

Is Basic Personality Related to Violent and Non-Violent Video Game Play and Preferences?

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Abstract

Based on the uses and gratifications perspective, personality was expected to relate to violent video game play frequency and game preferences. Participants completed measures of personality and frequency of violent video game play, and identified their most frequently played video games. Results indicate that individuals higher in openness but lower in agreeableness played violent video games more frequently. In addition, more open and extroverted but less agreeable and neurotic individuals generally preferred to play video games that are more violent. Results suggest personality may be more predictive of violent video game use than traditional media use, though the predictive personality dimensions may be consistent across media types.

Introduction

MASS COMMUNICATION SCHOLARS AND PERSONALITY researchers have become increasingly interested in the role that personality-related constructs play in the uses and effects of entertainment media, particularly video games.¹⁻⁴ Studying the relationship between personality and video game play is important because personality may predict whether individuals play video games, and if they do, the frequency with which they play these games and the types of games they choose to play. Scholars claim that personality may be one of the most vital predictors of media choice⁴ and the primary determinant of video game choice.³ Furthermore, as frequency of video game play and the types of video games individuals play affect the outcomes they experience (e.g., learning, arousal), identifying the personality make-up that drives this process could be the key to controlling video games' effects. Finally, personality may explain why individuals react very differently to the same media content.⁴

Following the lead of other scholars and responding to the call for research on personality in selective exposure to media violence,⁴ the present study examines the relationships between personality⁵ and the frequency of violent video game play and the preference for playing violent video games. This study is guided by the uses and gratifications perspective.⁶ This approach is consistent with that of Krcmar and Kean⁷ who deemed it appropriate to begin examining the uses and gratifications involved in personality and violent TV/movie exposure via the major facets of personality. Although the relationship between personality and violent video game use and effects is likely bidirectional, the present study considers

personality as a predictor of violent video game play and preferences, consistent with the predominant focus of the uses and gratifications approach.

Uses and gratifications

The media uses and gratifications perspective proposes that human needs interact with individual and societal characteristics, resulting in problems and solutions that motivate gratification seeking or problem solving. This gratification seeking leads to media consumption, among other behaviors, which produces (or fails to produce) the desired gratifications. Consequently, the individual's characteristics and, ultimately, society may in turn be affected.^{6,8} In the media uses and gratifications process, personality may constitute the individual characteristics that motivate, and are eventually impacted by, gratification seeking and media use. For example, personality may affect the salience of certain needs or gratifications, and given that technical and content aspects associated with a medium contribute to the gratifications it may offer, personality may drive the use of specific types of media and media content.^{7,9,10}

Uses and gratifications has been used as a framework to examine the relationship between personality and traditional media exposure and preferences.^{7,9-11} It has also been applied to personality and video game use.³ Scholars such as Sherry et al.⁸ and Hartmann and Klimmt³ suggested that future research should examine the relationship between personality and the types of gratifications players seek and, therefore, the games they play. Consistent with these recommendations, the present study assesses video game choice via survey

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procedures versus experimental settings. Hartmann and Klimmt^{3(p117)} contend that experimental settings usually assess media choice in a single and ecologically invalid situation that may hinder personality's effect from being observed. They advise that "valid results are more likely if an individual's behavior is observed and aggregated across similar situations, for example, through questionnaires about stable *habits* of media choice." This study also follows Greene and Krcmar's¹¹ procedures in that it is situated within the uses and gratifications perspective but does not directly measure media users' motives. Instead, motives are inferred via assessments of personality and how it relates to media use. As Greene and Krcmar^{11(p73)} state, "assessing the personality correlates of exposure to media content allows the researcher to speculate about viewer motives without directly triggering participants' demand characteristics."

Research conducted in the uses and gratifications tradition has identified various motives for video game play: arousal, challenge, competition, diversion, fantasy, and social interaction.^{8,12,13} Individuals who play video games for *arousal* want to stimulate their emotions, be excited and aroused, and desire activity/action. Playing for *challenge* entails pushing oneself to improve and to test skills, and experiencing accomplishment and the satisfaction of performing well. Individuals who play for *competition* want to prove their superior playing skills to others and display dominance over other players. Playing video games for *diversion* is a means to reduce or avoid stress and to escape. Individuals who play for *fantasy* desire to assume identities other than their own, to do things they could not or would not normally do, and to imagine alternative realities. Finally, *social interaction* provides players with social rewards and interaction with others. Sherry et al.'s⁸ research indicated that the most common reasons for playing video games were (in descending order): challenge, competition, diversion, arousal, fantasy, and social interaction. Diversion followed by social interaction and arousal were the strongest predictors of time spent playing video games.

