

Research Paper

Exploring Self-Esteem and Aggression Level in Adolescent Groups: Violent Video Gamers, Gaming Addicts and Non-Addicts

Dr. Abhimanyu Ramkisan Dhormare^{1*}

ABSTRACT

The widespread engagement of contemporary youth in video games and smartphone gaming apps, at the expense of outdoor activities, is a serious global concern. This study investigated the impact of violent video game exposure on self-esteem and aggression among adolescent gamers. A sample of 212 adolescent boys, aged 14-18, was selected and divided into three groups: violent video gamers, gaming addicted group, and non-addicted gaming group. The Gaming Addiction Scale, the Rosenberg Self-Esteem Scale, and the Buss-Perry Aggression Questionnaire were used to measure levels of gaming addiction, self-esteem, and aggression. Data were analysed and interpreted using SPSS 20.0 software. The results of the one-way ANOVA analysis revealed significant differences in self-esteem and aggression among the three groups. The post-hoc analysis revealed that violent video gamers had significantly lower self-esteem and higher aggression level compared to gaming addicted and non-addicted group. In contrast, non-addicted group had higher self-esteem and lower aggression level compared to violent video gamers and gaming addicted group. These findings suggest that exposure to violent video games can have negative effects on self-esteem and aggression, and highlight the importance of responsible gaming practices and parental guidance. The study's results have implications for parents and educators, and suggest the need for monitoring and regulating the content of video games, particularly those accessible to children and adolescents.

Keywords: *Adolescent, Aggression, Self-Esteem, Violent Video Gamers, Gaming Addicted and Non-Addicted Group (Video and Online Game)*

India ranks among the top three nations globally in terms of smartphone usage (659 million), social media engagement (860 million), and virtual gaming adoption (Laricchia, 2024; Dixon, 2024). Notably, a report by Grant Thornton India and the E-Gaming Federation (EGF) (2023), titled "Guardians of Safe Play: Ethical Gaming for Vibrant India", positions India as the world's second-largest online gaming community. Furthermore, the report reveals that India has emerged as the largest gaming market worldwide, boasting 568 million gamers and a remarkable 9.5 billion gaming app downloads in 2023. This exponential growth can be attributed to technological

¹Associate Professor & Head, Department of Psychology, Babuji Avhad Mahavidyalaya, Pathardi, Dist. Ahilyanagar, Maharashtra, India ORCID: 0000-0002-8219-7307

*Corresponding Author

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advancements and shifting consumer preferences, underscoring the significance of India's burgeoning gaming industry.

The widespread engagement of contemporary youth in video games and smartphone gaming apps, at the expense of outdoor activities, is a serious global concern. Empirical evidence suggests that prolonged exposure to virtual games is significantly correlated with escalated physiological (headaches, blurry vision, eye discomfort etc.), psycho-emotional (anxiety, depression, aggression etc.), and social (avoid social interaction) disturbances among teenagers and society at large. Moreover, these games have been linked to a substantial increase in mortality rates worldwide, with thousands of fatalities, predominantly among adolescents, attributed to their detrimental influence. As per the World Health Organization (WHO), the adolescent phase, spanning 10 to 19 years, is characterized by accelerated growth and transformation across physical, cognitive, psychosocial, and emotional domains.

The rapid evolution of technology and significant societal changes have emerged a new approach in social psychology, highlighting concerns surrounding exposure to virtual violent gaming like digital video gaming and online gaming (Lacko et al., 2023). Extant literature suggests that exposure to violent and aggressive virtual games has deleterious effects on adolescents, fostering insensitivity to real-life violence and harm. Virtual games have also linked to aggression desensitization, empathy reduction, and increased hostile thoughts, feelings and behaviours (Anderson et al., 2010). Research indicates that prolonged engagement with these games can lead to the internalization of aggressive behaviours (Lacko et al., 2024), with teenagers exhibiting increased anger and a "win-at-all-costs" mentality (by hook or by crook idiom). This desensitization can perpetuate a culture of abuse and violence, ultimately influencing daily life. Moreover, studies have consistently shown that excessive gaming can have profound adverse effects on adolescents' mental and physical well-being, including neglect of basic needs. Empirical evidence from numerous global studies corroborates the conclusion that video and mobile games significantly contribute to increased aggression in adolescents, underscoring the need for further investigation into this pressing concern.

