

The Impact of Violent Video Games on Anxiety Disorder

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Abstract. With the gradual development of the Internet, playing video games has become a new trend. More and more people are increasingly playing the violent video games, which often contain various bloody elements, including but not limited to killing other players with weapons, and there is often blood in the picture. And this topic has attracted many scholars' attentions. This paper will use literature review to review the current studies about the impact of playing violent video game on anxiety disorder. It will also involve a branch of violent games, FPS games. While previous studies show mixed results, this literature review will specially focus on the negative effects that violent video games bring to the anxiety disorder. The database includes the PubMed and Google Scholar, but there are fewer studies about FPS game, and there is a considerable room for future specific studying in this topic. Although disagreements remain in the literature review, the overall evidence suggests that prolonged and intense engagement in violent video games may have negative impacts on anxiety disorder. Future research should use more longitudinal research to establish the causal relationship.

Keywords: violent video game, anxiety disorder, internet gaming disorder

1. Introduction

Nowadays, with the development of electronic devices, people can easily play video games on smartphones, computers and televisions. Moreover, many different types of video games have become popular, for example, strategy games, puzzle games and action games. This review will mainly focus on a type of game that contains violent elements, which is commonly called violent video games. This study will also focus on a subtype of violent video game, commonly known as FPS games. FPS stands for First-Person Shooter, meaning games in which players experience the action from the character's first-person perspective, showing only the hands and selected weapon on the screen [1]. This kind of game often includes violent elements, including but not limited to killing others with weapons such as knives or guns and blood splatter. At the same time, players can also experience characters, interact with objects and enemies, which have the characteristics of both fear games and violent games.

Anxiety disorder is considered a type of psychological disorder; it is a kind of common human psychopathology. People with anxiety disorders may often experience intense and excessive fear and worry about everyday matters and have difficulty concentrating or making decisions. The symptoms will last for a relatively long time. The anxiety disorder can also seriously affect people's normal

life. It can seriously affect a person's ability to perform at work, succeed in school, and engage in social activities [2]. And people who have anxiety disorder increased from 5.12% in 2008 to 6.68% in 2018 among adult Americans. Among them, the increase in anxiety among people aged 18 to 25 is the most significant [3].

The purpose of this formal literature review is to provide an overview of studies on the impact of violent video games, with a focus on its negative impact on anxiety disorders. This review aims to summarize the studies that highlight the negative potential effect the violent video game may bring to the anxiety disorder and intend to clarify the current state and outline the future direction. The topic of violent video game has been extensively discussed; however, the conclusions of these studies are not consistent. Previous studies have shown different findings: some scholars believe that playing violent games does not lead to any results, while others think it may also have positive effects and can help players release their stress. For instance, a paper shows that playing violent video game will cause no detrimental effects [4]. This review does not attempt to comprehensively cover all viewpoints but focuses its research on the possible negative psychological impacts it may trigger, especially in terms of anxiety.

2. Violent video games and anxiety disorder

2.1. The violent elements and the anxiety disorder

Violent video games contain many violent elements. When players play computer games in an immersive way, especially horror games or highly exciting games, players can more easily immerse themselves in the characters, becoming deeply immersed in the game environment. This can lead to feelings of tension and fear, prompting players to react by fighting or fleeing. As many people know, terrifying and bloody films are prohibited from being screened in many countries, such as the United Arab Emirates. In addition, some movies containing small amounts of blood and violence elements will also be restricted for minors to watch. This is because the violent and horror movies can bring many negative effects on humans. According to the study by Madan, even brief exposure to violent movies has the potential to increase anxiety levels among the late adolescents [5]. Moreover, other research indicates that exposure to horror and violent movies and significantly affect viewers by amplifying their psychological responses, such exposure led to an increase in stress levels and heightened feelings of anxiety [6]. In addition, the violent elements and bloody scenes can place children in a state of fear and may lead to nightmares, which is not conducive to children's physical and mental development. Therefore, violent movies are banned in many places. A study shows that the stress performance index of players of fear and excitement games is higher than that of runner and puzzle gamers. At the same time, the change in cortisol concentration is also higher than that of players of other games. Cortisol level is related to the stress and anxiety [7]. Acute anxiety and stress lead to a temporary increase in cortisol level. The acute and chronic stress experienced by players who play horror games and excitement games is higher than that of runner games and puzzle games, chronic stress stimulation may lead to the outbreak of neurological diseases such as anxiety and depression. What's more, the abnormal increase in the cortisol level can cause people in a state of fight-flight response, resulting in the brain being unable to relax [8]. In addition, the violent video game play may also bring many other negative effects, it is positively related to aggressive behavior and delinquency [9]. Moreover, playing the violent games that include violence with guns may increase children's dangerous behavior around real firearms [10]. When people play the violent game, our brains will be in a state of tension and excitement for a long time. These games usually have a level-clearing mode, and players will always want to continuously improve their ranks to

