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### Examining the first, second and third-person effects of Internet pornography on Taiwanese adolescents: implications for the restriction of pornography

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## ORIGINAL ARTICLE

# Examining the first, second and third-person effects of Internet pornography on Taiwanese adolescents: implications for the restriction of pornography

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To explore the impact of Internet pornography on users as compared with traditional forms of pornography, a total of 1688 adolescents in Taiwan were surveyed. Results show that respondents estimated the harms of Internet pornography to exceed that of pornographic materials in print and broadcast media. More importantly, findings show that exposure to Internet pornography resulted in desensitizing effects in that users tended to perceive the harms of Internet pornography as less on self and others. In addition, exposure was found to be negatively related to support for restrictions of Internet pornography, but the perceived harm on self was found to be positively related to support for restrictions. Finally, the joint effects of the first and third-person effect (the second-person effect) were shown as a more reliable predictor of behavioral intention than the third-person perception. Findings help resolve the contradiction in past research that reported the third-person perception as both a significant and non-significant predictor of support for restrictions on pornography.

**Keywords:** Internet pornography; third-person effect; second-person effect; adolescents

### Introduction

The impact of Internet pornography has been a major social concern and a focus of media effects research over the past 10 years (Lo & Wei, 2002, 2005; Peter & Valkenburg, 2006a, 2006b). Pornography on the Internet is easily accessible, and one can access it anonymously and often without cost (Cooper, 1998; Thornburgh & Lin, 2002); the Internet has even been characterized as a 'sexual medium' (Peter & Valkenburg, 2006a, p. 178). Moreover, online pornographic content may be similar to that in traditional media, but Internet pornography is uniquely *interactive*, an inherent characteristic of the Internet as a medium (Morris & Ogan, 1996; Rafaeli, 1988). Internet pornography has spawned new forms of pornography. Depending on the level of interactivity, Internet users can search, download, seek, customize, play pornographic games, and engage in virtual sex.

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Previous research on Internet pornography has addressed the pressing question of whether pornography distributed on the Internet will do greater social harm than will traditional media. The broad theoretical issue is whether pornography on the Internet enhances and amplifies the effects of pornography on individuals. To shed light on this issue, the effects of exposure to Internet pornography on adolescents will be compared with the effects of traditional forms of pornography in the present study.

Specifically, this study will examine the perceived effects of Internet and traditional forms of pornography on individuals from a third-person effect perspective (Davison, 1983). The perceptual (e.g., the tendency of people to perceive others to be influenced by the media) and the behavioral component (e.g., the relationship between third-person perceptions and support for restrictions on pornography) of the third-person effect will be tested. Findings will offer some theoretical insights on the question of whether the medium is the message in pornography, contributing to the growing research on media effects of pornography.

In testing the behavioral component for the third-effect focusing on support for restricting Internet pornography, the second-person effect, which refers to the joint effects of perceived harms on self and others, will be considered as a significant predictor of support for restrictions. To do so, empirical data are used to demonstrate that the second-person effect variable holds more predictive power over support for restrictions of Internet pornography than the third-person perception. Findings will resolve the contradiction in past research that reported the third-person perception as both a significant and insignificant predictor of support for restrictions on pornography.

## Literature review and hypotheses

### *The third-person perception*

The third-person effect hypothesis, proposed by Davison (1983, p. 3), states that 'people will tend to overestimate the influence that mass communications have on the attitudes and behavior of others'. The third-person perception refers to the differential perceptions of media effects on others relative to self, whereas the perception of self as more vulnerable than others to media influence is known as the first-person effect (Atwood, 1994; Tiedge, Silverblatt, Havice, & Rosenfeld, 1991) or what Perloff (1993) called the 'reverse third-person effect' (p. 178). When the perceived effects of media on self (the first-person perception) and others (the third-person perception) are jointly considered, it is conceptualized as the second-person effect (Neuwirth & Frederick; 2002; Neuwirth, Frederick, & Mayo, 2002).