Research has consistently demonstrated a positive correlation between exposure to violent-themed media, particularly violent video games, mobile games and aggressive behaviour. Notably, Massive Multiplayer Online Role-Playing Games have gained immense popularity among youth, offering diverse gaming experiences with thousands of simultaneous players (Zhong, 2011; Merrick et al., 2013). However, studies have also highlighted the detrimental effects of gaming on personal development (Alrobai et al., 2016). Furthermore, empirical evidence suggests that prolonged engagement with violent video game, especially among individuals with multiple risk factors or low self-regulation, significantly enhances aggression over time (Coyne et al., 2023). Specifically, males with low self-regulation and those experiencing gaming-related problems exhibit increased aggression, underscoring the need for targeted interventions to mitigate these adverse effects.

Self-esteem

According to William McDougall, self-esteem is the 'backbone of personality' that includes self-acceptance and appreciation. Self-esteem affects personal and interpersonal achievements. Individuals with high self-esteem exhibit self-confidence and healthy relationships with others. Research has investigated the relationship between self-esteem and gaming disorder, yielding mixed results. Kavanagh et al. (2023) found that self-esteem

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moderates the effect of violent video game exposure on aggressive behaviour. A systematic review (Kavanagh et al., 2023) revealed a significant association between low self-esteem and gaming disorder. Studies have also explored the role of self-esteem in online gaming addiction, with findings suggesting that self-esteem and sensation seeking predict online game addiction (Idriyani et al., 2021; Šporčić & Glavak-Tkalić, 2018). Additionally, research has identified correlations between social anxiety, self-esteem, impulsivity, and game genre in problematic online game players (Park et al., 2016). Other studies have examined the impact of online games on cognitive flexibility, finding that self-worth moderates this relationship (Ding et al., 2021). Early research indicated that playing computer games is associated with gratification of needs and self-esteem in adolescents (Colwell et al., 1995), while more recent studies have found links between problem video game playing, social skills, and self-esteem in adults (Loton, 2007).

Aggression

Aggression, a 'universal phenomenon', involves intentional harm or hurt inflicted upon others through verbal, non-verbal, or physical actions, with its expression varying greatly across individuals. The American Psychological Association (APA) considers violent video games a risk factor for aggression (APA, 2017). Some studies found a positive correlation between exposure to violent video games and adolescent aggression (Shao & Wang, 2019; Marzo et al., 2019; Ponselva Kumar, 2020; Zaharim et al., 2023), while others found no significant association (Przybylski & Weinstein, 2019; Mistry & Shetty, 2020). Longitudinal studies suggested that violent video game play may impact aggression and empathy, but the effects are complex and dependent on individual differences (Lacko et al., 2024). The role of narcissism, self-esteem, and family environment in moderating the relationship between violent video games and aggression has also been explored (Olejarnik & Romano, 2023). Some researchers argue that the evidence for a link between violent video games and aggression is overstated due to publication bias and methodological flaws (Ferguson, 2020). Others propose alternative explanations, such as frustration and the violation of basic psychological needs, for the potential aggressive effects of video games (Květon & Jelínek, 2020). A comprehensive review of the literature highlights the need for further research to understand the complex mechanisms underlying the relationship between violent video games and aggression (Demirtaş-Madran, 2023).

This study seeks to bridge the existing research gap by investigating the self-esteem and aggression levels of three distinct groups: violent video gamers, gaming addicted individuals, and non-addicted individuals. Specifically, this research aims to examine how individual differences are reflected in levels of self-esteem and aggression, and how violent video game, gaming addiction affects self-esteem and aggressive behaviour, thereby providing insight into the complex interplay between these variables.

