Effects of Playing Violent Videogames on Chinese Adolescents’ Pro-Violence Attitudes, Attitudes Toward Others, and Aggressive Behavior

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ABSTRACT

This study examines the effects of exposure to online videogame violence on Chinese adolescents’ attitudes toward violence, empathy, and aggressive behavior. Results of bivariate analyses show that playing violent videogames on the Internet was associated with greater tolerance of violence, a lower emphatic attitude, and more aggressive behavior. Results of hierarchical regression analyses showed sustained relationships between exposure and pro-violent attitudes and empathy when exposure was examined simultaneously with gender, computer use, and Internet use. However, the linkage between exposure and aggression became non-significant, suggesting that the effects of playing violent videogames were greater for attitudinal outcomes than on overt behavior. Gender differences in playing videogames and in effects were also found.

INTRODUCTION

The growth of the population using the Internet in China is phenomenal. The number of Internet users soared to 100 million in June 2005, from 10 million in 2000. Nevertheless, China’s Internet diffusion rate is among the lowest in the world, at 10%. Filling the gap between a growing demand for access to the Internet and a low adoption rate are the mushrooming Internet cafés, which provide affordable high-speed public access (it costs 2–4 yuan, approximately 25–50 cents, for an hour’s worth of access). The number of Internet cafés reached 120,000 in 2005. They are highly popular among students, businesspeople on the go, and migration workers. A survey of 27,000 Chinese users in July 2005 showed that they used the Internet primarily for information (38%), entertainment (38%), research (10%), other uses (8%), and chatting in various forums (6%). In using the Internet for entertainment, Chinese Internet users are attracted to videogames, as similar to their counterparts in other countries. Estimates put the number of online videogame players in China at 13 million, and they spent approximately US$240 million in 2004.

Content analyses show that violence in various forms (such as death and destruction) characterizes the most popular videogames, online or offline. For example, analysis of 55 E-rated (i.e., appropriate for “everyone”) videogames in the United States found that 64% of them contained intentional violence, defined as acts that caused physical injury or death to a character. Some of these online videogames were imported to China from Japan, South Korea, and the United States.

Though the existing research on the effects of...
playing violent videogames is short of a consensus, a growing number of studies has found negative effects on children and adolescents. To date, no research has systematically assessed the harm of exposure to violence in videogames in China. This study fills the gap. As the first empirical study on effects of violent videogames on China’s 200 million adolescents, it seeks to address two concerns: (1) What are the attitudinal and behavioral effects of playing violent videogames on Chinese adolescent Internet users? (2) Is there a gender difference in playing time and exposure to videogame violence? If there is, are the effects stronger on males than on females?

Literature review and hypotheses

Drawn from the literature on effects of mediated violence, past research on videogame violence seeks to establish linkages, correlational or causal, between exposure and social cognitive effects, affective effects, violent behavior, and pro-social behavior. As Sherry’s meta-analysis of 25 studies shows, exposure to videogame violence was related to an increase in aggressive thoughts, feelings of anger or hostility, and heightened aggression, but a decrease in pro-social behavior.

Attitudes toward violence. Rushbrook investigated the linkage between playing videogames and attitudes toward war among boys in grades 5–11. He found that, the more the students played, the more favorable they felt toward war. Krahe and Moller found a significant relationship between attraction to violent games and the acceptance of norms condoning aggression among 231 German adolescents. As violent videogames typically normalize, even glamorize, violence, recent studies focused on the anesthetizing effect of repeated exposure to videogame violence. “Anesthetizing effect” refers to exposure to mediated violence that desensitizes children to violence, resulting in greater tolerance for violence. Using the Attitudes Towards Violence Scale as the dependent variable, a study by Flowers et al. reported that exposure to videogame violence was a significant predictor of pro-violence attitudes. The desensitizing effect of videogame violence on children was confirmed in other studies on elementary school students in the United States.

