

Rapid Communication

The Appeal of Violent Video Games to Lower Educated Aggressive Adolescent Boys from Two Countries

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ABSTRACT

The objective of this study was to test the effect of individual differences on appeal and use of video games. Participants were 299 adolescent boys from lower and higher secondary schools in the Netherlands and Belgium. In general, boys were most attracted to violent video games. Boys that scored higher in trait aggressiveness and lower in empathy were especially attracted to violent games and spent more time playing video games than did boys lower in trait aggressiveness. Lower educated boys showed more appreciation for both violent and nonviolent games and spent more time playing them than did higher educated boys. The present study showed that aggressive and less empathic boys were most attracted to violent games. The fact that heavy users of violent games show less empathy and higher aggressiveness suggests the possibility of desensitization. Other studies have shown that playing violent games increases aggressiveness and decreases empathy. These results combined suggest the possibility of a violence cycle. Aggressive individuals are attracted to violent games. Playing violent games increases aggressiveness and decreases empathy, which in turn leads to increased appreciation and use of violent games.

INTRODUCTION

IN THIS STUDY, we examine what types of individuals are most attracted to violent video games. Past research has shown that video games in general are most enjoyed and played by males.¹⁻³ Violent video games in particular are most enjoyed by adolescent males.^{4,5} Therefore, we decided to focus on this group as to determine what types of adolescent males are most attracted to violent games. We considered several important individual differences, including trait aggressiveness, empathy, education level, country of origin, playtime, and game addiction. We will give a brief description of each of these individual differences. Previous research has shown that aggressive individuals are

more attracted to violent media than are non-aggressive individuals.⁶⁻⁸ We sought to replicate this finding in the present study, expecting aggressiveness to induce attraction to violent games. Empathy has been found to inhibit aggressive responding.⁹ People who are more empathic to the pain and suffering of others would probably find violence less attractive. Therefore we expected empathy to inhibit attraction to violent video games. Research on the relation between intelligence and attraction to video games has shown that less intelligent boys are generally more attracted to violent games than are more intelligent boys.⁸ In the current study, instead of measuring intelligence we selected boys from lower and higher levels of secondary education. We expected lower educated

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boys to be more attracted to violent games than higher educated boys. Heavy users of violent games seem particularly vulnerable to the aggression increasing effect of violent video games.¹⁰ Repeated exposure to media violence can cause desensitization to cues that normally trigger empathic responding, increasing the likelihood of aggressive or violent behavior.⁷ Therefore, we expected heavy users of violent games to be less empathic and show more aggressiveness. Heavy use of games is often connected to video game addiction. A recent study found that game addiction is related to decreased academic achievements, decreased social skills, and higher animosity.¹¹ They also found that most addicts play games with violent content. We expected to find similar results in the current study. Finally, cultural differences may also influence attraction to violent games. Although the Netherlands and Belgium share a common language (Dutch), their cultural differences might contribute to differences in attraction to violent video games.

METHODS

Participants

Participants were 299 12–17-year-old adolescent boys from Belgium and The Netherlands. After elementary school, Dutch and Belgian children are sent to lower or higher forms of secondary education based on their grades, and their mental and learning capabilities. In the present study, we selected boys from both lower and higher forms of secondary education from both countries. Participants included 89 lower educated Dutch boys, 64 higher educated Dutch boys, 61 lower educated Belgian boys, and 85 higher educated Belgian boys.

Survey

Participants first completed a survey that measured trait aggressiveness, empathy, video game use, and video game addiction. Aggressiveness was measured by the nine-item physical aggression subscale of the Aggression Questionnaire.¹² Sample items include: "I have threatened people I know," and "If I have to resort to violence to protect my rights, I will." The alpha coefficient for the aggressiveness measure was 0.79. Empathy was measured by the five-item empathic concerns subscale of the Interpersonal Reactivity Index.¹³ Sample items include "I can easily relate to other people's feelings," and "If I have an argument with someone, we talk

about it." The alpha coefficient for the empathy measure was 0.67. Video game addiction was measured by 11 items adapted from the diagnostic criteria from DSM-IV for pathological gambling.¹⁴ The dimensions—salience, compulsive use, withdrawal, tolerance, interpersonal relationships, and conflicting interests—have been used in previous studies as measurements of video game addiction.^{15,16} Sample items include: "I play video games as often as I can," and "I have been addicted to a game before." The alpha coefficient for the game addiction measure was 0.92. They also reported the number of hours per week they spent playing video games.

Selection of video game descriptions

The 12 video game descriptions (six violent, six nonviolent) used in the present study were selected from a pool of 40 descriptions of fictitious games rated by a separate pretest group. Although all game descriptions differed in their degree of realism, only the violent descriptions included the objective to kill or destroy humans. We selected both violent and nonviolent descriptions that were rated similarly in terms of how much the pretest participants wanted to play them. Likewise, realism ratings were similar for both types of descriptions.