Numerous studies have documented empirical evidence to support the third-person perception since 1983 (David, Liu, & Myser, 2004; Paul, Salwen, & Dupagne, 2000; Perloff, 1993, 1999). Past research shows the dynamics of audience perceptions of media effects and types of media content. When the media content was positive and desirable (such as a pro-social PSA), the reverse third-person perception was found. People were willing to acknowledge being influenced by such media messages to an extent that was greater than others were. But a stronger third-person perceptual effect has been consistently found in negative, undesirable, or persuasive content such as pornography, violence, and advertising (Brosius & Engel, 1996; Gunther & Thorson, 1992; Henriksen & Flora, 1999; Hoffner & Buchanan, 2002;

Huh, Delorme, & Reid, 2004; Lo & Wei, 2002; McLeod, Eveland, & Nathanson, 1997; Wei & Lo, 2007; Youn, Faber, & Shah, 2000). The generalization is that the more negative the media content, the stronger the third-person perceptual effect.

In the context of assessing the harmful effects of Internet pornography and traditional forms of pornography, the baseline third-person perception is stated as follows:

H1: Respondents will perceive pornography, whether it is online or in traditional forms, to have a greater harm on others than on themselves.

### ***Internet pornography***

Furthermore, considering the easy access and incredible quantity of pornography on the Internet, the multifaceted nature of its delivery, and the active role that its consumers play, the harms of Internet pornography appear to be greater than pornography in traditional media. Past empirical research showed some evidence. For example, in an experimental study to examine the effects of interactivity on users' sexual callousness, violence toward women, and sexual conservatism, Mahood, Kalyanaraman, and Sundar (2000) found that participants exposed to highly interactive dehumanizing pornography had significantly higher levels of acceptance of violence toward women than participants exposed to the dehumanizing pornographic websites characterized by low or medium interactivity. They suggested that interactivity helped enhance the valence of pornography, resulting in more harmful impacts. In a study on Internet sex addiction, Griffiths (2001) found that three variables related to Internet pornography (online pornography, online relationships, and online sexual crimes) led to the overuse of or addiction to Internet sex.

Accordingly, it is anticipated that the negative influence of Internet pornography as perceived by Internet users will exceed that of pornography in traditional media:

H2: Respondents will perceive Internet pornography to have a more harmful effect on themselves and others than will traditional forms of pornography.

### ***Exposure to Internet pornography and the third-person perception***

Moreover, Internet pornography exposure will be negatively associated with perceived effect on self and others. This prediction is based on previous research findings on pornography and its desensitizing effects. First, the third-person effects literature suggests that media use contributes to the self-other perceptual gap (Chapin, 2001; Rucinski & Salmon, 1990; Salwen & Driscoll, 1997). Since exposure to pornography is perceived as socially undesirable, users of pornography are motivated to bolster their self-esteem by perceiving less harm on self and others.

Second, although empirical evidence is inconsistent with demonstrating the relationship between media use and perceptions of media power on self and others as being either negative or positive (Brosius & Engel, 1996; Gunther & Storey, 2003; Park, 2005; Paul, Salwen, & Dupagne, 2000; Salwen & Driscoll, 1997), previous research on pornography indicated that the more pornography to which people were exposed, the less negative the effects were that they perceived such exposure to have on self and others (Lee & Yang, 1996; Lo & Paddon, 2001). This phenomenon was

characterized as a desensitizing effect (Donnerstein, Linz, & Penrod, 1987; Zillmann, 1998). It appears that the exposure to Internet pornography will also result in a desensitizing effect. That is, increased exposure to pornography will likely lead to less perceived harms of Internet pornography on self and others.

Accordingly, in examining the perceived effects of Internet pornography on adolescents, it is anticipated that respondents who have a higher level of exposure to pornography on the Internet will be more likely to perceive Internet pornography to be less harmful for self and others:

H3: Exposure to Internet pornography will be negatively correlated with perceived harmful effects on self and others.

