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## Self-control, emotion regulation and aggression among action video game players: A correlational study

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### Abstract

Self-control, emotion regulation, and aggression are theoretically interrelated constructs shaping psychological and behavioral functioning in young adults who engage in action video gaming, yet their associations have not been examined within a unified framework in the Indian context. This quantitative, correlational, cross-sectional study tested five hypotheses in a convenience sample of 247 young adult action video game players (aged 18–25 years; 72% male) using the Brief Self-Control Scale (BSCS), Emotion Regulation Questionnaire (ERQ; cognitive reappraisal and expressive suppression subscales), and the Buss-Perry Aggression Questionnaire Short Form (BPAQ-SF). Due to violations of normality, Spearman's rank-order correlations, Mann-Whitney U test, and Kruskal-Wallis H test were employed. Four of five hypotheses were supported. Self-control demonstrated a significant negative correlation with aggression ( $r_s = -0.319$ ,  $p < 0.001$ ), representing the most important finding of the study. Neither cognitive reappraisal ( $r_s = -0.006$ ,  $p = 0.919$ ) nor expressive suppression ( $r_s = 0.008$ ,  $p = 0.906$ ) showed significant associations with aggression. Male participants reported significantly higher aggression than female participants ( $U = 4922.50$ ,  $p = 0.015$ ), and aggression differed significantly across gaming-hour groups ( $\chi^2 = 12.937$ ,  $df = 2$ ,  $p = 0.002$ ), with moderate gamers reporting the highest aggression in a non-linear pattern. These findings identify self-control as a functionally central protective factor and suggest that culturally adapted self-regulation interventions may be particularly valuable in reducing aggression among Indian young adult action video game players.

**Keywords:** Self-Control; Emotion Regulation; Cognitive Reappraisal; Expressive Suppression; Aggression; Action Video Games; Young Indian Adults

### 1. Introduction

**Introduction** The rapid proliferation of digital gaming has established action video games as a dominant leisure pursuit among young adults globally. With the widespread availability of smartphones, high-speed internet, and competitive online multiplayer platforms, gaming has evolved from a casual recreational activity into an immersive, socially integrated experience. In India specifically, this transformation has been particularly pronounced, with mobile-first action titles such as PUBG Mobile and Free Fire attracting tens of millions of young users, creating a gaming landscape shaped by intense academic pressure, collectivist family norms, and unprecedented digital connectivity [1]. College students represent a developmentally significant population in which identity formation, emotional regulation, peer relationships, and stress management are actively evolving. During this transitional stage, video games often function not merely as entertainment but as coping mechanisms for academic stress and emotional challenges [2]. The modern action and competitive multiplayer genre produces cognitively demanding environments that engage emotional and behavioral systems simultaneously, making it an especially relevant context for studying psychological functioning.

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Aggression, broadly defined as behavior directed toward another individual with the intent to cause harm, has been extensively studied in relation to gaming exposure. The General Aggression Model (GAM) posits that repeated exposure to violent or competitive gaming content influences aggressive thoughts, emotional arousal, and behavioral responses over time [3]. However, individual-difference variables including personality traits, baseline aggression levels, and self-regulatory capacity substantially moderate these effects. Critically, most research has examined aggression, self-control, and emotion regulation in isolation, and the majority of empirical work originates from Western and East Asian contexts, limiting cross-cultural applicability [4]. Self-control, defined as the capacity to regulate impulses and behaviors in alignment with long-term goals, has been consistently identified as a primary protective factor against aggressive behavior. Lower self-control is associated with impulsivity, difficulty delaying gratification, and susceptibility to addictive and aggressive behaviors [5]. Emotion regulation, particularly the distinction between cognitive reappraisal (adaptive reinterpretation of emotionally evocative situations) and expressive suppression (inhibition of outward emotional expression), has also been theoretically linked to differential aggressive outcomes [6].

Despite the theoretical coherence of these linkages, no published study has simultaneously integrated the Brief Self-Control Scale (BSCS), Emotion Regulation Questionnaire (ERQ), and Buss-Perry Aggression Questionnaire (BPAQ-SF) within an Indian young adult action gaming sample. Furthermore, gender and gaming intensity as differentiating factors have received limited attention in this context. The present study therefore aims to examine these associations and group differences to advance both theoretical understanding and practical intervention development within Indian higher education and mental health settings.

Despite the theoretical coherence of these associations, significant gaps remain. No study has simultaneously integrated self-control, cognitive reappraisal, expressive suppression, and aggression in a single framework within an Indian young adult action gaming sample. India's distinct gaming landscape, characterized by mobile-dominant genres, intense academic pressures, collectivist norms, and regulatory interventions such as temporary game bans [4], creates conditions that may uniquely shape psychological responses. Furthermore, the dose-response relationship between gaming hours and aggression has been inadequately examined in this context. The present study addresses these gaps to establish baseline associations and provide foundation for culturally appropriate prevention strategies.

