

Violent Video Games Cause Aggression in Young Females

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Abstract

The question addressed in the current study is if playing violent video games might have an influence on the level of aggression of the gamer. Young female adults, mean age 22, with no prior experience of playing video games, were asked to fill in the Buss Perry Aggression Questionnaire before and after playing: violent video game "Last Stand" (Experimental Group) and non-violent video game "Tetris" (Control Group). Paired-samples t-test revealed significant difference in means on the physical aggression subscale in the experimental group before ($M= 20$, $SD=6.0$) and after playing the video game ($M= 22$, $SD= 6.6$), $t(43)= -2.7$, $p= .009$, while no significant difference was found between the means of Buss Perry Aggression Questionnaire before and after playing non-violent video game in the Control Group. Playing violent video games is suggested to influence the emotional domain and to increase the physical aggression of the female participants, naïve to playing violent games.

Keywords: Aggression, violent video games, female, Buss-Perry questionnaire

1. Introduction

Video games are popular among the youth all over the world (Haagsma et al., 2012; Rehbein et al., 2010; Tao et al., 2010; Gentile, 2009; Ko et al., 2009; Tuncer & Yalçin, 1999) and many of the most popular games are violent, involving users in acts of simulated destruction, homicide or violence. The question addressed in the current study is if playing violent video games might have an influence on the level of aggression of the gamer.

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The general aggression model considers violent video games a situational factor that increases aggression via cognitive cueing effects (Anderson & Bushman, 2002). In fact, significant relationship between playing violent video games, aggressiveness and impulsivity was revealed in the studies which researched children (Irwin & Gross, 1995), adolescents (Rozi & Muhyiddin, 2013; Lin & Lepper, 1987; Griffiths & Hunt, 1993) and young adults (Rozi & Muhyiddin, 2013; Bartholow & Anderson, 2002; Hasan et al., 2013; Adachi & Willoughby, 2011; Bartholow et al., 2005; Ballard & West, 1996; Anderson & Morrow, 1995).

However, some authors did not find tendencies of increased aggressiveness in violent video game users (Ferguson & Rueda, 2010; Williams & Skoric, 2005; Sherry, 2001; Teng et al., 2011; Graybill et al., 1987; Winkel et al., 1987; Scott, 1995; Gibb et al., 1983). Meta-analysis of studies examining the influence of violent media on aggressive behavior did not support the conclusion that media violence leads to aggressive behavior (Ferguson & Kilburn, 2009). At the same time, video games were shown to have calming effect in younger subjects, age ranging from 11 to 14 years (Kestenbaum, 1985).

To shed more light on the question if playing violent video games has an influence on the emotional sphere of the gamers, we used the Buss - Perry Aggression Questionnaire – BPAQ (Buss & Perry, 1992) and compared the scores of young female adults before and after playing violent video game.

2. Materials and Methods

2.1 Participants

Caucasian female students, mean age 22, were recruited from several faculties of the Ilia State University. Participants volunteered to take part in the experiment in return for course credit. Students were recruited by means of a research participation sign-up board that listed ongoing research. Inclusion criteria: prior to the experimental study, subjects were requested to fill in a questionnaire, choosing one out of three possible answers that best described their history of playing violent video games: "I have never played violent video games; I play violent video games rarely, I play violent video games every day/ nearly every day". Only subjects who didn't have any experience of playing violent video games were recruited.

2.2 BPAQ

Scores of the BPAQ served as a measure of aggressive behavior. BPAQ is a 29-item self-report measure of subject's present level of aggressiveness. Participants mark responses on a 5 point scale ranging from 1 (extremely uncharacteristic of me) to 5 (extremely characteristic of me). BPAQ consists of four subscales: physical aggression (PA), verbal aggression (VA), the emotional component of anger (A) and hostility (H). The alpha coefficients for PA, VA, A and H subscales are 0.86, 0.78, 0.83 and 0.76 respectively. Coefficient alpha for the complete aggression questionnaire is 0.92 thus indicating strong reliability (Anderson & Bushman, 2002). Before use the questionnaire was translated into Georgian (process involving two independent translations, synthesis of the two translations, back translations, review of the pre-final version and pretesting).

2.3 First Phase of the Experiment

Total of 216 female subjects (Group I) out of 289 female candidates were selected according to inclusion criteria and were asked to fill in the BPAQ.