### ***Third-person perception as a predictor of support for restrictions of internet pornography***

The third-person effect hypothesis also concerns the behavioral consequence of the self–other perceptual discrepancy. Davison (1996) proposed that perceptions influence behavior. The assumption rests on the fear that undesirable media messages will make people feel that others will be more affected by the messages than themselves. Past third-person effect research focused on public support of restrictions on undesirable media content as a major behavioral variable. In general, the perceived harms on others as well as on self were found to be significant predictors of support for censorship (Gunther, 1995; Rojas, Shah, & Faber, 1996). Specifically, perceived harmful effects of negative media content on others led to support for media restrictions because of a motivation to protect the welfare of others (McLeod et al., 1997; Salwen, 1998). In addition, past studies also reported perceived harmful effects on self as being positively related to support for restrictions of controversial media content (Price, Tewksbury, & Huang, 1998; Wei, Lo, & Lu, 2007). Price et al. (1998) argued that knowledge about the self was a trustworthy gauge that people might consult when assessing media impact on self and others.

In a few studies focusing on the perceived harms of pornography and support for restricting or regulating it (e.g., Lo & Paddon, 2001), it was found that the more harmful respondents perceived pornography to be on self and others, the more likely they would be to support restrictions on pornography. Lo and Wei (2002) also found that both perceived effects on self and others predicted support for restrictions on Internet pornography. Based on the above review, it is expected that the perceived harms of Internet pornography will be a significant antecedent of support for restricting it:

H4: The perceived effects of Internet pornography on self and others will be positively correlated with support for restrictions on Internet pornography.

Further, it is anticipated that exposure to Internet pornography will be significantly related to support for restricting Internet pornography. This prediction is also based on the desensitizing effect and previous findings on pornography. Exposure to pornography online may make people less sensitive to the harmful effect of Internet pornography and thus make them more inclined to oppose its restriction. In addition, recent research on pornography indicated that those who had less exposure to sexually explicit materials were more likely to support regulating pornography

(Gunther, 1995; Lee & Yang, 1996; Lo & Wei, 2002). In light of these considerations, it is hypothesized that:

H5: Exposure to Internet pornography will be negatively related to support for restricting Internet pornography.

*Theoretical issue in predicting support for restrictions on pornography*

Finally, the second-person effect, which refers to the joint effect of the perceived effect on self and the perceived effect on others, is hypothesized to be a better predictor of support for restricting Internet pornography than will the third-person perception. This prediction is based on the results of a synthesis (Perloff, 1999) that found inconsistencies in third-person perception as a predictor of support for media restrictions. The third-person perception was reported both as a significant predictor (Gunther, 1995; Rojas et al., 1996) and an insignificant predictor of support for restrictions on pornography (Lo & Paddon, 2000; Lo & Wei, 2002).

Lo and Wei (2002) suggested that the contradiction was due to the inappropriate use of magnitude of perceptual bias as a predictor. They argued that a major problem in using the magnitude of perceptual bias as a predictor of support for media restrictions was that it did not distinguish between those who perceived media content to have a high influence on themselves and others and those who perceived media content to have a low influence on themselves and others. Their study demonstrated that respondents who perceived a high level of harmful effects on self and others were more likely to support restrictions of Internet pornography than were respondents who perceived less harmful effects on self and others.

As reviewed earlier, perceived harms on both self and others were found as reliable predictors of support for restrictions on pornography than the self-other perceptual discrepancy. Neuwirth and Frederick (2002, pp. 114–115) also argued that past research using the third-person perception as a predictor of support for media censorship was deficient because it ‘focuses on the differences between “self” and “other” and ignores situations in which the “self” and “other” are jointly influenced’. They coined the term ‘second-person effect’ to characterize the joint effect of media messages on self and others. Empirically, they found that the second-person effect significantly predicted proposed remedial actions and the expression of opinion, while the third-person perception showed little discernable effect on behavior.