Five-Factor personality model

Personality may create certain salient needs that motivate individuals to use/play video games to gratify said needs. The Five-Factor personality model has been utilized as a framework for classifying and understanding personality traits,¹⁴ communication processes,¹⁵ and violent video game play.¹ According to this model, there are five fundamental and universal personality dispositions. Although researchers sometimes use different terms for these factors, the factors themselves tend to be agreed upon.⁵ Across studies, five distinct factors have emerged: extroversion, neuroticism, agreeableness, conscientiousness, and openness.¹⁶

Extroversion. Extroverts are sociable, active, sensation/excitement seeking, warm, gregarious, assertive, and prone to experiencing positive emotions.^{10,17,18} They are predisposed to obtain stimulation from external sources, particularly social sources.¹⁹

Scholars have suggested that extroverts use media to facilitate, rather than to replace, social interaction. Research is consistent with this reasoning, as extroversion tends to be positively related to watching movies,^{7,10,20} and negatively

related to watching TV.^{7,21,22} Research by Gibb et al.²³ showed that frequent and non-frequent players of video-arcade games did not differ in social withdrawal/gregariousness. In contrast, Teng²⁴ showed that students who played online video games were more extroverted than were non-playing students.

Video game play has been shown to gratify needs for arousal, activity, excitement, and social interaction.^{8,12,25,26} Individuals play online games, in particular, to socialize and participate in group activities,^{27,28} which increase their enjoyment.^{29,30} Individuals motivated to play for social interaction and arousal also tend to play video games more frequently.^{8,26}

Because extroverts seek stimulation, they are likely drawn to video games, particularly violent ones. Extroversion tends to be positively related to watching violent and action-oriented films^{7,10,20} and to liking and enjoying violent TV and movies.^{20,31} When examining different components of extroversion, Krcmar and Kean⁷ found that highly active individuals tended to dislike violent media, though excitement seekers tended to like it. They concluded that individuals who seek excitement, but are not actually active themselves, are attracted to the excitement found in violent programming. In terms of video games, Lachlan and Maloney³² found that players higher in extroversion performed more violent interactions in the video games they played. On the other hand, Anderson et al.¹ and Bartholow et al.² found no association between extroversion and frequency of violent video game play. Although the existing research on this topic is mixed, logic suggests that because extroverts seek stimulation, they are likely attracted to violent video games. Based on this reasoning, uses and gratifications theorizing, and research on traditional media and extroversion, the following hypotheses were put forth:

H1a: Extroversion will be positively related to frequency of violent video game play.

H2a: Individuals who most frequently play video games featuring strong violence will be higher in extroversion than will individuals who most frequently play video games not featuring strong violence.

Neuroticism. Neuroticism consists of anxiety, tension, fear of interaction/shyness, emotional instability (depression, moodiness, impulsiveness), low self-esteem/self-consciousness, angry hostility, and vulnerability.^{7,10,18,31} Media research shows a somewhat inconsistent relationship between neuroticism and media use. For instance, the vulnerable component of neuroticism⁷ and neuroticism in men¹⁰ were negatively related to TV exposure, whereas neuroticism in the form of trait anxiety was positively related to TV exposure.³¹

Regarding video game play and neuroticism, one study shows no relationship between the two.²⁴ The literature on traditional media, however, and uses and gratifications suggest that neuroticism and video game play will be positively linked. Highly neurotic individuals are expected to play video games in order to provide diversion, a gratification involving stress and tension reduction, relaxation, and escape.^{8,12,13,25,26} Research also shows that playing video games for diversion and frequency of game play are positively associated.⁸

Turning to violent media, Hall¹⁰ proposed that high neurotics would likely avoid violent media and instead turn to relaxing content to relieve anxiety. On the other hand, Krcmar

and Kean⁷ suggested that violent media depictions may provide neurotics with information about crime, risk, and danger, thus increasing the likelihood that high neurotics would watch violent media. In line with their theorizing, research shows neuroticism to be positively related to frequency of exposure to violent TV and violent films.^{7,20,31}

