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Research Paper

Explore The Impact of Gaming Addiction and Aggression Levels in Young Adults Playing Violent Video Games

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ABSTRACT

This study investigates the relationship between gaming addiction and aggression in young adults, focusing on how specific components of aggression—physical aggression, verbal aggression, anger, and hostility—relate to and predict gaming addiction. A sample of 200 participants aged 18 to 25 completed the Buss and Perry Aggression Questionnaire (BPAQ) and the Gaming Addiction Scale (GAS). Descriptive statistics, Pearson correlation, and multiple regression analyses were conducted to explore the associations between variables. Results revealed a significant positive correlation between gaming addiction and both verbal aggression and hostility, with verbal aggression emerging as the only significant predictor in the regression model. Physical aggression and anger did not significantly correlate with or predict gaming addiction. These findings suggest that certain types of aggression, particularly verbal aggression, may play a more prominent role in problematic gaming behavior. The study emphasizes the importance of targeting specific aggression traits in interventions aimed at reducing gaming addiction and calls for further research on additional psychological and contextual factors that may contribute to this growing concern among youth.

Keywords: *Gaming Addiction, Aggression, Verbal Aggression, Young Adults, Video Games, Psychological Behavior*

The growing popularity of gaming as a pastime among young people worldwide is a cause for concern. While technology offers several benefits, it also has disadvantages. Since the development of the internet and advanced mobile technologies, gaming has become more widely available and reasonably priced, enabling people of all ages, from young adults and working professionals to children, to play at their leisure.

On the other hand, a lot of gaming has been linked to several detrimental effects, especially among younger people. The increasing propensity of young people to display introverted behavior and discernible shifts in their social relations are among the main causes of concern. Gaming addiction has been linked to the disregard of important pursuits like relationships with others, physical activity, and academic obligations. Furthermore, too much screen time can result in several health issues, including obesity, strain on the eyes,

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and injuries to the muscles. According to research, playing violent video games for extended periods might make people more aggressive, less empathetic, and desensitized to violence. These psychological repercussions can worsen mental health and result in disorders, including anxiety, depression, and increased stress.

Exposure to internet bullying, harassment via the internet, and obsessive consumption of gaming-related social networking platforms are all significant issues linked to compulsive gaming, and they all result in mental health issues and worsen the negative effects of excessive gaming.

Modern Gaming: The Era of Realism & Immersion

A. Developments in AI & Photorealistic Graphics

- Ray tracking, 4K visuals, and AI-enhanced visuals are supported by modern consoles, such as PlayStation 5 and Xbox One X and top-tier gaming PCs.
- Increased Levels of Engagement: Players spend more time in very immersive worlds due to improved visuals and AI, which make games more addicting. Overcoming can lead to annoyance, agitation, and trouble regulating feelings in real life.
- Game Rage: Players who lose, fail objectives, or struggle to advance in high-stakes competitive matches with realistic AI opponents may get more irate and exhibit angry outbursts.
- More Intense Fight Experiences: By normalizing hostility, ultra-realistic violence may lessen the emotional consequences of violent acts.
- Psychological Conditioning: Aggressive mindsets and behaviors are gradually reinforced by repeated encounters with high-fidelity violent acts.

B. Virtual Reality (VR) and Augmented Reality (AR)

- Completely immersive experiences are provided by VR headsets such as the Rift by Oculus, the HTC Vive, and PlayStation VR.
- By combining gameplay with real-world exploration, Pokémon GO 2016 report made augmented reality gaming widely known.
- Technical Limitation Frustration: When gameplay is disrupted by poor monitoring, lag, or technical issues, players may get more irritated and respond aggressively. Physical anger, such as punching things or hurling controllers, can be triggered by losing high-stakes virtual reality games, particularly when mechanical mistakes occur.
- Physical Fatigue Resulting in a Short Temper: Because VR demands more activity, gamers may experience physical exhaustion, which impairs their capacity to control their emotions and heightens their propensity for aggression.
- Regular Exposure to VR Violence: Playing violent VR games over extended periods (such as shooting or fighting) can make players less tolerant of aggressive behavior. According to certain research, first-person virtual reality games strengthen the link between virtual violence and real-world behavior.
- Physiological Detachment from Actual Consequences: Virtual reality (VR) makes acts feel personal, which may change emotional reactions to aggressiveness. This is in contrast to conventional gaming, where a screen distances the user from the violence.

Understanding the connection between levels of aggression, violent video game addiction, and gaming addiction is the main goal of this issue.

Let's dissect it into its parts:

1. **Comprehending Addiction to Gaming:**

The excessive or compulsive playing of video games is the hallmark of gaming addiction, also known as gaming disorder, a behavioral addiction that seriously impairs social, academic, professional, and personal functioning. Video games are extremely captivating due to their immersive qualities, interaction with others, and achievement-based rewards, which can result in extended and frequently uncontrollable gaming sessions.

- **Reasons for Gaming Addiction and associated risks:**

Numerous elements, such as psychological, social, and environmental ones, have an impact on gaming addiction. Having a thorough understanding of these elements can aid in creating successful intervention plans.

- Psychological Elements:

a. The Substance Dopamine Release and Rewarded System Activation: By secreting dopamine, which is a neurotransmitter linked to excitement and pleasure, video games are intended to activate the brain's reward system. Players find it tough to quit gaming because of the endless stream of rewards, accomplishments, and game progression, which forms a reinforcement loop.

b. Escapism and emotional Coping: A lot of people use gaming as a way to cope with stress, anxiety, despair, or challenges in real life. Players get dependent on gaming as a form of emotional coping method because the virtual world offers another reality where they may escape from personal struggles and obligations.

c. Feeling of Competence and Achievement: Video games provide controlled settings where users can develop their abilities, accomplish objectives, and receive rewards. Completing stages or winning multiplayer matches gives players a sense of accomplishment that boosts their self-esteem and encourages further play, which reinforces addictive behaviors.

- Environmental and Social Factors:

a. Influence from Others and Social Connectivity: By enabling players to communicate, work together, and compete with people all over the world, online multiplayer games promote social relationships. It can be difficult to disconnect from these virtual communities because they are often the main social circles for gamers.

b. Online gaming groups and guilds: Players develop close social ties with their fellow players in many games that require teamwork. Addiction is strengthened by the urge to continue playing, especially in online competitive games (eSports), where participation in scheduled game sessions is mandatory.

c. Simple Accessibility and Technological Developments: Video games are now more widely available than ever because of the growth of mobile gaming, free-to-play formats, and gaming via cloud services. The ability to play at any time and from any spot increases the likelihood of playing too much games.

- **The Impact of Addiction to Gaming:**

Gaming addiction can have detrimental effects on one's social life, academic performance, physical health, and mental health.

A. Effects on Mental Health:

a. Increased Anxiety and despair: Playing video games too much is frequently associated with higher levels of stress, anxiety, and despair. According to studies, social disengagement and irregular sleep patterns make gamers more likely to suffer from mental disorders.
b. Violent Conduct and Aggression: Playing violent video games can make you more aggressive, especially if you're younger. Frequent exposure to violent situations can make people less sensitive to violence in the real world and make them more impulsive.
c. Decreased Empathy and Emotional Regulation: Addiction to video games can affect emotional regulation, making it harder for people to properly control their emotions. When their gaming interferes with their commitments in real life, some gamers may become more irritable, frustrated, or have trouble empathizing with others.