Objectives

1. To compare self-esteem and levels of aggression of violent video gamers, gaming addicted and non- addicted groups.

Hypotheses

1. The non-addicted group will exhibit higher level of self-esteem than the violent video gamers group and gaming addicted group.
2. Violent video gamers group and gaming addicted group will exhibit higher level of aggression than the non- addicted group.

METHOD

Sample

A sample of 212 adolescent boys (violent video gamers, gaming addicted and non-addicted), aged 14-18, were selected for this study as a sample. The participants, enrolled in secondary and higher secondary class (8-12), belonged to middle-social-economic families. Teenagers who played violent video games or mobile games for more than 30 hours a week at gaming center/s or on mobile platforms were assigned to violent video gamers (n=59). In addition, the remaining teenagers were assigned into game-addicted (n=83) and non-addicted (n=70) groups based on the *Gaming Addiction Scale* scoring. Details demographic profile of the sample showed in table 1. This study's participant inclusion criteria were individuals aged 14-18 years who actively engaged in online violent gaming and provide informed consent to participate. Conversely, individuals were excluded from the study if they are under 14 years old or above 18 years old.

Table 1 Demographic & gaming profile of participants

Questions	Response Options	Response (%) N = 212		
		Violent Video Gamers group (n ₁ = 59)	Gaming addicted group (n ₂ = 83)	Non-addicted gaming group (n ₂ = 70)
Score on GAS	High Score	---	83 (100%)	---
	Low Score	---	---	70 (100%)
Age	14-16	23 (38.98%)	34 (40.96%)	29 (41.43%)
	17-18	36 (61.02%)	49 (59.04%)	41 (58.57%)
Enrolled Class	8	12 (20.34%)	9 (10.84%)	9 (20.00%)
	9	9 (15.25%)	17 (20.48%)	13 (27.14%)
	10	2 (3.39%)	8 (9.64%)	07 (10.00%)
	11	23 (38.98%)	32 (38.55%)	29 (41.43%)
	12	13 (22.03%)	17 (20.48%)	12 (15.71%)
Types of game	Free Fire	9 (15.25%)	39 (46.98%)	33 (47.14%)
	PubG	9 (15.25%)	31 (37.35%)	29 (41.43%)
	Bang-Bang	5 (8.47%)	00 (00.00%)	00 (00.00%)
	GTA-5	19 (32.20%)	00 (00.00%)	00 (00.00%)
	COD	13 (22.03%)	00 (00.00%)	00 (00.00%)
	Other	04 (6.78%)	13 (15.67%)	08 (11.43%)
Time spent on gaming in a week	20 Hrs	00 (00.00%)	21 (25.30%)	53 (75.71%)
	30 Hrs	59 (100%)	62 (74.70%)	17 (24.29%)

GAS=Gaming Addiction Scale, VVG=Violent Video Games, GTA=Grant Theft Auto, COD= Call of Duty

Research design

Qualitative and cross-sectional design was adopted for this study.

Procedure

This study employed a two-stage sampling root to recruit a total of 212 adolescents (violent video gamers, gaming addicted and non-addicted). The initial phase involved surveying gamers at Jagadamba Gaming Center, Pathardi, Ahilyanagar district (Maharashtra), using individual information sheet to gather data on gaming habits. Supplemental information was extracted from the centre's gamer daily entry register, encompassing variables such as gaming duration (Hrs), frequency, and game type (violent/non-violent). This phase yielded a

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subsample of 59 violent video gamers aged 14-18 years, characterized by excessive violent gaming habits, thereby meeting the study's inclusion criteria.

The second phase of sampling involved administering a Gaming Addiction Scale (GAS) to 153 secondary and higher secondary students in Pathardi city. From this pool, 83 adolescents scoring high (gaming addicted group) and remain 70 adolescents scoring low (non-addicted group) on the scale were selected as participants, thereby meeting the study's criteria for gaming addiction.

Combining both sampling methods, a total of 212 adolescents provided informed consent to participate in the study. Subsequently, *The Rosenberg Self-esteem Scale* and *The Buss-Perry Aggression Questionnaire* were administered to assess self-esteem and aggression level of participants. Participants from Jagadamba Gaming Center (59) completed these tests individually on-site (20-minute time limit), whereas high school students (153) took the tests in-class, in groups (20-minute time limit). This standardized testing procedure ensured consistency and efficiency in data collection.