### 1.1. Hypotheses

- $H_{01}$ : There is no significant association between self-control and aggression among young adults who play action video games.
- $H_{02}$ : There is no significant relationship between cognitive reappraisal and aggression among young adults who play action video games.
- $H_{03}$ : There is no significant relationship between expressive suppression and aggression among young adults who play action video games.
- $H_{04}$ : There is no significant difference in aggression levels between male and female young adults who play action video games.
- $H_{05}$  : There is no significant difference in aggression levels across different gaming-hour groups among young adults who play action video games.

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## 2. Methodology

### 2.1. Research Design

This study employed a quantitative, correlational, cross-sectional design to examine associations among self-control, emotion regulation strategies, and aggression, as well as group differences in aggression based on gender and gaming-hour categories.

### 2.2. Participants

Participants were 247 young adult action video game players aged 18 to 25 years recruited through convenience sampling via an online questionnaire distributed through college networks in Bengaluru, India. The sample comprised 178 males (72%) and 69 females (28%). The majority were undergraduate students ( $M = 1.30$ ,  $SD = 0.46$ ). Inclusion criteria specified young adults within the 18–25 age range who actively played action video games. Individuals who did not play action video games were excluded.

### 2.3. Instruments

*Emotion Regulation Questionnaire (ERQ)*. The ERQ [6] is a 10-item self-report measure assessing two distinct strategies: Cognitive Reappraisal (6 items) and Expressive Suppression (4 items). Responses are rated on a 7-point Likert scale. Prior research reports Cronbach's alpha values typically ranging from 0.70 to 0.85 for subscales.

*Buss-Perry Aggression Questionnaire Short Form (BPAQ-SF)*. The BPAQ-SF [18] is a 12-item measure assessing physical aggression, verbal aggression, anger, and hostility, rated on a 5-point Likert scale. Cronbach's alpha values above 0.80 have been consistently reported.

*Brief Self-Control Scale (BSCS)*. The BSCS [19] is a 13-item self-report measure of trait self-control rated on a 5-point Likert scale. The scale demonstrates good internal consistency with Cronbach's alpha values generally above 0.80.

### 2.4. Procedure

Data were collected using an online Google Form distributed to young adult gamers through college networks. Participants were informed about the study purpose and assured of voluntary participation, confidentiality, and the right to withdraw without penalty. Informed consent was obtained prior to data collection. Questionnaires were administered in the following order: demographic information sheet, ERQ, BSCS, and BPAQ-SF. Data were screened for completeness prior to analysis.

### 2.5. Data Analysis

Data were analyzed using IBM SPSS. Descriptive statistics including mean, standard deviation, frequency, and percentage were computed for all variables. Normality was assessed using the Shapiro-Wilk test. Due to significant violations of normality across all primary variables (all  $p < 0.001$ ), non-parametric inferential tests were employed: Spearman's rank-order correlation to examine bivariate associations; Mann-Whitney U test to compare aggression between gender groups; and Kruskal-Wallis H test to compare aggression across gaming-hour groups.

## 3. Results and Discussion

### 3.1. Descriptive Statistics and Normality Testing

Table 1 presents descriptive statistics for demographic variables. The sample was predominantly male (72%) and undergraduate (70%). Shapiro-Wilk tests confirmed significant deviations from normality across all four primary study variables (Table 2), necessitating the use of non-parametric procedures for all subsequent inferential analyses.

**Table 1** Descriptive Statistics for Gender and Education (N = 247)

| Variable  | N   | Min | Max | M    | SD   |
|-----------|-----|-----|-----|------|------|
| Gender    | 247 | 1   | 2   | 1.28 | 0.45 |
| Education | 247 | 1   | 2   | 1.30 | 0.46 |

Note. Gender and Education were coded as binary variables (1 = male/undergraduate, 2 = female/postgraduate). M = mean; SD = standard deviation.

**Table 2** Tests of Normality for Study Variables (N = 247)

| Variable               | Shapiro-Wilk Statistic | df  | p     |
|------------------------|------------------------|-----|-------|
| Self-Control           | 0.971                  | 247 | 0.001 |
| Cognitive Reappraisal  | 0.957                  | 247 | 0.001 |
| Expressive Suppression | 0.956                  | 247 | 0.001 |
| Aggression             | 0.973                  | 247 | 0.001 |

Note. All  $p < 0.001$ , indicating significant departures from normality warranting non-parametric analyses.