Similar results were reported in experimental studies examining the attitudinal effects of exposure to violence in videogames. To assess the effect of exposure to videogame violence on attitudes of male students prior to and after play, Nelson and Carlson used various instruments to collect data among 24 boys ages 9–15. Results showed that, the longer the play, the higher the level of discomfort and the lower the positive moods. The Deselms and Altman experiment also found that exposure to violence in videogames reduced sensitivity to aggressive acts among male undergraduates. Thus, we hypothesize:

\[ H1: \text{Chinese adolescents who have had a higher level of exposure to violence in videogames will be more pro-violence.} \]

Attitudes toward others. Previous research also examined the impact of exposure to videogame violence on children and adolescents’ social cognitive abilities, with a focus on how playing violent videogames affects their ability to relate to others. Evidence suggests that hostile feelings and anxiety increased in participants who played videogames of aggression. Gentile et al. found that exposure to videogame violence was related to being hostile to others and getting into arguments with teachers among 607 students in grades 8 and 9. Recent studies explored the effect of playing violent videogames on empathy—one’s ability to understand the inner experience of others. Sakamoto surveyed 307 elementary school students in Japan and found that the longer boys spent playing videogames, the less empathic they were. Flowers et al. asked children to respond to 15 items dealing with attitudes to others. Results showed that, the more children played violent videogames, the lower were their empathy scores.

In an experimental study, Anderson and Ford placed subjects into three conditions: a mildly aggressive game, a highly aggressive one, and no game. After playing for 20 min, each participant completed a checklist to measure anxiety, hostility, and depression. Their results showed a relationship between playing the highly aggressive videogames and anxiety. Moreover, hostility increased in both game conditions relative to the control group. Similarly, Ballard and Wiest assigned subjects to varying levels of videogame violence condition and measured their hostility. Results were consistent. The above review leads to the following hypothesis:

\[ H2: \text{Chinese adolescents who have had a higher level of exposure to videogame violence will be less concerned about others.} \]
Behavioral effects of playing violent videogames. Concerning the impact of exposure to mediated violence on children along with adolescents’ propensity for aggressive behaviors or the delinquency of aggression, numerous studies established the link between violent videogame exposure and aggressive behavior. Using a sample of students in grades 10 and 11, Dominick explored the relationships between time spent playing videogames and level of aggression. Findings showed that arcade videogame playing was positively correlated with hypothetical aggression, physical aggression and aggressive delinquency. Others found consistently that videogame playing time was a positive correlate of self-reported aggression and teachers’ ratings of aggression. Wiegman and van Schie reported that children who preferred violent videogames were rated by their peers as more aggressive. Using a diary-keeping method to collect data on time spent playing videogames among 10–14-year-olds, van Schie and Wiegman found a negative relationship between time spent playing videogames and pro-social behavior. Chambers and Ascione found that children donated much less money to a charitable cause after playing a violent videogame.

Regarding aggressive behavior, Colwell and Payne examined time spent playing computer games and aggression among 204 British adolescents. Results showed a linkage between game play and aggression scores. This study was replicated in Japan among 305 12–13-year-old students with consistent results. Anderson and Dill studied American college students; they found that exposure to videogame violence was strongly correlated with aggressive delinquent behavior. The Gentile et al. study revealed that prolonged exposure to violent videogames was related to physical fights among 607 students in grades 8 and 9. Slater et al. surveyed 6th and 7th graders for 2 years to examine longitudinal effects of playing violent videogames on visiting violence-oriented Web sites. Results showed that students tended to be more aggressive over time; their increased use of violent media over time predicted aggressiveness.

Experimental evidence also shows that playing videogames of violence produced aggressive behavior. Graybill et al. assigned subjects to play either a violent or nonviolent videogame, and noted their references to violent words or actions. Results supported a relationship between playing videogames and children’s aggression fantasies. Schutte et al. found that children who played a violent videogame acted more aggressively toward a bobo doll than those who played a nonviolent game. Recently, Uhlmann and Swanson reported that playing violent videogames led to an automatic aggressive self-concept—the extent to which one spontaneously associates the self with aggressive traits and actions. Thus, we hypothesize the following:

**H3:** Chinese adolescents who have had a higher level of exposure to videogame violence will exhibit a higher level of aggressive behavior.

Gender differences in playing videogames and effects of exposure to videogame violence. Previous research suggests that demographic and personality trait variables moderate the effects of exposure to videogame violence. Gender is such a variable. Numerous studies reported that boys spent more time playing videogames than girls. Moreover, Funk et al. asked students in grades 4–8 which types of videogames they preferred. Results showed that boys preferred realistic human violence and sports games; girls leaned toward general entertainment and less realistic fantasy games. The Sherry et al. study reported that half of the favorite videogames for boys were violent. Lucas and Sherry explored college students’ preference for different genres of videogames. Results showed that women preferred traditional games over physical enactment games. In contrast, male players liked physical enactment games over traditional games. Accordingly, the fourth hypothesis is formulated:

**H4:** Chinese male adolescents will spend more time playing videogames online and have a higher level of exposure to videogame violence than will female adolescents.

