

Television Violence and Aggression: The Long-term Effects of Watching Rewards, Punishment, Sorrow of People around Victim, and Victim's Endurance of Harm

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In this study, we examined the longitudinal effects of viewing television (i.e., the frequency of viewing five contexts of violent behavior in television programs) on aggression, using the television violence content analysis categories in the National Television Violence Study and in our Japanese Television Violence Study. A panel survey was conducted in 2004 and 2005 with 472 elementary school students and 790 junior high school students. Results indicated that as the average amount of television viewing on weekdays increased, physical and indirect aggression levels increased in elementary school students. The levels of verbal aggression were found to decrease, as TV viewing among elementary school students increased on weekends, and that among junior high school students increased on weekdays. Regarding the viewing frequency of the five contexts of violent behavior, the level of verbal aggression decreased as the viewing frequency of the sorrow of victims' family or friends increased in all participants and in female junior high school students, and as the viewing frequency of the victims' enduring injury increased, in female elementary school students.

Key words: television viewing, contexts of violent depictions, aggression

Introduction

Due to the recent contention that violence depicted on television is a root cause of juvenile crime, there has been much discussion regarding the necessity of controlling broadcasted content. Although not many longitudinal surveys have been conducted thus far, various studies have investigated the effect of television viewing on violent behavior, and many have reported that television viewing results in increased aggression levels. Cross-sectional studies and experiments have constantly examined the effects of media violence on aggression; most of these studies reported that media violence leads to an increase in aggression (Anderson, Berkowitz, Donnerstein,

Huesman, Johnson, Linz, Malamuth, & Wartella, 2003; Huesman & Taylor, 2006). Some longitudinal surveys, which have examined the effects of television viewing and exposure to violent depictions on aggression and focused particularly on physical aggression, have been conducted. These studies have also shown that prior exposure to TV violence predicts increased aggressive behavior (Huesman, Moise-Titus, Podolski, & Eron, 2003).

However, Wilson and his colleagues (1997) proposed that not all kinds of depicted violence have an equal influence the audience. According to their National Television Violence Study (NTVS), certain forms of depicted violence have been suggested to promote the audience's

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aggression (e.g., an attractive character exhibits violent behavior, or individuals are rewarded for violent behavior) or to suppress viewer aggression (e.g., depiction of serious damage or pain inflicted on the victims of violence, or individuals are punished for violent behavior). In addition, Paik and Comstock (1994) described factors related to depicted violence that may heighten the influence of television viewing (e.g., reward or lack of punishment for the portrayed perpetrator of violence). If the effect of violence depicted on television depends on context, then one must first analyze the contextual characteristics of the depicted violence, and then examine if any of those characteristics reinforce viewer aggression.

In Japan, content analyses have been conducted to examine the characteristics of violence and pro-social behavior depicted on television, based on the NTVS conducted in the United States (Wilson, et al., 1997). The NTVS summarized the contextual characteristics of violent depictions that could be predictors for the learning of aggression (Bandura, 1965). It stated that certain factors of violent behavior (e.g., means of violence and reward for violent behavior) promote the learning of aggression, while other factors (e.g., punishment for violent behavior) suppress the learning of aggression. Content analyses have illustrated the frequency of depiction of these contextual factors on American television; however, no empirical studies have yet been conducted to examine whether viewing these factors affects the audience. Therefore, the present study investigates not only the amount of television viewing, but also the viewing frequency of violent behavior by context, including reward and punishment, the sorrow expressed by the victim's family or friends, and the victim's enduring harm, all of which were used in the Japanese

Television Violence Study (JTVS: Suzuki, Sado, Sakamoto, Isshiki, & Hattori, 2004). The effects of these factors on the aggression levels, including not only physical aggression but also verbal and indirect aggression, of elementary school students (Survey 1) and junior high school students (Survey 2) are then examined.