Research tools

- **Demographic profile:** This self-developed questionnaire collected data on age, enrolled class, socio-economic status, time spent on playing video games or mobile games per week, and two most played video or online mobile games.
- **The Game Addiction Scale (GAS):** This is a 7-item instrument, based on DSM criteria and utilizing a 5-point Likert scale to assess gaming addiction. The GAS is developed by Lemmens et al. in 2009, and it measures seven criteria: salience, tolerance, mood modification, relapse, withdrawal, conflict, and problems. The scale demonstrates satisfactory internal consistency (Cronbach's $\alpha = 0.85$) and concurrent validity.
- **The Rosenberg Self-Esteem Scale (RSES):** To measure self-esteem, Indian adaptation of Rosenberg self-esteem scale (1965) developed by Prashant & Arora (1988) was used. The scale consisted of 10 items in which half of items are positively worded and half are negatively worded. The items were scored on a four-point scale from strongly agree to strongly disagree. The reliability of the Indian version of the scale was 0.80.
- **The Buss-Perry Aggression Questionnaire (BPAQ):** It is developed by Arnold Buss and Mark Perry in 1992 to assess aggression level. BPAQ is a 29-item, four dimensions that measures: Physical aggression, verbal aggression, anger and hostility. Cronbach's alpha reliability for the four dimensions is 0.81, 0.74, 0.83, and 0.80, respectively; and overall, internal consistency of this scale is 0.84.

RESULTS

Table No.2 Shows the descriptive statistics of variable self-esteem and aggression level (N=212)

Variables	Group/s	N	Mean	SD	SE	95% Confidence Interval for Mean	
						Lower Bound	Upper Bound
Self-Esteem	Violent video gamers	59	14.57	2.102	.273	14.02	15.12
	Gaming addicted group	83	16.37	2.625	.288	15.80	16.94

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Variables	Group/s	N	Mean	SD	SE	95% Confidence Interval for Mean	
						Lower Bound	Upper Bound
	Non-addicted group	70	18.02	3.318	.396	17.23	18.81
	Total	212	16.41	3.050	.209	16.00	16.83
Aggression	Violent video gamers	59	105.64	10.816	1.408	102.82	108.46
	Gaming addicted group	83	100.60	11.633	1.276	98.06	103.14
	Non-addicted group	70	87.84	10.200	1.219	85.41	90.27
	Total	212	97.79	13.113	.900	96.01	99.56

Table No. 3 Shows the results of One-way ANOVA for self-esteem and aggression level

Vs	Groups/s	SS	df	MS	F	Sig.
Self-Esteem	Between Groups	381.865	2	190.933	25.228	.000
	Within Groups	1581.771	209	7.568		
	Total	1963.637	211			
Aggression	Between Groups	11222.192	2	5611.096	46.791	.000
	Within Groups	25062.676	209	119.917		
	Total	36284.868	211			

The results of the ANOVA analysis revealed a significant difference in self-esteem between groups, $F_{(2, 209)} = 25.22$, $p < 0.001$. The between-groups variance was 381.86, with a mean square of 190.93. In contrast, the within-groups variance was 1581.77, with a mean square of 7.56.

A similar pattern emerged for aggression, with a significant difference between groups, $F_{(2, 209)} = 46.791$, $p < 0.001$. The between-groups variance was 11222.19, with a mean square of 5611.09. In contrast, the within-groups variance was 25062.67, with a mean square of 119.91.