### 3.2. Spearman's Rho Correlation Between Self-Control and Aggression

A significant negative correlation was found between self-control and aggression ( $r_s = -0.319$ ,  $p < 0.001$ ; Table 3), indicating that higher levels of self-control were associated with lower levels of aggression. The magnitude of the relationship was moderate and represented the strongest association observed among the study variables, providing support for Hypothesis 1.

This finding is consistent with the theoretical proposition of the GAM that person-level variables, specifically self-regulatory capacity, function as central protective buffers against aggressive behavioral expression [3]. Individuals with higher self-control are better equipped to interrupt the escalation from frustration or provocation to aggressive action, engaging deliberate cognitive processing rather than reflexive responding [19]. This result aligns with Zheng et al. [7], Gabbiadini et al. [9], and the meta-analytic conclusions of Hu et al. [5].

Contextually, this finding acquires particular salience in the Indian higher education setting. Young adults navigating intense academic competition, collectivist family expectations, and rapid digital transformation experience chronic stress that may tax self-regulatory resources. According to the ego depletion framework [20], competing self-regulatory demands can diminish available self-control, thereby increasing vulnerability to aggressive responding. In this environment, gaming may both reflect and further deplete self-regulatory resources, rendering self-control a critical intervention target.

**Table 3** Spearman's Rho Correlation Between Self-Control and Aggression (N = 247)

| Variable     | Self-Control | Aggression |
|--------------|--------------|------------|
| Self-Control | 1.000        | -0.319**   |
| Aggression   | -0.319**     | 1.000      |

Note. \*\*  $p < 0.01$  (2-tailed).

### 3.3. Spearman's Rho Correlations among Emotion Regulation Strategies and Aggression

Contrary to Hypotheses 2 and 3, neither cognitive reappraisal ( $r_s = -0.006$ ,  $p = 0.919$ ) nor expressive suppression ( $r_s = 0.008$ ,  $p = 0.906$ ) demonstrated statistically significant associations with aggression (Table 4). Both effect sizes were negligible. Notably, cognitive reappraisal and expressive suppression were strongly positively correlated with each other ( $r_s = 0.742$ ,  $p < 0.001$ ), suggesting that these strategies co-occur in this sample.

These null findings diverge from prior work such as Gutiérrez-Cobo et al. [12], Shahid and Yaseen [13], and Ramezani and Changizi [14]. Several contextual explanations are warranted. First, the present sample comprised non-addicted recreational action gamers rather than individuals with clinically elevated gaming disorder, and the emotion regulation pathways documented in prior research appear most consistently operative in addiction-level samples [13, 14]. Second, the Indian collectivist cultural context is characterized by normative pressures toward emotional restraint and harmony, which may attenuate the observable relationship between regulation strategy and overt aggression on self-report measures [4]. Third, the strong intercorrelation between reappraisal and suppression challenges the theoretical assumption embedded in the Gross and John [6] process model that these strategies function as functionally distinct and opposing regulatory approaches, calling for reconsideration in collectivist cultural contexts.

**Table 4** Spearman's Rho Correlations Among Aggression, Cognitive Reappraisal, and Expressive Suppression (N = 247)

| Variable    | Aggression | Reappraisal | Suppression |
|-------------|------------|-------------|-------------|
| Aggression  | 1.000      | -0.006      | 0.008       |
| Reappraisal | -0.006     | 1.000       | 0.742**     |
| Suppression | 0.008      | 0.742**     | 1.000       |

Note. \*\*  $p < 0.01$  (2-tailed). Neither cognitive reappraisal nor expressive suppression was significantly associated with aggression.

### 3.4. Gender Differences in Aggression

A Mann-Whitney U test revealed a statistically significant difference in aggression scores between male and female participants ( $U = 4922.50$ ,  $z = -2.421$ ,  $p = 0.015$ ; Table 5). Male participants (Mean Rank = 130.85) reported significantly higher aggression than female participants (Mean Rank = 106.34), supporting Hypothesis 4.

This finding is consistent with Zhan et al. [15], who demonstrated in 4,882 Chinese college students that males showed significantly stronger violence exposure-to-cyber-aggression pathways, and with Pan and Motevalli's [16] global integrative review identifying gender as a consistent moderator. From a biosocial perspective, higher baseline testosterone levels in males are associated with greater reactive aggression, while socialization processes reinforcing dominance and competition in male gaming cultures may amplify aggressive responding [21]. The predominantly male composition of the sample (72% male) may further reinforce competitive norms that elevate reported aggression.

**Table 5** Mann-Whitney U Test: Mean Ranks for Aggression by Gender (N = 247)

| Group  | N   | Mean Rank | Sum of Ranks | U        |
|--------|-----|-----------|--------------|----------|
| Male   | 178 | 130.85    | 23290.50     | 4922.50* |
| Female | 69  | 106.34    | 7337.50      |          |

Note. \*  $p = 0.015$  (2-tailed).  $z = -2.421$ .

