PUBG Game Addiction, Emotional Regulation and Aggression Among Young Adults

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Abstract

In today's technological age, millions of students worldwide play the PUBG game. This study aimed to examine the impact of PUBG game addiction on aggression, with a focus on the mediating role of emotional regulation. A sample of 250 PUBG players who played the game for at least one year was included, with an equal gender distribution (male = 125, female = 125). Participants were aged between 18 and 25 years (M = 20.65, SD = 2.37). The findings revealed a significant positive partially mediating effect of expressive suppression between PUBG game addiction and aggression, while cognitive reappraisal negatively and significantly mediated the relationship. The results were discussed in the context of existing literature, and recommendations for future research were provided.

Keywords: PUBG Game Addiction, Emotional Regulation, Aggression.

Introduction

Online video games first emerged in the 1990s, quickly gaining popularity due to their widespread accessibility (Crawford et al., 2013). In recent years, video game players have surged significantly as these games enable players to collaborate toward shared, complex goals (Johnson et al., 2015). This feature is a key reason young adults often spend several hours playing these games (Sherry et al., 2012). However, online gaming has been linked to significant disruptions in individuals' daily routines (Yau et al., 2012).

PUBG, or *Player Unknown's Battlegrounds*, is a multiplayer online game launched in 2017, inspired by the Japanese film *Battle Royale*. Players from different locations compete by parachuting onto an island, collecting weapons, and fighting to survive. The playable area shrinks over time, forcing encounters. The last survivor wins, gaining a sense of achievement and excitement (Kausar et al., 2024; Mamun & Griffiths, 2021).

Recent studies have shown that among young adults, the problematic use of PUBG is associated with aggressive behavior (Kausar et al., 2024). Moreover, similar studies have indicated that problematic gaming is linked to a decline in well-being and increased aggressive behavior among young adults in Pakistan (Bashir et al., 2024; Shahid et al., 2024; Mussawar et al., 2024). According to recent research, the reasons for increased aggression while playing violent games include the game's features and the frustration of not achieving targets (Yifei & Motevalli, 2023; Denson et al., 2022).

Emotional regulation refers to responding to environmental events tolerably and appropriately (Cole et al., 2024; Mazefsky et al., 2021). It involves managing emotions such as anger, anxiety, and agitation by rethinking situations and responding appropriately (Katana et al., 2019). Strong emotional regulation skills help young adults cope with stress, frustration, and

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negative emotions, reducing the likelihood of aggressive reactions in difficult situations (Islam, 2023; Young et al., 2019). On the other hand, poor emotional regulation may make adolescents and young adults more prone to aggressive impulses when dealing with gaming-related frustrations or conflicts (Jeong et al., 2020; King et al., 2019). There are two main types of emotional regulation: expressive suppression and cognitive reappraisal. Expressive suppression involves controlling overt emotions to act appropriately in specific contexts, while cognitive reappraisal refers to reinterpreting adverse events in a more positive or appropriate light (Cutuli, 2014; Haga et al., 2009; Supple et al., 2024).

Despite a significant body of literature on the link between violent video games and aggression in young adults, limited research has explored the mediating role of emotional regulation. This study aims to investigate how emotional regulation mediates the relationship between PUBG game addiction (a violent game that has been seldom studied) and aggression in young adults. By exploring this mediating role, the study seeks to provide insights into the underlying processes that may contribute to the aggressive behaviors observed in PUBG players.

Hypothesis

H1: Expressive suppression is likely to mediate positively, and cognitive reappraisal is likely to mediate negatively between PUBG game addiction and aggression among young adults.

Methodology

Research Design

The present study uses a correlational research design to find the relationship between PUBG game addiction, Emotional Regulation, and Aggression.

Participants

The sample comprises 250 students from schools, colleges, and universities and was approached via purposive sampling from different private and government institutes in Pakistan. They have been playing PUBG for more than one year. Both genders, i.e., male and female participants, were included equally. Young adults in the age range of 18 to 25 are included. Participants who did not play PUBG for the last 1 year were excluded. Participants with half or less than half score on the Gaming addiction scale were excluded.

Assessment Measures

Gaming Addiction Scale for Adolescents (GASA): Developed by Lemmens, this 29-item Likert scale measures *PUBG game addiction*, with scores from 1 (never) to 5 (very often). A higher score indicates addiction, with a Cronbach's alpha of 0.92 (Lemmens et al., 2009).

Emotional Regulation: Developed by Gross and John in 2012, this 10-item scale measures emotional suppression (items 2, 4, 6, 9) and reappraisal (the other six items). It uses a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree), with a Cronbach's alpha 0.75. Higher scores indicate more excellent emotional stability.

