

Self-Control Effects on Online Game Addiction Behavior among Senior High School Students

Najla Bintang Kamila, Dini Rakhmawati*, Suhendri

Universitas PGRI Semarang, Lontar St. No. 24, Semarang, Central Java, 50232, Indonesia

*Corresponding author, email: dinirakhmawati@upgris.ac.id

<https://doi.org/10.17977/um065.v6.i9.2026.11>

Article history

Submitted: 6 May 2026

Revised: 13 June 2026

Accepted: 15 June 2026

Published: 18 June 2026

Keywords

Online game addiction

Self-control

Senior high school students

Abstract

This study aims to analyze the influence of self-control on online gaming addiction behavior among high school students. The study employs a quantitative approach with a causal-associative design, utilizing a survey method and simple linear regression analysis. The sample consisted of 95 eleventh-grade students selected using a proportionate stratified random sampling technique from a population of 125 students. Data were collected using a Likert-scale questionnaire measuring the variables of self-control and online gaming addiction and were analyzed using SPSS. The results indicate a fairly strong relationship between self-control and online gaming addiction, with a correlation coefficient of 0.583 and a contribution of 34%. The resulting regression model was significant. The findings indicate that self-control has a positive and significant influence on online game addiction, suggesting that the higher the self-control, the higher the tendency toward online game addiction among the respondents. These results suggest that the relationship between self-control and online gaming addiction is not always negative but can be influenced by contextual factors such as gaming motivation and individual behavioral management patterns. This study implies that proper management of gaming behavior, as well as the development of self-regulation skills and digital literacy, need to be strengthened to minimize the negative impacts of online gaming addiction.

1. Introduction

The rapid advancement of science and technology about information and telecommunications is crucial in modern life (Sutabri et al., 2022). Increasingly sophisticated technology could simplify human tasks for example the gadget, the most popular technology human currently uses. The realizations of the gadget include smartphones, laptops, computers, tablets, and PCs. Currently, not only adults use gadgets but also children and adolescents. The use of gadgets, by adolescents, mostly deals with information seeking, communicating, and playing online games. At the present time, online gaming becomes the most widely used digital entertainments among adolescents due to the social interaction, competitive challenges, and engaging gameplay experiences. However, the excessive use of online game could lead to psychological and behavioral problems such as game addiction or Internet gaming disorder (IGD). The World Health Organization, WHO, explains the IGD into International Classification of Diseases (ICD-11) as behavioral disorder. This problem requires immediate and serious attention (ICD-11 n.d.). Adolescents, the vulnerable group, are prone to gaming addiction due to developmental characteristics indicated by high sensation-seeking drive, unstable emotional regulation, and a tendency toward impulsive behavior (Qin & Gan, 2023; Hu et al., 2025). Online gaming addiction is a harmful habit that, if not reduced or eliminated, will lead to many negative consequences that can disrupt an individual's physical and psychological well-being. According to Novrialdy, online gaming addiction involves excessive use of online games that impacts daily life. Individuals addicted to online gaming will use or play online games continuously, gradually isolating themselves from social contact, and focus more on achievements in online gaming while neglecting other important matters. Online gaming addiction is excessive behavior, carried out continuously and repeatedly to play.

Adolescents are a group highly vulnerable to online gaming addiction because they are in a developmental phase characterized by identity exploration, a need for social recognition, and the development of self-control functions that are not yet fully mature. Neuropsychological studies explain the association between the limbic system with the pursuit of pleasure to rapidly develop than the prefrontal cortex, the part with a role in decision-making and impulse control (Chen et al., 2025). Self-control is a capacity that can be developed and utilized by individuals throughout various life processes, including when facing conditions in their surrounding environment. Experts argue that self-control can serve as a preventive intervention and can also reduce the negative psychological effects of environmental stressors. According to Nurhaini et al. (2018), self-control is defined as an individual's influence and regulation over their physical state, behavior, and psychological processes, in other words, a series of self-regulating processes. The development of self-control is crucial for interacting with others and achieving personal goals. High self-control individuals have the tendency to use

technology more wisely, effectively manage time, and consider their course of actions. However, individuals with low self-control are prone to impulsive behavior, delaying gratification, and digital addiction (Li et al., 2021). In the context of online gaming, self-control functions as a regulatory mechanism to limit the adolescents of their gaming intensity. Thus, it does not interfere with academic or social activities.

