

# Pubg Game Addiction, Cognitive Reappraisal and Aggressive Behaviour in Students

Muhammad Sajjad Shahid<sup>1\*</sup>, Faiqa Yaseen<sup>2</sup>

<sup>1</sup>Student Counselor, Tipu Shaheed School & College, Kabal, Swat, Pakistan.

<sup>2</sup>Assistant Professor, Institute of Professional Psychology, Bahria University Islamabad, Lahore Campus, Lahore, Pakistan.

\*Corresponding author: Muhammad Sajjad Shahid.

## Abstract

Students worldwide are increasingly engaging with violent video games, and studies have shown a strong bond between violent video gaming and aggressive behavior. However, cognitive reappraisal as a moderator has not been extensively explored. This study focused to examine the moderating role of cognitive reappraisal (CR) in the association between PUBG addiction (PA) and aggressive behaviour (AB). The sample consisted of 210 college and university students, aged 18 to 25 ( $M = 20.73$ ,  $SD = 2.33$ ), consisting 113 men and 97 women, who had been playing the game for at least one year. The study employed three measures: the Gaming Addiction Scale for Adolescents (short version) to assess PA, the Buss and Perry Aggression Questionnaire to evaluate AB, and the Emotional Regulation subscale to measure CR. The results revealed that PA was positively and significantly associated with AB. However, PA negatively but not significantly relate with CR. However, CR was significantly negatively associated with AB, and moderation analysis showed that CR significantly moderated the association between PA and AB. Gender-based differences depicted those men scored significantly higher than women on PA, and also scored more on CR and AB, although these differences were not statistically significant. The study concludes with recommendations, limitations, and implications for student welfare.

**Keywords:** pubg addiction; cognitive reappraisal; aggressive behavior; and moderator

## Introduction

Gaming addiction is defined by compulsive and excessive involvement with digital and video games, resulting in clinical distress to daily functioning and mental health problems (Griffiths, 2008; Billieux et al., 2019; Lekshmi, 2024; Anjum et al., 2024). This condition is commonly referred to by various terms such as "Internet Gaming Disorder," "pathological video gaming," "problematic gaming," and "internet gaming addiction" (Griffiths, 2015; Kuss, 2013). The emergence of online video games began in the 1990s, and their popularity has surged due to their widespread accessibility (Wolf, 2015; Wiley, 2016; Dyer-Witheyford & De Peuter, 2009). This expansion has led many students to dedicate excessive hours to gaming, which has a detrimental effect on their daily obligations (Lemmens et al., 2011; Mozelius et al., 2016; Ko & Yen, 2024). In 2017 a notable example of a game known for its addictive qualities is PlayerUnknown's Battlegrounds (PUBG), which was launched (Ashok, 2023). Inspired by the Japanese movie Battle Royale, PUBG places players in a competitive setting where they parachute onto an island, collect weapons, and try to survive while

avoiding elimination (van Riel, 2019; Zhou et al., 2024; Ali et al., n.d). As the game advances, the playable area shrinks, heightening the hurdles and obstacles (Kausar et al., 2024; Gałka & Strzelecki, 2021). Players who remain until the end and eliminate all their adversaries experience a strong sense of achievement and excitement (Al-Mansour, 2019; Kim, 2021; Aguilar, 2019). PUBG's attraction lies in its easy learning curve, rewarding progression systems, and the thrill of ongoing advancement, making it highly addictive (Razhkov, 2024; Wu, 2020; D'Souza et al., 2019).

Prior studies have shown a significant association between violent video games and aggression in young adults (Addo et al., 2021; Adachi & Willoughby, 2011; Anderson & Bushman, 2001), with recent research linking PUBG addiction to aggression in this group (Kausar et al., 2024). Aggression involves causing harm or discomfort to a person, property, animal, or object, and includes physical, verbal, and emotional components (Buss & Perry, 1992; Fitzmaurice, 1952; Bushman & Huesmann, 2010; Marcovitz, 1982). It can be impulsive, triggered by provocation and loss of control, or premeditated,