Procedure

After giving their informed consent, participants completed the survey. Next, they rated how much they wanted to play each of the 12 games, and chose one favorite description. Next, they listed three of their personal favorite video games. Two independent raters coded whether players were required to kill humans in order to advance in these games. If so, the game was coded as violent, if not, the game was coded as nonviolent. There was perfect agreement among raters. In total there were three measures of attraction to violent games: (1) ratings of how much participants wanted to play violent games (on a scale from 1 = not at all to 10 = extremely), (2) whether participants chose a violent favorite (1 = chose violent game, 0 = chose nonviolent game), and (3) the number of their three personal favorite video games that contained violence (0, 1, 2, or 3). The correlations between measures were 0.16 to 0.34, $ps < .03$. Finally, participants were thanked, debriefed, and dismissed.

Statistical analysis

Data were compared using multivariate, univariate or logistic analysis.

RESULTS AND DISCUSSION

Ratings of violent and nonviolent video games

Ratings of video games were analyzed using multivariate regression analysis, with type of video game description (i.e., violent, nonviolent) as the within-subjects factor. In general, adolescent boys were much more interested in playing violent games than in playing nonviolent games, $F(1, 291) = 6.28, p < 0.02, d = 0.29, \text{Wilks } \Lambda = 0.98$. Lower educated boys wanted to play both violent and nonviolent video games more than did higher educated boys, $F(1, 291) = 11.65, p < 0.001, d = 0.40$. Belgian boys also wanted to play the video games more than did Dutch boys, $F(1, 291) = 10.90, p < 0.001, d = 0.39$. There was a main effect for empathy, $F(1, 291) = 10.97, p < 0.001$. The more empathic boys were, the more they wanted to play nonviolent games, $F(1, 290) = 23.03, p < 0.0001, \text{partial } \eta^2 = 0.074$.

Video game choice

Because the choice for a favorite description was dichotomous (i.e., violent vs. non-violent), it was analyzed using logistic regression analysis. Results showed that participants were much more likely to choose a violent game than a nonviolent game to play, 79% vs. 21%, respectively. The higher the level of trait aggressiveness in boys, the more likely they were to choose a violent game to play, Wald $\chi^2(1) = 6.47, p < 0.02$. In contrast, the higher the level of empathy in boys, the less likely they were to choose a violent game to play, Wald $\chi^2(1) = 7.34, p < 0.007$. Furthermore, 84% of the lower educated boys chose a violent favorite description, whereas 74% of the higher educated boys chose a violent favorite description, Wald $\chi^2(1) = 4.03, p < 0.04$.

Favorite video games

Univariate regression analysis was used to analyze the number of violent games included in participants' three favorite games (0, 1, 2, or 3). The three most popular games among adolescent boys were all violent ones: Grand Theft Auto, Counter Strike, and Call of Duty. These three games covered 40% of the total number of games listed. The higher the level of trait aggressiveness in boys, the more violent favorite games they listed, $t(178) = 2.21, p < 0.03, r = 0.19$.

Time spent playing video games

More than 95% of lower educated adolescent boys play video games, with an average of 9 h per

week. Of the higher educated boys, 87% play video games, with an average of 6 h per week, $t(293) = 3.97, p < 0.0001, d = 0.46$. The higher the level of trait aggressiveness in boys, the more time they spent playing video games, $t(293) = 2.07, p < 0.04, r = 0.11$. In addition, Dutch boys spent more time playing video games than did Belgian boys, $t(293) = 3.03, p < 0.0001, d = 0.35$.

Addiction to video games

We analyzed addiction to video games as a criterion variable using univariate regression analysis. The more time boys spent playing video games, the more signs of addiction they showed, $t(292) = 16.92, p < 0.0001, r = 0.71$. In addition, Dutch boys were more addicted to video games than Belgian boys were, $t(292) = 3.58, p < 0.0001, d = 0.42$.

CONCLUSION

The purpose of the current study was to test the effect of individual differences on the appeal of violent video games. We found that education level, empathy, trait aggressiveness and cultural aspects contributed to differences in the appeal of violent or nonviolent video games. In general, adolescent boys prefer violent games over nonviolent games. They wanted to play violent games more than nonviolent ones, often chose a violent favorite and named more violent than nonviolent games in their personal top three. These findings are consistent with conclusions from other studies.^{17,18} We found a negative relation between the use of games and the level of education. Lower educated boys showed a greater preference for games and spend more time playing them than higher educated boys. It is possible that higher education requires more time and effort, thereby reducing playtime. One author has suggested that video games are more popular among less intelligent adolescents because they provide means of displaying competence and gaining status among friends that they are unable to attain through other means.¹⁹ Although we should be careful about labeling lower educated boys as less intelligent than higher educated boys, our results do indicate that lower education may give rise to an interest in video games. Consistent with previous studies,^{3,20} the present study showed that aggressive boys were most attracted to violent games. Heavy users of violent games also showed less empathy which suggests the possibility of desensitization to violence after extensive use. Although we

cannot determine whether aggressiveness leads to increased violent game play, or violent game play leads to increased aggressiveness, the implications of this relationship remain unsettling. Some authors have even suggested that causality of violence in games works in both directions. Aggressive tendencies may lead youth to seek out media content consistent with those tendencies. The resulting exposure reinforces and exacerbates aggressive tendencies which in turn leads to increased appreciation and use of violent games.²¹ These findings suggest the possibility that violence may contribute to the addictive nature of video games.

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