



The Correlation between Online Gaming Intensity and Parent-Child Bonding among School-Aged Children in a Public Elementary School in Bekasi City, Indonesia

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Abstract. Online gaming has become increasingly popular among school-age children. In Indonesia, school-age children represent a substantial proportion of online game users, with particularly high use reported among children aged 10–14 years. Parents therefore play an important role in supervising children's activities, while the quality of parent–child attachment may influence children's gaming behavior. This study aimed to determine the correlation between online gaming intensity and parent–child attachment among school-age children in Bekasi City. A correlational cross-sectional design was employed involving 174 children and their parents at SDN Aren Jaya IV, Bekasi City. Data were collected using an online gaming intensity questionnaire and the Child–Parent Relationship Scale. The correlation between variables was analyzed using the Spearman rank test with a significance level of $p < 0.05$. Most children had low online gaming intensity ($n = 129$; 74.1%), followed by moderate ($n = 26$; 14.9%) and high intensity ($n = 19$; 10.9%). Most respondents demonstrated high parent–child attachment ($n = 122$; 70.1%), while 27 (15.5%) had moderate and 25 (14.4%) had low attachment. The Spearman rank test showed no significant correlation between online gaming intensity and parent–child attachment ($p = 0.221$). Although no significant relationship was identified, excessive online gaming may still pose risks to children. Nurses and parents should consider other contributing factors, including psychological conditions, social attention, game characteristics, and self-control, to prevent potential health problems associated with excessive online gaming.

Keywords: Game Online, Intensity, Parent-Child Attachment, School-Aged Children.

1 Introduction

The rapid advancement of internet technology has fundamentally reshaped human leisure activities, most notably through the rise of online gaming. Global data indicates a massive surge in this trend, with approximately 2.7 billion players recorded in 2020 [1]. In Indonesia, school-aged children are a significant demographic, with those aged 10–

14 years accounting for 66.2% of gamers at the primary education level. While online games serve as a medium for stress relief and cognitive stimulation, excessive engagement often leads to uncontrolled usage and addiction, resulting in detrimental physical and psychosocial consequences [2].

High gaming intensity is frequently linked to decreased academic motivation, sleep disturbances, and impaired social relationships [1][3]. For school-aged children (5–12 years), who are in a critical stage of development and curiosity, the inability to self-regulate makes them particularly vulnerable to these negative impacts. Consequently, the role of parents becomes a vital strategic pillar in mitigating these risks [4].

Recent literature suggests that the parent-child relationship is a significant predictor of addictive behavior. Strong parental bonding, characterized by emotional warmth, social support, and consistent supervision, acts as a protective factor against gaming addiction [5] [6]. Conversely, poor attachment may drive children to seek emotional fulfillment through virtual environments. Preliminary observations in Bekasi, Indonesia, revealed that children's high gaming frequency often leads to parent-child conflicts, indicating a potential strain on the bonding quality.

Despite the growing body of research on gaming addiction, there is a need to specifically examine how the intensity of play correlates with the quality of parental bonding in the Indonesian primary school context. Therefore, this study aims to investigate the relationship between online gaming intensity and parent-child bonding among school-aged children in Bekasi.

2 Methods

The methodology employed in this study follows a quantitative approach with a correlational design and a cross-sectional perspective. This design aims to determine the relationship between the intensity of playing online games and parent-child bonding among school-age children.

2.1 Population and Sample

The study population consisted of 262 children and their parents or guardians from a primary school in Bekasi City. A non-probability purposive sampling technique was employed to select participants based on specific inclusion criteria: (1) school-aged children in grades III to VI (aged 9–12 years), (2) actively playing online games, and (3) living with both parents.

From an initial accessible population of 262 children, a total of 174 parent-child pairs met all inclusion criteria and were fully enrolled as the final sample ($N = 174$). Children with incomplete questionnaire responses or those who withdrew prior to data collection were excluded from the analysis.

2.2 Research Variables and Instruments

This research involves two primary variables: the independent variable, which is the intensity of playing online games, and the dependent variable, which is parent-child bonding.

The Intensity of Online Gaming was measured using an instrument adapted based on Chaplin's conceptual framework, which measures four dimensions: frequency, duration, full attention, and emotion using a 4-point Likert scale [7]. Psychometric testing of this questionnaire was previously conducted by Rizqi (2022) among 50 respondents ($N = 50$) using SPSS 26 [8]. Validity was determined using the Corrected Item-Total Correlation method with a cutoff criterion of $r > 0.30$. Out of 36 original items, 13 items (items 4, 5, 6, 11, 12, 15, 20, 21, 23, 24, 29, 30, and 31) were declared invalid ($r \leq 0.30$) and removed, leaving a final scale of 23 valid items. The instrument demonstrated high internal consistency, yielding a Cronbach's alpha coefficient of 0.891.