To demonstrate that the joint effects on self and others will be more reliable than the third-person perception in predicting support for restrictions on Internet pornography, it is hypothesized that:

H6: The second-person effect will be a better predictor of support for restrictions on Internet pornography than will the third-person perception.

## **Method**

To collect data for hypothesis testing, a multistage cluster sampling plan was used. The sample was drawn from 15 randomly selected high schools from a pool of 67 in Taipei, Taiwan. Three classes were randomly chosen from each school. Prior written approval was obtained from the principals of the chosen schools and teachers whose

classes were drawn. Given the sensitive nature of the survey, students in the chosen classes were approached by trained senior members from a research university. The students were assured that participation was voluntary and that those who were willing to participate were assured of anonymity and confidentiality. The self-administered questionnaires were distributed during a 3-week period from April 28 to May 19, 2006. Of the total 1714 students in the sample, 1688 (96.5%) completed the self-administered questionnaire.

Of the sample, 842 (49.9%) were males and 845 (50.1%) were females. The average age was 16.7 years ( $SD = .88$ , ranging from 14 to 21). Among the 1688 respondents, 32.1% were in the 10th grade (15–16 years old), 35.5% were in the 11th grade (16–17 years old), and 32.4% were in the 12th grade (17–18 years old) under Taiwan's three-year high school system. Of the sample, 69.4% were in public schools; and 30.6% were from private schools.

### **Measurement**

#### *Exposure to Internet pornography*

Internet pornography refers to pornographic materials such as photos, films, and stories that are distributed via the Internet, primarily via websites, and have the interactive and multimedia capabilities of the World Wide Web. Respondents were asked how often they had viewed Internet pornography in the past 12 to 24 months. The response categories were (1) never, (2) once or twice per year, (3) once or twice per month, (4) once or twice per week, and (5) nearly every day ( $M = 2.03$ ,  $SD = 1.34$ ). Then, respondents were given a list that named seven types of pornography on the Internet (namely pornographic stories, pornographic pictures, female genitals, male genitals, nude children, oral sex, and sexual intercourse), and they were asked how often they had seen each of them. The response categories were (1) never, (2) seldom, (3) sometimes, and (4) often.

Results of a principal component factor analysis show that the seven items were grouped in a single factor, indicating that they measured the same underlying concept. The single factor solution explained 64.74% of the total variance (eigenvalue = 4.53). A composite measure of 'Internet pornography exposure' was created by adding the seven items and dividing the sum by seven ( $M = 1.79$ ,  $SD = .63$ ,  $\alpha = .91$ ).

#### *Perceived harms of pornography on self*

Respondents were asked to estimate the harmful effects of viewing pornographic movies (theater, rental, and on cable), pornographic publications (magazines, books, and comics), and pornographic materials on the Internet (pictures, films, and stories) on themselves. The categories ranged from '1' ('none') to '5' ('a great deal'). Results of a principal component factor analysis showed that the three electronic media pornography exposure items were grouped in a single factor (eigenvalue = 2.86, accounting for 95.23% of the variance). They were added and divided by three to create a composite measure of 'perceived harmful effect of exposure to pornography on electronic media on self' ( $M = 2.38$ ,  $SD = 1.38$ ,  $\alpha = .98$ ). The three pornography exposure items in print media were also grouped in a single factor

(eigenvalue = 2.79, accounting for 92.89% of the variance). They were also added and divided by three to form a measure of 'perceived harmful effect of exposure to pornography in print media' ( $M = 2.34$ ,  $SD = 1.32$ ,  $\alpha = .96$ ). The three Internet pornography exposure items were grouped in a single factor as well (eigenvalue = 2.78, accounting for 92.48% of the variance). They were added and divided by three to create a composite measure of 'perceived harmful effects of exposure to Internet pornography on self' ( $M = 2.46$ ,  $SD = 2.46$ ,  $\alpha = .96$ ).