Specifically, a panel survey¹⁾ was conducted at two different times, in order to measure the following: the average amount of television viewed by the participants, the viewing frequency of the various contexts of violent behavior used for the content analyses, and the aggression levels of the participants. A multiple-regression model was then constructed to examine the causal relationship between television viewing and aggression (Fig. 1). In general, a survey administered once can illustrate only correlations between variables. For this study, if individual variables were measured on at least two different times and if the relationship between television viewing measured in the first survey and aggression measured in the second survey was examined, it would be possible to estimate whether television viewing contributed to aggression level. As for the television viewing, this study focused on the contexts of depicted violence that have been suggested to promote viewer aggression (reward for violent behavior) or to suppress viewer aggression (punishment for violent behavior, continuous punishment, sorrow of the victim's family or friends, and the victim's enduring harm), in order to examine the effect of these factors on aggression levels.

Survey 1

Methods

Participants

This survey was conducted at two time points. The first survey was conducted with 755 fourth-grade students (male, $n=393$;

1) A panel survey is a method in which the same survey is conducted multiple times with the same participants at specific time intervals.

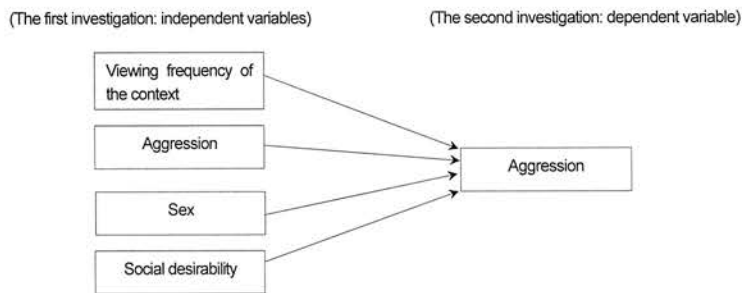


Figure 1 Example of an analysis model for all participants (multiple regression model)

female, $n=361$; unknown sex, $n=1$) from eight elementary schools that were selected across the country. The second survey, which was undertaken 12 months after the first survey, involved 586 fifth-grade students (male, $n=311$; female, $n=275$) from six of the original eight elementary schools that agreed to continue their participation in the study. A total of 472 students (male, $n=239$; female, $n=233$) responded to both surveys.

Survey items

I. Television viewing a) *Amount of television viewing*: Participants were asked how much time they spent, on average, watching television on the days they attended school (weekdays) and on the days they did not attend school (weekends). This question could be answered freely in the first survey, but a nine-point scale, ranging from 1 (0 to 30 minutes) to 9 (longer than 7 hours), was implemented for the second survey.

b) *Viewing frequency of contexts of violent behavior* (five questions): Participants were asked how often they had seen the following scenes depicted during or after violent behavior: (1) something good happened to perpetrators (reward), (2) something bad happened to perpetrators (punishment), (3) perpetrators were punished throughout the program (continuous punishment), (4) the victim's family or friends felt sorrow, and (5) the victims were in the hospital for a long

time or their injuries were slow to heal (enduring harm). These questions were answered using a four-point scale, ranging from 1 (very few times) to 4 (very many times).

II. Aggression (28 questions): Based on the Hostility Inventory Scale (Hata, 1990), participants answered 28 questions about their behavior. Ten questions focused on physical aggression (e.g., "I never hit anyone even when I get very angry"; "I easily get mad and violent over trivial matters"). Ten questions focused on verbal aggression (e.g., "I always talk back whenever someone says something I do not like or something annoys me"; "When somebody yells at me, I yell back."). Eight questions focused on indirect aggression (e.g., "When a person I don't like asks me questions, I sometimes make too vague responses on purpose"; "I sometimes hide my friends' belongings to annoy them"). Questions were scored using a five-point scale, ranging from 1 (disagree) to 5 (agree).

III. Social desirability (25 questions)²⁾: To examine the validity of the responses to the previous scales, we used the Social Desirability Scale for Children (Sakurai, 1984), a measure of the tendency to provide socially desirable answers. Participants answered 25 questions using a two-point scale (1=Yes, 2=No). Questions included, "Do you feel upset when your mother asks you to do something while you are watching

2) Since a high correlation was observed between the tendency to hold socially desirable attitudes and aggression in the preliminary study, the relationship between television viewing measured in the first survey and aggression measured in the second survey was examined, controlling for social desirability in this study.

TV?" and "Do you sometimes hate letting your friends borrow your things?"