planned and conscious (Stanford et al., 2003; Huesmann, 2013; Fraser & Rushen, 1987; Didden et al., 2016). Cognitive reappraisal involves changing one's perspective on a situation, encouraging a more objective view rather than becoming immersed in anger or negative emotions (Clark, 2022; McRae et al., 2012; Buhle et al., 2014; Troy et al., 2013; Denny & Ochsner, 2014; Wolgast et al., 2011). Studies have shown that cognitive reappraisal is an effective strategy for managing anger, hostility, and aggressive behavior (Zhan et al., 2017; Takebe et al., 2017; Robertson et al., 2012; Maftai et al., 2021; Beames et al., 2019). A study conducted on two groups indicates that the experimental group, diagnosed with Internet Gaming Disorder, displayed ineffective emotional regulation, leading to higher levels of hostility. In contrast, the control group, which was not diagnosed with the disorder, demonstrated effective emotional regulation and did not exhibit hostility. This finding suggests that Internet Gaming Disorder is inversely related to cognitive reappraisal, which may contribute to increased aggression (Yen et al., 2018). The literature review depicted limited research on cognitive reappraisal as a moderating factor between PUBG addiction and aggressive behavior in students. This study aims to explore the connection between PUBG addiction and aggression, with cognitive reappraisal as a moderator, emphasizing its potential in reducing aggression among compulsive PUBG players.

## Hypotheses

The research hypotheses are as follows:

**H1:** PUBG addiction is likely to positively related with aggressive behaviour and negatively related with cognitive reappraisal among students.

**H2:** Cognitive reappraisal is likely to moderate the association between PUBG addiction and aggressive behavior in students.

**H3:** There is likely to be a gender difference in PUBG addiction, cognitive reappraisal, and aggressive behavior among students.

## Method

### Research Design and Sample

The current study adopted a correlational research design to investigate the associations between PUBG addiction, cognitive reappraisal, and aggressive behavior in students. The sample comprised 210 students from schools, colleges, and universities.

### Sampling Strategy

Data were collected using purposive sampling, targeting individuals who met the study's inclusion criteria.

### Inclusion and Exclusion Criteria

The study included college and university students aged 18 to 25 who have played PUBG in the past year. Participants who have not played PUBG during this period were excluded. Both male and female students were part of the sample.

### Ethics

The study followed APA 7 ethical guidelines throughout its entirety. Authorization for data collection was obtained from the appropriate department, and approval was secured from the creators of the instruments to use specific scales before the data collection process commenced. Participants provided informed consent, which highlighted that their participation was voluntary and they could withdraw at any juncture without facing any negative consequences. No physical or emotional harm was caused to the participants.

### Assessment Measures

#### Gaming Addiction Scale for Adolescents (GASA) (Lemmens et al., 2009)

The Gaming Addiction Scale for Adolescents (GASA) is a 25-item, with responses ranging from "never" (1) to "very often" (5). The scale has an internal consistency of 0.94. For this study, the shorter 7-item version of the GASA was used to measure PUBG addiction.

#### Emotional Regulation Questionnaire (ERQ) (Gross & John, 2003)

The ERQ is a 10-item scale designed to assess emotional regulation, with responses ranging from 1 to 7. Items 1, 3, 5, 7, 8, and 10 assess cognitive reappraisal, which is the focus of this study. The reliability of the reappraisal subscale ranges from 0.76 to 0.90.

#### Buss-Perry Aggression Questionnaire (BPAQ) (Buss & Perry, 1992)

The BPAQ is a 29-item scale designed to assess aggressive behavior, with responses ranging from "extremely uncharacteristic" (1) to "extremely characteristic" (5). It demonstrates high internal consistency, with a Cronbach's alpha of 0.91. This scale was utilized in the current study to measure aggressive behavior.

### Data Analysis

The study used SPSS version 22 for data analysis. Pearson's product-moment correlation was applied to examine the association between the study variables. Hayes Process 4.1, Model 1, was employed to investigate cognitive reappraisal as a moderator in the association between PUBG addiction and aggressive

behavior. Additionally, a t-test was conducted to assess gender differences in the variables among the participants.