#### *Perceived harms of pornography on others*

The measures of perceived harmful effects of Internet pornography and traditional forms of pornography on other students used the same nine items but replaced 'them' with 'other students'. Results of principal component factor analysis showed that the three electronic media exposure items were grouped in a single factor (eigenvalue = 2.87, accounting for 95.67% of the variance). They were combined into a composite measure of 'perceived harmful effects of exposure to pornography on electronic media on other students' after adding and dividing by three ( $M = 2.82$ ,  $SD = 1.31$ ,  $\alpha = .98$ ). The perceived effects of pornography exposure in print media on other students items were also grouped in a single factor (eigenvalue = 2.80, accounting for 93.37% of the variance). They were added and divided by three to form a measure of 'perceived harmful effect of exposure to pornography in print media on other students' ( $M = 2.74$ ,  $SD = 1.26$ ,  $\alpha = .96$ ). The three items for perceived effect of Internet pornography exposure on other students were grouped in a single factor as well (eigenvalue = 2.76, accounting for 92.01% of the variance). They were added and divided by three to create a composite measure of 'perceived harmful effects of exposure to Internet pornography on other students' ( $M = 2.86$ ,  $SD = 1.29$ ,  $\alpha = .96$ ).

#### *Third-person perception*

Third-person perception scores were derived by subtracting the perceived harmful effects of Internet pornography on self from the perceived harmful effects on others ( $M = .40$ ,  $SD = 1.07$ ).

#### *Second-person effect*

Following the approach of Neuwirth and Frederick (2002), the second-person effect was computed by summing the scores of perceived effects on self and the scores of perceived effects on others ( $M = 5.32$ ,  $SD = 2.44$ ).

#### *Support for restrictions of Internet pornography*

Support for restrictions of pornography on the Internet was measured by five behavior intention items. If grave public concern about pornographic websites turned into a call for action to crack down on Internet pornography, respondents were asked how likely they would be to (1) sign a petition for regulating pornographic sites, (2) call on ISPs (Internet service providers) to block pornographic websites, (3) write to lawmakers to pass legislation banning pornographic websites, (4) protest



against pornographic websites, and (5) boycott pornographic sites. The scale ranged from '1' ('very unlikely') to '5' ('very likely'). Results of a principal component factor analysis showed that the five items were grouped in a single factor (eigenvalue = 3.85, accounting for 76.90%). A composite measure of support for restrictions of Internet pornography was created by adding the five items and dividing the sum by five ( $M = 2.72$ ,  $SD = 1.11$ ,  $\alpha = .92$ ).

*Sexually permissive attitudes* was used as a control variable in the regression analyses, because previous studies indicated that it was related to support for restrictions on pornography (Lo & Wei, 2002). A measure of sexually permissive attitudes toward pornography, kissing, affectionate touching, and sexual intercourse was developed for this study based upon previous research (Cernada, Chang, Lin, Sun, & Cernada, 1986). Each respondent was asked to indicate his or her agreement (1 = strongly disagree, 5 = strongly agree) with these intimate actions by unmarried men or women with a casual partner. A principal component factor analysis shows that the items measuring sexually permissive attitudes toward a casual partner were grouped in a single factor, measuring the same underlying concept. Thus, the four items formed an attitude index. The one factor solution explained 76.49% of the total variance (eigenvalue = 3.06). A measure of 'sexually permissive attitudes' was created by adding the four items and dividing the sum by four ( $M = 2.61$ ;  $SD = .99$ ,  $\alpha = .90$ ).

Respondents were also asked about their gender, age, GPAs, and religious belief. Religious beliefs were measured in terms of strength and were recoded into four ordinal categories ranging from '1' ('no religious beliefs') to '4' ('strong religious beliefs') ( $M = 1.84$ ,  $SD = .91$ ). In addition, respondents were asked to estimate the amount of time they spent each day reading newspapers ( $M = 30.24$  minutes,  $SD = 34.35$ ), watching television ( $M = 124.54$  minutes,  $SD = 99.48$ ), and surfing the Internet ( $M = 141.29$  minutes,  $SD = 1120.71$ ).