Although neurotics may view violent media more frequently, they do not necessarily enjoy such exposure. Among teenage boys in Spain, neuroticism was positively correlated with enjoying violent films,²⁰ whereas neuroticism was not related to liking violent TV among U.S. adults.^{7,31} Krcmar and Kean⁷ explained these contradictory results as being due to neurotics' tendencies to seek out violent media to validate their fears of a dangerous world, not for enjoyment. Neuroticism and violent video game play's relationship is also inconsistent: Bartholow et al.² found no relationship, whereas Anderson et al.¹ observed a negative one. Though the research concerning neuroticism and violent media use is inconsistent, uses and gratifications suggests that the diversion and escape provided by interacting in a fictional violent video game would motivate individuals to prefer such games. Therefore, the following hypotheses were advanced:

H1b: Neuroticism will be positively related to frequency of violent video game play.

H2b: Individuals who most frequently play video games featuring strong violence will be higher in neuroticism than will individuals who most frequently play video games not featuring strong violence.

Agreeableness and conscientiousness (psychoticism). Some scholars view agreeableness and conscientiousness as subfactors representing low values of psychoticism.³³ Agreeableness is characterized by altruism, nurturance, straightforwardness, empathy, nonaggression, and a trusting nature.¹⁹ Conscientiousness is marked by impulse resistance, self-control, organization, and following through with tasks.⁵ In contrast, psychoticism is typified by hostility, impulsivity, aggressiveness, egocentricity, and a lack of empathy.^{10,18} Hall¹⁰ suggested that these separate dimensions of psychoticism may affect media consumption differently, and assessing these two factors separately may allow for relationships not evident with the more general psychoticism measure to be observed. Krcmar and Kean⁷ also advocated the use of agreeableness and conscientiousness versus psychoticism. As such, the present study measures agreeableness and conscientiousness rather than the global psychoticism construct.

Individuals low in agreeableness and conscientiousness tend to be aggressive or hostile, suggesting they may need a socially acceptable outlet in which to express their emotions or carry out their antisocial desires. In terms of the uses and gratifications perspective, these individuals may be motivated to play video games for fantasy, the desire to assume another identity, and to do things one could not or would not normally do in real life.^{8,34} Video-arcade game research revealed no differences in hostility/kindness between frequent and non-frequent players.²³ Likewise, Teng²⁴ found no association between agreeableness and online video game play, but found conscientiousness to be positively associated with online video game play.

In terms of violent media use, individuals high in psychoticism may prefer deviant or nontraditional media con-

tent,¹⁰ whereas those high in agreeableness may not like violent media.⁷ Research is consistent with such logic, as psychoticism is generally associated with more frequent violent media consumption, and agreeableness is linked with less frequent violent media use. Specifically, those high in psychoticism have been shown to watch more violent TV and more violent and action-adventure movies,^{20,31} but fewer comedy-romance films.¹⁰ High psychotics also tend to enjoy violent media more than do low psychotics^{20,31,35} and express a preference for violent films.^{35,36} Similarly, individuals low in the agreeableness dimensions of modesty and tender-mindedness tend to like violent media more.⁷

Violent video game use and psychoticism are also related. Relatively recent research demonstrated that college students' psychoticism, as well as the related construct of novelty seeking, were positively correlated with their frequency of violent video game exposure.² Similarly, Anderson et al.¹ found that agreeableness and conscientiousness were negatively correlated with frequency of violent video game play. Furthermore, Lachlan and Maloney³² observed that psychoticism predicted players performing more unjust acts of violence and more acts of violence showing no harmful consequences in the games they played. As previously mentioned, individuals low in agreeableness and conscientiousness tend to be aggressive, suggesting they may need an acceptable outlet for such feelings. As most video games contain violence,³⁷ the video game world would be an ideal arena in which this could occur. Individuals high in agreeableness and conscientiousness, on the other hand, would not have such desires, and thus would not be as attracted to the fantasy opportunities found in violent games.

H1c: Agreeableness will be negatively related to frequency of violent video game play.

H2c: Individuals who most frequently play video games featuring strong violence will be lower in agreeableness than will individuals who most frequently play video games not featuring strong violence.

H1d: Conscientiousness will be negatively related to frequency of violent video game play.