## Result

**Table 1:** Socio-demographic Characteristics of Participants (N = 210)

Sample Characteristics	F	%	M	SD
Age			20.75	2.33
Gender				
Men	113	54		
Women	97	46		
Qualification				
Matric	13	6		
Intermediate	107	51		
Bachelor	68	32		
Master	22	11		

Note. f=Frequency, %= Percentage, M=Mean, SD= Standard Deviation

The table above shows that 113 participants (54%) are male, while 97 (46%) are female. The mean age of the participants is 20.75 years (SD = 2.33). In terms of education, the majority of participants have

completed intermediate education (107, or 51%), followed by those with bachelor's degrees (68, or 32%), master's degrees (24, or 10%), and a smaller group with matriculation (13, or 6%).

**Table 2:** Correlation Among Study Variables (N = 210)

Variables	1	2	z	3
1. PUBG addiction	-	-.104		.21**
2. Cognitive reappraisal		-		-.18**
3. Aggressive behavior				-

Note. \* $p < .05$ . \*\* $p < .01$

The table shows the associations between the study variables. PUBG addiction is significantly positively associated with higher aggressive behavior but has an insignificant negative association with cognitive

reappraisal. Additionally, cognitive reappraisal is significantly negatively associated with aggressive behavior.

**Table 3:** Regression Coefficients for PUBG Addiction, Cognitive reappraisal on Aggressive behavior (N=210).

Variables	Beta $\beta$	SE	T	P	R <sup>2</sup>	F	LLCI	ULCI
					.11	8.26		
PG	.65***	.18	3.61	<.001			.29	1.01
CR	.55*	1.08	-.2	.03			.04	1.05
PG X CR	-.027**	.04	2.19	.005			-.04	-.008

Note. \* $p < .05$ . \*\* $p < .01$ , PG= PUBG Addiction, CR=Cognitive Reappraisal

Hayes Process Model 4.1 was used to examine the moderating role of cognitive reappraisal in the link between PUBG addiction (independent variable) and aggressive behavior (dependent variable). The table above shows a direct effect of PUBG addiction on aggressive behavior ( $\beta = .65^{***}$ , SE = .18,  $p < .001$ ). Additionally, cognitive reappraisal significantly

increased aggressive behavior ( $\beta = .55^*$ , SE = .25,  $p < .05$ ). The interaction between PUBG addiction and cognitive reappraisal significantly reduced aggressive behavior ( $\beta = -.216^{**}$ , SE = 1.08,  $p < .01$ ), suggesting that cognitive reappraisal diminished the impact of PUBG addiction on aggressive behavior.

## Independent Sample T-Test

**Table 4:** Men Differences of Gender among Study Variables (N=210)

Variable	Gender				t (208)	P	Cohen's d
	Men(n=113)		Women(n=97)				
	M	SD	M	SD			
PG	27.75	5.06	25.12	6.11	3.41	.001	0.46
N CR	16.79	5.13	16.60	5.49	.25	.79	0.03
Aggressive behavior	24.62	4.94	23.75	4.89	1.27	.20	0.17

Note. M= mean, SD= Standard Deviation, PG= PUBG addiction, CR= Cognitive Reappraisal. \*\* $p < .01$ . \*\*\* $p < .001$ ,

The table above shows a significant gender difference in PUBG addiction, with men scoring notably higher than women. However, no significant gender differences were found in cognitive reappraisal and aggressive behavior. Nevertheless, men had higher average scores in both aggressive behavior and cognitive reappraisal compared to women.

## Discussion

A substantial body of literature has highlighted the link between violent video games and aggression. However, research on the moderating role of cognitive reappraisal in aggressive behavior among college and university students aged 18 to 25 is limited. This study seeks to explore the impact of PUBG addiction on aggressive behavior, with cognitive reappraisal acting as a moderator within this age group. The goal is to provide meaningful implications for students, address gaps in previous research, and encourage further exploration of these variables.