More important, differences were found between males and females in effects of exposure to violent videogames. Boys who played videogames at home had a lower level of empathy. Survey studies found that boys who played more violent videogames were more aggressive. Experimental studies reported such differences as well. Cooper and Mackie found that girls who played an aggressive videogame were more likely to use aggressive toys than girls who played a non-aggressive game. The Bartholow and Anderson experiment examining game and sex interaction showed that playing violent videogames resulted in more aggression for men. Based on these findings, the final hypothesis is proposed:
H5: The attitudinal and behavioral effects of playing videogames will be greater on Chinese male adolescents than female adolescents.

METHODS

To test the hypotheses, a survey of adolescent videogame players was conducted at an Internet café in a city of 1 million residents in central China using a purposive sample. Internet cafés were chosen as the site of fieldwork because of low penetration rates of console games and the Internet at home. Potential respondents were approached by trained college students to assure them that participation was voluntary and anonymous, and that data collected would be kept confidential. Only those who agreed to participate and had played games online at least once filled out the self-administered questionnaire. The survey was conducted during 2 weeks in July and August 2005. A total of 312 respondents completed the survey successfully.

Of the sample, nearly two-thirds (65.1%) were males and about one-third (34.9%) were females. The average age was 16.91 years (SD = 2.43), with the youngest being 11 years old and the oldest being 22. Of the sample, 15.5% were elementary or middle schoolers, 49.9% were high schoolers, 7.2% were in vocational colleges, and 27.5% were college students. In terms of household monthly income, 15.9% reported an income below 1,000 yuan, 36.9% had an income of 1,000–2,000 yuan, 22.9% had an income of 2,001–3,000 yuan, and only 2.3% had an income above 10,000 yuan.

Measures and scales

Playing videogames online. Respondents were first asked if they had a personal computer (PC) (1 = yes; 2 = no). Those having a PC reported the hours per day using it. Similarly, they were asked if they had Internet access at home (1 = yes; 2 = no). Those having a home connection reported the hours per day going online (excluding playing videogames). Then, they were requested to indicate how long (in months) they had played videogames on the Internet, followed by questions on frequency of playing per week. The response categories were (1) once, (2) twice, (3) three to five times, (4) daily, and (5) many times per day. They were requested to estimate the time and money spent playing videogames each time. The response categories for time were (1) less than 30 min, (2) 30–60 min, (3) 1–2 h, (4) 3–4 h, (5) 5–6 h, and (6) more than 6 h. The response categories for money spent were (1) less than 5 yuan, (2) 6–10 yuan, (3) 11–20 yuan, (4) 21–30 yuan, and (5) more than 30 yuan.

Exposure to videogame violence. Respondents were given a list of 14 most popular games,3 and were asked if they had played them (1 = yes, 2 = no). The level of violence in each game was predetermined based on content analyses of the game descriptions and expert rating. The rating scale was a three-point scale: “0” (free from violence; singing and dancing contest games such as Poptang), “1” (containing some violence such as adventure themed games like A Chinese Odyssey) to “2” (violent such as war and combat games like Warcraft—a game features fighting terrorists). An index of exposure to videogame violence was constructed after first multiplying the exposure for each game by the violence rating for that game and then summing the scores for all the games (M = 8.89, SD = 5.08, α = 0.79). The index ranged from “0” (playing games of no violence) to “18” (playing all the games on the list that contained varying level of violence).

Attitudes toward others. The empathic concern subscale developed by Davis51 was used to measure respondents’ tendency to feel sympathetically and compassionately for unfortunate others. Respondents were asked to indicate their agreement on four response options: (1) no, (2) maybe, (3) probably, and (4) yes. A composite measure was created by adding the 16 items and dividing by 16 (M = 2.06, SD = 0.52, α = 0.79).

Attitudes toward violence. The measure of attitudes to violence relied on a scale developed by Fulk et al.22 The scale has 16 items that intend to gauge respondents’ attitudes toward culture of violence (e.g., “It’s a good idea to hang out with people in gangs,” “People with guns or knives are cool,” and “People who use violence get respect”) and reactive violence (e.g., “If person hits you, you should hit back,” “Parents should tell their kids to fight if they have to,” and “It’s OK to do whatever it takes to protect myself”). Respondents were asked to indicate their agreement on four response options: (1) no, (2) maybe, (3) probably, and (4) yes. A composite measure was created by adding the 16 items and dividing by 16 (M = 2.06, SD = 0.52, α = 0.79).