Previous studies found that online gaming addiction may lead to lower academic performance, sleep disturbance, poor-quality social correlation, increased psychological stress, and mental health issue emergence (Paulus et al., 2018; Hu et al., 2025). Therefore, identification of psychological factors is important to protect adolescents from online gaming addiction. Previous studies also found the negative correlation between self-control and online gaming addiction. Li et al. (2021), with their meta-analysis, found that low levels of self-control could lead to high risk of developing internet and online gaming addictions. Teng et al. (2020), Xiang et al. (2022), Meng et al. (2024), and Zhou et al. (2024) also reported the self-control acts as a protective factor against the emergence of excessive online gaming behavior. This report suggest high self-control of adolescents leads to lower tendency of developing online game addiction. Furthermore, Chen et al. (2025) and Teng et al. (2020), with their longitudinal studies, found that low self-control significantly predicts a high tendency toward online gaming addiction among adolescents, particularly high school students. Thus, both theoretically and empirically, self-control serves as a significant predictor of online game addiction.

Although numerous studies found the correlation between self-control and online gaming addiction, the current researchers found research gaps to address. Firstly, most previous studies, conducted in East Asian countries for example China and South Korea or Western countries, provide limited empirical evidence to compare with Indonesian culture context (Xiang et al., 2022; Qin & Gan, 2023; Meng et al., 2024). Secondly, most previous studies focused on examining the moderation and mediation models for example the variables of social support, developmental assets, bullying, domestic violence, and academic stress. Thus, the current researchers found limited evaluations on the direct influence of self-control on online gaming addiction (Xiang et al., 2022; Quancai et al., 2023; Jia et al., 2026). Thirdly, a meta-analysis by Li et al. (2021) found various correlations between self-control and addictive behavior depending on sample characteristics and research context. Fourth, the changing mobile gaming patterns during the post-pandemic situation led to new dynamics in adolescent gaming behavior. This situation needs the latest empirical evidence, particularly among the Indonesian adolescent population since those individuals are the largest group of Internet and online game users in Southeast Asia (Sumiyana et al., 2022). However, Zhu and Qi (2025) demonstrate a reciprocal correlation between self-control beliefs and symptoms of gaming disorder in children and adolescents. Their research findings found both individual characteristics and environmental context could influence self-control on gaming behavior. Studies conducted in foreign population, specifically by examining high school students in Indonesia, remain relatively limited. Thus, further research must re-examine the influence of self-control on online gaming addiction behavior within the context of Indonesian adolescents.

The current research is urgent to conduct since the results of the SNA of 125 eleventh graders at one of high school in Semarang only indicated 2.74% students fail into high self-control category. This situation indicates vulnerability in behavioral control such as online game use; low self-control with the potential to increase excessive time gaming tendency, and low academic and social activities.

Based on the background, the current research analyzed the influence of self-control on online gaming addiction behavior among adolescents. The researchers expect to provide a theoretical contribution to improve the understanding of self-control as a protective factor against online gaming addiction and serve as a basis for further developments of intervention programs, guidance and counseling services, and digital education strategies to improve students' self-regulation skills in technological use.

2. Method

This quantitative approach research used a causal-associative design to determine the influence of self-control on online gaming behavior among students. The researchers used a survey method combined with simple regression analysis to test the correlations and influences among the variables online game addiction and self-control (Sugiyono, 2016).

The participants comprised a population of 125 high school students in the 11th grade. The respondents were the subjects of the study regarding online gaming behavior and levels of self-control. The demographic characteristics of the respondents were** high school students aged 16 to 18 years old, both male and female, who were enrolled in the 11th grade of high school. The population consisted of students who played online games. The researchers used Proportionate Stratified Random Sampling, which involved selecting respondents at random while maintaining proportionality based on the total number of students in the school to ensure fair representation. The researchers selected 95 samples from a population of 125 students, 78 male and 47 female. The researcher aimed to focus on students or class groups relevant to this study.