H2d: Individuals who most frequently play video games featuring strong violence will be lower in conscientiousness than will individuals who most frequently play video games not featuring strong violence.

Openness. Openness refers to being open to fantasy, aesthetics, feelings, actions, ideas, and values. Individuals high in openness are willing to engage in various aesthetic and intellectual activities.⁷ They are imaginative, original, and curious.⁵

Research suggests that individuals higher in openness are more interested in novel media stimuli²¹ and watch movies more frequently.⁷ Being open may drive individuals to play video games for *fantasy*, as they are enthusiastic about experiencing different worlds, images, and identities. Video games featuring role-playing and virtual worlds, among other characteristics, provide such gratifications as transporting players to alternate realities. Playing such games should be highly satisfying for individuals high in openness. Playing video games for fantasy has also been shown to be related to more frequent game play.¹⁴

Although media research on the openness personality dimension is rather sparse, the literature suggests being open to experience is associated with the use of violent media. Krmar and Kean⁷ reasoned that interest in novelty, which is characteristic of open individuals,²¹ may be gratified through exposure to violent media's intense visual portrayals. They found that the aesthetics component of openness predicted liking violent media. These findings lead to the final hypotheses.

H1e: Openness will be positively related to frequency of violent video game play.

H2e: Individuals who most frequently play video games featuring strong violence will be higher in openness than will individuals who most frequently play video games not featuring strong violence.

Method

Participants

Participants were 346 undergraduates (52.9% male) at a U.S. university in 2005 and 2006. Most (86.4%) reported their ethnicity as Caucasian/white, 7.4% were African-American/black, 2.9% were Asian-American/Asian, 0.3% were Latino/Hispanic, and 2.9% reported they were of another ethnicity. Almost half were between 18 and 20 years old (48.4%), 42.5% were between 21 and 23 years old, and 9.1% were 24 years or older. Respondents represented a variety of academic majors. Participants completed the measures at the beginning of their regular class times and received minimal course credit.

Measures

Personality. Personality was assessed with Goldberg's¹⁷ Big Five measure, which was also used by Anderson et al.¹ Each of the personality domains was measured with 20 items. Respondents indicated how accurately each of the items described them using a 9-point Likert-type scale (1 = "extremely inaccurate" to 9 = "extremely accurate"). Descriptive statistics and reliabilities follow: extroversion ($M = 5.98$, $SD = 1.01$, $\alpha = 0.88$), neuroticism ($M = 4.98$, $SD = 0.87$, $\alpha = 0.81$), agreeableness ($M = 6.94$, $SD = 0.90$, $\alpha = 0.88$), conscientiousness ($M = 6.39$, $SD = 0.88$, $\alpha = 0.85$), and openness ($M = 6.45$, $SD = 0.86$, $\alpha = 0.84$).

Violent and non-violent video game genres. Based on a procedure developed by Anderson and Dill,³⁸ respondents were instructed to identify the two video games (computer, console/TV, and arcade games) that they had played for the greatest amount of time during the prior year. If participants had not played a video game in the prior year, they were to skip this section. Respondents then reported how frequently they had played their "most played" and "2nd most played" video games in recent months on a 7-point scale (1 = "rarely", 7 = "often").

Over 76% of the participants ($n = 264$) identified a "most played" game. The most frequently mentioned were editions of *Madden NFL* ($n = 46$, 17.4%), followed by *NCAA Football* ($n = 24$, 9.1%), *Halo* ($n = 17$, 6.4%), *Mario Brothers* ($n = 16$, 6.1%), and *Grand Theft Auto* ($n = 12$, 4.5%). Frequency of play for participants' "most played" video games ranged from 1.00

to 7.00 ($M = 4.39$, $SD = 2.13$). More than 68% of the participants ($n = 236$) identified their "2nd most played" game. The most frequently mentioned were editions of *Madden NFL* ($n = 20$, 8.5%), followed by *Mario Brothers* ($n = 17$, 7.2%), *Halo* ($n = 16$, 6.8%), and *Grand Theft Auto* ($n = 16$, 6.8%). Frequency of play for participants' "2nd most played" video games ranged from 1.00 to 7.00 ($M = 3.92$, $SD = 1.92$). Participants reported playing their "most played" video games more frequently than they reported playing their "2nd most played" video games, $t(235) = 5.20$, $p < 0.001$.