*The list was based on ranking in the Chinese press and interviews with staff at Internet cafés. All of them were available at the time of the survey. The games are A Chinese Odyssey (2), Audition Town, O2jam, World of Warcraft, Wood, Adventurous Island, Yulhyul Gangho, MU, Poptang, Need for Speed, Counter Strike, Star Craft, Red Alert, and Samurai.*
someone being treated unfairly, I sometimes don’t feel very much pity for them, (6) “I am often quite touched by things that I see happen,” and (7) “I would describe myself as a pretty soft-hearted person.” The five-point scale ranged from “0” (does not describe me well) to “4” (describes me very well). The seven items were summed as an index of empathy ($M = 2.50, SD = 0.63, a = 0.63$), ranging from 0 to 28.

**Aggressive behavior.** The aggression scale has three dimensions: hypothetical aggression, manifest physical aggression, and aggressive delinquency.$^{18,38}$

Concerning hypothetic aggression, respondents were given four hypothetical situations such as “Somebody picks a fight with you on the way home from school; Someone cuts in front of you in a long line.” They were asked to respond to one of the following three choices: (1) “fight” or “shove them out,” (2) “back out of it” or “yell at them,” and (3) “just let it go” or “try to discuss the problem.” Regarding manifest physical aggression, respondents were presented with six statements such as “Whoever insults me or my family is asking for a fight,” “When I was younger, I used to act like a bully sometimes,” and “I don’t feel it is wrong for me to hit another kid who deserves it.” The response categories were on three-point scale: (1) a lot like me, (2) a little like me, and (3) not like me. Regarding aggressive behavioral delinquency, respondents were asked to respond to three items that gauged the frequency of engaging in three aggressive activities, including fighting with several people, hurting someone for the sake of revenge, and fighting with another student. The scale ranged from “1” (more than 5 times) to “5” (never). The alpha of manifest physical aggression, hypothetic aggression, and delinquency behavior was, respectively, 0.66, 0.57, and 0.79. The correlations among the three indices were moderately high, ranging from 3.8 to 4.1. An overall index of aggressive behavior was created by summing the individual items ($M = 20.00, SD = 5.61, a = 0.60$). The new scale ranged from 12 (low in aggression) to 37 (high in aggression). Control variables were demographics such as age, gender, school year, and household monthly income.

**RESULTS**

Among the 312 respondents, 43.1% had one PC at home, while the majority (56.9%) did not own any. The average time spent using home computers was 4.06 h ($SD = 3.33$) per day. Slightly more than one third (35.4%) had an Internet connection at home; the rest (64.6%) did not. The time spent going online (not counting playing games) was 2.68 h per day ($SD = 3.12$). The median category of length of playing videogames online among the 312 respondents was 1–2 years. They played typically one to two times per week, with playing time per sitting averaging 3–4 h. The median category of money spent each time was 6–10 yuan. The games that they played the most were *Audition Town*, followed by *CS* and *Read Alert*. The least-played game was *Yulhyul Gangho* (a kungfu game).

**Bivariate and multivariate analyses**

H1 predicted that Chinese adolescents with a higher level of exposure to violence in videogames would be more pro-violence; this hypothesis was supported. The result of Pearson’s correlation test shows that exposure to videogame violence was significantly related to attitudes to violence ($r = 0.18; p < 0.01$). H2 predicted that Chinese adolescents with a higher level of exposure to videogames online with violence would be less concerned about others; this hypothesis was supported as well. Playing violent videogame was significantly but negatively linked to empathy ($r = -0.30, p < 0.001$). H3 predicted that Chinese adolescents who had a higher level of exposure to violence contained in online videogames would behave more aggressively; this was supported. The correlation between exposure to videogame violence and aggression was significant ($r = 0.32, p < 0.01$).

Hierarchical regression analyses were run next to examine if the significant bivariate linkages between exposure to violence in online videogames and the three outcome measures would hold when other variables were taken into account. Three separate hierarchical regression analyses were performed treating attitudes toward violence, empathy, and aggression as the criterion variable respectively. Table 1 summarizes the results of the analyses in which gender was entered first into the equation, followed by computer use and time spent using the Internet. The final block included the exposure to videogame violence.