Table 1. Sample Demography

No	Demography	Total	Percentage (%)
1	Gender		
	Male	78	62.4
	Female	47	37.6
2	Age		
	16	70	56
	17	33	26.4
	18	22	17.6

The research instrument used a Likert scale with a Google Forms questionnaire to measure the two variables, namely for variable X or Self-Control, and variable Y or an Online Gaming Addiction. The researchers collected the data with a Likert scale (1-4). The researchers then categorized the responses as strongly agree, agree, disagree and strongly disagree. Additionally, the researchers performed prerequisite tests to ensure the quality of the collected data, and for the first, using a validity and reliability for determining whether the data was valid or not and reliable to use, and descriptive analyses such as skewness and kurtosis to examine the data distribution. The results indicate normal range data distribution (skewness ratio within ± 1.96). Thus, the instrument is suitable for further analysis. Next, the researchers conducted normality and linearity tests to determine whether the data followed a normal distribution and whether there was a linear between variables X and Y. And most importantly, the researchers performed a simple linear regression test to determine the effect of variable X on variable Y.

The data were collected using a structured questionnaire and analyzed using IBM SPSS Statistics version 26. In addition, a normal Q-Q plot was used to visually assess the data distribution. Data analysis was performed using simple linear regression with the aid of IBM SPSS Statistics version 26.

The regression model obtained is:

$$\hat{Y} = 34.383 + 0.724X \quad (1)$$

An R value of 0.583 indicates a fairly strong correlation, while an R^2 of 0.340 indicates that self-control influence the variation in online gaming addiction with a proportion of 34%. The ANOVA test yields a significant value of 0.000, lower than 0.05. The result indicates the model is significant.

3. Results and Discussion

3.1. Normality Test Result

The researchers performed normality test, a prerequisite test for linear regression analysis, to determine whether the data for each variable has normal distribution. The researchers examined the data normality with Kolmogorov-Smirnov method, assisted with SPSS 26. Figure 1 presents the results.

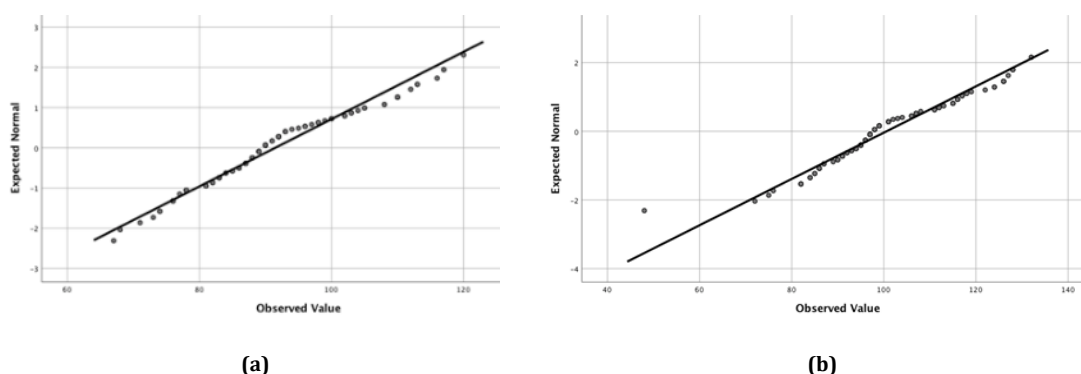


Figure 1: (a) Normal Q-Q Plot for Online Gaming (X), (b) Normal Q-Q Plot for Self-Control (Y)

The Kolmogorov-Smirnov test yields significant values for self-control (0.001) and online gaming addiction with 0.000, both lower than 0.05. Thus, the data from both variables are not normally distributed. However, since the current research applied large sample size, the researchers had to calculate the skewness ratio relative to its standard error to assess whether the data distribution deviates significantly from a normal distribution.