obtain rewards and a sense of achievement. When players win a game for the first time, successfully defeat opponents, earn rewards or the scores, and win the praise from other players, they may gain a strong sense of satisfaction, which will lead players continue playing the games and try to get the same satisfaction again. Therefore, people will always be willing to continuously pursue the winning of the games. In addition, players might satisfy their social needs through games, which could lead them to neglect social interactions in real life. All of these will gradually lead to immersion in the game. This will cause another problem which is called the IGD. IGD means Internet gaming disorder. IGD has been classified as a kind of disease in the 11th Revision of the International Classification of Diseases (ICD-11). The gaming disorder may lead to many other serious problems, including the psychological problems, such as increasing the risk of anxiety disorder and insomnia [11]. The DSM-5-TR notes that the diagnosis of Internet gaming disorder would require more than five of nine symptoms, which include giving up other activities due to games and losing interest in things one was previously interested in and losing or threatening one's job or interpersonal relationships due to playing games [12]. Internet Gaming Disorder might be more prevalent in users who play FPS games than other games like sports games [13]. More players in MMORPG and FPS games meet the diagnostic criteria for online gaming disorder [14]. After playing the violent video games, the players showed a significant increase in the anxiety state score than before the playing [15]. Also, the severity of anxiety disorders is related to the IGD status [16]. Playing violent video games may indirectly lead to the occurrence of anxiety disorders. Excessive gaming may make it difficult for players to balance their life and work or study time well. For instance, players may be unable to get sufficient sleep or complete tasks within the prescribed time due to being addicted to games. The higher exposure of the violent video game may increase the acceptance of the aggressive behavior and other negative consequences of the mental problems like anxiety and the insomnia among the adolescents [17]. The video game stress people out, and when people stress out, they may become irritable and aggressive [18].

2.2. The FPS games and anxiety disorder

There are fewer studies on FPS games, and this review will also focus on this popular genre. FPS game is a kind of game that belongs to the violent video games, FPS means First-Person Shooter, which are currently very popular, like the game Call of Duty and VALORANT. In the first-person perspective, players can experience the game in a more immersive way. FPS often comes with a game mode featuring gunfights and knife battles. In the game, players can kill their opponents with guns, and at the same time, players can also experience characters, interact with objects and enemies. FPS players show more symptoms of problematic video game play situations than players of strategy games and card games. In addition, lack of a high school diploma and unemployment are considered as the risk factors for problematic video games play [19]. The high levels of participation, rewards for defeating enemies, the joy and satisfaction of victory make it easier for FPS gamers to play the game more frequently. During the game, the players may feel very nervous when dodging attacks from other players, for example, other players may suddenly emerge from the cover and appear in front of them, which will also startle the players. If people have long-term exposure to the violent content, the ability of distinguishing the difference between real violence and fictional violence may decline and will also trigger or exacerbate various mental disorders [20]. People will unconsciously think about problems in a violent way because they no longer consider violence as a way of thinking which should be inappropriate. And there will be more aggressive behaviors, and violent incidents appear in the society, which are harmful to the society development. In addition, the background environments in FPS games are mostly based on post-war elements,

such as dilapidated walls, broken glass, abandoned houses, scrapped cars, and air-raid shelters. All of these can give players the feeling that they are in a venue where violent incidents or post-war events might have occurred. What's more, during the gameplay, enemies may suddenly appear without warning and launch attacks on the player, which is full of unpredictability. This unexpected attack can trigger an immediate physiological stress response, leading to a sudden sense of fear and heightened alertness, then the player must rapidly adjust the emotion to cope with the threats. Sometimes, the players need listen carefully to the enemy's footsteps. This requires players to be fully concentrated, and when other players approach, players may feel nervous. These intensely fear caused by the movie and the program may elevate the level of the unnecessary anxiety and other emotional problems [21]. The study shows that after defeating enemies, the players may experience anxiety instead of the joy result from the victory, while the death of their own character may sometimes increase positive emotions [22]. This is most likely because when players are no longer in a game environment or need to continue killing enemies, they no longer must worry about being killed by enemies that suddenly rush out or not being able to defeat the enemies. At the same time, sometimes teammates or enemies can exert a kind of pressure on the player themselves. For instance, some games will display the ranking of the number of kills and the number of deaths. Players at the bottom of the ranking may feel a significant increase in pressure and anxiety due to the fear that their team will not win because of them. Sometimes, teammates or enemies may even verbally provoke or criticize, which further increases the player's sense of stress and anxiety.