As Table 1 shows (column 1), computer use had a significant relationship with attitudes toward violence. The more time respondents spent using computers, the more pro-violence they were. Results also show that exposure to violence in online videogames was related significantly to attitudes to violence. Respondents who used the home computer more and played more violent online videogames tended to tolerate violence more. The variance explained by the two predictors was 7.6% (adjusted $R^2$). The unique contribution of exposure
to videogame violence was 1.7%. These multivariate results provided more evidence for the linkage between exposure to videogame violence and the tolerance of violence among Chinese adolescent Internet users.

Regarding attitudes toward others (column 2 in Table 1), the regression analysis shows that gender was a significant correlate of empathy. Males exhibited a significantly lower level of empathic attitudes toward others than did females. Computer use and exposure to videogame violence were also significant predictors of empathy. Respondents who spent more time using computers tended to have higher empathy scores, but those that had a higher level of exposure to violent videogame were less empathetic. The variance explained by the three predictors was 13.3% (adjusted $R^2$). Exposure to videogame violence contributed 1.5% to the variance explained. These results analysis provided additional evidence to support the unequivocal relationship between exposure to videogame violence and the Chinese teens’ empathy.

With regard to aggression (column 3 in Table 1), the hierarchical regression results show that gender, computer use, and Internet use were significant predictors of aggressive behavior. Males who spent more time using computers and surfing the Internet had a tendency for behaving aggressively. However, exposure to violent videogames on the Internet was not a significant predictor of aggression. Together, the variance explained by the three predictors was 21.3% (adjusted $R^2$). Consistent with past studies, this particular result reveals that the relationship between exposure to videogame violence and aggression was not sustained when influences of other predictors were taken into account. An explanation may be that effects of exposure to violent videogames were direct and strong on attitudes, but indirect and weak on behavior in multivariate analyses.

**T-tests**

H4 predicted that male adolescents would spend more time playing videogames online and have a higher level of exposure to videogame violence than would female adolescents. Means and standard deviations were computed by gender for time playing videogames on the Internet and exposure to violence contained in online games. A series of $t$-test was run to test this hypothesis. Results in Table 2 show that males consistently reported a longer history of playing videogames on the Internet and a higher frequency of playing. Moreover, males played longer for each session than females. The greatest discrepancy between male and female Internet users was for exposure to violent videogame violence. The mean score for males was 11.36, but the mean score for females was only 4.30. These results supported H4.

**Table 1. Summary of Hierarchical Regression Analyses for Variables Predicting Attitudinal and Behavioral Effects of Exposure to Videogame Violence**

<table>
<thead>
<tr>
<th>Steps/variables</th>
<th>Attitudes</th>
<th>Empathy</th>
<th>Aggression</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>violence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Block 1: Control variables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>−0.01</td>
<td>−0.24**</td>
<td>0.31***</td>
</tr>
<tr>
<td>$R^2$ (%)</td>
<td>0.0%</td>
<td>1.11%</td>
<td>12.4%</td>
</tr>
<tr>
<td>Block 2: Computer and internet use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer use</td>
<td>0.24**</td>
<td>0.20**</td>
<td>0.18**</td>
</tr>
<tr>
<td>Time spent online</td>
<td>−0.02</td>
<td>−0.13</td>
<td>0.17**</td>
</tr>
<tr>
<td>Incremental $R^2$ (%)</td>
<td>7.0%</td>
<td>2.1%</td>
<td>9.8%</td>
</tr>
<tr>
<td>Block 3: Violence exposure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exposure to videogame violence</td>
<td>0.14*</td>
<td>−0.17*</td>
<td>0.10</td>
</tr>
<tr>
<td>Incremental $R^2$ (%)</td>
<td>1.7%</td>
<td>1.5%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Final $R^2$ (%)</td>
<td>8.8%</td>
<td>14.7%</td>
<td>22.2%</td>
</tr>
</tbody>
</table>

Beta weights from final regression equation with all blocks of variables in the model. Gender was coded as a dummy variable (1 = male, 0 = female)

* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$. 