Similar to Haridakis's³⁹ use of TV ratings to identify violent TV programs, the content ratings of the Entertainment Software Ratings Board (www.esrb.com) were used to classify participants' "most played" and "2nd most played" video games according to their level and/or type of violence. The first author categorized participants' games into one of four categories: strong violence (e.g., *Halo*), mild/cartoon violence (e.g., *Mario Brothers*), sports (e.g., *Madden NFL*), and puzzles/cards/traditional board games (e.g., *Tetris*). Providing validation for this method, participants perceived the strong-violence games as containing bloodier/gorier graphics and more violence than the other types of games.^a Frequencies and percentages of each category for "most played" and "2nd most played" games respectively follow: sports ($n = 117$, 44.3%; $n = 90$, 38.3%), strong violence ($n = 75$, 28.4%; $n = 75$, 31.9%), mild/cartoon violence ($n = 35$, 13.3%; $n = 37$, 15.7%), and puzzles/cards/traditional board games ($n = 37$, 14%; $n = 33$, 14%), $\chi^2(3) = 67.94$, $p < 0.001$; $\chi^2(3) = 40.46$, $p < 0.001$.

Violent video game play frequency. Frequency of violent video game play was assessed by asking participants how many times per week they played violent video games and how long they tended to play these games. The "times per week" response was multiplied by the "how long" response to yield an index of frequency. A portion of the participants ($n = 90$) reported playing violent video games from 0.17 to 28.00 hours per week ($M = 5.05$, $SD = 6.33$).^a

Results

Preliminary analyses indicated that participant sex was related to personality, play frequency, and game preferences, while race/ethnicity, age, and major were not.^b Thus, sex was controlled in the analyses.

Hypotheses

Hypothesis 1a through 1e predicted that personality would be related to frequency of violent video game play. A multiple regression analysis was conducted. Sex was entered first, followed by a block of the personality dimensions. The standardized regression coefficients, Pearson correlations, and partial correlations (controlling for participant sex) between the personality and violent video game play frequency variables appear in Table 1.

Results indicate that when all the variables were entered, the regression model predicted frequency of violent video game play at a statistically significant level, $F(6, 83) = 3.11$, $R^2 = 0.18$, $p < 0.01$. The addition of the personality dimensions improved the ability of the model to predict frequency of violent video game play, $\Delta R^2 = 0.15$, $\Delta F(5, 83) = 3.10$, $p < 0.05$. Higher agreeableness predicted less frequent violent video game play, whereas higher openness predicted more frequent

TABLE 1. PEARSON CORRELATIONS, PARTIAL CORRELATIONS, AND STANDARDIZED REGRESSION COEFFICIENTS FOR THE RELATIONSHIPS BETWEEN PARTICIPANT SEX AND BASIC PERSONALITY DIMENSIONS AND FREQUENCY OF VIOLENT VIDEO GAME PLAY

	Frequency of violent video game play		
	r	r _p	β
Player sex	-0.18**	—	-0.18
Extroversion	0.15	0.15	0.15
Neuroticism	0.04	0.09	0.02
Agreeableness	-0.23*	-0.25*	-0.36*
Conscientiousness	0.01	0.01	-0.06
Openness	0.17	0.15	0.28*

Notes: **p* < 0.05, ***p* < 0.10 according to two-tailed tests of statistical significance; *N* = 90; sex was coded as 1 = male, 2 = female; partial correlations control for participant sex; standardized regression coefficients are for the models containing all the predictor variables.

violent video game play. Extroversion, neuroticism, and conscientiousness were not related to time spent playing violent video games. Support for the first hypothesis was mixed.

Hypotheses 2a through 2e predicted that individuals' personalities would vary according to the level of violence found in their most frequently played video games. A multivariate analysis of variance (MANOVA) was conducted. The independent variable was the level of violence in the video game. It was represented by two categories: (a) games with strong violence and (b) all other types of games (e.g., puzzles, sports). Player sex was the covariate and the five personality dimensions were the dependent variables. Results indicate that video game players' personalities differed according to their "most played" video games, Wilks's λ = 0.90, *F*(5, 254) = 5.56, *p* < 0.001, η_p² = 0.10; and their "2nd most played" video games, Wilks's λ = 0.89, *F*(5, 226) = 5.42, *p* < 0.005, η_p² = 0.11. Means and standard deviations for these analyses appear in Table 2.