Parent-Child Bonding was assessed using the Indonesian adaptation of the Child-Parent Relationship Scale (CPRS), which encompasses 26 items across three indicators: closeness, conflict, and dependence [9]. A pilot validity and reliability test was conducted among 30 parent respondents ($N = 30$) at SDIT An-Nadwah, Bekasi Regency, analyzed with SPSS 26 using Pearson Product-Moment correlation. All 26 items were confirmed valid, with correlation values exceeding the critical table threshold ($r_{\text{table}} = 0.361$). The scale demonstrated good reliability, with a Cronbach's alpha coefficient of 0.746.

2.3 Data Collection Procedure

Data collection was conducted from September 5, 2023, to November 10, 2023, at SDN Aren Jaya IV, Bekasi City. Primary data were gathered through Google Forms for parents (online). The process involved obtaining ethical clearance (No. 5828/UN10.F17.10.4/TU/2023) and providing informed consent to all participants.

2.4 Data Analysis

Data processing was carried out through several stages: editing, coding, scoring, data entry, tabulating, and checking. Univariate analysis was employed to describe the demographic characteristics and research variables using frequency distributions and percentages.

For the bivariate analysis, the Spearman Rank non-parametric correlation test was utilized to determine the relationship between the intensity of online gaming and parent-child bonding, as the data for both variables were on an ordinal scale. Statistical significance was set at a $p\text{-value} < 0.05$ to determine the presence of a meaningful correlation. All data analyses were performed using SPSS version 26.

3 Results

Table 1 showed that the study sample consisted of 174 dyads of school-aged children and their respective parents or guardians. As presented in Table 1, the children's ages ranged from 9 to 12 years, with the largest representation from the 10-year-old group (30.5%) and the 5th-grade level (30.5%). Female students constituted the majority of the child participants (58.0%).

Regarding the parental profile, the respondents were predominantly mothers (83.3%). Educational attainment was largely concentrated at the Senior High School level for both fathers (51.7%) and mothers (54.5%). Economically, the majority of the participating families reported a monthly household income below the Regional Minimum Wage, particularly notable among the mothers' demographic (74.1%).

Table 1. Combined Socio-Demographic Characteristics of Children and Parents (N=174)

Characteristics	Category	(n=308)	%
Child Characteristics			
Age	9 Years Old	45	25.9
	10 Years Old	53	30.5
	11 Years Old	44	25.3
	12 Years Old	32	18.4
Gender	Male	73	42.0
	Female	101	58.0
Grade Level	Grade 3	35	20.1
	Grade 4	40	23.0
	Grade 5	53	30.5
	Grade 6	46	26.4
Parent Characteristics			
Respondent Role	Father	29	16.7
	Mother	145	83.3
Father's Education	Junior High School	18	10.3
	Senior High School	90	51.7
	Vocational/Higher Ed	66	38.0
Mother's Education	Junior High School	26	14.9
	Senior High School	95	54.5
	Vocational/Higher Ed	53	30.6
Household Income	< Regional Wage	129	74.1
	> Regional Wage	45	25.9

Table 2. Distribution of Online Gaming Intensity and Parent-Child Bonding

Characteristics	Category	(n=308)	%
Online Gaming Intensity	Low	129	74.1
	Moderate	26	14.9
	High	19	10.9
Parent-Child Bonding	Low	25	14.4
	Moderate	27	15.5
	High	122	70.1

The distribution of online gaming intensity and the quality of parent-child bonding was assessed to categorize the respondents' behavioral and relational patterns.

As indicated in Table 2, a significant majority of the children (74.1%) reported low gaming intensity, while 70.1% of the dyads maintained a high level of parental bonding. Table 3 presents the cross-tabulation between the intensity of online gaming and the quality of parent-child bonding. The data shows that among children with low gaming intensity, 92 individuals (52.8%) also reported high parental bonding. In contrast, among children with high gaming intensity, the majority still maintained high bonding (5.7% of the total sample), though some fell into the low-bonding category.

Table 3. Cross-tabulation between Gaming Intensity and Parent-Child Bonding

Online Gaming Intensity	Low Bonding	Moderate Bonding	High Bonding	Total
Low	18 (10.3%)	19 (10.9%)	92 (52.8%)	129 (74.1%)
Moderate	3 (1.7%)	3 (1.7%)	20 (11.5%)	26 (14.9%)
High	4 (2.3%)	5 (2.9%)	10 (5.7%)	19 (10.9%)
Total	25 (14.4%)	27 (15.5%)	122 (70.1%)	174 (100%)

The relationship between variables was tested using the Spearman Rank correlation.