## Results

Among the 1688 respondents in the sample, about 96.1% of them were Internet users. The average time spent using the Internet per day was 141.29 minutes ( $SD = 120.71$ , ranging from 0 minutes to 720 minutes). Nearly half (42.1%) indicated they had surfed pornographic websites.

H1 predicted that respondents would perceive both Internet pornography and traditional forms of pornography to have a greater harmful influence on other

Table 1. Mean estimates of perceived harmful effects of pornography on self and other students.

Media	Internet	Print media	Electronic media
Self	2.46 (1.38)	2.33 (1.32)	2.38 (1.38)
Other students	2.86 (1.29)	2.74 (1.01)	2.82 (1.16)

Notes: Figures in parentheses are standard deviations. Except the difference between perceived effect of pornography on the Internet on other students and perceived effect of pornography on electronic media on other students ( $t = 2.45$ ,  $p < .05$ ), all the differences among Internet, print media, and electronic media on the two perceived effects are significant at  $p < .001$ .

students than on themselves. Results of paired *t*-tests in Table 1 show that respondents perceived Internet pornography and traditional forms of pornography to have a greater harmful effect on others than on themselves. As expected, the respondents perceived other students as being more harmed by pornography distributed in traditional media and on the Internet than were they themselves. H1 was supported.

H2 predicted that respondents would perceive Internet pornography to have a greater harmful influence on themselves and other students than would traditional forms of pornography. As Table 1 shows, the results of paired *t*-tests indicated that respondents perceived Internet pornography have a greater negative effect on self than did traditional forms of pornography [ $t(1,652) = 8.39, p < .001$ , for Internet ( $M = 2.46, SD = 1.38$ ) vs. print media ( $M = 2.33, SD = 1.32$ );  $t(1,653) = 4.09, p < .001$ , for Internet ( $M = 2.46, SD = 1.38$ ) vs. electronic media ( $M = 2.38, SD = 1.38$ )]. Moreover, respondents perceived Internet pornography to do greater harm on other students than did pornography in traditional media [ $t(1,657) = 9.16, p < .001$ , for Internet ( $M = 2.86, SD = 1.29$ ) vs. print media ( $M = 2.74, SD = 1.01$ );  $t(1,661) = 2.45, p < .05$ , for Internet ( $M = 2.86, SD = 1.29$ ) vs. electronic media ( $M = 2.82, SD = 1.16$ )]. As expected, the respondents perceived Internet pornography to have a greater harm on themselves and other students than did traditional forms of pornography. H2 was supported.

H3 predicted that exposure to Internet pornography would be negatively related to the perceived harm of Internet pornography on self and others. Results of a Pearson correlation test supported this. Exposure to Internet pornography was significantly and negatively related to perceived harm on self ( $r = -.17, p < .001$ ) and on others ( $r = -.18, p < .001$ ). To further test the relationships among Internet pornography exposure and the perceived harmful effects of Internet pornography on self and others, four separate hierarchical regression analyses were performed to control for the influence of demographics, media use, and permissive sexual attitudes. As shown in Table 2, exposure to Internet pornography was a significant but negative predictor of perceived harmful effects of Internet pornography on self (Beta =  $-.14, p < .001$ ), on others (Beta =  $-.09, p < .01$ ), the third-person perception (Beta =  $-.07, p < .05$ ), and the second-person effect (Beta =  $-.12, p < .001$ ). The results of the regression analyses showed that exposure to Internet pornography was negatively related to the perceived harm of Internet pornography on self and others. Thus, the results provided additional support for H3.