2.4 Second Phase of the Experiment

Ten days after completing the first phase of the experiment, 44 subjects (Group II) were randomly selected from Group I. Group II was requested to play violent video game "The Last Stand". The original version of the game consists of the four series, representing the fighting of humans against zombies to stay alive. Experimental subjects were exposed to the first game. The game represents the story of alone person - survivor, attempting to hold out against an unrelenting enemy – zombies. Survivor is armed and can shoot zombies from the safety of his fortified barricade. It is multilevel base defense game broken up by the periods where player must search for weapons and other survivors, as well as repairing the barricade in preparation for the next wave of enemies.

Before starting the game, subjects were given instructions concerning the rules of the game. Subjects had about 5 minutes to get adapted to the use of computer keyboard and mouse to navigate in the game. After these preparations, subjects played the game for 10-11 minutes. Immediately after, Group II was asked to fill in the BPAQ once again.

BRAQ scores accumulated by Group II in the first and second phases of the experiment were compared.

2.5 Control Phase of the Experiment

Total of 20 subjects (Group III) were chosen from Group I. Inclusion criteria: naive to playing non-violent video game "Tetris". Subjects were asked to play Tetris (traditional version). Game items represent geometric shapes which fall down the playing field (a rectangular vertical shaft, called the "well" or "matrix") in random sequence. The objective of the game is to manipulate these items (moving them sideways or rotating them by different degrees) with the aim of creating a horizontal line of ten blocks without gaps. When such a line is created, it disappears. When a certain number of lines are cleared, the game enters a new level. With every new level, the difficulty of the game increases and the items start falling faster. The game ends when the stack of items reaches the top of the playing field and no more new items are able to enter.

Before starting the game, subjects were given instructions concerning the rules of the game. Subjects had about 5 minutes to get adapted to the use of computer keyboard to navigate in the game. Before starting the game, subjects were instructed that the minimum score they should try to accumulate is 3500, which is a criterion of being successful in the game. After these preparations, subjects played the game for 10-11 minutes and were instructed to fill in the BPAQ immediately after they finished playing. Scores of BPAQ, accumulated by Group III in the first and control phase of the experiment were compared.

A paired – samples t-test was conducted to compare the means of four subscales of BRAQ: a) comparing Group I and Group II before playing video games, b) comparing scores of Group II before and after playing "The Last Stand", c) comparing scores of Group III before and after playing "Tetris".

3. Results

3.1 First Phase of the Experiment

Table 1: Comparing Means of BRAQ of Group I with results of Buss & Perry (1992) results

BPAQ subscales	Mean Group I	Std. deviation Group I	Mean (Buss & Perry, 1992)	Std. Deviation (Buss & Perry, 1992)
PA	19	5.9	17.9	6.6
VA	15	4.1	13.5	3.9
A	18	5.7	16.7	5.8
H	20	6.3	20.2	6.3

3.2 Second Phase of the Experiment

A paired – samples t-test was conducted to compare the means of four BRAQ subscales of Group I and Group II before playing video games. There was no significant difference between the means of these two groups on any of the BRAQ subscales (see Table 2).

Table 2: Means of BRAQ Subscales before Playing Video Games Comparing Group I and Group II

	Mean	Std. Deviation	t-value	Sig.(2-tailed) value
PA Group I	M= 18.4	SD= 4.29	t(43)= -1.28	p=.206
PA Group II	M= 19.9	SD= 6.02		
VA Group I	M=15.8	SD= 3.43	t(43)= -0.148	p= .883
VA Group II	M=15.9	SD= 4.23		
A Group I	M= 18.0	SD= 5.49	t(43)= - 0.775	p= .442
A Group II	M=17.1	SD= 4.99		
H Group I	M= 19.4	SD=6.14	t(43)= - 0.784	p=.437
H Group II	M= 20.4	SD= 5.43		

Means of BRAQ subscales of Group II before and after playing the violent video game "Last stand" was compared. There was a significant difference in means on the physical aggression subscale before (M= 20, SD=6.0) and after playing the violent video game (M= 22, SD= 6.6), $t(43) = -2.7$, $p = .009$. On other subscales (VA, A, H) difference between the means was not statistically significant (see Table 3).