The descriptive analysis results yield a skewness value of the self-control variable with 0.407, a standard error of 0.247, and a skewness ratio of 1.65; on the other hand, the online gaming addiction variable (Y) with

skewness value of -0.035, a standard error of 0.247, and a skewness ratio of -0.14. Both ratio values fall within the range of ± 1.96 , meaning the data distributions of both variables do not deviate significantly from a normal distribution. Furthermore, with a sample size of 95 respondents, the normality assumption satisfies the central limit theorem. This theorem suggests a normal distribution is possible for a large sample size. A visual inspection also supports this notion. The researchers performed a Normal Q-Q plot for each variable. The following figures present the Normal Q-Q plot.

Figure 1 presents the data point distributions for both variables, following the diagonal line without any systematic deviation. This pattern indicates that the data are almost normally distributed. In terms of the skewness ratio, the results fall within the normal range. This result meets the adequate sample size suggested by the Central Limit Theorem. The researchers also found Normal Q-Q Plot pattern, considered to meet the normality assumption. Thus, the researchers proceeded with prerequisite test.

3.2. Linearity Test Result

After the assumption of normality was confirmed, the next step was to conduct a linearity test. The linearity test aims to determine whether the relationship between the Self-Control variable (X) and the Online Gaming Addiction variable (Y) is linear. This assumption must be met because simple linear regression analysis requires a linear relationship between the independent and dependent variables. The linearity test was performed using the Compare Means feature in SPSS version 26. The results of the linearity test show that the p-value in the Linearity row is 0.000, which is below the alpha level of 0.05. This indicates a statistically significant linear relationship between the Self-Control variable (X) and the Online Gaming Addiction variable (Y). Furthermore, the significance value in the Deviation from Linearity row is 0.804, which is well above 0.05, indicating that there is no significant deviation from the linear relationship pattern. Thus, the assumption of linearity in this study is met. Since both prerequisite tests namely, normality and linearity have been met, the analysis can proceed to the hypothesis testing stage using simple linear regression.

3.3. Simple Linear Regression Test Result

Hypothesis testing in this study was conducted using simple linear regression analysis to determine whether there is a significant effect of the Self-Control variable (X) on the Online Gaming Addiction variable (Y). This analysis utilized SPSS version 26 and produced three main outputs: Model Summary, ANOVA, and Coefficients, each of which is described below.

R value obtained is 0.583. This value indicates that there is a fairly strong relationship between the Self-Control variable (X) and the Online Gaming Addiction variable (Y). The R-Square value obtained is 0.340, meaning that the Self-Control variable contributes 34% to the Online Game Addiction variable, while the remaining 66% is influenced by other factors not examined in this study. To determine whether the resulting regression model is significant and suitable for use, an ANOVA test was conducted. ANOVA test yielded an F-value of 47.964 with a significance level of 0.000. Since this significance level is below 0.05, it can be concluded that the simple linear regression model used in this study is significant and suitable for predicting the effect of self-control on online gaming addiction. Furthermore, to determine the direction and magnitude of this effect in more detail, an analysis was conducted on the Coefficients table presented in the following figure. The constant term is 34.383, and the regression coefficient for the Self-Control variable (X) is 0.724, with a significance level of 0.000. Based on these values, the resulting simple linear regression equation is as follows.

$$\hat{Y} = 34.383 + 0.724X$$

This equation indicates that the constant value of 34.383 means that if the self-control variable is zero, the online gaming addiction score is estimated to be 34.383. A regression coefficient of 0.724 indicates that a one-point increase in the self-control variable is associated with a 0.724-point increase in the Online Gaming Addiction variable, assuming all other variables remain constant. The positive direction of the coefficient indicates that the higher an individual's self-control ability, the higher the reported tendency toward online gaming addiction. Since the significance value of the regression coefficient (0.000) is below 0.05, the research hypothesis stating that self-control influences online gaming addiction among the respondents in this study is accepted.