The first proposition suggests a significant positive association between PUBG addiction and aggressive behavior, and a negative relationship between PUBG addiction and cognitive reappraisal among students. Our findings support existing literature, indicating that PUBG addiction is strongly associated with increased aggressive behavior and a decrease in cognitive reappraisal, which has even been linked to extreme outcomes like suicide (Mamun et al., 2022). Previous studies have also shown that violent video games provoke aggressive behavior (Griffiths, 1999), and recent research has found a connection between social media addiction and heightened aggression in young adults (Shahid et al., 2024). Additionally, research on PUBG addiction in young adults (Kausar et al., 2024) and on other games like Ludo Star (Bashir et al., 2024) also reveals a significant association between game addiction and aggression among students aged 18 to 25. The link between PUBG addiction and aggression can be explained by

the game's genre and features, which contribute to aggressive behavior, a phenomenon that aligns with Bandura's social learning theory (Lachlan et al., 2005; Kordyaka et al., 2020; Bandura et al., 1961). Supporting this, a study by Spann et al. (2019) found that cognitive reappraisal was effective in reducing the frustration intensity among college students who played games. Furthermore, a study by Yen et al. (2018) concluded that ineffective emotional regulation in gamers, particularly those diagnosed with Internet Gaming Disorder, leads to hostility. This emphasizes the importance of cognitive reappraisal as a positive emotional regulation strategy. Thus, the reason for aggression when playing PUBG is likely due to the absence of cognitive reappraisal, especially in cases of compulsive or pathological gaming.

The second postulate proposed that cognitive reappraisal would moderate the effect of PUBG addiction on aggressive behavior in students. Our results confirm that cognitive reappraisal significantly moderates this relationship. This finding is consistent with research that shows participants with Internet Gaming Disorder exhibit higher levels of hostility and reduced cognitive reappraisal compared to those without the disorder (Lin et al., 2020). Similarly, a study on Lebanese adolescents found a significant link between smartphone addiction, poor cognitive functioning, and increased aggressive behavior (Fekih-Romdhane, 2022). Our findings, together with existing literature, suggest that cognitive reappraisal can act as an effective buffer between violent games like PUBG and aggressive behavior in students. The third proposition explored differences between men and women in the study variables. Analysis of mean differences revealed that men scored significantly greater than women in PUBG addiction. Although no substantial differences were observed between men and women in aggressive behavior and cognitive reappraisal, men still had elevated scores on these variables. This finding aligns with Shahid et al. (2024),

who reported that social media addiction and aggressive behavior are more prevalent among young adult men than women. Furthermore, our results are consistent with Kwon et al. (2013), who found that women generally exhibit higher levels of expressive suppression and lower cognitive reappraisal compared to men. Additional studies by Bashir et al. (2024) similarly indicated that men tend to score higher on gaming addiction and aggression than women. The findings may also be influenced by cultural and societal factors, as Pakistan is a conservative country where men hold more power over women and perceive them as inferior. This dynamic could contribute to greater access to technology for men and heightened aggression, while men may also view themselves as emotionally vulnerable and fragile.

### Limitations and Recommendations

The first drawback of the study is the relatively small sample size of 210 students, which may not fully represent the larger population of PUBG players. Future studies should use a larger sample for more generalizable results. Another limitation is the cross-sectional design, which may be less effective than a longitudinal design for examining changes in study variables over time. A longitudinal approach could provide more insights. Additionally, the use of purposive sampling may not have been the best method, and stratified sampling might have offered a better representation of different cohorts. Finally, the imbalance in educational categories limits the analysis of mean differences, so future studies should ensure a more balanced demographic sample for a more comprehensive analysis.

### Implications

The study successfully demonstrated that cognitive reappraisal significantly moderates the association between PUBG addiction and aggressive behavior among Pakistani students. This finding is essential for developing intervention strategies aimed at improving emotional regulation and cognitive abilities, ultimately reducing aggression. To address the impact of PUBG addiction, mental health professionals should organize seminars, workshops, and webinars to raise awareness and guide individuals in managing these issues. The goal should be to help addicts return to their pre-addiction state and encourage seeking professional help if addiction symptoms emerge. Additionally, students should be taught cognitive therapy techniques, such as muscle tension release and the ABC model, to enhance emotional well-being

and academic performance. These findings are valuable not only for students facing PUBG addiction but also for scholars in the field, contributing to the literature and providing a foundation for future research.

## Declarations

### Data sharing and availability statement

Upon request, the authors will provide access to the data.

### Acknowledgments

The researchers extend their appreciation to the participants of the study.

### Conflict of Interest Statement

The authors have not revealed any conflicts of interest.

### Funding Information

This study was conducted without receiving any funding.