IV. Other: The participants provided the name of their school, as well as age and sex. They also provided their class name, attendance number, and birth date to facilitate the collation of their personal data between the first and second surveys.

Procedure

Questionnaires and instructions for their administration were mailed to each participating school. The schools conducted the survey as a "TV survey of elementary school students" during class time, under the supervision of the homeroom teacher. Each of the schools conducted the first survey between the end of the second term and the beginning of the third term of the 2004 school year, and the second survey during the same period of the 2005 school year, at their convenience.

Results and Discussion

Amount of television viewing

Answers obtained by free description in the first survey were converted into a

nine-point scale used in the second survey. The mean values of amount of television viewing are listed in Table 1.

T-tests were conducted to examine sex differences, and no significant differences were found in either survey (Table 1).

Viewing frequency of violent behavior

Mean values of the viewing frequency of the various contexts of violent behavior are presented in Table 1.

Results of *t*-tests for the first survey revealed that male participants reported more frequently seeing reward for violent behavior than female participants did. No significant differences were found in the second survey (Table 1).

Aggression

Initially, individual scores for physical aggression, verbal aggression, and indirect aggression were summed; these scores were then combined to determine overall aggression. Mean values of overall aggression and its sub-scales are presented in Table 2. In both surveys, males scored higher than females for all types of aggression, with the exception of verbal

Table 1 Mean values of the amount of television viewing and the viewing frequency of the various contexts of violent behavior in elementary school students

	The first survey				The second survey			
	All	Male	Female	Sex differences	All	Male	Female	Sex differences
Amount of television viewing on weekdays	3.55 (1.98)	3.46 (1.91)	3.65 (2.04)		3.86 (2.03)	3.85 (2.02)	3.87 (2.03)	
Amount of television viewing on weekends	4.41 (2.32)	4.53 (2.24)	4.35 (2.41)		4.84 (2.25)	4.73 (2.22)	4.95 (2.28)	
Reward	1.79 (0.84)	1.91 (0.90)	1.66 (0.75)	**	1.67 (0.81)	1.70 (0.81)	1.64 (0.80)	
Punishment	2.76 (0.98)	2.77 (1.00)	2.75 (0.97)		2.95 (0.95)	2.92 (1.02)	2.98 (0.86)	
Continuous punishment	2.26 (0.97)	2.30 (0.99)	2.22 (0.95)		2.38 (0.98)	2.34 (1.03)	2.42 (0.92)	
Sorrow of people surrounding victims	2.40 (1.09)	2.32 (1.08)	2.49 (1.09)	+	2.51 (1.06)	2.44 (1.08)	2.58 (1.04)	
Enduring harm	2.18 (1.07)	2.20 (1.10)	2.16 (1.02)		2.21 (0.97)	2.19 (1.03)	2.23 (0.90)	

Note: Values within parentheses indicate standard deviations. +*p* < .10, ***p* < .01.

Table 2 Mean values of overall aggression and sub-categories of aggression in elementary school students

	The first survey				The second survey			
	All	Male	Female	Sex differences	All	Male	Female	Sex differences
Overall aggression	70.82 (16.23)	74.03 (16.26)	67.56 (15.57)	**	71.76 (15.57)	75.51 (17.51)	68.10 (19.73)	**
Physical aggression	25.63 (7.20)	26.98 (7.15)	24.19 (6.98)	**	25.76 (8.02)	27.07 (7.70)	24.43 (8.05)	**
Verbal aggression	27.20 (7.21)	27.79 (7.26)	26.57 (7.11)	+	27.54 (8.12)	28.89 (7.43)	26.12 (8.40)	**
Indirect aggression	18.27 (5.11)	19.59 (5.14)	19.87 (4.71)	**	18.85 (6.15)	20.03 (6.01)	17.62 (6.06)	**

Note: Values within parentheses indicate standard deviations. + $p < .10$, ** $p < .01$.

aggression in the first survey (Table 2).

Social desirability

Individual scores for social desirability were summed. Both surveys revealed that females scored higher than males for social desirability.