3.4. Discussion

The results of the study indicate that self-control has a significant influence on online gaming addiction behavior among 11th-grade students. The coefficient of determination (R^2) value of 0.340 indicates that self-control accounts for 34% of the variation in online gaming addiction behavior, while the remaining 66% is influenced by other factors not examined in this study. These findings suggest that self-control is one of the psychological factors involved in online gaming behavior among adolescents, although it is not the sole determining factor. These results are consistent with findings that self-control is closely related to various

addictive behaviors in adolescents, including excessive internet and online gaming (Hu et al., 2025; Xiang et al., 2022).

Adolescence is a developmental period characterized by rapid biological, cognitive, and social changes. High school students are in the process of identity formation and tend to have a strong need for social acceptance, achievement, and the exploration of new experiences. At this stage, self-regulation skills have not yet developed optimally because cognitive control functions are still maturing. Consequently, adolescents are a group vulnerable to various forms of addictive behavior, including online gaming addiction (Steinberg et al., 2018; Fong et al., 2024).

Theoretically, self-control is defined as an individual's ability to regulate their thoughts, emotions, and behavior in alignment with their long-term goals. According to the self-control model developed by Roy Baumeister, individuals with high self-control should be better able to resist impulsive urges and avoid potentially harmful behaviors. Consequently, most previous studies have found that the higher an individual's self-control, the lower their tendency to develop internet gaming disorder or online gaming addiction (Baumeister et al., 2007; Hu et al., 2025). However, the results of this study reveal a different pattern, as a positive relationship was found between self-control and online gaming addiction. These findings suggest that the higher the respondents' self-control, the higher their online gaming addiction scores. Although this appears to contradict general theory, these results do not necessarily imply that self-control causes addiction. Instead, the results may indicate the presence of specific characteristics in the study sample or other factors that interact with self-control in shaping online gaming behavior.

One possible explanation is the concept of high engagement in gaming. The literature on internet gaming disorder explains that individuals who are highly engaged in gaming activities do not necessarily experience addiction. Many players spend a considerable amount of time gaming because they have specific goals, such as improving their rankings, participating in competitions, completing missions, or maintaining social connections within the gaming community. In these circumstances, individuals may demonstrate high levels of discipline and consistency in their gaming without significantly compromising their academic or social functioning.

For high school students, online games often serve not only as a form of entertainment but also as a means of social interaction with peers. Many teenagers play games with their school friends as a form of social activity and a way to build group identity. Therefore, the better a teenager is at managing their daily activities, the more likely they are to maintain a consistent gaming routine. In certain situations, this ability to manage time can lead to increased gaming intensity, thereby contributing to higher scores on online game addiction scales. These findings can also be explained from the perspective of gaming motivation. Research shows that achievement motivation, the need for social recognition, and the desire to attain status within the game are factors that drive high engagement in online games. Individuals who have specific goals in the game tend to use their self-regulation skills to maintain consistent play in order to achieve their desired goals. Thus, self-control in this context is not used to reduce gaming activity, but rather to support the achievement of goals within the game. In addition to motivation, other psychological factors such as loneliness, academic stress, anxiety, and emotional regulation can also influence online gaming behavior in adolescents. Research by Bahren and Rosyidi (2024) found that loneliness and self-control simultaneously contribute to a tendency toward online gaming addiction. These findings suggest that online gaming behavior cannot be explained by a single psychological variable alone, but rather is the result of the interaction of various personal and environmental factors.

A longitudinal study conducted by Xiang et al. (2022) indicates that self-control plays a crucial role in mediating the relationship between developmental assets and Internet Gaming Disorder. The findings suggest that support from family, school, and the social environment can strengthen self-regulation skills, thereby influencing online gaming behavior. In the context of high school students, the roles of guidance counselors, parents, and the school environment are key factors in helping students develop healthy technology use.

Overall, this study contributes to the literature on self-control and online gaming addiction among high school adolescents. The finding that self-control has a significant effect on online gaming addiction highlights the importance of self-regulation skills in adolescents' digital behavior. However, the positive direction of the relationship suggests that it cannot be simply explained as a purely protective relationship. Therefore, future studies need to develop a more comprehensive model by incorporating supporting factors such as gaming motivation, emotional regulation, social support, and adolescent developmental characteristics to gain a deeper understanding of the mechanisms underlying the formation or emergence of gaming addiction behavior among high school students.