B. Effects on Physical Health:

a. Obese and Sedentary Lifestyle: Extended periods of gaming lead to a sedentary way of life, which lowers levels of physical activity and raises the risk of obesity and associated conditions, including cardiovascular illnesses.
b. Eye Pressure, Headaches, and Musculoskeletal Issues: Extended use of screens causes musculoskeletal issues, frequent headaches, and digital eye strain because of bad posture and repeated hand motions.
c. Disorders of Sleep and Cognition Decrease: Sleep deprivation, exhaustion, and cognitive impairment are caused by irregular gaming behaviors, especially late-night gaming. Memory, judgment, and general productivity are all adversely affected by poor sleep quality.

C. Impact on Society and Academic/Profession:

a. Social Exclusion and Impaired Relationships: Social withdrawal is a common result of gaming addiction since many addicts favor virtual connections over in-person ones. Excessive gaming frequently results in troubled connections with friends and family.
b. Academic Fall and Poor Efficiency: Students who spend too much time gaming may disregard their academic obligations, which can lead to missed deadlines, poorer marks, and a lack of interest in learning activities.
c. Job Failure or Poor Work Productivity: Because they are unable to balance their gaming and work routines, working professionals who suffer from gaming addiction may see a decrease in efficiency, and absences, or even lose their jobs.

2. Aggression and Violence in Video Games:

Numerous academics and researchers contend that playing violent video games for extended periods might increase hostility, desensitize players to violence, and cause undesirable behavioral changes, especially in young people. Because players actively participate in violent events rather than passively witnessing them, video games are unique among media because of their interactive character. The games' frequent reinforcement mechanisms and active participation raise questions regarding their psychological effects on players.

• Comprehending Violent Video Games:
• Explicit representations of physical hostility, fighting situations, and violent content are characteristics of violent video games. Players frequently engage in actions like shooting, battling, and murdering opponents in these games. Grand Theft Auto (GTA), Call of Duty (CoD), Mortal Kombat, and Fortnite are a few of the most talked-about and contentious video games.

Reward mechanisms that encourage aggressive behavior, such as gaining points, moving up the rankings, and obtaining new weapons or skills by defeating opponents, are frequently included in these games. Concerns over long-term behavioral impacts are exacerbated by the in-game prizes that incentivize aggressive behavior.

• Aggression Types Associated with Addiction to Gaming:
Many types of violence have been linked to gaming addiction, especially when it comes to violent video games. These could manifest in a number of ways:

A. Aggression Through Words:

- Using derogatory language, risks, and abuse in online multiplayer environments (also known as toxic behavior).
- Regular verbal altercations and arguments about excessive gaming habits with spouses, family, or friends.
- Enhanced impatience and irritation, which can result in violent outbursts outside of gaming contexts.

B. Physical Violence:

- Physically angry outbursts, such as hurling things, slamming into walls, or shattering gaming accessories.
- There have been instances of physical altercations with family members or students when time for gaming is restricted.
- Because of increased emotional sensitivity, little arguments might escalate into violent physical reactions.

C. Cyberbullying and Online Aggression:

- Taking part in trolling, cyberbullying, or online harassment in gaming forums.
- The emergence of combative communication patterns as a result of playing games in toxic surroundings.
- Online anonymity encourages antagonistic encounters and desensitization to the negative effects of aggressive conduct.

3. The Role of Gaming Addiction in Aggression:

The association between higher levels of aggression and gaming addiction is influenced by several psychological and neurological factors:

A. Mechanisms in Neurology and Psychology:

- Research indicates that compulsive gaming may lead to increased activity in the amygdala, which is linked to emotional outbursts and a decreased capacity to control aggressive impulses. Addiction to gaming, like substance addiction, changes dopamine paths in the brain, impairing impulse control and increasing aggression.
- Because aggressive behaviors are reinforced by the overstimulation of reward pathways in the brain, addicted players find it challenging to break free from violent gameplay habits.

B. Social Withdrawal & Emotional Dysregulation:

- Playing video games too often can cause people to retreat from social interactions in real life, which limits their ability to control their emotions and resolve conflicts.
- Because addicted gamers find it difficult to manage relationships outside of the gaming environment, social isolation can heighten animosity.

- Because players are less aware of the repercussions of their actions, a lack of emotional feedback from the real world can lead to an increase in violence.

C. Being exposed to Violent Content Playing

- Playing violent video games normalises violent responses to disputes and reinforces aggressive cognitive processes. This is the case for many people with gaming addiction.
- According to the General Aggression Model (GAM), gamers who are repeatedly exposed to violent video game content may become less sensitive to violence in the real world and more tolerant of aggressive behavior.
- Constant exposure to violent circumstances can change how the brain processes information, making it more likely that ambiguous situations would be seen as hostile.

Numerous psychological, community, and health-related problems have been connected to the rising incidence of gaming addiction, especially in young people. Long-term time spent playing violent video games is additionally linked to social disengagement, desensitization to violence, and an increase in hostility. Furthermore, intricate psychological and neurological processes underlie gaming's addictive qualities, which reinforce compulsive behaviors that harm relationships, professional productivity, and academic achievement.

Cyberbullying, online hostility, and less empathy are just a few of the ways that gaming addiction affects society as a whole. To lessen the harmful effects of gaming and encourage appropriate gaming practices, it is crucial to comprehend the underlying causes, effects, and possible treatments. In light of these worries, more investigation is required to examine the long-term psychological effects of gaming addiction and exposure to violent video games. Together, legislators, instructors, and mental health specialists must create policies that promote responsible gaming practices while addressing the possible dangers of excessive gaming. Society can guarantee that gaming continues to be a form of fun without endangering social development and mental health by raising awareness and putting preventative measures in place.

REVIEW OF LITERATURE:

- Nagare, F., & Kedari, A. (2025). Young adolescents now primarily use gaming as a form of enjoyment and social interaction due to its enormous popularity. With the development of cutting-edge technology and captivating multiplayer experiences, gaming has several advantages, including social engagement chances, cognitive benefits, including better problem-solving abilities, and increased hand-eye coordination. But gaming is also linked to several detrimental effects, including heightened aggressive behaviour, emotional instability, a drop in academic performance, and anxiety related to social interactions. The results show that hostility and anxiety about social interactions are significantly positively correlated with game addiction. The findings emphasise the necessity of treatments that address related psychological problems and encourage good gaming behaviours.
- Akbaş, & Işleyen, (2024). This study seeks to determine the effects on online addiction to gaming on the levels of anger and rage in teenagers. This study indicated medium levels of game addiction and antagonism among teenagers. Male teenagers, those with medium and high incomes, and those who play video games for more than eight hours per day had considerably higher mean scores on the Game Addiction

Scale. The Video Game Addiction Scale, Aggression Whole Scale, and Anger subscales showed a positive and somewhat significant link in this study. In particular, it was found that playing digital games daily, for a long time, being a man, and having a high salary were all predictors of increased game play.