Tests of between-subjects effects indicate that neuroticism, *F*(1, 258) = 4.64, *p* < 0.05, η_p² = 0.02, agreeableness, *F*(1, 258) = 5.02, *p* < 0.05, η_p² = 0.02, and openness *F*(1, 258) = 5.39, *p* < 0.05, η_p² = 0.02 differed by "most played" video game, whereas extroversion, *F*(1, 258) = 0.12, *p* > 0.05, η_p² = 0.00, and conscientiousness, *F*(1, 258) = 2.28, *p* > 0.05, η_p² = 0.01, did not. Post hoc analyses indicate that individuals whose

"most played" video game featured strong violence were less neurotic, less agreeable, and more open than were individuals whose "most played" game was not characterized by strong violence.

Tests of between-subjects effects also indicate that extroversion, *F*(1, 230) = 4.46, *p* < 0.05, η_p² = 0.02, and agreeableness, *F*(1, 230) = 16.77, *p* < 0.05, η_p² = 0.07, differed by "2nd most played" video game, whereas neuroticism, *F*(1, 230) = 0.07, *p* > 0.05, η_p² = 0.00, conscientiousness, *F*(1, 230) = 0.93, *p* > 0.05, η_p² = 0.00, and openness, *F*(1, 230) = 0.31, *p* > 0.05, η_p² = 0.00, did not. Post hoc analyses indicate that individuals whose "2nd most played" video game contained strong violence were more extroverted but less agreeable than were individuals whose "2nd most played" video game did not feature strong violence. The second hypothesis was partially supported.

Post hoc analyses

Although the primary purpose of the present study was to identify personality differences between individuals who regularly played violent video games and those who regularly played other types of video games, this goal begs the question as to whether there are personality differences between regular video game players in general and persons who do not play video games at all. As such, additional analyses were conducted.

Results of MANOVAs controlling for participant sex indicate that there were no personality differences between individuals who reported having played a video game in the year prior to data collection (*n* = 261) and those who reported they had not played a video game during this time (*n* = 79), Wilks's λ = 0.99, *F*(5, 333) = 0.58, *p* > 0.05, η_p² = 0.01. Likewise, there were no personality differences between persons who reported that they regularly played video games of any kind (*n* = 131) and those who reported that they did not regularly play video games of any kind (*n* = 57), Wilks's λ = 0.96, *F*(5, 181) = 1.59, *p* > 0.05, η_p² = 0.04; or between individuals who regularly played violent video games (*n* = 68) and those who did not (*n* = 119), Wilks's λ = 0.95, *F*(5, 180) = 1.80, *p* > 0.05, η_p² = 0.05.

Discussion

Based on the uses and gratifications perspective,⁶ personality was expected to relate to time spent playing violent

TABLE 2. MEANS AND STANDARD DEVIATIONS OF BASIC PERSONALITY DIMENSIONS OF PARTICIPANTS WHOSE MOST-PLAYED AND SECOND-MOST-PLAYED VIDEO GAMES FEATURE STRONG VIOLENCE AND PARTICIPANTS WHOSE MOST-PLAYED AND SECOND-MOST-PLAYED VIDEO GAMES DO NOT FEATURE STRONG VIOLENCE

	Most-played video game		Second-most-played video game	
	Games featuring strong violence (n = 74)	Games not featuring strong violence (n = 187)	Games featuring strong violence (n = 74)	Games not featuring strong violence (n = 159)
Extroversion	5.92 (1.11)	6.00 (0.90)	6.15* (0.94)	5.89 (1.00)
Neuroticism	4.71 (0.91)	5.01* (0.81)	4.85 (0.89)	4.92 (0.83)
Agreeableness	6.71 (1.08)	7.02* (0.81)	6.56 (1.13)	7.09* (0.74)
Conscientiousness	6.51 (0.92)	6.36 (0.87)	6.32 (0.95)	6.46 (0.85)
Openness	6.70* (0.92)	6.41 (0.88)	6.45 (0.93)	6.52 (0.87)

Notes: *Mean is higher than its comparison mean at a statistically significant level (*p* < 0.05) according to least significant difference post hoc analyses. Comparisons are horizontal only and within the given game.

video games and the violent/non-violent nature of video games individuals most frequently play. It was reasoned that personality dimensions create certain needs in individuals that motivate them to use violent video games to gratify the needs. The observed results were generally consistent with the hypotheses.