### Authors Contribution

**Muhammad Sajjad Shahid (Corresponding Author):** Planned the study, collected data and wrote original draft.

**Faiqa Yaseen:** Supervision, reviewing and editing.

## References

1. Adachi P. J & Willoughby T. (2011). The effect of violent video games on aggression: Is it more than just the violence? *Aggression and Violent behavior*, 16(1):55-62.
2. Addo P. C, Fang J, Kulbo N. B, Gumah B, Dagadu J. C & Li L. (2021). Violent video games and aggression among young adults: the moderating effects of adverse environmental factors. *Cyberpsychology, Behavior, and Social Networking*, 24(1):17-23.
3. Aguilar C. L. (2019). Emergent behavior in player unknown's battlegrounds (Doctoral dissertation).
4. Ali K, Alam S, & Hammad M. Impact of the Violent Video Game on the Social Behavior of Players: A Study of Young PUBG Players.
5. Al-Mansour J. (2019). The success behind the PUBG era: a case study perspective. *Academy of Strategic Management Journal*, 18(6):1-17.
6. Anderson C. A & Bushman B. J. (2001). Effects of violent video games on aggressive behavior, aggressive cognition, aggressive affect, physiological arousal, and prosocial behavior: A

- meta-analytic review of the scientific literature. *Psychological science*, 12(5):353-359.
7. Anjum R, Nodi N. H, Das P. R, Roknuzzaman A. S. M, Sarker R, & Islam M. R. (2024). Exploring the association between online gaming addiction and academic performance among the school-going adolescents in Bangladesh: A cross-sectional study. *Health Science Reports*, 7(9):e70043.
  8. Ashok P. (2023). Game localization: A comparative case study of Player Unknown's Battlegrounds (PUBG Mobile) in India and China. *Journal of Gaming & Virtual Worlds*, 15(2):129-142.
  9. Bandura A, Ross D, & Ross S. A. (1961). Transmission of aggression through imitation of aggressive models. *The Journal of Abnormal and Social Psychology*, 63(3):575.
  10. Bashir S, Shahid M. S, & Salman F. (2024). The Mediating Role of Social Connectedness in Linking Ludo Star Game Addiction and Mental Health Problems in Young Adults. *Gomal University Journal of Research*, 40(3):359-369.
  11. Bashir S, Shahid M. S, Bibi M, & Mukhtar S. (2024). Ludo Star Game Addiction, Social Connectedness and Psychological Well-Being in University Students of Lahore, Pakistan: Ludo Star Game Addiction, Social Connectedness and Psychological Well-Being in University Students. *Journal of Health and Rehabilitation Research*, 4(3):1-8.
  12. Beames J. R, O'Dean S. M, Grisham J. R, Moulds M. L, & Denson T. F. (2019). Anger regulation in interpersonal contexts: Anger experience, aggressive behavior, and cardiovascular reactivity. *Journal of Social and Personal Relationships*, 36(5):1441-1458.
  13. Billieux J, Flayelle M, Rumpf H. J, & Stein D. J. (2019). High involvement versus pathological involvement in video games: A crucial distinction for ensuring the validity and utility of gaming disorder. *Current Addiction Reports*, 6:323-330.
  14. Buhle J. T, Silvers J. A, Wager T. D, Lopez R, Onyemekwu C, Kober H ... & Ochsner, K. N. (2014). Cognitive reappraisal of emotion: a meta-analysis of human neuroimaging studies. *Cerebral cortex*, 24(11):2981-2990.
  15. Buhle J. T, Silvers J. A, Wager T. D, Lopez R, Onyemekwu C, Kober H, ... & Ochsner, K. N. (2014). Cognitive reappraisal of emotion: a meta-analysis of human neuroimaging studies. *Cerebral cortex*, 24(11):2981-2990.
  16. Bushman B. J & Huesmann L. R. (2010). Aggression. *Handbook of social psychology*.
  17. Buss A. H & Perry M. (1992). The aggression questionnaire. *Journal of personality and social psychology*, 63(3):452.
  18. Clark D. A. (2022). Cognitive reappraisal. *Cognitive and Behavioral Practice*, 29(3):564-566.
  19. D'Souza L, Manish S, & Deeksha S. (2019). Development and validation of PUBG Addiction Test (PAT). *The International Journal of Indian Psychology*, 7(1):562-574.
  20. Denny B. T, & Ochsner K. N. (2014). Behavioral effects of longitudinal training in cognitive reappraisal. *Emotion*, 14(2):425.
  21. Didden R, Lindsay W. R, Lang R, Sigafos J, Deb S, Wiersma J ... & Lancioni G. E. (2016). Aggressive behavior. *Handbook of evidence-based practices in intellectual and developmental disabilities*, 727-750.
  22. Dyer-Witheyford N & De Peuter G. (2009). *Games of empire: Global capitalism and video games*. U of Minnesota Press.
  23. Fekih-Romdhane F, Malaeb D, Sarray El Dine A, Obeid S, & Hallit S. (2022). The relationship between smartphone addiction and aggression among Lebanese adolescents: the indirect effect of cognitive function. *BMC pediatrics*, 22(1):735.
  24. Fitzmaurice G. G. (1952). The definition of aggression. *The International and Comparative Law Quarterly*, 1(1):137-144.
  25. Fraser D, & Rushen J. (1987). Aggressive behavior. *Veterinary clinics of North America: food animal practice*, 3(2):285-305.
  26. Gałka P & Strzelecki A. (2021). How randomness affects player ability to predict the chance to win at Player Unknown's Battlegrounds (PUBG). *The Computer Games Journal*, 10:1-18.
  27. Griffiths M. (2008). Internet and video-game addiction. In *Adolescent addiction*, 231-267.
  28. Griffiths M. D. (2015). Gaming addiction and internet gaming disorder. In *The video game debate*, 74-93.
  29. Gross J. J & John O. P. (2012). Emotion regulation questionnaire. *Journal of personality and social psychology*.
  30. Hayes A. F. (2013). Mediation, moderation, and conditional process analysis. *Introduction to*