- Amal, Oublkhir, et. Al (2024). This study investigates the potential for video game addiction in Moroccan teenagers and demonstrates the link between violent behaviour and video game addiction. According to our findings, there is a moderately favourable relationship between aggressive behaviour and video game addiction, with variations depending on the genre and kind of game played. Teenagers who play violent video games excessively are more likely to act aggressively, which suggests the need for therapeutic interventions tailored to computer game addiction and its negative impacts. It also emphasises the importance of teaching families and social workers about the dangers of playing violent online games.
- Kausar, Nouman, et. Al (2024). This study used interaction with others as an intermediary variable to examine the connection between roughness and PUBG dependence on games. The results show a substantial and positive correlation between hostility and PUBG gaming addiction. A partial mediation impact of social connectedness on the relationship between PUBG game addiction and aggressiveness was found via mediation analysis; both the immediate and total effects of dependency on aggression were substantial, but the pathway that was indirect through interpersonal closeness was not. Even though those without jobs had higher average aggressiveness scores, there were no discernible differences in aggression based on work status. Important ramifications for the welfare of young adults were highlighted by comparing the results with previous research and offering suggestions for additional study.
- Gukan, & Priyadhersini, (2024). Human history has always included play, and as more and more gamers take over the Internet, it has turned into a playground. Research indicates that certain Internet gamers may experience characteristics that are commonly associated with drug-related addictions, including emotion modulation, tolerance, and salience. The current study examines the connections between college students' video game addiction, violence, and how they are raised to comprehend how these aspects affect the samples. Both authoritarian and liberal parenting styles can promote aggression and game addiction. Additionally, it was demonstrated that rigorous parenting practices and gaming habits differed by gender.
- Surya, EASHWAR, et. Al. (2024). To determine the different risk variables linked to video game addiction and to estimate the prevalence of the condition among teenage schoolchildren in Chennai, Tamil Nadu, India. Addiction to video games among teenagers in school is a serious problem with several risk factors. Adolescent schoolchildren's well-being can be improved and video game addiction efficiently addressed by raising awareness, supporting healthy coping strategies, and encouraging balanced lifestyles.
- Moreau, Bethencourt, et. Al. (2024). The purpose of this qualitative study was to characterize anger as it manifests in video games played online and to determine its causes and effects. The players defined fury as a shift in style brought on by displeasure while playing the game. There are behavioral and emotional components to anger. Gamers who are enraged may lose the game and experience a "rage quit," which is a sudden end to the game. Rage seems to be a key factor in controlling

angry outbursts and focusing on emotion regulation, which might serve as a hook to stop inappropriate gaming.

- Sywelem, & Alotaibi, (2024). This quantitative study investigates middle school kids' perspectives on coping mechanisms and parents' understanding of the dangers of gaming addiction in the Jazan province of Saudi Arabia. The findings show that parents are generally well-informed about these hazards, and all respondents agreed that they are important. There are no quantitatively significant changes in risk perception according to demographic factors such as average income per month, domicile, gender, or educational attainment, according to statistical analyses. They stress that to successfully avoid and handle gaming-related issues among this population, parents, educators, and legislators must work together. To sum up, this study offers insightful information about how parents in the Jazan area see and manage the hazards of gaming addiction in their middle school children.
- Teng, Zhu, et al. Al (2024). The exploration of addiction to video games can lead to increased aggression, which is a common and well-known issue. The mechanisms via which gaming addiction influences aggressive speech, a more severe and enduring subtype of aggressiveness, may be different from those affecting other forms of aggression. Contrary to earlier research, the study discovered no significant correlation between inhibited behaviour and violence of any kind or gaming addiction. However, the association between verbal violence and gaming addiction is partially mediated by the drift percentage, an indicator of decision-making propensity under risk. The results show that risk preference under unfavourable circumstances is a significant predictor of verbal aggressiveness, providing opportunities for early detection and recommending changes to game design that might lessen verbal aggression by altering incentive systems.
- Alvi, Asghar, et. Al (2023). Although they play video games for fun, excessive gaming can lead to addiction. Gaming can have both positive and negative psychological consequences, although the negative effects greatly exceed the favourable ones. The study was conducted utilising a cross-sectional research design. Mens would be more violent than females, according to the hypothesis. The findings imply that there are notable gender differences in hostility. The results of the study help to address the psychological problems of PUBG players. Even though the field has grown quickly in the last three to four years, it is still possible to get a clear picture of how the Big Five personality traits relate to video games.
- Coyne, Warburton, et. Al. (2023). Although there is a lack of empirical data, numerous hypotheses of development imply that playing aggressive online games would not have the same effect on all teenagers. People who had greater risk factors or played violent video games were more aggressive, and engaging in violent video games probably made people more aggressive if they had other gaming issues or were men with poor self-control. The results are analysed objectively, recognising that not all kids experience the same negative effects from violent computer games.
- Olejarnik, & Romano, (2023). Aggressive conduct presents a problem for society. Since violent game content has become more widely available in the last few decades due to the increasing usage of internet distribution platforms, there is still much disagreement about whether playing violent video games influences aggression. These results demonstrate that, like other violent media, violent video games should be viewed as risk factors for aggression because they encourage aggressive behaviour and teach aggressive models through observation. Stronger age verification policies should be implemented on online gaming platforms to protect

young people from violent video game content, and parental controls over content creation should be used more frequently.

- Nathiya, Sujatha, et. Al (2023). The idea that violent video games are to blame for young people's hostility and violent conduct is supported by several pieces of data. Online papers and peer-reviewed journals have been used to gather the necessary proof and bolster the assertion. The study has employed the secondary way of data gathering to offer a psychological viewpoint on the subject matter. Given the increasing popularity of aggressive video games, it is imperative to investigate the topic. Thus, this article offers new perspectives on the often-discussed subject of how violent video games negatively impact young people's behaviour.
- Selvam, et. Al. (2023). Video games have grown more accessible and engrossing as technology has developed, which encourages longer play and, in certain situations, addictive behaviours. This study looked at the connection between violence and video game addiction, examining whether playing violent video games for extended periods could make some people more likely to act aggressively. One paradigm for comprehending the way abusive video games may affect aggressive feelings, ideas, and actions is the "General Aggression Model." Although there is still more research to be done on this subject, several studies have found a significant correlation between young people's levels of hostility and excessive gaming, particularly violent video games.
- Khan, & Adil, (2023). The goal of the current study was to look into how internet game addiction can predict teenage violence and academic achievement. The findings indicated that among adolescents, there is a substantial negative correlation between academic performance and internet game addiction, a significant positive correlation between aggression and internet game addiction, and a significant negative correlation between academic performance and aggression. According to the t-test, girls outperform boys in academic performance, while boys outperform girls in gaming addiction. The goal of this study is to shed light on how game addiction affects teenage violence and academic achievement. The results show that the instruments used in the study had adequate alpha reliabilities. Every correlation point in the anticipated direction.
- Uçur, & Dönmez, (2023). To assess the risk of cyberbullying among violent video game players and the part that gaming addiction (GA) plays, this study intends to look into the relationship between aggressive video games and reactive-proactive aggression. Reactive and proactive aggression scores were significantly higher among GA computer game players; there was no significant distinction between people who engaged in dangerous and non-threatening games. According to the study's results, playing violent video games raises the risk of bullying on the internet, playing violent video games increases the likelihood of being a bully, and playing aggressive video games is not linked to reactive or assertive aggression.
- Yifei, & Motevalli, (2023). This paper aims to present a comprehensive framework of violence and game addiction with selfishness and self-control from the literature, even though previous research has highlighted the relationship between these two variables. The results show that self-control, self-importance, aggression, and dependence on video games are related and impact people's interaction with others, mental and physical health, and both. To overcome the difficulties presented by these interrelated issues, this report further emphasises the significance of more research and focused interventions. Future academics can use these results as important proof and data to carry out more thorough studies on this topic.