Table 3: Means of BRAQ Subscales, Group II, before and after Playing the "Last Stand"

	Mean	Std. Deviation	t-value	Sig.(2-tailed) value
PA Group II before PA Group II after	M= 20 M= 22	SD= 6.0 SD= 6.6	t(43)= -2.7	p=.009
VA Group II before VA Group II after	M=16 M=16	SD= 4.2 SD= 4.3	t(43)= 0.62	p= .951
A Group II before A Group II after	M= 17 M=18	SD= 5.0 SD= 4.4	t(43)= - 1.5	p= .127
H Group II before H Group II after	M= 20 M= 22	SD= 5.4 SD= 5.4	t(43)= - 2.1	p=.41

3.3 Control Phase of the Experiment

The means of BRAQ subscales before and after playing "Tetris" in Group III were also compared using the paired-samples t-test. There was no significant difference between the means (see Table 4).

Table 4: Means of BRAQ Subscales, Group III, before and after Playing "Tetris"

	Mean	Std. Deviation	t-value	Sig.(2-tailed) value
PA Group III before PA Group III after	M= 17 M= 17	SD= 4.6 SD= 4.3	t(13)= -0.072	p= .944
VA Group III before VA Group III after	M= 17 M= 15	SD= 4.9 SD= 4.1	t(13)= 1.4	p= .192
A Group III before A Group III after	M= 18 M= 16	SD= 6.7 SD= 6.8	t(13)= 0.88	p= .393
H Group III before H Group III after	M= 19 M= 16	SD= 9.3 SD= 5.9	t(13)= 0.96	P=.354

Majority of subjects in both, Group II and Group III, made mistakes while playing the video games. As for Group III, nobody scored 3500; the mean score they accumulated was 2035.

4. Discussion

In the beginning of the experiment we did not intend to work only with female subjects. Total of 504 students (215 male and 289 female) expressed their will to participate in the study, however, all male students and 73 females had experience in playing violent video games, and therefore they were excluded from the study.

Presumably, these findings are in accordance with the suggestion, that women are less involved with violent video games than men (Hartman & Klimmt, 2006).

According to original paper by Buss and Perry (1992), the means for the BPAQ subscales PA, VA, A and H among women are 17.9, 13.5, 16.7 and 20.2 respectively. Means for the first three subscales (PA, VA, A) in the current study (Group I) seems slightly higher compared to the Buss and Perry data.

Group II subjects were found to display higher scores in BPAQ physical aggression subscale after playing the violent video game. The data obtained are in accordance with the report (Bartholow et al., 2005), that subjects playing violent video game in experimental situation scored above the BPAQ scale midpoint.

Subscale scores for the BPAQ were found to be positively associated with the history of prior exposure to violent video games (Rozi & Muhyiddin, 2013; Kumarasuriar et al., 2011; Uhlman, 2004). In the current study, participants did not have any experience of playing violent video games and consequently, the increase in physical aggression scores after playing the violent video game in Group II is not related to the history of prior exposure to violent video games.

At the same time, high mean aggression scores on BPAQ may correlate with initial violent tendencies (Lemmens et al., 2006; Kim et al., 2008). Comparison of the BPAQ scores before and after playing the violent video game in the current study makes it possible to exclude the influence of initial violent tendencies on the results obtained.

BPAQ scores before and after the play of Tetris did not differ significantly in the Control Group III. Thus, subjects in the Group III did not display the increase in aggressive tendencies after the play of non-violent video game Tetris. Presumably, playing non-violent video game does not influence the emotional domain of the gamer.

Webster and colleagues (2014) and Demirtas-Madran (2014) reported on the stability of BPAQ test-retest scores over the period of several weeks between the initial and repeated testing.

Comparison of BPAQ scores before and after playing the Tetris in the current study did not reveal the re-test effect (either increase or decrease in the scores) in the Group III. In our opinion, data obtained allow to exclude the re-test effect in case of the Group II. Presumably, higher scores in BPAQ after playing The Last Stand, are not related to the re-test bias of Group II subjects to give higher scores to BPAQ statements in the repeated testing after the play of violent video game.

Taken together, the data obtained suggest, that increase in the BPAQ scores in the Group II can be viewed as a result of the influence of playing The Last Stand on the aggressive tendencies of players.

In sum, violent video game play is suggested to increase the physical aggressiveness of young female, naive to playing violent games.

5. References

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