Table 4. Spearman Rank Correlation Test Results

Variables	Correlation coefficient	P value
Intensity	-0.093	0.221
Bonding		

As shown in Table 4, the p-value is 0.221 ($p > 0.05$); thus, the null hypothesis is accepted. This indicates that there is no significant relationship between the intensity of playing online games and the quality of parent-child bonding in this specific population.

4 Discussion

The main objective of this study was to evaluate the relationship between online gaming intensity and parent-child bonding among school-aged children in Bekasi, Indonesia. Contrary to popular assumptions regarding digital media overuse in school-aged populations, the univariate analysis revealed that the majority of participants exhibited a low intensity of online gaming (74.1%), followed by moderate (14.9%) and high intensity (10.9%). Developmentally, children aged 9–12 years undergo rapid cognitive and social development characterized by high curiosity toward digital entertainment [10]. However, high curiosity does not automatically translate into excessive or uncontrolled gaming frequency. In this study cohort, the high prevalence of low gaming intensity can be attributed to effective environmental protective factors, such as daily school routines, structured academic obligations, and parental rules regarding screen time [11][12]. When parents establish clear boundaries and monitor smartphone usage, children's innate digital curiosity is contained within structured, recreational limits rather than escalating into habitual or high-intensity play.

In terms of relational dynamics, a substantial majority of parent-child dyads demonstrated a high level of parent-child bonding (70.1%). In school-aged children, emotional attachment security is sustained through consistent parental warmth, daily communication, and shared domestic activities [4] [5]. In this study context, the demographic profile shows that respondents were predominantly mothers (83.3%) from households with incomes below the regional minimum wage (74.1%). Despite economic constraints, primary caregivers who maintain regular physical presence and emotional availability foster strong attachment security in their children [13]. Strong parent-child attachment serves as a protective socio-emotional buffer, providing children with a secure base that reduces their reliance on virtual environments or online gaming for emotional gratification [5] [14].

Crucially, the bivariate analysis using the Spearman Rank correlation test demonstrated no statistically significant relationship between online gaming intensity and parent-child bonding ($r = -0.093, p = 0.221$). This finding indicates that, within this study population, engaging in online gaming at low-to-moderate levels does not inherently weaken or degrade the emotional bond between parents and children. Theoretical models of child attachment suggest that parent-child bonding is a foundational relational structure formed early in life and remains relatively stable across middle childhood [15], [16]. While uncontrolled or addictive gaming behaviors can cause family friction, low-intensity gaming functions primarily as a normative, passive leisure activity that does not disturb established relational dynamics [4], [14]. Therefore, the presence of digital gaming per se does not serve as a direct indicator of impaired parent-child attachment when play intensity remains low.

These findings carry important clinical implications for pediatric and community health nursing. Pediatric nurses and family healthcare providers must adopt a nuanced perspective when assessing digital device usage among school-aged children. Rather than viewing all online gaming as an immediate threat to family cohesion, nurses should focus on promoting "digital parenting" and digital literacy. Preventive interventions should aim to educate parents on setting healthy screen-time limits, encouraging open

parent-child communication, and recognizing early warning signs of escalating gaming intensity [17][18]. Early family-centered nursing guidance can preserve current high bonding levels and prevent low-intensity recreational gaming from transitioning into problematic digital addiction during adolescence.

Despite these insights, several limitations of the present study must be acknowledged. First, the cross-sectional design precludes any causal inference regarding how gaming habits and attachment quality evolve over time. Second, data collection relied on self-reported questionnaires administered online, which may introduce social desirability bias or response inaccuracies from parent respondents. Finally, the study was conducted within a single primary school setting in Bekasi, which limits the generalizability of the findings to broader geographic or socio-economic contexts. Future research should utilize longitudinal designs and multi-center sampling, incorporating observational metrics or child-reported data to further elucidate the complex interplay between family dynamics and digital behavior.

5 Conclusion

Based on the research findings, it can be concluded that the intensity of online gaming among school-aged children in Bekasi is categorized as moderate (70.7%), and the quality of parent-child bonding is also at a moderate level (78.7%). Statistical analysis proves that there is no significant relationship between the intensity of playing online games and parent-child bonding, with a p-value of 0.221 ($p > 0.05$). This indicates that while children are actively engaged in digital play, it does not directly erode the established emotional bond with their parents. Nevertheless, parents are encouraged to maintain active supervision and communication to ensure that gaming remains a positive form of entertainment rather than a source of social or emotional developmental interference.

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