- Abbasi, Rehman, Hussain, et.al. (2022). The purpose of this study is to investigate the predictive function of behavioural, affective, and cognitive involvement phases in violent video games on behaviours that are aggressive, which is still unclear. To get information from aggressive game players, we went to gaming areas and gave out the study survey. On the other hand, the second phase demonstrated that playing violent video games does not affect aggressive behaviour. Aggressive behaviour in violent games was positively impacted by the other two involvement stages. To identify aggressiveness and take action to treat it, it is essential to understand how harsh video game participation states affect aggressive behaviour, which is what our study adds to the body of research on aggressive behaviour.
- Lérida-Ayala, Aguilar, et. Al. (2022). This article's primary goal is to review the literature that shows a direct link between the development of behavioural disorders in kids and teenagers and their constant, undifferentiated video game use. Six of our seven hypotheses were unquestionably supported by the results. We discovered that excessive video game playing leads to aggressive behaviours, sleep disturbances, technological addiction, and subpar academic achievement. Furthermore, it impedes the growth of emotional intelligence and connections with others. In conclusion, it's important to utilise technology in general and video games especially appropriately, adjusting the content to the age of the kids and the duration of time they spend using them.
- Wei, Liu, et al. (2022). This study investigates a mediation model for age and gender differences based on problem behaviour theory. The study looked at how violent video games and aberrant peer association affected problem behaviours in kids and teens by grade level and gender. The findings demonstrated that problem behaviours were considerably positively predicted by involvement with violent video games, with deviant peer affiliation acting as a mediating factor. The mediating impact showed significant differences by grade and gender. This discovery contributes to our understanding of how the determinants of problem behaviours vary from person to person. It also has significant ramifications for therapies aimed at lowering problematic behaviours in kids and teenagers.
- Demircioğlu, & Haydar, (2021). This study seeks to determine the effects of online addiction to gaming on the levels of anger and rage in teenagers. This study indicated medium levels of gaming dependency and antagonism among teenagers. Addiction to computer games is a common issue, particularly among kids and teenagers. Using structural equation modelling, the study intends to investigate the connection between secondary school students' levels of aggression and communication skills and their addiction to computer games. It was anticipated that the communication abilities of learners would be useful in addressing aggression in video game addictions, based on the structural equation model that was built. The analysis revealed that middle school pupils who took part in the study had a small amount of addiction to video games, and that their ability to interact had an impact on computer video game addiction through hostility. The results demonstrated that interacting skills directly impacted aggression and that gaming addiction was directly impacted by aggression.
- Caner, & Evgin, D. (2021). Assessing the relationships between digital gaming dependence and psychological eating behavior, which can cause tension and aggressiveness in teenagers, was the aim of this longitudinal research investigation. 856 teenagers from Turkey's Mediterranean region participated in this study. 32.4% of the teenagers in this survey had a digital game addiction. Additionally, there was a

connection between emotional eating, violent behavior, and addiction to digital games. This study is significant because it shows that digital gaming addiction and violent behaviour are powerful indicators of emotional eating. The results of the study show that psychological eating is a component of computer gaming addiction that increases adolescent obesity risk.

- Bogacheva, & Alekseeva, (2021). The study seeks to understand the relationship between aggression, impulsivity, and motivation for playing video games. Some research has suggested that impulsiveness and gaming motivation contribute to the development of gaming addiction, which in turn increases aggressive tendencies and exacerbates impulsiveness. The physiological, trait-level, and communicative aggressiveness scores of gamers who played more than 10 hours a week were greater than those of gamers who played less than 4 hours. Except for a significant association between enmity and immersion drive, none of the gaming motives were positively connected with impulsiveness or aggression. Gamers with varying amounts of consistent gaming time did not significantly differ in their gaming reasons.
- Aung, & Chit, (2020). This study's primary goal is to find out how aggressive behavior among Sagaing District University students is impacted by game addiction. The Gaming Addiction Scale was employed as a research tool to gauge students' violent behaviour and gaming addiction. Based on the findings of descriptive data, it can be concluded that the pupils had a moderate game addiction. Subsequently, the test revealed that male and female students differed significantly in terms of both overall and subsections of game addiction. Additionally, there was a notable gender difference in the overall aggressive behaviour, with female students exhibiting much higher levels than male pupils.
- Agustarika, & Adam, (2020). The study aimed to examine the connection between violent behaviour and online game addiction among Sorong City pupils attending high school in 2018. The findings indicated a weak but significant connection (R = 0.357) between violent behaviour and online game addiction. According to the study's findings, high school kids who are hooked on internet gaming may benefit from behaviour therapy from specialised nurses. On the contrary, parents and educators ought to exercise stricter control over their children's or students' gaming habits.
- Nawaz, Nadeem, et. Al. (2020). The goal of the current study was to investigate the connection between narcissistic characteristics and isolation from society in gamers and PUBG game addiction. These measurements were shown to have great dependability based on the data obtained. The results also revealed a negative relationship between loneliness and isolation, dependence on online games, and narcissistic traits among PUBG game players. It was determined that while playing online games helps people display emotions and behaviours that are inconsistent with narcissistic inclinations, it also has the benefit of improving social abilities and interactions among players.
- Shabbi, Mahmood, et.al (2020). The current study looked into the connection between young people's violence and gaming addiction. The findings showed that while verbal aggressiveness and hostility were not substantially correlated with gaming addiction, there was a strong but negative correlation between gaming addiction and aggression, fury, and physical aggression. According to the study's findings, playing violent video games can help people let off steam, which lowers physiological arousal and lessens violence in real life. The inverse association

between aggression and gaming addiction suggests that young adults view games favourably as a way to manage their hostility. The analysis has certain constraints since future research should look at the specific kinds of violent games or compare different age groups to better understand the connection between playing violent video games and hostility.

- Emre, O. (2020). Children are exposed to electronic goods at a younger age due to the rapid advancements in technology. Addiction to video games can cause aggressive behaviour and have an impact on the mental health of the coming generations of kids and teenagers. This study sought to ascertain the effects of game addiction on the positive and negative hostility of secondary school pupils. According to the findings, reactive and proactive aggression are significantly influenced by gender. Adolescent boys had noticeably higher levels of aggression than girls. It was discovered that teenagers in the tenth grade had a greater level of aggression than youths in various other grades. The study found that 53% of reactive-proactive aggression is caused by game addiction.
- Przybylski, & Weinstein, (2019). This study examined the degree to which teenagers who play violent video games have more aggressive behaviour than their non-gaming counterparts. The hypothesis that recent violent games are linearly and positively associated with care judgements of aggressive behaviour was investigated using multiple regression analyses by a preregistered analysis strategy. Neither this prediction nor the notion that the interaction between these variables follows a regressive parabolic function was supported by the results. There was no proof of a crucial turning point linking playing violent video games and acting aggressively. Exploratory and sensitivity studies showed that these null effects held for various operationalizations of playing violent video games as well as when prosocial behavior, another behavioural outcome, was the main emphasis.
- Quwaider, Alabed, et al. (2019). Explores the impact of video games on the behaviour of players. Because video games are so popular and can make gamers indulge, the number of people playing them has drastically increased, changing the video game business from one that primarily provides enjoyment to one that now influences most aspects of daily life. We shall examine these two kinds from two angles in this paper. Initially, we will examine the kind of abilities or responses that the player will get by playing various game types. These responses may be overt or covert, favourable or unfavorable, and include things like growth, bettering social connections, strengthening problem-solving abilities, assault, anger, nervousness, or stress reactions.
- Fernandez, Williams, et. al. (2019). The purpose of this paper was to review female gaming, or the place of women in video game culture, and to find any psychopathological symptoms that may be related. The primary results demonstrated that women can improve their mental, physical, and social abilities by playing video games. However, because of unfavourable assumptions based on gendered and/or gameplay experiences, they are less motivated to play video games. Video games sometimes include sexualised content and are linked to traditional male traits like being excessively violent. To deal with online harassment, female gamers seem to need coping mechanisms. Women's abilities are limited since they have different needs when it comes to video games, which are frequently left out of game designs.
- Scharrer, Kamau, et. Al. (2018). This chapter offers a concise overview of the studies examining the relationship involving playing aggressive video games and violence, highlighting important methods and conclusions from survey and experimental

research. We outline some of the key points in the discussion on the subject, provide the rationale behind our interpretation, and offer some recommendations for further study. We see that impacts frequently depend on the characteristics of the games themselves, the way they are performed, and the variations that each player brings to the game. Overall, we present evidence in favour of the conclusion that playing aggressive video games does have a minor but significant impact on aggression.