Buss-Perry Aggression Questionnaire (BPAQ): Developed by Buss and Perry in 1992, this 29-item scale measures aggression, with reversed scoring for items 6 and 19. It has a Cronbach's alpha of 0.91; higher scores indicate more aggression.

Ethical Considerations

The permission of the respective authors of the scales will be taken. Permission will be taken from the organization to collect the data. On the part of the researcher, no physical and psychological harm will be caused to the participant. The privacy of the participant will not be compromised. Permission will be taken from the participants to complete the questionnaires.

No participant will be forced to become part of the research. The participant will be ensured that they can leave the research whenever they want. No fake reporting of data will be ensured.

Procedure

Firstly, permission was obtained from the respective authors to use the assessment measures. The Department of Psychology at Lahore Garrison University, Pakistan, provided an official letter to collect the data. Data collection commenced after receiving permission from both the authors and the respective universities. Participants were then asked to complete an informed consent form and a screening questionnaire. Instructions were provided, and the questionnaires were distributed. Participants were informed of their rights regarding withdrawal, anonymity, and confidentiality. They were given as much time as needed to complete the questionnaires. Afterward, the participants were thanked for their cooperation. Once data collection was completed, the data were entered into the Statistical Package for the Social Sciences (SPSS), and the results were subsequently analysed.

Result

Table 1: Correlational Analysis (N=250)

Variables	1	2	3	4
1. PUBG game addiction	-	-.13**	.01	.20**
2. Cognitive Reappraisal		-	-.54**	-.34**
3. Expressive Suppression			-	.28**
4. Aggression				-

*p<.05. **p<.01

The table 1 result indicates that PUBG game addiction is positively but not significantly associated with expressive suppression while significantly negative related to cognitive reappraisal but the association between PUBG game addiction and aggression is positively significant. Furthermore, the association of cognitive reappraisal with expressive suppression and aggression is significantly negative. However, expressive suppression is postively significantly associated with aggression.

Table 2: Mediation Analysis (N=250)

Antecedent	Consequent							
	ES (M)				*Aggression (Y)*			
		β	*SE*	*P*		*β*	*SE*	*P*
PGA (*X*)	*a*	.01	.04	.81	*c'*	.34	.10	.001
ES(*M*)		---	---	---	*b*	.67	.14	.001
Constant	*I*	13.55	3.25	.000	*I*	42.42	7.48	.001
	R^2 = .0002				R^2 = .12			
	F =.05, *p* = .81				F =17.46, *p* =.000			

Note: PGA= PUBG Game Addiction, ES= Expressive suppression, ***p<.001

The mediation analysis' result depicts non-significant direct effect of PUBG game addiction on expressive suppression (β = .01, *SE* = .04, $p>.05$). Furthermore, findings also show significant effect of PUBG game addiction on aggression (β = .34***, *SE* = .10, p<.001). Expressive suppression is also positively and significantly effecting aggression (β = .67***, *SE* = .14, p < .001).

Table 3: Indirect Effect (N=250)

Indirect Path	Effect	Standardized Estimate	Lower Level	Upper Level
ES	.007	.004	-.03	.04

Note: ES= Expressive suppression

Indirect effects depict that the total indirect effect of PUBG game addiction on anger via expressive suppression is statistically insignificant.

Table 4: Mediation Analysis (N=250)

Antecedent	Consequent							
	CR (M)				*Aggression (Y)*			
		β	*SE*	*P*		*β*	*SE*	*P*
PGA (*X*)	*A*	-.13	.06	.03	*c'*	.27	.10	.006
CR(*M*)		---	---	---	*b*	-.56	.10	.001
Constant	*I*	36.55	4.34	.000	*I*	72.09	8.11	.001
	R^2 = .01				R^2 = .14			
	F =4.59, *p* = .03				*F* = 20.53, *p* =.*000*			

Note: PGA= PUBG Game Addiction, CR= Cognitive reappraisal, **p*<.05, ****p*<.001

The mediation analysis' result depicts significant direct effect of PUBG game addiction on aggression (*β* = .27**, *SE* = .10, *p* < .01). Furthermore, findings also depict negative significant direct effects of PUBG game addiction on cognitive reappraisal (*β* = -.13*, *SE* = .06, *p* <.05) and direct negative significant effect of cognitive reappraisal on aggressions (*β* = -.56***, *SE* = .10, *p* < .001).

Table 5: Indirect Effect (N=250)

Indirect Path	Effect	Standardized Estimate	Lower Level	Upper Level
NE	.07	.04	.002	.09

Note: NE= Expressive suppression

Indirect effects depict that the total indirect effect of PUBG game addiction on aggression via cognitive reappraisal is statistically significant.