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H5 predicted that the attitudinal and behavioral effects of playing videogames would be greater on Chinese male adolescents than on females. Results of correlation test in the male sample show that exposure to videogame violence was significantly correlated with attitudes to violence ($r = 0.20; p < 0.05$), empathy ($r = 0.18; p < 0.01$), and aggression ($r = 0.15; p < 0.05$). However, no relationship in the female sample was significant. These results indicate that the playing violent videogames online was linked to pro-violence attitudes, less empathy, and more aggressive behavior among male adolescents in China. H5 was supported.

DISCUSSION

Similar to findings reported in Britain, Japan, Korea, and the United States, the popularity of playing videogames among adolescents in China was

<table>
<thead>
<tr>
<th>Countries</th>
<th>Gamer population</th>
<th>Play time</th>
<th>Preferred platforms</th>
<th>Top three game genre</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. 53</td>
<td>92% among those age 8–18.</td>
<td>30 min per day</td>
<td>Console games dominate.</td>
<td>(1) Action-combat (2) Sports (3) Adventure</td>
</tr>
<tr>
<td>Britain 54</td>
<td>59% among those age 6–24.</td>
<td>21.6 min per day</td>
<td>Console games and PC games dominate</td>
<td>(1) Simulation (2) Strategy-role play (3) Online board games</td>
</tr>
<tr>
<td>Japan 55</td>
<td>84.7% among those age 7–12.</td>
<td>29 min per day</td>
<td>Arcade and home video games dominate.</td>
<td>(1) Fantasy (2) Character games (3) Series games</td>
</tr>
<tr>
<td>Korea 56</td>
<td>94.8% among those age 9–19.</td>
<td>30 min to 2 h</td>
<td>Online games dominate.</td>
<td>(1) Online board games (2) War simulation (3) Role play</td>
</tr>
<tr>
<td>China (based on this study)</td>
<td>78.1% of online game players age 16–22. 57</td>
<td>3–4 h per sitting for 1–2 times per week</td>
<td>Online games dominate.</td>
<td>(1) Leisure games (singing and dancing) (2) War simulation (3) Combat</td>
</tr>
</tbody>
</table>

The United States is the largest video game market in the world, followed by Japan and Britain, which is the largest market in Europe.
confirmed. The history of playing videogames on the Internet in China, however, was relatively short, less than 2 years for the majority of the 312 surveyed adolescent Internet users. They typically played about two times in a week; the play time averaged 3–4 h. Table 3 compares the differences in videogame playing habits between Chinese adolescents and their counterparts in various countries.

On the other hand, negative effects of exposure to violence in online videogames were detected. Playing violent videogames was found to be significantly related to greater tolerance of violence, lower emphatic attitude toward others, and a higher level of aggression. The strengths of the relationship are comparable to those studies in Britain and the United States. Moreover, results of hierarchical regression analysis show that the significant linkages between exposure and attitudinal effects were sustained when other variables were taken into consideration. But the relationship between exposure and aggressive behavior became non-significant. These results provide the evidence in support of the expectation that the harmful effects of playing violent videogames would be greater on attitudinal responses than on behavioral outcomes. Two theoretical explanations are in order to account for the discrepancies:

First, the desensitization theory proposes that repeated exposure to mediated violence reduces children’s sensitivity to violence. As Deselms and Allman point out, one’s perceptions about violence will change when violent acts appear more tolerable and even acceptable. Then, self-imposed constraints on behavior may be relaxed (for instance, hostile affective and emotional responses will be relaxed, leading to propensity to behave violently. Thus, the effects of exposure to videogame violence on aggression should be indirect. As this study stopped short of a casual analysis, future research should focus on developing a model to test the effects of exposure to videogame violence on a hierarchy of cognitive, affective, and behavioral responses. Second, culture provides another explanation for the attitude-behavior discrepancy. Traditional Chinese culture touts the virtue of peaceful living in a harmonious society. Random violence is not a way of life in China, where access to guns is extremely restricted. Therefore, the effects of playing violent videogames on the Internet on overt aggressive behavior are indirect and weaker than on attitudes toward violence.

Nevertheless, findings of this study heighten the need for more large-scale longitudinal studies to track the negative effects of violent videogames on Chinese adolescents’ tolerance of violence and attitudes toward others. As Hoffman argues, empathy plays a major role in the moral development of children. When playing violent videogames has a negative socializing effect on Chinese adolescents, the implications for developing a sense of caring of others and social justice will be far-reaching.

It is important to note that the results of this study are not necessarily causal because data were collected in a one-shot survey. Another limitation is the use of a purposive sample. Future research should consider a probability sample.

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