- Khurshid (2017). The study's primary goal was to investigate and track how violent video games affect students' behaviour in the classroom. It is hurting the behaviour of secondary school pupils. The interview guide consisted of fourteen questions. Thematic analysis was used to examine the qualitative data. The study's main conclusion was that most pupils play aggressive video games. The spread of the video game subculture has altered the time, attention, and preferences of students. Their lifestyle has been altered by violent video games, which also have a direct impact on their academic performance and classroom conduct.
- Jeong, Kim, et. Al. (2016). This research demonstrated how psychological factors like loneliness and despair affect game addiction. The relationship between violence and psychological factors and game addiction has not, however, been objectively demonstrated in much research. Furthermore, few research studies have used sub-factors associated with each construct to examine their interactions in a single model in a setting of game addiction. The model's significant functions for aggression were demonstrated by the results. Both feelings of isolation and sadness had a considerable impact on aggression, which in turn was the most powerful predictor of game addiction of the three variables. Interestingly, aggressiveness acted as a mediator between video game addiction and clinical depression.
- Schmitt, & Livingston, (2015). The study explores the usage and addiction patterns of video games among male learners in college were investigated in this study. It looked at the relationship between aspirations of college engagement, on-campus drug and alcohol offences, academic grade point average (GPA), and video game addiction. The findings are examined about the conceptual validity of dependence on video games as well as the consequences for male students' involvement and academic achievement in college.

Rationale of the Study

As violent video games have become more and more popular among young adults, worries about their possible psychological effects, specifically aggression and gaming addiction, have increased. While there is evidence that excessive gaming is associated with aggressive behaviour, little is known about how particular aggressiveness components—such as hostility, anger, and verbal or physical aggression contribute to gaming addiction. The purpose of this study is to investigate this relationship, focusing on the ways that aggression and gaming addiction affect young adults who play violent video games. By filling this knowledge void, the study aims to promote better gaming habits and support approaches to dealing with problematic gaming behaviour in youth.

METHODOLOGY

Aim

To study the effect of gaming addiction on aggression levels in young adults who play violent video games.

Objective

- To examine the relationship between gaming addiction and the level of aggression in young adults playing violent video games.
- To study different dimensions of aggression as a predictor of gaming addiction in young adults playing violent video games.

Hypotheses

- **H1:** There will be a significant correlation between gaming addiction and the level of aggression in young adults playing violent video games.
- **H2:** Different dimensions of aggression will be a significant predictor of gaming addiction in young adults playing violent video games.

Variables

- Independent Variable: Factors of Aggression (physical aggression, verbal aggression, anger, and hostility)
- Dependent Variable: Gaming Addiction

Description of Sample

This study was conducted with a sample of 200 young adults (N = 200), aged between 18 and 25 years (M = 21.21 years). Data were collected using standardized, validated questionnaires to ensure reliability and consistency. Participants were approached in person and invited to take part in the study after providing informed consent, ensuring voluntary participation and ethical compliance.

Inclusion Criteria: The consent process also helped build trust and encourage genuine responses, enhancing the quality of the data collected.

Exclusion Criteria: Age outside the target range: Exclude participants younger than 18 or older than 25. Non-consent or incomplete consent: Anyone who does not give informed consent or withdraws partway. Incomplete or inconsistent responses: Responses with excessive missing data, straight-lining, or contradictions. History of diagnosed psychiatric disorders, such as schizophrenia, bipolar disorder, or severe depression, unless your study specifically wants to include or account for these. These can confound aggression scores.

Description of Tools

Buss and Perry Aggression Questionnaire (BPAQ):

In the 1990s, Mark Perry and Arnold H. Buss created the self-report Buss and Perry Aggression Questionnaire to measure individual variations in aggression. It consists of 29 items across four subscales: Physical Aggression (9 items), Verbal Aggression (5 items), Anger (7 items), and Hostility (8 items). Every item has a 5-point Likert scale, with 1 representing Extremely Uncharacteristic of me and 5 representing Extremely Characteristic of me. Two items, 9 and 16, have scores that are reversed. For the interpretation, each subscale score is calculated by summing the responses for the items in that subscale. The Total Aggression Score is the sum of all four subscale scores (Internal reliability alpha =.89). Higher scores indicate higher levels of aggression in that dimension. The subscale interpretation is:

1. Physical Aggression: Measures the tendency to use physical force or violence. High scores indicate a higher likelihood of engaging in or condoning physical aggression.

2. Verbal Aggression: Assesses tendencies toward verbal confrontation or argumentativeness. High scores suggest a more aggressive communication style.
3. Anger: Reflects emotional arousal and feelings of anger. High scores imply difficulty controlling temper or frequent experiences of anger.
4. Hostility: Captures feelings of ill will, resentment, and suspicion toward others. High scores indicate a cynical worldview or a tendency to interpret others' actions as threatening.

Gaming Addiction Scale (GAS):

The Gaming Addiction Scale (GAS), developed by Lemmens et al. (2009), is a self-report measure designed to assess problematic or addictive gaming behavior. It is a 7-item short version (most widely used) often used in research with adolescents and young adults, and each item reflects one of the seven core addiction criteria: Salience, Tolerance, Mood Modification, Relapse, Withdrawal, Conflict, and Problems, respectively. Each item is rated on a 5-point Likert scale ranging from 'Never to Very Often' (1 to 5, respectively). The total score ranges from 7 to 35. Cronbach's alpha coefficients for the 7-item version ranged from 0.82 to 0.87, indicating high internal consistency. Item-wise Interpretation (Based on Addiction Criteria): Salience – Gaming dominates thoughts, feelings, and behavior, Tolerance – Increasing amounts of time spent gaming to achieve satisfaction, Mood Modification – Gaming is used to improve mood or escape problems, Relapse – Failed attempts to reduce or stop gaming, Withdrawal – Negative feelings when unable to game, Conflict – Gaming causes problems with family, school, work, or friends, Problems – Continued gaming despite experiencing negative consequences.

Research Design

This study design uses a quantitative, cross-sectional, and correlational method. The objective is to find links between the variables, which can have positive, negative, or zero values. When it is positive, both variables shift in the same direction. Examine the linear link between general aggression and gaming addiction to test the hypothesis. Descriptive Statistics to find means, standard deviations, and skewness for all scale items. Multiple Regression Analysis was done to test H2, evaluating the predictive strength of individual aggression components on gaming addiction, and significance Level $p < 0.05$, statistical analyses were carried out using standard statistical software packages (e.g., SPSS).