Two of the five personality components predicted frequency of playing violent video games, and four of the five personality components differed according to the level of violence featured in the video game genre participants played most often. Less agreeable but more open individuals played violent video games more frequently. In terms of the most frequently played video game genres, less agreeable but more open, extroverted, and neurotic individuals generally played games with strong violence as opposed to other types of games.

Theoretical implications

The results suggest that the needs created by personality may be more influential in driving time spent playing violent video games than in using more traditional violent media. For example, in the present study, personality accounted for 15% of the variance in frequency of playing violent video games, whereas Hall¹⁰ did not find personality to be related to exposure to action-oriented films (e.g., horror, thriller, action, science fiction) or action-oriented TV programs (e.g., action, cartoons, children's, science fiction). Even though personality may be more influential in terms of time spent with violent video games versus time spent with other violent media types, the specific personality dimensions that emerge as important predictors of violent media use and attraction (when they do emerge for traditional violent media) tend to be relatively consistent across media types. For example, Krmar and Kean⁷ found that openness, agreeableness, and extroversion predicted liking violent TV and movies. Similarly, in the present study, agreeableness and openness emerged as the strongest and most consistent predictors of violent video game play frequency, followed by extroversion and neuroticism.

Based on the uses and gratifications approach, it was hypothesized that extroverted individuals would play violent video games for stimulation and social interaction. Results supported this hypothesis for frequency of playing one's "2nd most played" video game. Individuals whose "2nd most played" video game contained strong violence were more extroverted than were those whose "2nd most played" video game did not feature strong violence. This result suggests that not only do more extroverted individuals play violent video games more frequently, but also that they have a stronger preference for such games. This interpretation is consistent with Krmar and Kean's⁷ finding that the excitement-seeking facet of extroversion predicted stronger liking of violent media. The results of the present study, however, stand in contrast to earlier studies showing no relationship between extroversion and frequency of violent video game play.^{1,2}

The results observed in the present study may be explained by the increasing popularity of online and/or multi-player gaming environments. Perhaps extroverts play video games with other people, thus gratifying their needs for social interaction. Teng's²⁴ research showing online video gamers to be more extroverted than non-players is consistent with this view. To explore this explanation more fully, future research

should assess the social nature of the gaming environment, as well as how frequently individuals play.

Individuals lower in agreeableness were expected to be drawn to violent video games because these games offer opportunities to engage in fantasy role-playing in which players can live out their violent tendencies. Furthermore, individuals who are less agreeable, and thus more unkind, uncooperative, and cold,¹⁴ tend to enjoy and prefer traditional violent media.^{7,20,31,35} It appears that those low in agreeability may experience similar gratifications from violent video game play. Compared to individuals higher in agreeableness, less agreeable individuals tended to play violent video games more frequently and were more likely to select video games characterized by strong violence as their two most-played games. These results are also in line with Krmar and Kean's⁷ results, indicating that lower agreeableness predicted stronger liking of violent TV and movies.

Conscientiousness, the personality dimension that, along with agreeableness, is considered to be a subfactor of psychoticism, was not related to violent video game play or genre preferences. These results add to the conflicting literature on the topic. The present study found that conscientiousness was not related to violent video game play, whereas Anderson et al.¹ found a negative relationship between the two. As conscientious individuals are systematic and efficient,¹⁴ it would appear that they would be successful violent video game players if/when they did play, as such characteristics are often needed to advance in these video games. On the other hand, the practical and dependable nature of conscientious individuals¹⁷ may direct their attention to pursuits deemed more worthwhile and responsible than violent video game play. Future research on conscientiousness's role in violent media use is clearly needed.

High versus low neurotics were expected to play violent video games more frequently and to select violent games when they did play. This prediction was based in part on research showing a positive relationship between neuroticism and violent TV and film exposure.^{7,20,31} In contrast to hypotheses, results of the present study revealed that individuals lower (versus higher) in neuroticism were more likely to report that their most-played video game was one that featured strong violence. This finding may be due to the violence found in video games being more interactive and likely more graphic than that featured on TV and in films. Such violence may be too stimulating for highly neurotic persons, but attractive for less neurotic individuals. Furthermore, Krmar and Kean's explanation that neurotics may watch violent TV to validate their fears about the danger in the world may not apply to video games, as they do not provide reliable information about real world violence.