3. Method

This study employed a narrative literature review rather than a strict systematic review or meta-analysis. The relevant research was mainly retrieved through academic databases such as Google Scholar, PubMed, and referred to the reference lists of several core studies. The search focused on studies exploring the relationship between violent or horror video games and negative psychological outcomes, especially around the area of anxiety. The time frame covered studies published between 2000 to 2025, and the search terms included: "violent video games and anxiety", "violent elements and study", "violent movies and anxiety", and "violent games and anxiety". Ultimately, the collected literature was synthesized and summarized by theme, with a focus on the research results that suggest violent, or horror video games may contribute to negative psychological consequences.

4. Conclusion

This review examined the studies on the relationship between violent video game and psychological outcomes, with a particular focus on the negative effect on anxiety disorder. In conclusion, although research on violent video games and anxiety shows mixed findings, some studies show that playing violent video games may have no significant effects to people, and some studies show the results that playing the violent video game may bring benefits to people. However, there are also some studies indicate that violent video game may pose a risk of elevated anxiety levels. The limitation of the samples may be the reason that cause such big differences in results, one study just included only male participants, and some studies also just included the adults as the participates. All these sampling issues may be the reasons of the experiment's bias. Future studies require more longitudinal research to clarify the causal mechanisms underlying the link between violent video games and anxiety. This also reminds us that we should pay attention to the potential negative effects and strive to prevent them, especially for minors whose physical and mental development is still not mature. For instance, when minors are exposed to violent video games, parents can guide

and comfort their children accordingly. And schools or parents can also help them regulate the rational use of electronic products or give them some tasks to help them distract attention.

5. Limitation and future direction

Most of the studies used the cross-sectional approach as the experimental method. Although the cross-sectional study design enables us to efficiently capture the association between exposure to violent video game and anxiety disorder, it also has some limitations. Firstly, due to the unclear sequence of time, the causal relationship cannot be verified. Secondly, this design is vulnerable to uncontrolled confounding factors. The experiment participants may just contain only one gender like males or just contain the adults. Measurement methods that rely on self-reporting may introduce recall bias and reporting bias. Also, the variations in participants' living environments, personal experiences, or cultural backgrounds, may also act as interfering factors. Finally, cross-sectional data only represent a single time point and cannot examine the incidence rate or the trend over time, the timeline is also not clear. Future studies need to further clarify causal relationships between the violent video game and anxiety disorder. The future studies should adopt an experimental design to establish the causal relationship between the variables, or longitudinal designs to investigate the potential relationship between the variables. Exploring possible mediating variables such as coping mechanisms, social support, and game scenarios is also important.

References

- [1] Sandmann, L. (2024). FPS: What it is and characteristics of the game genre. ExitLag. <http://www.exitlag.com/blog/what-is-fps/>
- [2] Sauer-Zavala, S., Bufka, L., & Wright, C. V. (2016) How psychologists help with anxiety disorder? <https://www.apa.org/topics/anxiety/disorders>
- [3] Goodwin, R. D., Weinberger, A. H., Kim, J. H., Wu, M., & Galea, S. (2020). Trends in anxiety among adults in the united states, 2008–2018: Rapid increases among young adults. *Journal of Psychiatric Research*, 130, 441–446. <https://doi.org/10.1016/j.jpsychires.2020.08.014>
- [4] Kühn, S., Kugler, D. T., Schmalen, K., Weichenberger, M., Witt, C., & Gallinat, J. (2019). Does playing violent video games cause aggression? A longitudinal intervention study. *Molecular Psychiatry*, 24(8), 1220–1234. <https://doi.org/10.1038/s41380-018-0031-7>
- [5] Madan, A., Mrug, S., & Wright, R. A. (2014). The effects of media violence on anxiety in late adolescence. *Journal of Youth and Adolescence*, 43(1), 116–126. <https://doi.org/10.1007/s10964-013-0017-3>
- [6] Mattar, L., Zeeni, N., & Bassil, M. (2015). Effect of movie violence on mood, stress, appetite perception and food preferences in a random population. *European Journal of Clinical Nutrition*, 69(8), 972–973. <https://doi.org/10.1038/ejcn.2014.262>
- [7] An investigation into the relationship between salivary cortisol, stress, anxiety and depression. (2003). *Biological Psychology*, 62(2), 89–96. [https://doi.org/10.1016/S0301-0511\(02\)00128-X](https://doi.org/10.1016/S0301-0511(02)00128-X)
- [8] Aliyari, H., Sahraei, H., Daliri, M. R., Minaei-Bidgoli, B., Kazemi, M., Agaei, H., Sahraei, M., Hosseini, S. M. A. S., Hadipour, M. M., Mohammadi, M., & Dehghanimohammadabadi, Z. (2018). The beneficial or harmful effects of computer game stress on cognitive functions of players. *Basic and Clinical Neuroscience*, 9(3), 177–186. <https://doi.org/10.29252/nirp.bcn.9.3.177>
- [9] Anderson, C. A., & Dill, K. E. (2000). Video games and aggressive thoughts, feelings, and behavior in the laboratory and in life. *Journal of Personality and Social Psychology*, 78(4), 772–790. <https://doi.org/10.1037/0022-3514.78.4.772>
- [10] Chang, J. H., & Bushman, B. J. (2019). Effect of exposure to gun violence in video games on children's dangerous behavior with real guns. *JAMA Network Open*, 2(5), e194319. <https://doi.org/10.1001/jamanetworkopen.2019.4319>
- [11] Wei, Q., Zhang, S., Pan, Y., Hu, H., Chen, F., Yin, W., Lin, Q., Pan, S., Tham, C., & Wu, J. (2022). Epidemiology of gaming disorder and its effect on anxiety and insomnia in Chinese ethnic minority adolescents. *BMC Psychiatry*, 22, 260. <https://doi.org/10.1186/s12888-022-03894-3>