Procedure

To collect the data, a random sampling was done of 200 individuals. The participants were approached individually. Only young adults between the ages of 18 to 25 were allowed to take part in the study. For the conduct of this research, a Buss and Perry Aggression Questionnaire (BPAQ) and the Gaming Addiction Scale (GAS) were used. The questionnaire was used to record the responses of the participants, and the respondents were informed that participation was voluntary and confidentiality was ensured. After responses were collected, the raw score was calculated. Hence, the scoring of data was done. Further statistics were used to interpret the data.

Statistics Used: Each response category's item endorsement and associated skewness values were calculated. The method opted for the analysis of variables was Pearson's Correlation, which is used when the two variables we want to analyze are both quantitative and aim to find the linear relationship between variables. Later, the p-value was calculated by taking a 0.05 significance level. Hence, the result was analyzed. Another method opted for was

multiple regression. Simple linear regression is expanded upon by multiple regression. It is used when determining the value of a dependent variable by using the variances of two or more independent variables.

INTERPRETATION AND RESULT

Calculation of the raw score was done. The raw score helped interpret the result that the higher the score, the higher the level of gaming addiction, and the same for the factors of the aggression scale. By using statistical tools, further data was interpreted.

The mean and standard deviation of both variables, gaming addiction and factors of aggression, i.e., physical aggression (PA), verbal aggression (VA), anger (A), and hostility (H), were calculated and displayed in Table 1.

	Table 1: Descriptive Statistics				
VARIABLE	**N**	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
Gaming Addiction	200	8	62	22.33	6.250
Physical Aggression	200	9	37	23.88	5.396
Verbal Aggression	200	4	24	14.71	3.665
Anger	200	5	30	19.74	4.339
Hostility	200	8	35	22.91	4.540

Table 1 explains that the first columns show the mean, standard deviation, and the total number of individuals who participated in the study of the gaming addiction scale items. The mean gaming score was 22.33, and the standard deviation calculated was 6.25 in 200 individuals. This interprets that the (22.33) mean is higher than the (6.25) standard deviation.

The second column explains the mean and standard deviation of the factors of the BPAQ items; the first factor is Physical Aggression (PA). The mean score calculated was 23.88, and the standard deviation was 5.39. In the sample, physical violence is mild on average.

The second factor is Verbal Aggression (VA). The mean score calculated was 14.71, and the standard deviation was 3.67. In contrast to physical aggressiveness, participants reported lower levels of verbal aggression. There is moderate variation in responses.

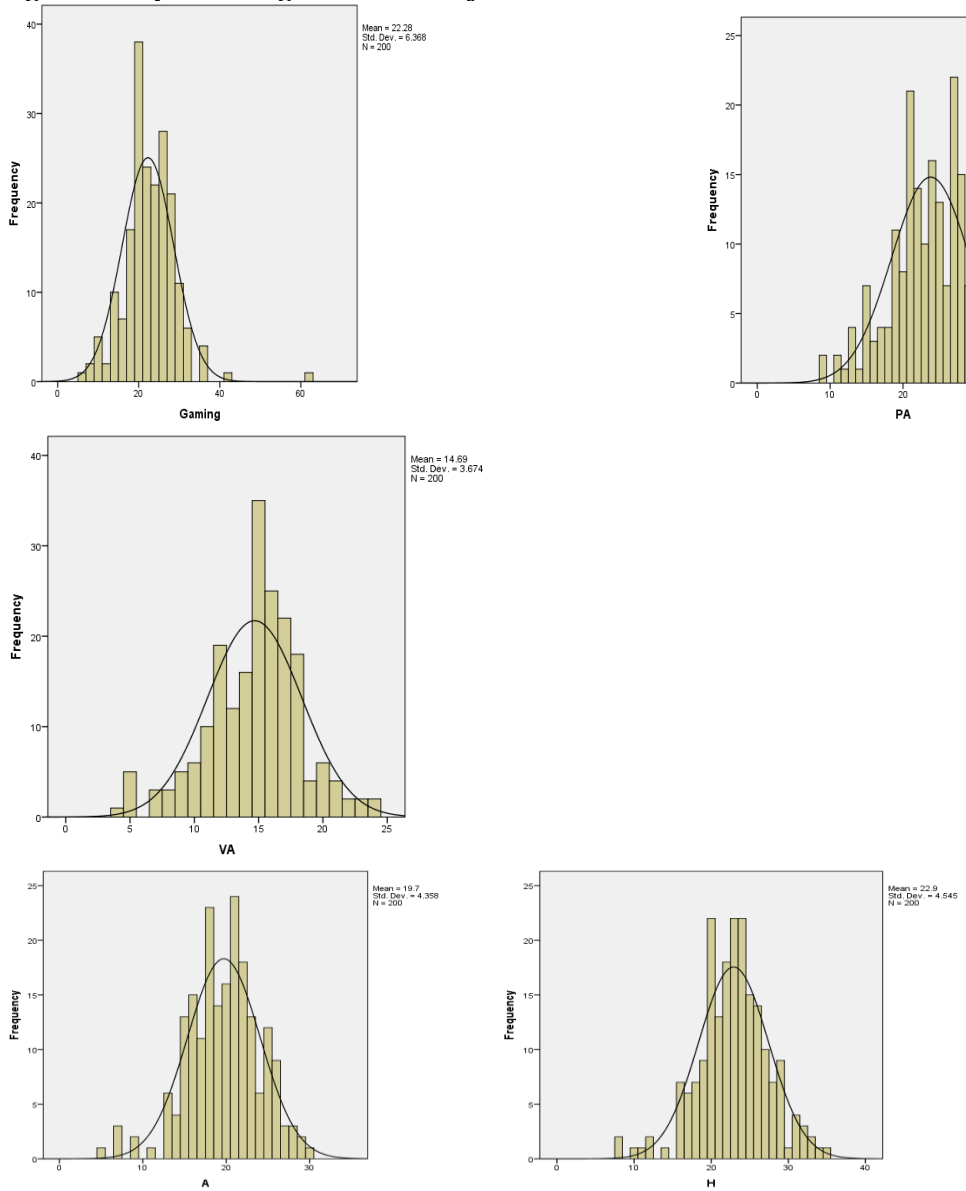
The third factor is Anger (A). The mean score calculated was 19.74, and the standard deviation was 4.34. This shows a moderate level of anger. The variation is similar to verbal aggression, showing a stable distribution in the sample.

The fourth factor is Hostility (H). The mean score calculated was 22.91, and the standard deviation was 4.54. Hostility has one of the highest average scores among aggression dimensions. This suggests participants tend to show more cognitive/attitudinal aggression (hostility) than expressive (anger) or behavioral (verbal/physical) aggression.

Table 2: Descriptive Statistics, Skewness, and Kurtosis

	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Gaming Addiction	22.33	6.250	1.145	.172	7.162	.342
Physical Aggression	23.80	5.387	-.263	.172	-.024	.342
Verbal Aggression	14.69	3.674	-.385	.172	.658	.342
Anger	19.71	4.358	-.407	.172	.685	.342
Hostility	22.90	4.545	-.275	.172	.976	.342

Figure 1: representing NPC curve of all variables



From Table 2, the skewness value for gaming addiction was 1.145, and the kurtosis was 7.162, indicating a positively skewed and leptokurtic distribution. This suggests that while most participants scored in the lower to moderate range of the scale, a small number of participants exhibited extremely high levels of gaming addiction, contributing to a sharp peak and heavy tails in the distribution.

