can potentially disrupt learning activities, social interactions, and children's psychosocial development.

e) online gaming addiction and emotional disorders

Based on the results of the study of the relationship between game addiction and emotional disorders in children at Mangunsari 01 Elementary School, Semarang City, it was found that students with mild online game addiction were 6 students (100.0%) with normal emotional disorders, while students with moderate online game addiction were 9 students (75.0%) followed by abnormal emotional disorders of 3 students (25.0%). Students with severe online game addiction and experiencing abnormal emotional disorders were 23 students (85.2%). Meanwhile, students who had severe online game addiction but had borderline emotional disorders were 4 students (14.8%).

Online games are designed with strong reinforcement systems, such as rewards, level achievements, and virtual social interactions that provide a sense of acceptance and recognition. These mechanisms activate the brain's reward system, which is associated with the release of dopamine, resulting in temporary feelings of pleasure and satisfaction. For individuals with less adaptive emotional regulation, gaming can serve as a coping strategy to reduce stress, anxiety, or feelings of loneliness. However, excessive and repeated use can develop into an addictive pattern characterized by loss of control, increased playing time, and impairment in academic, social, and emotional functioning.

Imbalances in the emotional regulation system, influenced by neuroendocrine mechanisms, including the involvement of the hormones prolactin and vasopressin, can increase an individual's vulnerability to addictive behaviors, including online gaming addiction. Prolactin, which plays a role in the formation of emotional bonds and affection, and vasopressin, which contributes to emotional regulation and the quality of social interactions, play a crucial role in supporting healthy social connectedness. When hormonal dysregulation affects emotional stability and the ability to form interpersonal relationships, individuals may experience difficulty obtaining emotional satisfaction from real social environments. This condition has the potential to encourage individuals to seek alternative ways to fulfill their affection and esteem needs through digital media, including online gaming.

In the long term, online gaming addiction can exacerbate emotional disorders, such as increased irritability, anxiety, depression, and withdrawal from real social interactions. This creates a reciprocal cycle, where emotional disorders drive excessive gaming behavior, which ultimately further disrupts the individual's emotional stability (Sistematik et al., 2025).

the Spearman Rank correlation test showed a significant value (p-value) of 0.000 ($p < 0.05$), which means the alternative hypothesis (H_a) is accepted and the null hypothesis (H_0) is rejected. Thus, it can be concluded that there is a significant relationship between addiction to playing online games and emotional disorders in children at Mangunsari 01 Elementary School, Semarang City. While the correlation coefficient (r) value is 0.774. This value indicates that there is a very strong and positive relationship between addiction to playing online games and emotional disorders. A positive coefficient value indicates that the relationship between

the two variables is unidirectional, so it can be concluded that the higher the level of addiction to playing online games, the higher the emotional disorders.

This study was also conducted by (Halisyah, 2023) with the title The Relationship between Online Game Addiction and Emotional Disorders in Children at Tanjungwadung State Elementary School, Jombang Regency. The p-value was obtained = 0.000 ($p < 0.05$), H_0 was rejected and H_a was accepted. This means that there is a significant relationship between game addiction and emotional disorders in elementary school-aged children. The direction of the relationship in this study shows a positive direction, which means that the higher the level of online game addiction, the higher the emotional disorders experienced by children. Although the correlation coefficient value in this study is not included in the article, it can be interpreted as having a strong relationship. This study indicates that online game addiction is an important risk factor that contributes to emotional disorders.

5. Conclusion and Sugession

The results of the study on 45 respondents who experienced addiction to playing online games and had abnormal emotional disorders as many as 23 respondents (85.2%). The results of the Spearman Rank correlation test showed a significant value (p-value) of 0.000 ($p < 0.05$) which means the alternative hypothesis (H_a) is accepted and the null hypothesis (H_0) is rejected. Thus, it can be concluded that there is a significant relationship between addiction to playing online games and emotional disorders in children at Mangunsari 01 Elementary School, Semarang City. The correlation coefficient value (r) is 0.774. This value indicates that there is a very strong and unidirectional relationship between addiction to playing online games and emotional disorders, the higher the level of addiction to playing online games, the more abnormal the emotional disorders. Suggestions for health workers are expected to provide health education regarding the use of healthy online games in school-age children and conduct early screening for emotional disorders as a promotive and preventive effort for children's mental health, for further researchers it is hoped that they can develop research using different research designs, increase the number and variety of samples, and examine other factors related to children's emotional disorders such as parenting patterns and family environment.

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