Table No. 4 Shows the Tukey post hoc outcome of different groups on self-esteem and aggression

Dependent Variable	Gamers (I)	Gamers (J)	Mean Difference (I-J)	SE	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Self-Esteem	VVG	GAG	-1.79722*	.46847	.000	-2.9278	-.6666
		NGAG	-3.45230*	.48620	.000	-4.6257	-2.2789
	GAG	VVG	1.79722*	.46847	.000	.6666	2.9278
		NGAG	-1.65508*	.44643	.001	-2.7325	-.5777
	NAG	VVG	3.45230*	.48620	.000	2.2789	4.6257
		GAG	1.65508*	.44643	.001	.5777	2.7325
Aggression	VVG	GAG	5.04166*	1.86475	.022	.5413	9.5420
		NGAG	17.80121*	1.93535	.000	13.1304	22.4720
	GAG	VVG	-5.04166*	1.86475	.022	-9.5420	-.5413
		NGAG	12.75955*	1.77704	.000	8.4708	17.0483
	NAG	VVG	-17.80121*	1.93535	.000	-22.4720	-
		GAG	-12.75955*	1.77704	.000	-17.0483	-8.4708

VVG= violent video gamers, GAG=gaming addicted group, NAGG=non-addicted group

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The results of the post-hoc analysis (Tukey) revealed that violent video gamers group (VVG) had significantly lower self-esteem compared to gaming addicted group (GAG) ($M = -1.79, p < 0.001$) and non-addicted group (NAG) ($M = -3.45, p < 0.001$). Similarly, gaming addicted group had significantly lower self-esteem compared to non-addicted group ($M = 1.65, p < 0.001$). Non-addicted group had significantly higher self-esteem compared to violent video gaming group ($M = 3.45, p < 0.001$) and gaming addicted group ($M = 1.65, p < 0.001$).

On the aggression variable, the results of the post-hoc analysis revealed that violent video gamers had significantly higher aggression levels compared to gaming addicted group ($M = 5.04, p < 0.05$) and non-addicted group ($M = 17.80, p < 0.001$). Similarly, gaming addicted group had significantly higher aggression levels compared to non-addicted group ($M = 12.75, p < 0.001$). Individuals who involved in non-addicted gaming group had significantly lower aggression levels compared to those who played violent video game ($M = -17.80, p < 0.001$) and who involved gaming addiction group ($M = -12.75, p < 0.001$).

DISCUSSION

The present study aimed to investigate the impact of violent video game exposure on self-esteem and aggression among gamers. The results of the ANOVA analysis revealed significant differences in self-esteem and aggression between the three groups of gamers (violent video gamers, gaming addicted, and non-addicted group).

The post-hoc analysis revealed that violent video gamers had significantly lower self-esteem compared to gaming addicted group and non-addicted group. This finding is consistent with previous research suggesting that exposure to violent video games can lead to decreased self-esteem (Gentile et al., 2014). The lower self-esteem among violent video gamers may be attributed to the constant exposure to violent and aggressive content, which can lead to negative self-perceptions and decreased self-worth (Bushman & Huesmann, 2006).

On the other hand, the results revealed that violent video gamers had significantly higher aggression levels compared to gaming addicted group and non-addicted gaming group. This finding is consistent with previous research suggesting that exposure to violent video games can increase aggressive thoughts, feelings, and behaviours (Anderson et al., 2010). The higher aggression levels among violent video gamers may be attributed to the constant exposure to violent and aggressive content, which can lead to increased arousal, anger, and hostility (Bushman & Huesmann, 2006).

The findings of the present study have important implications for parents, educators, and policymakers. The results suggest that exposure to violent video games can have negative effects on self-esteem and aggression among gamers. Therefore, it is essential to monitor and regulate the content of video games, particularly those that are accessible to children and adolescents.

In conclusion, the present study provides evidence for the negative effects of violent video game exposure on self-esteem and aggression among gamers. The findings have important implications for the development of interventions and policies aimed at reducing the negative effects of violent video game exposure.

CONCLUSION

The significant differences found in self-esteem and aggression between violent video gamers, gaming addicted group, and non-addicted group. Specifically, violent video gamers had lower self-esteem and higher aggression levels compared to gaming addicted group and non-addicted group. In contrast, non-addicted group had higher self-esteem and lower aggression levels compared to violent video gamers and gaming addicted group. These findings suggest that exposure to violent video games can have negative effects on self-esteem and aggression, and highlight the importance of responsible gaming practices and parental guidance.

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Conflict of Interest

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