For the aggression subscales, the data were approximately normally distributed. Physical aggression had a mean of 23.80 (SD = 5.39) with a skewness of -0.263 and kurtosis of -0.024. Verbal aggression had a mean of 14.69 (SD = 3.67), skewness of -0.385, and kurtosis of 0.658. Anger (M = 19.71, SD = 4.36) showed a skewness of -0.407 and kurtosis of 0.685, while hostility (M = 22.90, SD = 4.55) had a skewness of -0.275 and kurtosis of 0.976.

All aggression variables demonstrated relatively symmetrical distributions with skewness and kurtosis values falling within acceptable ranges (±2), indicating approximate normality (George & Mallery, 2010). These findings suggest that the aggression-related data are suitable for parametric statistical analyses. However, the significant departure from normality in the gaming addiction scores may warrant consideration of data transformation or the use of non-parametric statistical methods in subsequent studies.

TABLE 3 CORRELATION

Pearson Correlation Coefficients Among Gaming Addiction and Aggression Variables (N = 200)

		Gaming addiction	Physical Aggression	Verbal Aggression	Anger	Hostility
Gaming addiction	Pearson Correlation	1	.041	.206**	.103	.155*
	Sig. (2-tailed)		.561	.003	.148	.028
	N	200	200	200	200	200
Physical Aggression	Pearson Correlation	.041	1	.273**	.303**	.318**
	Sig. (2-tailed)	.561		.000	.000	.000
	N	200	200	200	200	200
Verbal Aggression	Pearson Correlation	.206**	.273**	1	.185**	.279**
	Sig. (2-tailed)	.003	.000		.009	.000
	N	200	200	200	200	200
Anger	Pearson Correlation	.103	.303**	.185**	1	.381**
	Sig. (2-tailed)	.148	.000	.009		.000
	N	200	200	200	200	200
Hostility	Pearson Correlation	.155*	.318**	.279**	.381**	1
	Sig. (2-tailed)	.028	.000	.000	.000	
	N	200	200	200	200	200

**. Correlation is significant at the 0.01 level (2-tailed) and the 0.05 level.

Figure 2: histogram representing correlation

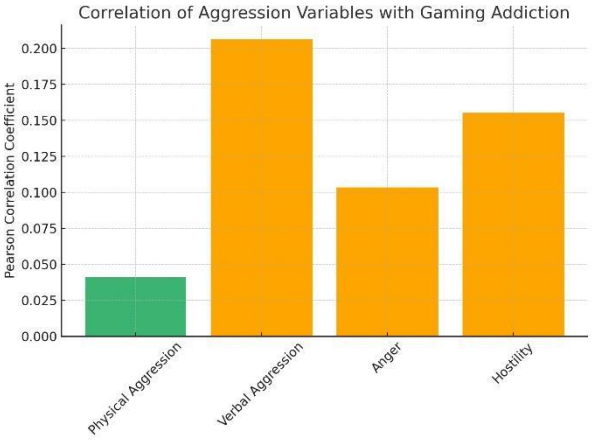


Table 2 presents the Pearson correlation coefficients (r), which measure the strength and direction of linear relationships between variables. Positive correlation values indicate that as one variable increases, the other also tends to increase. The closer r is to 1 or -1, the stronger the relationship. p-values (Sig. 2-tailed) show whether the relationships are statistically significant.

To investigate the connections between the subcomponents of aggression and addiction to gaming, Pearson correlation analysis was used. The results revealed a significant positive correlation between gaming addiction and verbal aggression ($r = .206$, $p < .01$), as well as hostility ($r = .155$, $p < .05$), indicating that higher levels of these forms of aggression are modestly associated with higher gaming addiction scores. No significant correlations were observed between gaming addiction and either physical aggression or anger. All four aggression dimensions were significantly interrelated, with the strongest association found between anger and hostility ($r = .381$, $p < .01$), supporting their inclusion as independent predictors in subsequent regression analysis.

Regression Analysis:

A standard multiple regression was performed with gaming addiction as the dependent variable and factors of aggression (physical aggression, verbal aggression, anger, and hostility) as predictors.

Table 4: Model Summary

R	R^2	Adjusted R^2	Std. Error of the Estimate
.237[a]	.056	.037	6.134

The regression model provided an R value of .237, indicating a weak positive correlation between the aggression factors and gaming addiction. The R^2 value of .056 suggests that only 5.6% of the variance in gaming addiction is explained by the combined aggression variables. After adjusting for the number of predictors, the adjusted R^2 drops to .037, indicating very limited explanatory power. The standard error of estimate (6.134) further reflects the variability not explained by the model.

Table 5: Coefficients of Regression Analysis

Predictor	Beta	B	t	Sig.
Gaming Addiction	14.687		5.054	.000
Physical Aggression	-.064	-.056	-.728	.467
Verbal Aggression	.312	.183	2.473	.014
Anger	.066	.046	.598	.551
Hostility	.143	.104	1.320	.188

Figure 3: histogram representing regression

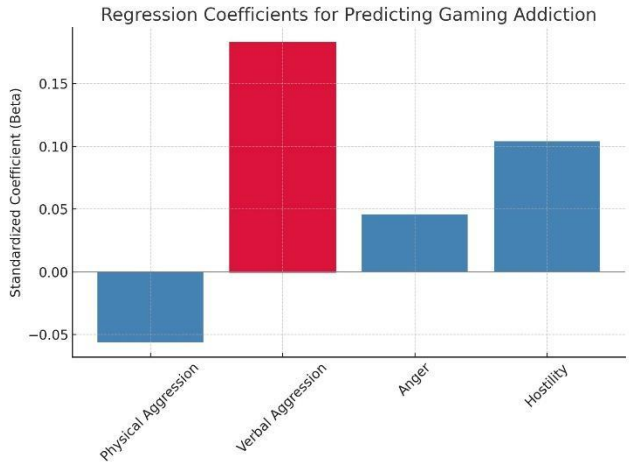


Table 4 presents the coefficients of each predictor. Among the four aggression dimensions: Verbal aggression is the only significant predictor ($\beta = .183$, $p = .014$), indicating that higher levels of verbal aggression are associated with increased gaming addiction scores. Physical aggression (p = .467), anger (p = .551), and hostility (p = .188) do not significantly predict gaming addiction, as their p-values are well above the conventional threshold of .05. While verbal aggression does significantly predict gaming addiction, the other aggression factors (physical aggression, anger, and hostility) do not. Furthermore, the overall regression model explains only a small portion of the variance, indicating that H2 is only partially supported, primarily through verbal aggression, but not collectively or comprehensively through all four factors.

DISCUSSION

This study aimed to explore the relationship between aggression and gaming addiction in young adults, specifically focusing on how different dimensions of aggression—physical aggression, verbal aggression, anger, and hostility—might predict the severity of gaming addiction. This study provides empirical insight into the psychological patterns associated with problematic gaming behavior among young adults, a population particularly vulnerable to excessive gaming, especially violent video games.

Hypothesis 1 (H1): There will be a significant correlation between gaming addiction and the level of aggression in young adults playing violent video games.

The first hypothesis (H1) proposed a positive correlation between overall aggression levels and gaming addiction. Table 2 supports this partially: verbal aggression (r = .206, $p < .01$) and hostility (r = .155, $p < .05$) were significantly, though modestly, correlated with gaming addiction. These findings are consistent with past literature that links social-interpersonal forms of aggression to problematic gaming behavior. For instance, Gentile et al. (2011)

reported that problematic gaming behaviors are more likely to be associated with emotional dysregulation and social conflict than direct physical aggression. Similarly, Lemmens et al. (2011) found that individuals with aggressive communication styles were more likely to use games as a coping mechanism, which may lead to addiction.