3.5. Implications

The findings of this study have important theoretical and practical implications for understanding online gaming behavior among high school students. From a theoretical perspective, this study challenges the conventional assumption that self-control always acts as a protective factor against addictive behavior. Most

previous research has emphasized the negative relationship between self-control and problematic gaming, suggesting that higher levels of self-control reduce the likelihood of addiction. However, the positive relationship identified in this study suggests that self-control may operate in a more complex manner, not merely as an inhibitory mechanism but also as a regulatory capacity that enables individuals to consistently engage in specific behaviors, including online gaming.

These findings contribute to a deeper understanding of self-control in the context of digital behavior. This suggests that self-control should not be interpreted solely as the ability to suppress behavior, but also as the ability to organize, plan, and sustain goal-oriented activities. In this regard, individuals with higher levels of self-control may demonstrate more structured and persistent engagement in gaming, particularly when driven by intrinsic motivations such as achievement, competition, or social interaction. Therefore, future theoretical models should consider distinguishing between maladaptive addiction and controlled high engagement in online gaming.

From a practical perspective, the results of this study offer valuable insights for educators, parents, and policymakers. These findings suggest that online gaming should not be viewed solely as a harmful activity that must be strictly restricted. Instead, attention should be directed toward how individuals manage their gaming behavior. Interventions should focus on improving self-regulation skills, time management, and awareness of digital behavior, rather than relying solely on bans or external controls. This approach is more aligned with the developmental needs of adolescents, who require guidance in developing autonomous self-control rather than relying on external restrictions. Additionally, schools and educational institutions can play an active role by integrating digital literacy and self-regulation training into their curricula. Programs that promote balanced digital engagement, critical thinking, and emotional regulation can help students develop a healthier relationship with technology. Furthermore, parents should be encouraged to adopt supportive monitoring strategies, where communication and guidance take precedence over strict restrictions. Such an approach can foster responsible gaming behavior while minimizing the risk of problematic use.

Finally, this study also highlights the importance of considering contextual and individual differences when addressing online gaming behavior. Factors such as motivation, peer influence, and psychological well-being can interact with self-control in shaping gaming patterns. Therefore, intervention programs must be designed comprehensively and flexibly, taking into account the diverse needs and characteristics of each individual.

3.6. Limitations

Despite its contributions, this study has several limitations that must be acknowledged. First, the study relied on self-report questionnaires, which can introduce response bias. Participants may have overestimated or underestimated their actual behavior due to a desire to appear favorable to others, a lack of self-awareness, or misunderstandings regarding the questionnaire items. Consequently, the collected data may not fully represent actual behavioral patterns. Future research is advised to employ various data collection methods, such as behavioral tracking or observational approaches, to enhance the accuracy of findings.

The sample in this study is limited to a specific group of respondents, which may limit the generalizability of the results. Participant characteristics, including age, educational background, and social environment, may influence the relationship between self-control and online gaming addiction. Therefore, the findings of this study should be interpreted with caution when applied to different populations. Future research should involve a more diverse and representative sample to improve external validity.

Simple linear regression model is used, which analyzes only the direct effect of a single independent variable on the dependent variable. Although the results indicate that self-control accounts for 34% of the variance in online gaming addiction, a significant proportion (66%) of the variance remains unexplained. This suggests that online gaming addiction is influenced by various factors not included in this study, such as peer influence, parental supervision, psychological disorders, motivation, and personality traits. Future research is advised to adopt more complex analytical approaches, such as multiple regression or structural equation modeling, to capture the interactions among the various influencing factors.

Another limitation relates to the study's causal-associative design, which does not allow for drawing causal conclusions over time. Although a significant relationship was found, it cannot be definitively concluded that self-control directly causes changes in online gaming addiction behavior. Longitudinal studies are needed to observe how this relationship develops over time and to better understand the direction of the relationship.