Finally, the results demonstrating that individuals who are more (versus less) open to experience play violent video games more frequently and are more likely to identify games with strong violence as their most-played games are consistent with the reasoning that inquisitive, artistic, imaginative¹⁴ individuals are open to experiencing the variety of fantasy activities that violent video games offer. Similar to Krmar and Kean's⁷ suggestion that open individuals' interest in novelty may be satisfied through the strong visual depictions found in violent TV and film, open video game players may be drawn to violent game content because they appreciate the game's artistry, design, graphics, and fantasy-driven content.

Practical implications

If, as the results of this study suggest, personality motivates frequency of violent video game play and the violent/non-violent nature of video games individuals play, then certain personality types may be more vulnerable to the effects of these games than others. As playing violent video games is associated with increased aggression,¹ individuals who are less agreeable, more open, more extroverted, and less neurotic may be more likely to develop aggressive tendencies than persons with other personality compositions because they play violent video games more frequently than do these others.

On the other hand, research by Nabi and Riddle³¹ suggests that some personality traits may create ceiling effects that render media consumers resistant to media's impact. For example, they observed that high psychotics who watched more TV showed less cultivation of victimization-related beliefs than did low psychotics. Applied to the present study, these results suggest that individuals who are low in agreeableness may not experience as large an impact from violent video game play as those higher in agreeableness. Of course, because people low in agreeableness tend to play video games more often, their aggression-related cognitive constructs would be more frequently primed than would those of individuals higher in agreeableness. This priming would lead to more frequent aggression on the part of low agreeableness video game players. Future research should continue to investigate the interaction between media use and personality in order to discern the true nature of the relationship.

Limitations/future research

As with any research, this study has limitations. First, the present study did not measure how many people the player typically played video games with, the online component of game play, and so on. Considering that many video games are largely, if not completely, based on online play (e.g., *World of Warcraft*, *Everquest*), the nature of such game play may be fundamentally different from the play of static games. It would have been advantageous to gather such information considering the interactive nature and social motivations for playing online games.^{28,30} Future research should consider this.

Second, other typologies of video game genres may capture the similarities of games more intricately than the ESRB's system. For instance, Wolf⁴⁰ suggested there are 40 distinct genres of video games. It is possible that in the current study some of the major genres (e.g., role-playing) may have been grouped with other games that have little similarity in terms of play, but rather are similar in terms of suitable age content. Future research with larger samples may wish to employ a more exhaustive typology to increase the precision of game classification.

Third, although the current study was grounded in the uses and gratifications perspective, neither motives nor gratifications obtained were assessed. This approach is consistent with that of Kracmar and Kean⁷ who suggested that researchers may infer motives for media use by studying the relationship between personality and media. To validate the present study's findings further, however, future research should measure players' motives for violent video game play and the gratifications they experience.

Fourth, participants were asked to identify their most-played and second-most-played video games "during the prior year," but were asked how frequently they had played these

video games "in recent months." This minor discrepancy in wording could have yielded a different reference period for the participants' reports. Future research should be consistent in the time periods on which participants are asked to report.

Finally, like most studies of personality and media use, the cross-sectional design of this study does not allow causal inferences to be made or direction of influence to be established. Because the uses and gratifications approach was the theoretical rationale for the study, personality was positioned as the predictor of violent video game-play time and preferences. As previously mentioned, the actual relationship between personality and violent video game play is most likely to be mutually reinforcing. Long-term studies of personality development and media use over time should be conducted to elucidate this issue.

Conclusion

The current study demonstrates the associations between basic personality and frequency of playing violent video games and the preference for violent video game genres. Results are largely consistent with uses and gratifications-based theory and related traditional media research. Future research should continue to examine personality and video game play, including the interactive behavioral components (e.g., Nintendo Wii) of game play both online and offline. As video games become more realistic, more interactive, and graphically superior, and high definition TV and surround-sound technology enhance gaming experiences, researchers will need to address these variables rigorously to explain thoroughly the relationships between individual differences and features of video game play. The present research provides a foundation for such endeavors.

Notes

- a. Originally, 91 participants reported that they regularly played violent video games. One participant's frequency of play score was considered an outlier and was consequently omitted from further analyses.
- b. Results are available from the first author.

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