Conversely, physical aggression ($r = .041$, $p > .05$) and anger ($r = .103$, $p > .05$) did not show significant correlations with gaming addiction, indicating that behavioral or affective aggression may not directly fuel excessive gaming behavior in the same way as cognitive (hostility) or communicative (verbal aggression) forms do. These results align with findings by Anderson & Bushman (2002), who noted that while violent video games may increase aggressive thoughts and hostility, they do not always lead to overt physical aggression unless compounded by other risk factors.

Hypothesis 2 (H2): Different dimensions of aggression will be a significant predictor of gaming addiction in young adults playing violent video games.

To test H2, a multiple regression analysis was conducted with all four aggression dimensions predicting gaming addiction. As shown in Table 4, only verbal aggression significantly predicted gaming addiction ($\beta = .183$, $p = .014$), while physical aggression ($\beta = -.056$, $p = .467$), anger ($\beta = .046$, $p = .551$), and hostility ($\beta = .104$, $p = .188$) were non-significant. This finding highlights verbal aggression as a unique and significant predictor of gaming addiction, consistent with prior studies suggesting that impulsive communication, argumentativeness, and online confrontational behavior are more prevalent among those with higher gaming addiction scores (Kuss & Griffiths, 2012). Furthermore, the regression model summary (Table 3) indicates a weak overall model fit, with an R^2 of .056, meaning only 5.6% of the variance in gaming addiction was explained by the aggression variables. The adjusted R^2 further reduced this to 3.7%, suggesting limited collective predictive power. Although these results partially support H2, they also point to the multifactorial nature of gaming addiction, emphasizing the likely influence of additional psychological, social, and contextual variables not captured in this model.

Descriptive statistics from Table 1 offer deeper insight into participants' aggression and gaming patterns. The mean gaming addiction score ($M = 22.33$, $SD = 6.25$) falls in the moderate range, suggesting that while the majority of participants are not severely addicted, there is a significant segment at risk. The highest aggression subscale mean was for physical aggression ($M = 23.88$), yet it did not significantly correlate with gaming addiction. In contrast, hostility ($M = 22.91$) and anger ($M = 19.74$) were also relatively elevated, suggesting that participants often experience cognitive and emotional aggression, even if it doesn't always translate into addictive gaming.

Interestingly, the lowest mean was for verbal aggression ($M = 14.71$), yet it emerged as the strongest predictor of gaming addiction. This contrast might reflect the disinhibition effect in online gaming environments, where individuals with even moderate verbal aggression tendencies may feel freer to express themselves without real-world consequences, leading to more frequent and intense engagement with games (Suler, 2004).

These findings add nuance to the ongoing debate over the psychological consequences of violent video games. Contrary to media narratives that often equate violent games with violent behavior, this study suggests that gaming addiction is more closely linked to

interpersonal and cognitive dimensions of aggression, such as verbal conflict and hostile worldviews, than to physical aggression or raw emotional anger.

Additionally, the low variance explained by aggression factors underscores the importance of investigating other psychological dimensions, such as impulsivity, loneliness, depression, or low self-esteem, which have been previously associated with excessive gaming (Caplan et al., 2009; Ko et al., 2012). Moreover, environmental and contextual variables like family conflict, peer dynamics, or academic stress may also mediate this relationship.

CONCLUSION

This study explored the relationship between gaming addiction and aggression among young adults, with a focus on specific aggression dimensions—physical aggression, verbal aggression, anger, and hostility. The findings revealed that while gaming addiction is modestly correlated with verbal aggression and hostility, only verbal aggression significantly predicted gaming addiction. This highlights the role of aggressive communication tendencies in the development of problematic gaming behaviors.

However, the overall predictive power of aggression was limited, indicating that gaming addiction is influenced by a broader set of factors beyond aggression alone. These results emphasize the need for more comprehensive approaches to understanding and addressing gaming addiction, particularly among young adults.

Future research should consider additional psychological, social, and environmental influences and utilize longitudinal designs to better capture the dynamics of gaming behavior and aggression over time. Interventions aimed at reducing verbal aggression and promoting healthy gaming habits may be beneficial in mitigating the risks of gaming addiction.

Recommendations:

1. Encouraging Healthy Gaming Habits: Parents and educators should inform teenagers about the need for moderation in screen time and direct them towards effective gaming practices. The likelihood of addiction and the violence that goes along with it might be decreased by establishing time limits and promoting offline activities.
2. Including Mental Wellness Programs in Schools: To treat anxiety about social situations and emotional control, mental health practitioners should work with educational organisations to establish programs.
3. Parents' Supervision and Monitoring: Parents need to be informed about the warning symptoms of game addiction as well as how it may affect their children's anxiety and aggression. By providing parent education workshops, parents can learn how to keep an eye on their kids' gaming habits while encouraging candid dialogue and mutual support.
4. Future Research and Policy Development: Longitudinal research to investigate how game addiction affects teenage mental health over the long run. Using this information, policymakers can create evidence-based gaming legislation that safeguards minors from excessive exposure and the harms that come with it.

Limitations

1. Cross-sectional Design: This study used a cross-sectional design, meaning all data were collected at one point in time. As a result, causality cannot be inferred—we cannot conclude whether aggression leads to gaming addiction or vice versa.
2. Self-report Measures: Both the Buss-Perry Aggression Questionnaire and the Gaming Addiction Scale are self-reported, which introduces the potential for social desirability bias, memory inaccuracy, or underreporting/overreporting, particularly regarding aggressive tendencies or problematic behaviors.
3. Lack of Control for Confounding Variables: The study did not account for other psychological or contextual variables that may influence gaming addiction, such as Depression or anxiety, Impulsivity, Peer influence, Academic stress, and Family environment. These unmeasured factors may confound the relationship between aggression and gaming addiction.
4. Sample Characteristics and Generalizability: The sample consisted of young adults only, limiting the generalizability of the findings to other age groups (e.g., adolescents or older adults). Additionally, if the sample lacks gender, cultural, or geographic diversity, the results may not represent broader populations.
5. Limited Variance Explained: The regression model explained only 5.6% of the variance in gaming addiction, suggesting that aggression alone is a weak predictor and that other important factors were not included in the model.

Implications

1. Focus on Verbal and Cognitive Aggression in Intervention Programs: Since verbal aggression significantly predicted gaming addiction, and hostility was significantly correlated, intervention programs could focus more on social communication skills and cognitive-behavioral strategies to reduce confrontational or hostile tendencies in young adults.
2. Gaming Addiction is Multi-faceted: The limited explanatory power of aggression highlights that gaming addiction cannot be understood in isolation. Future interventions should take a holistic approach, addressing emotional regulation, mental health, social skills, and coping mechanisms.
3. Policy and Education: Educational institutions could integrate modules that promote healthy gaming habits, raise awareness about problematic aggression, and provide resources for students at risk of gaming addiction.
4. Further Research Directions: Future studies could:
    - Use longitudinal designs to assess causal relationships.
    - Include additional predictors such as impulsivity, depression, loneliness, or family environment.
    - Compare violent vs. non-violent gamers to determine whether content type moderates the aggression–addiction relationship.
    - Explore gender differences, as aggression and gaming behaviors may differ significantly across genders.

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