H4 predicted that the perceived effects of Internet pornography on self and on others would be positively related to support for restrictions on Internet pornography. Results of a Pearson correlation test supported this. The perceived harm on self ( $r = .27, p < .001$ ) as well as on others ( $r = .26, p < .001$ ) was significantly and positively related to support for restricting Internet pornography. A hierarchical regression analysis was run to subject H4 to a more vigorous test to control for the influence demographics, media use, and permissive sexual attitudes. Results (see Column 1 in Table 3) show that gender was a significant predictor of support for restrictions of Internet pornography. Both perceived harms on self (Beta =  $.14, p < .001$ ) and on others (Beta =  $.07, p < .05$ ) were significant predictors of support for restrictions on Internet pornography. The more respondents believed that they and others would be harmed by Internet pornography, the more likely they would support legislative action to restrict it.

Table 2. Hierarchical regression analysis predicting perceived harmful effects of internet pornography on self and on others.

Independent Variables	Perceived effects on			
	Self	Others	3rd-person perception	2nd-person effects
<i>Block 1: Demographics</i>				
Gender	.03	.04	-.09**	-.01
Age	-.01	-.01	.00	-.01
GPA's	.05	.02	.02	.01
Religious belief	.06*	.07**	.01	.08**
Adjusted $R^2$	.01	.03	.00	.02
<i>Block 2: Media use</i>				
Newspaper use	.04	.08**	.05	.06*
Television use	.04	.00	-.04	.02
Internet use	-.06	-.04	.03	-.05
Incremental adjusted $R^2$	.00	.00	.00	.01
<i>Block 3: Permissive attitudes</i>				
Permissive attitudes	-.11***	-.18***	-.07*	-.16**
Incremental adjusted $R^2$	.02	.04	.00	.03
<i>Block 4: Exposure to Internet pornography</i>				
Exposure	-.14***	-.09**	-.07*	-.12***
Incremental adjusted $R^2$	.01	.01	.00	.01
Total adjusted $R^2$	.04	.07	.01	.06

Notes: Beta weights are from final regression equation with all blocks of variables in the model.  $N=1320$ . Variables recoded as follows: gender (0 = female, 1 = male); GPA (1 = under 59, 2 = 60 to 69, 3 = 70 to 79, 4 = 80 to 89, 5 = 90 to 100).

\*\*\* $p < .001$ ; \*\* $p < .01$ ; \* $p < .05$ .

H5 predicted that exposure to Internet pornography would be negatively related to support for restrictions of it. Results of a Pearson correlation test supported it. Exposure to pornography online was significantly but negatively related to support for restrictions of pornography ( $r = -.44$ ,  $p < .001$ ). To further test H5 by controlling for the influence of demographics, media use, and permissive sexual attitudes, three separate hierarchical regression analyses were performed. As Table 3 shows, exposure to Internet pornography was the strongest predictor of support for restrictions on Internet pornography in the three separately run regression analyses (Beta ranged from  $-.33$  to  $-.35$ ,  $p < .001$ ).

H6 predicted that the second-person effect would be a better predictor of support for restrictions of Internet pornography than would the third-person perception. Results of a Pearson correlation test showed that the relationship between third-person perception and support for restrictions on Internet pornography was not significant ( $r = -.04$ ,  $p > .05$ ). However, the second-person effect was significantly and positively correlated with support for restrictions on Internet pornography ( $r = .29$ ,  $p < .001$ ). H6 was supported. To render a more vigorous test of H6, a separate hierarchical regression analyses was performed to take the influence of demographics, media use, and permissive sexual attitudes into account. As Table 3 shows

Table 3. Hierarchical regression analysis predicting support for restriction of pornography on the Internet.