Discussion

There is substantial literature on the relationship between the problematic use of violent video games and aggressive behaviour among young adults; however, the mediating role of emotional regulation has been overlooked. This study aims to explore the mediating role of emotional regulation between the predictor of violent video game use, specifically PUBG game addiction (which has not been extensively studied), and the outcome variable of aggression in young adults.

The correlational analysis reveals a positive and significant relationship between PUBG game addiction and aggression, while PUBG game addiction shows a negative and significant association with cognitive reappraisal and a positive, though not significant, association with expressive suppression among young adults. Our study's results align with previous research, which found that the problematic use of PUBG is linked to aggressive behaviour in young individuals (Kausar et al., 2024). Similarly, another study reports a significant positive relationship between Ludo game addiction, problematic social networking site use, and

aggressive behaviour in young adults, which is consistent with our findings (Bashir et al., 2024; Shahid et al., 2024). Past studies have consistently shown a positive correlation between video game addiction and aggressive behaviour among young adults, specifically students (Hammad & Al-Shahrani, 2024; Addo et al., 2021). This link is likely due to various factors, including the desensitization to violence that can occur with excessive gaming, which may reduce empathy and increase aggressive tendencies.

Regarding emotional regulation strategies, our study supports previous findings demonstrating that individuals who use cognitive reappraisal tend to show fewer aggressive tendencies and better emotional well-being. Cognitive reappraisal allows individuals to reinterpret negative situations, reducing emotional arousal and promoting more adaptive responses to stress (Jamieson et al., 2013; Troy et al., 2018). Conversely, the positive correlation between expressive suppression and aggression in our study is consistent with prior research, which found that suppressing emotions can lead to negative consequences, including increased physiological arousal, emotional distress, and interpersonal problems. Expressive suppression inhibits the outward expression of emotions but does not resolve the underlying emotional experience, leading to emotional dysregulation and a higher likelihood of aggressive responses (Butler et al., 2003; Roberton et al., 2012; Gutiérrez-Cobo et al., 2023).

The Hayes Process 4.1, model 4 indicates a partial mediating effect of expressive suppression and significant and negative mediating role of cognitive reappraisal between PUBG game addiction and aggression. Emotional regulation plays a key role in the relationship between gaming addiction and aggression in adolescents. As individuals become more addicted to games like PlayerUnknown's Battlegrounds (PUBG), they may experience heightened emotional arousal and frustration, especially when encountering in-game challenges or failures. Effective emotional regulation strategies, such as cognitive reappraisal, can help adolescents reframe these negative emotions and reduce aggressive impulses. Adolescents with strong cognitive reappraisal skills are better equipped to manage gaming-related stressors, leading to lower aggression levels. In contrast, those who rely on expressive suppression, which inhibits emotional expression, may experience emotional dysregulation and a higher likelihood of exhibiting aggression.

In other words, emotional regulation mediates the relationship to some extent, but other factors may also contribute to the aggression observed in adolescents with PUBG game addiction. Our findings are consistent with previous studies, which suggested that violent video games, compared to nonviolent ones, cause aggression due to negative emotional stress (Maass et al., 2010). Similarly, another study explored the mediating role of emotional regulation in the link between pathological gaming and aggression in adolescents (Yen et al., 2018). They found that individuals with poor emotional regulation skills were more likely to display aggressive behaviour when engaged in excessive gaming, while those with stronger cognitive reappraisal abilities exhibited lower levels of aggression, despite their gaming habits (Kausar et al., 2024; Mamun & Griffiths, 2021).

Conclusion

The objective of the study is proved through the Hayes Process 4.1 Model 4, which depicts the positive significant role of expressive suppression and the negative significant role of cognitive reappraisal between the predictor, PUBG game addiction, and the outcome, aggression, among young adults. The findings show that important and significant implications are required for youth mental health in Pakistan. The study encourages more similar studies for youth welfare.

Implications and Recommendations

This research is essential for raising awareness among young adults, particularly PUBG game players, about the importance of limiting their gaming time to prevent violent and aggressive

behaviour. Additionally, it emphasizes the need for players to reappraise their emotions. Mental health professionals should take proactive steps to promote awareness, such as organizing workshops, seminars, and webinars. The government also has a role to play in raising awareness and regulating excessive technological use among young adults. Furthermore, parents should give proper attention to their children amidst their busy lives, as loneliness has been linked to increased engagement with violent video games. PUBG game addicts are encouraged to seek psychological support and consult professionals to address their issues, work toward a healthier state of personality, and develop more adaptive routines.

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