Finally, the unexpected positive relationship between self-control and online gaming addiction may also reflect contextual or measurement-related factors that were not fully identified in this study. For example, the instruments used may not clearly distinguish between high engagement and problematic addiction, potentially leading to overlap in the measurements. Future research should consider using more detailed instruments that distinguish between various types of gaming behavior to obtain more accurate results.

4. Conclusion

This study aims to examine the effect of self-control on online gaming addiction. The results of the prerequisite tests indicate that the data met the assumptions required for simple linear regression analysis. Although the Kolmogorov-Smirnov test showed significance values below 0.05, the skewness ratios were within the acceptable range (± 1.96), supported by a sufficient sample size and the Normal Q-Q Plot distribution. The linearity test also confirmed a significant linear relationship between the variables. The results of the regression analysis showed an R value of 0.583 and an R Square of 0.340, indicating that self-control contributes 34% to online gaming addiction. The model was statistically significant, with a regression equation of $\hat{Y} = 34.383 + 0.724X$. These findings suggest that self-control has a significant positive effect on online gaming addiction, indicating that higher levels of self-control are associated with higher levels of online gaming addiction among the respondents.

Author Contributions

All authors contributed equally to this paper. All authors have read and approved the final manuscript.

Funding

No funding support was received.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Data Availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declaration on AI Use

The author(s) declare that no artificial intelligence (AI) or AI-assisted tools were used in the preparation of this manuscript.

Acknowledgement

The authors would like to express deepest gratitude to the school and all of the students who participated in this study.

References

- Bahren, S. Z. S., & Rosyidi, H. (2024). The influence of loneliness and self-control on online game addiction. *Jurnal Penelitian dan Pengukuran Psikologi: JPPP*, 13(2), 85–93. <https://doi.org/10.21009/jppp.132.02>
- Baumeister, R. F., Vohs, K. D., & Tice, D. M. (2007). The strength model of self-control. *Current Directions in Psychological Science*, 16(6), 351–355. <https://doi.org/10.1111/j.1467-8721.2007.00534.x>
- Chen, S., Liao, J., Wang, X., Li, J., Liu, Y., & Zhang, W. (2025). Longitudinal relationship between gaming disorder symptoms, hyperactivity/inattention symptoms and aggression among Chinese adolescents: Within-person and between-person effects. *Computers in Human Behavior*, 167, 108608. <https://doi.org/10.1016/j.chb.2025.108608>
- Fong, T. C., Cui, K., & Yip, P. S. (2024). Interaction effects between low self-control and meaning in life on internet gaming disorder symptoms and functioning in Chinese adolescents: Cross-sectional latent moderated structural equation modeling study. *Journal of Medical Internet Research*, 26, e59490. <https://doi.org/10.2196/59490>
- Hu, Y., Chen, S., Qi, D., & Zhu, S. (2025). Problematic gaming and self-control among adolescents and emerging adults: A systematic review and meta-analysis. *Cyberpsychology, Behavior, and Social Networking*, 28(5), 301–317. <https://doi.org/10.1089/cyber.2024.0537>
- Jia, H., Zhang, Y., Obaid, A., Sulaiman, F., & Zhu, H. (2026). Parenting styles and freshman's internet gaming disorder: A moderated chain mediation model involving presence of meaning in life and self-control. *Frontiers in Psychology*, 17. <https://doi.org/10.3389/fpsyg.2026.1748294>
- Li, S., Ren, P., Chiu, M. M., Wang, C., & Lei, H. (2021). The relationship between self-control and internet addiction among students: A meta-analysis. *Frontiers in Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.735755>
- Meng, C., Quancai, L., Kunjie, C., Yanyu, X., Wencai, L., & Yiwei, X. (2024). Low self-control, perceived social support and internet gaming addiction: Findings from an ethnicity minority region in China. *Frontiers in Psychiatry*, 15. <https://doi.org/10.3389/fpsyg.2024.1458626>
- Novrialdy, E. (2019). Kecanduan game online pada remaja: Dampak dan pencegahannya. *Buletin Psikologi*, 27(2), 148. <https://doi.org/10.22146/buletinpsikologi.47402>