Causal relationships between television viewing and aggression

Effect of the amount of television viewing

A multiple regression model was used to examine the effect of the amount of television viewing on aggression. Using the data from the first survey, the amount of television viewing, aggression-related variables, social desirability, and sex were used as independent variables; aggression-related variables measured in the second survey were used as dependent variables.

The estimated causal coefficient values (β) of elementary school students in the regression model analysis are presented in Table 3. Results indicated that the levels physical aggression and indirect aggression increased as the average amount of television viewing on weekdays increased. The level of verbal aggression decreased as the average amount of television viewing on weekends increased.

The analysis was conducted separately with data obtained from male and female participants. The same significant causal relationships between the average amount

of television viewing on weekdays and the level of physical aggression were observed in male participants. The level of verbal aggression decreased as the average amount of television viewing on weekends increased in male participants.

Effect of the viewing frequency of the various contexts of violent behavior

The effect of the viewing frequency of the various contexts of violent behavior on aggression was examined using another multiple regression model. In this model, using the data from the first survey, the viewing frequency of the various contexts of violent behavior, aggression-related variables, social desirability, and sex were used as the independent variables; the aggression-related variables measured in the second survey were used as the dependent variables. For all variables, no significant effects on aggression were observed for any participant.

The analysis was conducted separately with data obtained for male and female participants. The viewing frequency of the various contexts of violent behavior had no effect on aggression for male participants, while the level of verbal aggression decreased in female participants as the viewing frequency of victims' enduring harm increased.

Table 3 The estimated causal coefficient values (β) of elementary school students in regression model analysis

	Television viewing on weekdays	Television viewing on weekends	Viewing violent scenes with reward	Viewing violent scenes with punishment	Viewing violent scenes with continuous punishment	Viewing violent scenes with sorrow people surrounding victims	Viewing violent scenes with victim's enduring harm
Aggression	.08 ⁺ .09/.07	-.01 -.02/-.00	.02 -.02/.08	-.03 -.03/-.03	-.01 .03/-.03	.01 -.01/.03	-.03 .07/-.09
Physical aggression	.11* .17*/.06	.05 .10/-.01	.02 -.05/.10	-.01 -.03/.01	-.04 -.05/-.02	.02 -.02/.06	.02 .09/-.04
Verbal aggression	-.04 -.11 ⁺ /.02	-.10* -.17*/-.04	.01 -.04/.07	-.05 -.05/-.05	.02 .04/.01	.04 .09/.00	-.07 -.01/-.13*
Indirect aggression	.10* .13 ⁺ /.08	-.00 -.03/.01	.03 .00/.07	-.02 .02/-.06	-.04 .01/-.09	.01 -.02/.03	-.02 .06/-.10

Note: The values in upper lines were obtained for the analysis with all participants and the ones in lower lines were obtained for the analysis with male students (on left side) or female students (on right side). The values of R^2 were from .10 to .32 in these models. ⁺ $p < .10$, * $p < .05$, ** $p < .01$.

Survey 2

Methods

Participants

The survey was conducted at two time points. The first survey was conducted with 1191 seventh-grade students (male, $n=575$; female, $n=616$) from eight junior high schools that were randomly selected across the country. The second survey, which was undertaken 12 months after the first survey, was conducted with 991 eighth-grade students (male, $n=489$; female, $n=502$) from six of the original eight junior high schools that agreed to continue their participation in the study. A total of 790 students (male, $n=387$; female, $n=403$) responded to both surveys.

Survey items

The items that were used in Survey 1 were used for all aspects of Survey 2.

Procedure

The procedure that was used in Survey 1 was used for Survey 2.

Result and Discussion

Amount of television viewing

The answers obtained by free description in the first survey were converted into a

nine-point scale used in the second survey (Table 4). *T*-tests were conducted to examine sex differences, and no significant differences were found in either survey.

Viewing frequency of violent behavior

Mean values of the viewing frequency of the various contexts of violent behavior are presented in Table 4. The second survey revealed that male participants reported more frequently seeing reward for violent behavior than female participants did (Table 4).

Aggression

Individual scores for physical aggression, verbal aggression, and indirect aggression were calculated; these scores were then combined to determine overall aggression, as in Survey 1 (Table 5). The results indicated that, except for indirect aggression in the first survey, males scored higher than females for overall aggression and in the subscales of aggression (Table 5).