Independent variables	Support for restriction of Internet pornography	
<i>Block 1: Demographics</i>		
Gender	-.14**	-.14***
Age	-.03	.02
GPA	.04	.04
Religious belief	.05*	.05*
Adjusted $R^2$	.15	.15
<i>Block 2: Media use</i>		
Newspaper use	.02	.03
TV use	-.01	-.01
Internet use	-.03	-.03
Incremental adjusted $R^2$	.00	.00
<i>Block 3: Permissive attitudes</i>		
Permissive attitudes	-.09**	-.09**
Incremental adjusted $R^2$	.04	.04
<i>Block 4: Exposure to Internet pornography</i>		
Exposure	-.33***	-.33***
Incremental adjusted $R^2$	.08	.08
<i>Block 5: Perceived effects</i>		
Self	.14***	
Other students	.07*	
Third-person perception		-.02
Second-person effect		.19***
Incremental adjusted $R^2$	.03	.03
Total adjusted $R^2$	.30	.30

Notes: Beta weights are from final regression equation with all blocks of variables in the model.  $N=1320$ . Variables recoded as follows: gender (1 = male, 0 = female); GPA (1 = under 59, 2 = 60 to 69, 3 = 70 to 79, 4 = 80 to 89, 5 = 90 to 100).

\*\*\* $p < .001$ ; \*\* $p < .01$ ; \* $p < .05$ .

(see the second columns), the second-person effect was a much stronger predictor of support for restrictions on Internet pornography (Beta = .19,  $p < .001$ ) than the third-person perception (Beta =  $-.02$ ,  $p > .04$ ). These results provided additional support for H6.

## Discussion

The goal of this study is to explore the negative impact of Internet pornography versus traditional pornography on adolescents. In doing so, the perceived harms of exposure to Internet pornography on adolescents were compared with the harms of traditional forms of pornography. Results show that more than 40% of the surveyed adolescents in Taiwan had at least some exposure to Internet pornography, with males reporting significantly higher use than females. In addition, results show that respondents estimated the harmful effects of Internet pornography greater than pornographic materials in print and broadcast media. This particular finding that the perceived

harms of exposure to Internet pornography surpass those of exposure to pornographic content in traditional media confirms the widely suspected but largely undocumented fear that Internet pornography has a greater impact on Internet-savvy adolescents. More importantly, findings show that Internet pornography intensifies perceived harmful effects and exerts a greater influence on adolescents. Specifically, exposure to Internet pornography resulted in desensitizing effects in that users tended to perceive the harms of Internet pornography as less on self and others.

Furthermore, exposure to Internet pornography was found to be related to behavioral intention. Those who used Internet pornography more often tended not to support restrictions on Internet pornography. This finding, while consistent with previous research on pornography, suggests that exposure to pornographic materials on the Internet may have desensitized the users and led them to be more approving of pornography and less supportive of censoring pornographic materials.

Finally, the findings of this study show that using the third-person perception as a predictor of support for restrictions of pornography may miss some important relationships between perception and behavioral intentions. The joint effects of perceived harms of Internet pornography on self and on others were found to be a more reliable predictor of behavioral intention than the self–other perceptual discrepancy. This finding helps clarify the entangled issues about whether the third-person perception is a reliable predictor of support for restrictions on negative media content. It thus contributes to the understanding of third-person effects on behavior.

To conclude, this study found that Internet pornography is perceived to have a greater harmful effect than traditional forms of pornography on adolescents. Moreover, the more adolescents consume pornographic materials online, the less they see the harm of Internet pornography on themselves and others, suggesting a state of denial among heavy users. This finding provides fresh evidence that using online pornographic materials desensitizes the user. In addition, Internet exposure is negatively related to support for restrictions on Internet pornography, while the perceived harmful effect on self is positively related to support for restrictions. This indicates that self-protection is a more important motivation for support of censorship than the protection of others. Taking these findings together, this study concludes that the harmful effects of Internet pornography are unequivocal and greater than documented in previous research.

However, the present study has some limitations. The findings need to be triangulated with direct and observed or archived data. A longitudinal design will be another direction for further study to ascertain that the significant relationships are causal. Further, desensitization was not measured and is inferred in this study. Researchers should measure desensitization in future studies. Finally, Taiwanese students may differ from their counterparts in other countries in using the Internet and surfing pornographic websites. Thus, it remains to be seen whether the results of this study can readily be generalized to other countries, especially since most third-person effect studies have focused on American audiences.

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