- mediation, moderation, and conditional process analysis: A regression-based approach, 1(6):12-20.
31. Huesmann L. R. (Ed.). (2013). Aggressive behavior: Current perspectives.
  32. Kausar R, Rana H, Nouman S, & Faisal A. (2024). PUBG Game Addiction, Social Connectedness and Aggression in Young Adults. *Pakistan Journal of Humanities and Social Sciences*, 12(3):2439-2446.
  33. Kim S. Y. (2021). Surviving Digital Asia: Player Unknown's Battlegrounds and the Affective Economy of the Battle Royale. *Verge: Studies in Global Asias*, 7(2):128-150.
  34. Ko C. H & Yen J. Y. (2024). Internet gaming disorder. In *Tasman's Psychiatry* (pp. 2949-2969). Cham: Springer International Publishing.
  35. Kordyaka B, Jahn K & Niehaves B. (2020). Towards a unified theory of toxic behavior in video games. *Internet Research*, 30(4):1081-1102.
  36. Kuss D. J. (2013). Internet gaming addiction: current perspectives. *Psychology research and behavior management*, 125-137.
  37. Lachlan K. A, Smith S. L & Tamborini R. (2005). Models for aggressive behavior: The attributes of violent characters in popular video games. *Communication Studies*, 56(4):313-329.
  38. Lekshmi J. (2024). A sociological exploration of online game addiction among young adults.
  39. Lemmens J. S, Valkenburg P. M & Peter J. (2009). Development and validation of a game addiction scale for adolescents. *Media psychology*, 12(1):77-95.
  40. Lemmens J. S, Valkenburg P. M & Peter J. (2011). Psychosocial causes and consequences of pathological gaming. *Computers in human behavior*, 27(1):144-152.
  41. Lin P. Y, Lin H. C, Lin P. C, Yen J. Y & Ko C. H. (2020). The association between emotional regulation and internet gaming disorder. *Psychiatry Research*, 289:113060.
  42. Maftei A, Bostan C.M & Zaharia D. V. (2021). Hostility and civic moral disengagement: Cognitive reappraisal and expressive suppression as moderators. *Journal of Moral Education*, 50(2):202-218.
  43. Marcovitz E. (1982). Aggression: an overview. *Psychoanalytic Inquiry*, 2(1):11-20.
  44. McRae K, Ciesielski B & Gross J. J. (2012). Unpacking cognitive reappraisal: goals, tactics, and outcomes. *Emotion*, 12(2):250.
  45. Mozelius P, Westin T, Wiklund M & Norberg L. (2016). Gaming habits, study habits and compulsive gaming among digital gaming natives. In *The 10th European Conference on Games Based Learning (ECGBL)*, Paisley, United Kingdom, 6th to 7th October 2016. Academic Conferences Publishing.
  46. Razhkou, I. (2024). In-Game Reward Systems and their Effect on the Player.
  47. Robertson T, Daffern M & Bucks R. S. (2012). Emotion regulation and aggression. *Aggression and violent behavior*, 17(1):72-82.
  48. Shahid M. S, Bashir S & Fatima S. (2024). Social Media Addiction and Aggression in Pakistani Young Adults: Social Connectedness as a Moderator. *Journal of Professional & Applied Psychology*, 5(3):424-433.
  49. Shahid M. S, Yousaf R & Munir H. (2024). Social media addiction, depression and aggression in young adults. *Journal of Professional & Applied Psychology*, 5(2):276-285.
  50. Spann C. A, Shute V. J, Rahimi S & D'Mello S. K. (2019). The productive role of cognitive reappraisal in regulating affect during game-based learning. *Computers in Human Behavior*, 100:358-369.
  51. Stanford M. S, Houston R. J, Mathias C. W, Villemarette-Pittman N. R, Helfritz L. E, & Conklin S. M. (2003). Characterizing aggressive behavior. *Assessment*, 10(2):183-190.
  52. Takebe M, Takahashi F & Sato H. (2017). The effects of anger rumination and cognitive reappraisal on anger-in and anger-control. *Cognitive Therapy and Research*, 41:654-661.
  53. Troy A. S, Shallcross A. J, & Mauss I. B. (2013). A person-by-situation approach to emotion regulation: Cognitive reappraisal can either help or hurt, depending on the context. *Psychological science*, 24(12):2505-2514.
  54. Van Riel S. J. C. (2019). Rating Of Players In A Battle Royale Game (Doctoral Dissertation, Tilburg University).
  55. Wiley J. T. (2016). Paradigm shift: how the evolution of two generations of home consoles, arcades, and computers influenced American culture, 1985-1995.
  56. Wolf M. J. (Ed.). (2015). *Video games around the world* (1-16). Cambridge, MA: MIT Press.
  57. Wolgast M, Lundh L. G, & Viborg G. (2011). Cognitive reappraisal and acceptance: An