Social desirability

Individual scores for social desirability were summed. The second survey revealed that female participants scored higher than males for social desirability.

Table 4 Mean values of the amount of television viewing and the viewing frequency of the various contexts of violent behavior in junior high school students

	The first survey				The second survey			
	All	Male	Female	Sex differences	All	Male	Female	Sex differences
Amount of television viewing on weekdays	3.41 (1.73)	3.32 (1.71)	3.50 (1.74)		3.80 (1.74)	3.71 (1.72)	3.89 (1.76)	
Amount of television viewing on weekends	4.86 (2.18)	4.71 (2.12)	5.01 (2.23)	+	5.14 (2.02)	5.09 (2.02)	5.18 (2.02)	
Reward	1.85 (0.82)	1.91 (0.85)	1.80 (0.79)	+	1.78 (0.78)	1.87 (0.83)	1.69 (0.71)	**
Punishment	2.79 (0.92)	2.76 (0.96)	2.82 (0.88)		2.70 (0.84)	2.66 (0.86)	2.73 (0.83)	
Continuous punishment	2.22 (0.89)	2.18 (0.88)	2.25 (0.90)		2.27 (0.86)	2.26 (0.87)	2.28 (0.84)	
Sorrow of people surrounding victims	2.30 (1.00)	2.23 (0.99)	2.36 (1.01)	+	2.36 (0.99)	2.32 (0.98)	2.41 (0.97)	
Enduring harm	2.06 (0.93)	2.06 (0.95)	2.05 (0.92)		2.10 (0.91)	2.08 (0.93)	2.12 (0.89)	

Note: Values within parentheses indicate standard deviations. $^+p < .10$, $^{**}p < .01$.

Table 5 Mean values of overall aggression and sub-categories of aggression in junior high school students

	The first survey				The second survey			
	All	Male	Female	Sex differences	All	Male	Female	Sex differences
Overall aggression	71.14 (19.01)	74.03 (19.52)	68.47 (18.14)	**	69.54 (18.40)	74.46 (18.37)	65.02 (17.26)	**
Physical aggression	25.45 (8.36)	27.10 (8.44)	23.89 (7.99)	**	24.60 (7.89)	26.82 (7.65)	22.52 (7.56)	**
Verbal aggression	26.95 (7.92)	27.77 (7.74)	26.17 (8.02)	**	26.41 (7.55)	27.75 (7.52)	25.13 (7.36)	**
Indirect aggression	18.67 (5.85)	19.00 (6.12)	18.39 (5.57)		18.34 (5.82)	19.62 (5.96)	17.13 (5.43)	**

Note: Values within parentheses indicate standard deviations. $^{**}p < .01$.

Causal relationships between television viewing and aggression

Effect of the amount of television viewing

The estimated causal coefficient values (β) of junior high school students in regression model analysis are presented in Table 6. The effect of the amount of television viewing on aggression was examined using a multiple regression model, as in Survey 1. Results indicated that as the average

amount of television viewing on weekdays increased, the level of verbal aggression decreased.

The analysis was also conducted separately with data obtained from male and female participants, as in Survey 1. For male participants, the amount of television viewing had no effect on aggression. However, as the average amount of television viewing on weekdays increased,

Table 6 The estimated causal coefficient values (β) of junior high school students in regression model analysis

	Television viewing on weekdays	Television viewing on weekends	Viewing violent scenes with reward	Viewing violent scenes with punishment	Viewing violent scenes with continuous punishment	Viewing violent scenes with sorrow people surrounding victims	Viewing violent scenes with victim's enduring harm
Aggression	-.06 ⁺ -.02/-.11*	-.02 .04/-.08 ⁺	.03 .01/.05	-.02 -.03/-.02	-.02 -.07/.02	-.01 .03/-.05	-.03 -.06/-.00
Physical aggression	-.06 ⁺ -.02/-.10*	-.03 .02/-.07	.01 -.01/.03	-.02 -.03/-.00	-.02 -.07/.02	.00 .02/-.02	-.00 -.02/.01
Verbal aggression	-.07* -.07/-.07 ⁺	-.04 -.02/-.08 ⁺	.00 .01/.01	-.01 -.02/.00	.02 -.02/.05	-.01 .03/-.03	-.03 -.02/-.04
Indirect aggression	-.06 ⁺ .01/-.13**	-.01 .06/-.09*	.05 .02/.08	-.03 -.01/-.04	-.06 ⁺ -.06/-.07	-.07* .00/-.13**	-.03 -.05/-.01