- [12] James Sherer, M.D. January (2023), Internet gaming, American psychiatric Association. <https://www.psychiatry.org/patients-families/internet-gaming>
- [13] Weinstein, A., Livny, A., & Weizman, A. (2017). New developments in brain research of internet and gaming disorder. *Neuroscience & Biobehavioral Reviews*, 75, 314–330. <https://doi.org/10.1016/j.neubiorev.2017.01.040>
- [14] Na, E., Choi, I., Lee, T.-H., Lee, H., Rho, M. J., Cho, H., Jung, D. J., & Kim, D.-J. (n.d.). The influence of game genre on internet gaming disorder. *Journal of Behavioral Addictions*, 6(2), 248–255. <https://doi.org/10.1556/2006.6.2017.033>
- [15] Baldaro B., Tuoizzi G., Codispoti M., Montebanocci O., Barbagli F., Trombini E., & Rossi N. (n.d.). Aggressive and non-violent videogames: Short-term psychological and cardiovascular effects on habitual players. <https://doi.org/10.1002/smi.1015>
- [16] Alhamoud, M. A., Alkhalifah, A. A., Althunyan, A. K., Mustafa, T., Alqahtani, H. A., & Al Awad, F. A. (2022). Internet gaming disorder: Its prevalence and associated gaming behavior, anxiety, and depression among high school male students, dammam, saudi arabia. *Journal of Family and Community Medicine*, 29(2), 93. https://doi.org/10.4103/jfcm.jfcm_48_22
- [17] Akel, M., Fahs, I., Haddad, C., Kheir, N., Obeid, S., & Hallit, S. (2023). Association of violent video gaming with mental health among male teenagers in lebanon. *Vulnerable Children and Youth Studies*. <https://www.tandfonline.com/doi/abs/10.1080/17450128.2022.2160884>
- [18] Hasan, Y., Bègue, L., & Bushman, B. J. (2013). Violent video games stress people out and make them more aggressive. *Aggressive Behavior*, 39(1), 64–70. <https://doi.org/10.1002/ab.21454>
- [19] Elliott, L., Golub, A., Ream, G., & Dunlap, E. (2012). Video game genre as a predictor of problem use. *Cyberpsychology, Behavior, and Social Networking*, 15(3), 155–161. <https://doi.org/10.1089/cyber.2011.0387>
- [20] Bhattacharya S., Saleem S. M., & Nath S. (n.d.). Screened shadows: Navigating the impact of violent movies and crime OTT series on mental well-being. *Indian Journal of Community Medicine*, 10.4103/ijcm.ijcm_360_24. https://doi.org/10.4103/ijcm.ijcm_360_24
- [21] Hoge, E., Bickham, D., & Cantor, J. (2017). Digital media, anxiety, and depression in children. *Pediatrics*, 140(Supplement 2), S76–S80. <https://doi.org/10.1542/peds.2016-1758G>
- [22] Ravaja, N., Turpeinen, M., Saari, T., Puttonen, S., & Keltikangas-Järvinen, L. (2008). The psychophysiology of james bond: Phasic emotional responses to violent video game events. *Emotion*, 8(1), 114–120. <https://doi.org/10.1037/1528-3542.8.1.114>