### 3.5. Kruskal-Wallis Test

A Kruskal-Wallis H test revealed a statistically significant difference in aggression scores across the three gaming-hour groups ( $\chi^2 = 12.937$ ,  $df = 2$ ,  $p = 0.002$ ; Table 6), supporting Hypothesis 5. However, the pattern was notably non-linear: the moderate gaming hours group reported the highest aggression (Mean Rank = 143.68), followed by the low gaming hours group (Mean Rank = 130.35), while the high gaming hours group reported the lowest aggression (Mean Rank = 107.84).

This unexpected pattern challenges simple cumulative exposure models and is more consistent with habituation and frustration tolerance accounts of long-term gaming engagement. Kühn et al. [17] found no significant increases in aggression after sustained violent game exposure across two months, consistent with the lower aggression observed among heavy gamers in this study. Smirnov and Ivanova [22] similarly reported that long-term gaming engagement does not produce lasting emotional harm and may carry mood benefits through escapism and achievement. In the Indian context, Dixit et al. [4] found that moderate gamers showed more negative outcomes and extrinsic motivations compared to heavily engaged players. Moderate gamers may be at a heightened stage of competitive engagement and in-game frustration without yet having developed the emotional tolerance associated with extensive gaming experience. Alternatively, heavy gamers may possess higher baseline self-control or frustration tolerance—characteristics not directly measured in this study—that independently moderate aggression levels.

**Table 6** Kruskal-Wallis Test: Mean Ranks for Aggression by Gaming Hours (N = 247)

| Gaming Hours Group | N   | Mean Rank | $\chi^2$ | p     |
|--------------------|-----|-----------|----------|-------|
| Low                | 42  | 130.35    | 12.937   | 0.002 |
| Moderate           | 85  | 143.68    |          |       |
| High               | 120 | 107.84    |          |       |

Note.  $df = 2$ . Low = < 7 hours/week; Moderate = 7–14 hours/week; High = > 14 hours/week. The moderate gaming group reported the highest aggression.

### 3.6. Summary

The present study investigated the relationship between self-control, emotion regulation strategies, and aggression among 247 young adult action video game players in India. It also examined differences in aggression across gender and gaming intensity groups. Out of five proposed hypotheses, four were supported. The findings highlight the role of individual psychological factors and contextual variables in understanding aggression within gaming populations.

## **4. Conclusion**

The findings indicate that self-control is the strongest psychological correlate of aggression, with a significant negative relationship suggesting its protective role against impulsive and aggressive responses. In contrast, emotion regulation strategies, including cognitive reappraisal and expressive suppression, did not show a significant independent association with aggression in this sample, possibly due to cultural influences or the absence of problematic gaming patterns. Additionally, gender and gaming intensity emerged as important differentiating factors, with males reporting higher aggression levels and moderate gamers showing unexpectedly higher aggression compared to low and high gaming groups.

### **4.1. Implications**

The study has important implications for both theory and practice. The findings reinforce the importance of self-control within the General Aggression Model and extend its relevance to the Indian context. Practically, the results suggest that interventions focusing on self-regulation and impulse control may be effective in reducing aggression among college students. Campus mental health programs can incorporate brief self-control training modules, particularly targeting students who engage in recreational gaming. The identification of moderate gamers as a potentially at-risk group highlights the need for early preventive strategies, rather than focusing solely on problematic or addicted gamers. Gender-sensitive approaches may also be beneficial in designing targeted interventions.

### **4.2. Limitations**

Several limitations must be acknowledged. The cross-sectional design restricts causal interpretations of the findings. The use of convenience sampling may limit the generalizability of results due to potential self-selection bias. Additionally, reliance on self-report measures introduces the possibility of social desirability and response bias. The absence of a standardized measure of problematic gaming limits the ability to examine the influence of gaming disorder severity on the observed relationships.

### **4.3. Future Directions**

Future research should adopt longitudinal or experimental designs to better understand causal relationships between gaming, self-control, emotion regulation, and aggression. The inclusion of validated measures of gaming disorder and objective gaming data (e.g., usage logs) would strengthen findings. Advanced analytical approaches such as structural equation modeling and measurement invariance testing across cultural subgroups are recommended. Further studies should also explore gender-specific pathways and examine the effectiveness of self-regulation training interventions in reducing aggression among gamers within the Indian context.

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## **Compliance with ethical standards**

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### *Disclosure of conflict of interest*

The authors declare no conflict of interest.

### *Statement of ethical approval*

The study was conducted in accordance with the ethical principles of the American Psychological Association. Informed consent was obtained from all participants. Confidentiality and anonymity were maintained throughout. The research was supervised and approved by the Department of Psychology, Kristu Jayanti College (Autonomous), Bangalore.

### *Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

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