Note: The values in upper lines were obtained for the analysis with all participants and the ones in lower lines were obtained for the analysis with male students (on left side) or female students (on right side). The values of R^2 were from .28 to .40 in these models. ⁺ $p < .10$, * $p < .05$, ** $p < .01$.

the levels of overall aggression and physical aggression decreased in female participants. In addition, the level of the indirect aggression decreased as the average amount of television viewing on weekdays and on weekends increased for female participants. *Effect of the viewing frequency of violent behavior*

The effect of the viewing frequency of the various contexts of violent behavior on aggression was examined using a multiple regression model, as in Survey 1. For all participants, the level of indirect aggression decreased as the viewing frequency of the sorrow of the victim's family or friends increased.

The analysis was conducted separately with data obtained from male and female participants. The viewing frequency of the various contexts of violent behavior had no effect on aggression for male participants; however, the level of indirect aggression decreased as the viewing frequency of the sorrow of the victim's family or friends increased for female participants.

General Discussion

There is an observed increase in the levels of physical and indirect aggression of

elementary school students, particularly males, as students watched more television on weekdays. However, the levels of verbal aggression were found to decrease, as elementary school students watched more TV on weekdays (particularly males), and junior high school students watched more TV on weekends. In addition, the levels of overall aggression and physical aggression decreased as junior high school students, particularly females, watched more TV on weekdays; and the level of indirect aggression also decreased as they viewed more TV on weekdays and on weekends. It should be noted that these decrements do not nullify the negative effect of TV violence on aggression, because this variable did not measure the specific amount of time during which students watched violent content on TV. The previous study revealed that the total amount of TV viewing predicts violent behavior in adolescence and early adulthood (Johnson, Cohen, Smailes, Kasen, & Brook, 2002). We need more studies to discuss the long-term effects between television viewing and aggression among persons of various age groups; however, the above results, which suggest that TV viewing increased physical and

indirect aggression or decreased verbal aggression, may be caused by the contexts of violent behaviors in the TV programs viewed by the participants. It will be necessary to combine content analysis with longitudinal studies and examine which and how extents to contexts of violent behaviors that have been suggested to promote or suppress the audience's aggression are included in these TV programs.

Since the context of depicted violence is suggested to promote the aggression of the audience, the effects of the frequency of watching rewards for violent behavior on aggression were examined. It was not found that the frequency of watching rewards for violent behavior affected the overall aggression of both elementary and junior high school students. Previous studies indicated rewards for violent behavior to be a predictor of aggression (e.g., Paik & Comstock, 1994). However, many of these studies were conducted in a laboratory, and it was also suggested that this effect may only be a short-term effect.

Some forms of depicted violence are suggested to suppress the aggression of the audience. Therefore, this study examined the effects of the frequency of watching punishment for violent behavior, the sorrow of a victim's family or friends, and a victim's endurance of harm on aggression. The results indicated that the levels of verbal aggression for female elementary school students decreased, as the frequency of watching the victims' endurance of harm increased. The levels of indirect aggression decreased among junior high school students, particularly females, as the frequency of watching the sorrow of the victim's family or friends increased. These effects were mainly evident in female students; this suggests that they are more sensitive to these types of depictions and display greater sympathy than males in previous studies (e.g., Davis, 1980).

In conclusion, the results of the present study proved that witnessing a victim's endurance of harm or the sorrow of the

victim's family or friends was found to have a suppressive effect on subordinate aggression levels, although primarily for female students.

The regulation of depicted violence has been discussed (Suzuki, in press); however, among the various contexts for violent behavior, there may be some that have educational effects in media education. Therefore, the effects of the viewing frequency of other contexts should be examined further for application in media policy and media education.

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