- experimental comparison of two emotion regulation strategies. *Behaviour research and therapy*, 49(12):858-866.
58. Wu Q. (2020). Video Games Classification with Game Experience and Hierarchy of Needs.
59. Wu Y. Q, Liu F, Chan K. Q, Wang N. X, Zhao S, Sun X, ... & Wang Z. J. (2022). Childhood psychological maltreatment and internet gaming addiction in Chinese adolescents: Mediation roles of maladaptive emotion regulation strategies and psychosocial problems. *Child Abuse & Neglect*, 129:105669.
60. Yen J. Y, Yeh Y. C, Wang P. W, Liu T. L, Chen Y. Y, & Ko C. H. (2018). Emotional regulation in young adults with internet gaming disorder. *International journal of environmental research and public health*, 15(1):30.
61. Zhan J, Wu X, Fan J, Guo J, Zhou J, Ren J ... & Luo J. (2017). Regulating anger under stress via cognitive reappraisal and sadness. *Frontiers in psychology*, 8:1372.
62. Zhou A, Li Y & Qi S. (2024). How do game systems of the battle royal game PUBG promote Aggressive and Non-aggressive Player Strategies?.

**Cite this article:** Muhammad S. Shahid, F. Yaseen. (2025). Pubg Game Addiction, Cognitive Reappraisal and Aggressive Behavior in Students. *Journal of Clinical Medicine and Practice*, BioRes Scientia Publishers. 2(1):1-8. DOI: 10.59657/3065-5668.brs.25.013

**Copyright:** © 2025 Muhammad Sajjad Shahid, this is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

**Article History:** Received: December 14, 2024 | Accepted: December 28, 2024 | Published: January 06, 2025