- Nurhaini, D. (2018). Pengaruh konsep diri dan kontrol diri dengan perilaku konsumtif terhadap gadget. *Psikoborneo: Jurnal Ilmiah Psikologi*, 6(1), 92–100. <https://doi.org/10.30872/psikoborneo.v6i1.4532>
- Paulus, F. W., Sinzig, J., Mayer, H., Weber, M., & von Gontard, A. (2018). Computer gaming disorder and ADHD in young children: A population-based study. *International Journal of Mental Health and Addiction*, 16(5), 1193–1207. <https://doi.org/10.1007/s11469-017-9841-0>
- Qin, K.-N., & Gan, X. (2023). Longitudinal relationships between school assets, traditional bullying, and internet gaming disorder: The role of self-control and intentional self-regulation among Chinese adolescents. *Frontiers in Public Health*, 11. <https://doi.org/10.3389/fpubh.2023.1162022>
- Quancai, L., Meng, C., & Kunjie, C. (2023). Social control and self-control: Factors linking exposure to domestic violence and adolescents' internet gaming addiction. *Frontiers in Psychiatry*, 14. <https://doi.org/10.3389/fpsy.2023.1245563>
- Steinberg, L., Icenogle, G., Shulman, E. P., Breiner, K., Chein, J., Bacchini, D., Chang, L., Chaudhary, N., Di Giunta, L., Dodge, K. A., Fanti, K. A., Lansford, J. E., Malone, P. S., Oburu, P., Pastorelli, C., Skinner, A. T., Sorbring, E., Tapanya, S., Tirado, L. M. U., ... Takash, H. M. S. (2018). Around the world, adolescence is a time of heightened sensation seeking and immature self-regulation. *Developmental Science*, 21(2). <https://doi.org/10.1111/desc.12532>
- Sugiyono. (2016). *Metode penelitian kuantitatif, kualitatif dan R&D*.
- Sumiyana, S., Pratiwi, I. D. E., Hadi, C., Utami, E. R., & Saputra, M. A. (2022). Students' game addiction caused by multi-constructs and multi-dimensions: Self-controls, cognitive biases and opportunistic behaviours. *Frontiers in Education*, 7. <https://doi.org/10.3389/feduc.2022.966079>
- Sutabri, T., Sugiharto, T., Krisdiawan, R. A., & Azis, M. A. (2022). Pengembangan sistem informasi monitoring progres proyek properti berbasis website pada PT Peruri Properti. *Jurnal Teknologi Informatika dan Komputer*, 8(2), 17–29. <https://doi.org/10.37012/jtik.v8i2.1204>
- Teng, Z., Li, Y., & Liu, Y. (2020). Online gaming, internet addiction, and aggression in Chinese male students: The mediating role of low self-control. *International Journal of Psychological Studies*, 6(2). <https://doi.org/10.5539/ijps.v6n2p89>
- World Health Organization. (n.d.). *ICD-11*. Retrieved June 10, 2026, from <https://icd.who.int/en/>
- Xiang, G.-X., Gan, X., Jin, X., Zhang, Y.-H., & Zhu, C.-S. (2022). Developmental assets, self-control and internet gaming disorder in adolescence: Testing a moderated mediation model in a longitudinal study. *Frontiers in Public Health*, 10. <https://doi.org/10.3389/fpubh.2022.808264>
- Zhou, R., Morita, N., Zhu, C., Ogai, Y., Saito, T., Yang, W., Ogawa, M., & Zhang, H. (2024). The relationship between self-control and internet gaming disorder and problematic social networking site use: The mediation effects of internet use motives. *Frontiers in Psychiatry*, 15. <https://doi.org/10.3389/fpsy.2024.1369973>
- Zhu, S., & Qi, D. (2025). Reciprocal relationship between self-control belief and gaming disorder in children and adolescents: Longitudinal survey study. *JMIR Serious Games*, 13, e59441. <https://doi.org/10.2196/59441>